



NAVFAC MIDLANT, Public Works Department, Maine

eProjects Work Order No.: 1591147

SPECIFICATIONS

RM 18-0661, B79 – 2nd & 3rd Floor Renovations

At the

Portsmouth Naval Shipyard, Kittery, Maine

Volume 1 of 2

PREPARED BY:

NAVFAC Midlant PWD ME
Building 59
Portsmouth Naval Shipyard
Kittery, Maine 03801-2032

REQUEST FOR PROPOSAL PREPARED BY:

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A handwritten signature in black ink, appearing to read "Peter F. Dunn".

Submitted By: Peter F. Dunn, P.E.

Signature

Date: February 28, 2023

Approved By PME: Jeffrey Hoyt, P.E.

Signature

Date:

Design Manager: Mitchell R. Lahar, R.A..

Signature

Date:

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02/11, CHG 1: 08/14

PART 1 GENERAL

1.1 SUMMARY

This section lists the drawings for the project pursuant to contract clause "DFARS 252.236-7001, Contract Drawings, Maps and Specifications."

1.2 CONTRACT DRAWINGS

Contract drawings are as follows:

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FX103	12830995	79-20-805	SECOND FLOOR FIRE SUPPRESSION PART PLAN - SOUTH - PHASE 1
FX104	12830996	79-20-806	THIRD FLOOR AND ATTIC FIRE SUPPRESSION PART PLANS - NORTH - PHASES 1 & 2
FX105	12830997	79-20-807	THIRD FLOOR, ATTIC, AND ROOF FIRE SUPPRESSION PART PLANS - SOUTH - PHASES 1 & 2
FA001	12830998	79-20-808	GENERAL FIRE ALARM AND MASS NOTIFICATION NOTES, SYMBOLS, ABBREVIATIONS, RISER, AND MATRIX
FA101	12830999	79-20-809	FIRST FLOOR AND MEZZANINE FIRE ALARM AND MASS NOTIFICATION PART PLANS - PHASE 1
FA102	12831000	79-20-810	SECOND FLOOR FIRE ALARM AND MASS NOTIFICATION PART PLAN - NORTH - PHASE 1
FA103	12831001	79-20-811	SECOND FLOOR FIRE ALARM AND MASS NOTIFICATION PART PLAN - SOUTH - PHASE 1
FA104	12831002	79-20-812	THIRD FLOOR AND PENTHOUSE FIRE ALARM AND MASS NOTIFICATION PART PLANS - NORTH - PHASES 1 & 2
FA105	12831003	79-20-813	THIRD FLOOR AND ROOF FIRE ALARM AND MASS NOTIFICATION PART PLANS - SOUTH - PHASES 1 & 2
E-001	12831004	79-20-814	ELECTRICAL SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES
ED101	12831005	79-20-815	SECOND FLOOR ELECTRICAL REMOVALS PART PLAN - NORTH
ED102	12831006	79-20-816	SECOND FLOOR ELECTRICAL REMOVALS PART PLAN - SOUTH
ED103	12831007	79-20-817	THIRD FLOOR ELECTRICAL REMOVALS PART PLAN - NORTH
ED104	12831008	79-20-818	THIRD FLOOR ELECTRICAL REMOVALS PART PLAN - SOUTH
ED120	12831009	79-20-819	ROOF ELECTRICAL REMOVALS PLANS
ED401	12831010	79-20-820	FIRST AND SECOND FLOOR ELECTRICAL REMOVALS PART PLANS
ED402	12831011	79-20-821	STAIR ELECTRICAL REMOVALS 1
ED403	12831012	79-20-822	STAIR ELECTRICAL REMOVALS 2
ED404	12831013	79-20-823	THIRD FLOOR ELECTRICAL REMOVALS PART PLAN
ED501	12831014	79-20-824	ONE-LINE DIAGRAM REMOVALS
ED502	12831015	79-20-825	TEMPORARY POWER - PHASE 1
ED503	12831016	79-20-826	TEMPORARY POWER - PHASE 2
ED601	12831017	79-20-827	SECOND FLOOR EXISTING PANELBOARD SCHEDULES 1
ED602	12831018	79-20-828	SECOND FLOOR EXISTING PANELBOARD SCHEDULES 2
ED603	12831019	79-20-829	SECOND FLOOR EXISTING PANELBOARD SCHEDULES 3
ED604	12831020	79-20-830	THIRD FLOOR EXISTING PANELBOARD SCHEDULES 1
ED605	12831021	79-20-831	THIRD FLOOR EXISTING PANELBOARD SCHEDULES 2
ED606	12831022	79-20-832	THIRD FLOOR EXISTING PANELBOARD SCHEDULES 3
EP101	12831023	79-20-833	SECOND FLOOR POWER PART PLAN - NORTH
EP102	12831024	79-20-834	SECOND FLOOR POWER PART PLAN - SOUTH
EP103	12831025	79-20-835	THIRD FLOOR POWER PART PLAN - NORTH
EP104	12831026	79-20-836	THIRD FLOOR POWER PART PLAN - SOUTH
EP120	12831027	79-20-837	ELECTRICAL ROOF PLANS
EP401	12831028	79-20-838	POWER PART PLANS 1
EP402	12831029	79-20-839	POWER PART PLANS 2
EP501	12831030	79-20-840	ONE-LINE DIAGRAM AND WIRING SCHEDULE
EP502	12831031	79-20-841	POWER DETAILS 1
EP503	12831032	79-20-842	POWER DETAILS 2
EP504	12831033	79-20-843	POWER DETAILS 3

EP505	12831034	79-20-844	EQUIPMENT WIRING SCHEDULE AND POWER DETAILS
EP601	12831035	79-20-845	PANELBOARD SCHEDULES 1
EP602	12831036	79-20-846	PANELBOARD SCHEDULES 2
EP603	12831037	79-20-847	PANELBOARD SCHEDULES 3
EP604	12831038	79-20-848	PANELBOARD SCHEDULES 4
EP605	12831039	79-20-849	PANELBOARD SCHEDULES 5
EP606	12831040	79-20-850	PANELBOARD SCHEDULES 6
EP607	12831041	79-20-851	PANELBOARD SCHEDULES 7
EP608	12831042	79-20-852	PANELBOARD SCHEDULES 8
EL101	12831043	79-20-853	SECOND FLOOR LIGHTING PART PLAN - NORTH
EL102	12831044	79-20-854	SECOND FLOOR LIGHTING PART PLAN - SOUTH
EL103	12831045	79-20-855	THIRD FLOOR LIGHTING PART PLAN - NORTH
EL104	12831046	79-20-856	THIRD FLOOR LIGHTING PART PLAN - SOUTH
EL401	12831047	79-20-857	STAIR LIGHTING PART PLANS 1
EL402	12831048	79-20-858	STAIR LIGHTING PART PLANS 2
EL403	12831049	79-20-859	STAIR LIGHTING PART PLANS 3
EL701	12831050	79-20-860	LIGHTING FIXTURE SCHEDULE AND DETAILS
EL702	12831051	79-20-861	LIGHTING FIXTURE DETAILS
EL703	12831052	79-20-862	LIGHTING CONTROL DIAGRAMS
ET101	12831053	79-20-863	SECOND FLOOR TECHNOLOGY PART PLAN - NORTH
ET102	12831054	79-20-864	SECOND FLOOR TECHNOLOGY PART PLAN - SOUTH
ET103	12831055	79-20-865	THIRD FLOOR TECHNOLOGY PART PLAN - NORTH
ET104	12831056	79-20-866	THIRD FLOOR TECHNOLOGY PART PLAN - SOUTH
ET401	12831057	79-20-867	INTERIOR ELECTRICAL ELEVATIONS AND TECHNOLOGY PART PLANS
ET501	12831058	79-20-868	NMCI AND NETWORK 1 TELECOMMUNICATIONS RISER DIAGRAMS
ET502	12831059	79-20-869	TELEPHONE AND NETWORK 2 RISER DIAGRAMS
ET503	12831060	79-20-870	TECHNOLOGY DETAILS 1
ET504	12831061	79-20-871	TECHNOLOGY DETAILS 2
ET505	12831062	79-20-872	TECHNOLOGY DETAILS 3
EY101	12831063	79-20-873	SECOND FLOOR SECURITY PART PLAN - NORTH
EY102	12831064	79-20-874	SECOND FLOOR SECURITY PART PLAN - SOUTH
EY103	12831065	79-20-875	THIRD FLOOR SECURITY PART PLAN - NORTH
EY104	12831066	79-20-876	THIRD FLOOR SECURITY PART PLAN - SOUTH
EY501	12831067	79-20-877	ACCESS CONTROL SYSTEM ONE-LINE, SCHEDULE, AND DETAIL
EY502	12831068	79-20-878	AUTOMATED ACCESS CONTROL SYSTEM ONE-LINE, SCHEDULE, AND DETAIL
EY503	12831069	79-20-879	ACCESS CONTROL SYSTEM ONE-LINE DIAGRAM

-- End of Document --

DOCUMENT 00 41 00

BID SCHEDULES
06/20

PART 1 GENERAL

1.1 BASIS OF BIDS

1.1.1 Options and Unit Prices

This Contract will be awarded with options and unit prices required for specifically selected work. A description of the options and schedule of the unit price work is contained in Standard Form 1442, "Solicitation, Offer and Award." See Contract Clauses, "FAR 52.211-18, Variation in Estimated Quantity" and "FAR 52.236-16, Quantity Surveys."

Options and Unit Prices Form					
N40085-XX-X-XXXX					
(i) Item 0001: Base Amount					
Basis of Bid for Item 0001 must be the Total Amount for Item 0001, but not including the work indicated or specified to be provided under any Option Item.					
Item	Description	Estimated Quantity	Unit	Unit Price	Amount
000101	All work complete in accordance with the drawings and specifications, excluding 000102 and 000103.	1 Job	LS	\$ _____	\$ _____
000102	All Lightning Protection work complete in accordance with the drawings and specifications.	1 Job	LS	\$ _____	\$ _____
000103	All Telecommunications work complete in accordance with the drawings and specifications.	1 Job	LS	\$ _____	\$ _____
Total Amount for Item 0001 \$ _____					

(ii) Item 0002: Randolph Sheppard Act (RSA)					
Basis of Bid for Item 0002 must be the Total Amount for Item 0002, but not including the work indicated or specified to be provided under any Option Item.					
Item	Description	Estimated Quantity	Unit	Unit Price	Amount
0002	All RSA work complete in accordance with the drawings and specifications.	1 Job	LS	\$_____	\$_____
Total Amount for Item 0002 \$_____					
In the event there is a difference between a unit price and the extended total, the unit price will be held to be the intended bid. If the bidder shows only the total price but fails to enter a unit price, the total divided by the estimated quantity will be held to be the intended unit price.					
Any bid price for items indicated above which are unbalanced as to price may be rejected as non-responsive. An unbalanced bid is one which is based on price significantly less than cost for some work and price which is significantly overstated for other work.					

(iii) Item 0003: Option 1
Option may be exercised at the time of Award or within 70 calendar days after Award by the Contracting Officer. A firm fixed bid price is required for the option. No provision is made for economic price adjustment. Method for evaluation for bids for Award purposes is specified below.
Basis of Bid for Item 0003 must be the addition of the following work complete:
Electronic Security System (ESS): Price for providing work including: ESS Panels, ESS Power Supplies, ESS security devices, ESS wiring, ESS system installation, ESS testing, and commissioning.
Total Amount for Item 0003 \$_____
If Option is exercised, the Contract Completion Date remains the same.
The low bidder for purposes of Award will be determined as in Clause "FAR 52.217-4, Evaluation of Options Exercised at Time of Contract Award," of Section 00200, "Instructions to Bidders."
(iv) Item 0004: Option 2
Option may be exercised at the time of Award or within 120 calendar days after Award by the Contracting Officer. A firm fixed bid price is required for the option. No provision is made for economic price adjustment. Method for evaluation for bids for Award purposes is specified below.
Basis of Bid for Item 0004 must be the addition of the following work complete:
Repair Roof and Repoint Masonry: Price for providing work in connection with the procurement and installation of all labor, material, equipment, transportation, coordination, testing, commissioning, and supervision required.
Total Amount for Item 0004 \$_____
If Option is exercised, the Contract Completion Date remains the same.
The low bidder for purposes of Award will be determined as in Clause "FAR 52.217-4, Evaluation of Options Exercised at Time of Contract Award," of Section 00200, "Instructions to Bidders."

(v) Item 0005: Option 3
Option may be exercised at the time of Award or within 225 calendar days after Award by the Contracting Officer. A firm fixed bid price is required for the option. No provision is made for economic price adjustment. Method for evaluation for bids for Award purposes is specified below.
Basis of Bid for Item 0005 must be the addition of the following work complete:
FF&E: Price for providing work in connection with the procurement and installation of all labor, material, equipment, transportation, coordination, testing, commissioning, and supervision required.
Total Amount for Item 0005 \$ _____
If Option is exercised, the Contract Completion Date remains the same.
The low bidder for purposes of Award will be determined as in Clause "FAR 52.217-4, Evaluation of Options Exercised at Time of Contract Award," of Section 00200, "Instructions to Bidders."
Note: The minimum bid guarantee must be 100 percent of the aggregate amount of Items 0001, 0002, 0003, 0004, and 0005.
Note: If options are exercised, additional bonding and consent of surety will be required. Consequently, the Performance Bond must reflect 100 percent of the aggregate amount of Items 0001, 0002, 0003, 0004, and 0005.

1.1.1 Unit Prices

This Contract will be solicited with unit prices to be applied to estimated quantities for selected work. A description of the items and schedule of the unit price work is contained below. See Contract Clauses, "FAR 52.211-18, Variation in Estimated Quantity" and "FAR 52.236-16, Quantity Surveys." Contractor is responsible for field measurement of all quantities.

Item	Description	Estimated Quantity	Unit	Unit Price	Amount
0001a	Removal of asbestos containing joint compound.	60	SF	\$ _____	\$ _____
0001b	Removal of asbestos-containing thermal system (pipe) insulation.	1,250	LF	\$ _____	\$ _____
0001c	Removal of asbestos containing thermal insulation on pipe fitting.	25	EA	\$ _____	\$ _____
0001d	Removal of asbestos containing black mastic on window opening bricks.	20	SF	\$ _____	\$ _____
0001e	Paint Containing Lead, Cadmium and/or Chromium - Ceiling Tiles: HEPA vacuum ceiling tiles to remove chips, dust, and/or associated debris resulting from paint fallout onto tiles from walls, ceilings, and other surfaces. Tiles must be cleaned sufficiently to allow disposal as Construction and Demolition (C&D) waste.	1,100	SF	\$ _____	\$ _____
0001f	Paint Containing Lead, Cadmium and/or Chromium - Ceiling: Remove all loose and flaking paint to substrate on ceiling.	1,500	SF	\$ _____	\$ _____

Item	Description	Estimated Quantity	Unit	Unit Price	Amount
0001g	Paint Containing Lead, Cadmium and/or Chromium - Plaster over Brick Walls: Remove all loose and flaking paint to substrate on walls with plaster over brick. After paint removal, remove plaster.	250	SF	\$_____	\$_____
0001h	Paint Containing Lead, Cadmium and/or Chromium - Brick Walls: Remove all loose and flaking paint to substrate on brick walls. After paint removal, apply encapsulating paint.	1,300	SF	\$_____	\$_____
0001i	Removal of lighting ballasts containing PCB's.	555	EA	\$_____	\$_____
0001j	Removal of lighting lamps.	1,585	EA	\$_____	\$_____
0001k	Removal of emergency lighting batteries.	31	EA	\$_____	\$_____
0001l	Removal of top layer of 1/2-inch thick unstable wood subfloor. Provide 1/2-inch thick plywood subfloor to be glued and screwed to existing bottom layer of wood sub floor.	5,000	SF	\$_____	\$_____
0001m	Provision of additional floor hole patching including: plywood subfloor, patching mortar, firestopping sealant, and mineral wool as shown in Contract Drawings, detail B4/AE002.	100	SF	\$_____	\$_____

0001n	Provision of additional hardened wall assembly including: metal framing, gypsum wall board, expanded metal mesh, sealant, and mineral wool insulation as shown in Contract Drawing AE001, wall type NH.	150	SF	\$_____	\$_____
0001o	Removal of additional sprinkler system pipe (3" to 4" dia.), and associated hangers, and the provision of new sprinkler system pipe to match existing sizes, including the provision of associated hangers and seismic bracing.	100	LF	\$_____	\$_____
0001p	Removal of additional sprinkler system pipe (2" to <3" dia.), and associated hangers, and the provision of new sprinkler system pipe to match existing sizes, including the provision of associated hangers and seismic bracing.	100	LF	\$_____	\$_____
0001q	Removal of additional sprinkler system pipe (1" to <2" dia.), and associated hangers, and the provision of new sprinkler system pipe to match existing sizes, including the provision of associated hangers and seismic bracing.	100	LF	\$_____	\$_____
Total Amount for Unit Price Items 0001a through 0001q \$_____					
<p>In the event there is a difference between a unit price and the extended total, the unit price will be held to be the intended bid. If the bidder shows only the total price but fails to enter a unit price, the total divided by the estimated quantity will be held to be the intended unit price.</p>					

Note: The Unit Prices provided must be the same amount for both adding and deducting quantities of the items listed.

The Unit Quantities indicated above are only estimates. The QC Manager must identify the types, locations, and quantities of repairs and must coordinate with the engineer of record through the Contracting Officer to confirm types, locations, and quantities of repairs.

The Unit Prices Documentation and Accounting Plan must include, as a minimum, the following:

1. Provide documentation that must include the repairs to be performed, the location of repairs, and the quantity of repairs. Units of measurement must match the unit prices indicated on the Unit Prices Table herein and as indicated on Sheet G-004.
2. For each repair identified, include the assignment of unit price designations (e.g., 0001b) that are indicated in the Unit Prices Table herein. The QC Manager must assign a quantity to each repair identified during the inspection and provide an updated accounting summary for all areas inspected as the inspections progress and are completed for Contracting Officer's review.
3. Provide notification and schedule of inspection dates and times to the Contracting Officer at least 2 weeks in advance. Contracting Officer to coordinate with Engineer of Record to review inspection findings on site with QC Manager prior to execution of repairs to confirm repair types and quantities.
4. Paint Containing Lead, Cadmium, and/or Chromium: All work that may impact building materials with paint containing lead, cadmium, and/or chromium (including hexavalent chromium) must be performed in accordance with: 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. For bidding purposes, Contractors are to include the scope of work for unit prices indicated on the Unit Prices Table herein related to proper preparation, removal, management, etc. of building materials with paint containing lead, cadmium, and/or chromium (including hexavalent chromium).

1.1.2 Contract Line Item Notes

General

1. Award will be made on the total sum of Items 0001, 0002, 0003, 0004, 0005. Offerors must enter unit prices and/or extended totals in spaces provided. If there is a difference between a unit price and the extended total, the unit price will be held to be the intended price and the total recomputed accordingly. If an offeror provides a total but fails to enter a unit price, the total divided by the specified quantity will be held to be the intended unit price.
2. FAR 52.217-5, Evaluation of Options (Jul 1990) - Except when it is determined in accordance with FAR 17.206 (b) not to be in the Government's best interest, the Government will evaluate offers for Award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

3. The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.
4. The Government reserves the unilateral right to Award Items 0001, 0002, 0003, 0004, and 0005 to the Contractor at the proposed price within 365 calendar days after Contract Award. A firm fixed proposed price is required for Items 0001, 0002, 0003, 0004, 0005. No provision is made for economic price adjustment. If Options are exercised, the Contract Completion Date remains 728 calendar days after Award of the Contract.
5. The Performance Bond must reflect 100 percent of the aggregate amount of all items.

-- End of Document --

SECTION 01 11 00.00 22

SUMMARY OF WORK (PWD ME)
05/21

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

Cross Disciplinary Historic Facility Coordination Drawings; G

Work Sequencing and Preparation Plan; G

Salvage Plan; G

SD-11 Closeout Submittals

Certificate of Beneficial Occupancy Acceptance Checklist; G

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The project includes, but is not limited to; renovations to Building 79 - 2nd and 3rd Floors for Code 2300. Ancillary work is required on the first floor, the Mezzanine, and the roof of the building.

The project consists of administration and office space, personnel support areas, training rooms, conference rooms, extending stair tower at south end of B79 to the roof level, and second and third floor open office areas. Renovations include the following: hazardous materials abatement, interior walls, doors and frames, floor and ceiling finishes, electrical (e.g. power, grounding, etc.), telecommunications coordination and pathways (e.g. telephone, BCO, NMCI, Network 1, and Network 2), electronic security system (ESS) pathways, mechanical (e.g. ventilation, industrial ventilation, etc.), plumbing (e.g. water, etc.), fire protection/life safety (e.g. fire separation, sprinklers, etc.), structural steel, painting; and incidental related work.

Project Options Include:

Option 1: Electronic Security System (ESS)

Option 2: Repair Roof and Repoint Masonry (Refer to Specifications Attachment #1)

Option 3: Furniture, Fixtures, and Equipment (FF&E)

1.3 PROJECT SEQUENCING REQUIREMENTS

Provide Work Sequencing and Preparation Plan indicating how the work is to

be accomplished and incorporating Government directives. The intent of this Plan is to show the Government that a complete understanding of the project requirements are understood including subcontractors. The Plan must be carefully prepared and must include every aspect of the project including outages that will be required to support the construction and how it is to be accomplished with an absolute minimum of disruption to Government operations. No work may begin on the project until this plan is reviewed and approved by the Contracting Officer. The following is the proposed sequencing for implementation of the projects construction:

Phase 1: Partial First Floor, Partial Mezzanine, Second Floor, Partial Third Floor, Partial Roof, and Stair Tower Extension

Phase 2: Partial First Floor, Partial Second Floor, Third Floor, Partial Roof, Penthouse, and Stair Tower Extension

The First Floor Heating Plant Replacement must be accomplished during the non-heating season concurrent with either Phase 1 or Phase 2, or overlapping both Phase 1 and Phase 2.

Prior to commencing with the Phase 2 portion of the work, Phase 1 must be fully tested, commissioned, and accepted by the Government for occupancy by the Tenant.

The following restrictions apply to the sequencing of the work:

- a. Existing furniture and equipment to remain at First Floor, Mezzanine, and in construction areas (e.g. office furniture, etc.) must be protected from dust, debris, demolition, and construction activities to ensure the items are not damaged and are useable at project completion. Temporary partitions must be full height or the enclosed area(s) provided with ceilings of similar construction as the partitions. Provide daily cleanup as specified in Section 02 41 00 DEMOLITION AND DECONSTRUCTION and as directed by the Contracting Officer.
- b. The building will be occupied by Government personnel adjacent to work areas during the project.
- c. Construction sequencing plans have been developed in coordination with the Government. Develop an independent construction phasing sequencing plan and construction schedule in coordination with the Contracting Officer.
- d. During the phased work of this project, occupied portions of Building 79 must remain fully operational including, but not limited to, the following utilities: plumbing, heat, ventilation, air conditioning, fire suppression, fire alarm, electrical power, communications systems, and security systems.
- e. Building 79 is an historic facility and requires special coordination to have limited impact on the historic fabric and character defining features of the structure. Work must comply with the SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES. Cross disciplinary historic facility coordination drawings are required for review and approval by the Contracting Officer and the PWD-ME Cultural Resources Manager prior to commencement of work. Refer to Section 01 30 10.00 22 COORDINATION PROCEDURES AND COORDINATION DRAWINGS.

- f. Electrical power, access control, and monitoring by the Electronic Security System for the existing CIA Gate and Turnstile adjacent to Building 79 is fed from Building 79. Work that will affect these components must be coordinated and approved by Portsmouth Naval Shipyard Security and the Contracting Officer through the Utility Outage process and the requirements of the paragraph entitled WORK ADJACENT TO CIA SECURITY FENCING (PNSY) in Section 01 14 00.00 22 WORK RESTRICTIONS (PWD ME).

1.3.1 Location

The work is located at the Portsmouth Naval Shipyard, approximately as indicated. The exact location will be shown by the Contracting Officer.

1.4 PROJECT ENVIRONMENTAL GOALS

Distribute copies of the Environmental Goals to each subcontractor and the Contracting Officer. The overall goal for design, construction, and operation is to produce a project that meets the functional program needs and incorporates sustainability principles. Specifically:

- a. Avoid site degradation and erosion. Minimize offsite environmental impact.
- b. Use the minimum amount of energy, water, and materials feasible to meet the design intent. Select energy and water efficient equipment and strategies.
- c. Use environmentally preferable products and decrease toxicity level of materials used.
- d. Optimize operational performance (through commissioning efforts) in order to ensure energy efficient equipment operates as intended. Consider the durability, maintainability, and flexibility of building systems.
- e. Manage construction site and storage of materials to ensure no negative impact on the indoor environmental quality of the building.
- f. Reduce construction waste through reuse, recycling, and supplier take-back.

1.5 OCCUPANCY OF PREMISES

Building(s) will be occupied during performance of work under this Contract. Post occupancy notifications in prominent locations in the work areas.

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. While the building is occupied, life safety measures and access to egress components must be maintained. Provide temporary egress lighting, emergency lighting, fire alarm, and fire protection systems along paths of egress.

Parking is a critical component of work on the Portsmouth Naval Shipyard and parking and road outages must be submitted to the Contracting Officer for approval as outlined in the Contract Documents.

1.6 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

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

1.7 LOCATION OF UNDERGROUND UTILITIES

Verify location of underground utilities in accordance with Section 01 35 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME).

1.7.1 Notification Prior to Excavation

Notify the Contracting Officer at least two (2) working days prior to starting excavation work. Refer to Section 01 35 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME) Attachment B for Dig Safe requirements.

1.8 GOVERNMENT-FURNISHED MATERIAL AND EQUIPMENT

Pursuant to Contract Clause "FAR 52.245-1, Government Property", the Government will furnish the following materials and equipment for installation by the Contractor:

DESIGNATION NO.	DESCRIPTION	QUANTITY
Network C Equipment	Equipment, Vaults, and Stands	Three (3)

Quantities indicated for the above-listed items marked with an asterisk are estimates. It is the intention of the Government to furnish all quantities of the asterisk items required to complete the work as specified, and the various quantities will be adjusted when necessary. Quantities stated for the above items not marked with an asterisk are all that will be furnished by the Government. Provide any additional quantities that are required.

1.8.1 Delivery Schedule

Notify the Contracting Officer in writing at least 30 calendar days in advance of the date on which the materials and equipment are required. Pick up materials and equipment no later than 30 calendar days after such date. When materials and equipment are not picked up by the 30th day, the Contractor will be charged for storage at the rate of \$100 per day or fraction thereof.

Materials and equipment will be available based on when the Contractor has notified the Contracting Officer per the notification requirements.

1.8.2 Delivery Location

The materials and equipment will be available at PNSY Building 170. Coordinate pickup with Contracting Officer not less than 14 calendar days prior to pick up.

1.9 GOVERNMENT-INSTALLED WORK

If Option 1 is not selected, the Government needs to provide the following under the Base Bid:

1. Electronic Security System (ESS) Equipment.
2. ESS Wiring.
3. ESS Testing.

Under any scenario (Base Bid or Options), the Government needs to provide:

1. ESS Security pathway coordination with Contractor.
2. Network 2 equipment and associated UPS.
3. Wireless access point devices/equipment.
4. RFID equipment and associated cables.
5. Upgraded UPS, if required for emergency power off (EPO) function.
6. Equipment required to activate plain old telephone system (POTS) connections.
7. Remove and reinstall existing Network 2 cabinet.

1.10 SECURE NETWORK PROVIDERS (NETWORK N, NETWORK C, NETWORK P, AND NETWORK S)

1.10.1 Secure Network Providers Contractor Access

The Secure Network Providers Contractor(s) must be allowed access to the facility throughout the project construction phases to maintain existing equipment that is to remain, as well as towards the end of construction (finishes 90% complete, rough-in 100% complete, Inside Plant (ISP)/Outside Plant (OSP) infrastructure in place) to provide equipment in the telecommunications room and spaces and to make final connections. Coordinate and facilitate joint use of building spaces with the Secure Network Providers Contractor(s) during the final stages of each phase of construction. After the Contracting Officer has facilitated coordination meetings between the Contractors, within one week, incorporate the effort of additional coordination into the construction schedule to demonstrate maintaining the contract duration.

1.11 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 on the Portsmouth Naval Shipyard.

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. Use a system of property control that is approved by the Contracting Officer. Store and protect salvaged materials and equipment until disposition by the Contracting Officer.

1.12 BENEFICIAL OCCUPANCY REQUIREMENTS

The Contractor must submit the Certificate of Beneficial Occupancy Acceptance Checklist with the required documentation no later than ten (10) working days prior to requesting the Government take Beneficial Occupancy. This checklist will be provided to the Contractor by the Contracting Officer.

The Contractor is responsible for ensuring all work noted on this form is complete and accepted by the Contractor's QC Manager prior to submitting the form to the NAVFAC Construction Manager for NAVFAC signatures. Failure of the Contractor to verify all work and provide the required documentation will delay the processing of acceptance of Beneficial Occupancy.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 14 00.00 22

WORK RESTRICTIONS (PWD ME)
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.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2022) Standard for Safeguarding
Construction, Alteration, and Demolition
Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health 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

List of Contact Personnel; G

Outage Plan; G

1.3 SPECIAL SCHEDULING REQUIREMENTS (PNSY)

- a. The facility will remain in operation during the entire construction period. Conduct operations so as to cause the least possible interference with normal operations of the Portsmouth Naval Shipyard.
- b. Permission to interrupt any Portsmouth Naval Shipyard roads, crane rail, railroads, and/or utility services must be submitted to the Contracting Officer in writing a minimum of 15 calendar days prior to the desired date of interruption. The Outage process (Instruction 11300.9) is used for this purpose, as discussed under UTILITY CUTOVERS AND INTERRUPTIONS.
- c. The project is located in and adjacent to security islands. The Contractor is not allowed in these areas without continuous Government escorts. See the Scope of Work to determine if the project limits include any security Island in or adjacent to the work area(s).
- d. Coordinate the work with the sequencing/phasing requirements outlined in the scope of work and as outlined on the Contract Drawings (Sheets G-005 through G-008 CONSTRUCTION SEQUENCE STRATEGY).

1.4 ACCESS AND USE OF PREMISES (PNSY)

1.4.1 Portsmouth Naval Shipyard Regulations

Notify the Contracting Officer 30 days in advance for any wide loads. Contact the Contracting Officer to determine if there are other access limitations at the Portsmouth Naval Shipyard.

Ensure that personnel employed on the Portsmouth Naval Shipyard become familiar with and obey Portsmouth Naval Shipyard 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). Do not enter restricted areas unless required to do so and until cleared for such entry.

All equipment must be conspicuously marked with company signage for identification.

1.4.1.1 Subcontractors and Personnel Contacts

Provide a list of contact personnel to include 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.

1.4.1.2 Identification Badges and Installation Access

- a. Application for and use of badges will be as directed. Obtain access to the Portsmouth Naval Shipyard by submitting the SECNAV Form 5512-NSNPT Jul 2019 (Attachment C) a minimum of 7-10 working days in advance for vetting and approval, or by obtaining passes each day from the Portsmouth Naval Shipyard's Pass and Identification/Security Office. One-day passes, issued through the Portsmouth Naval Shipyard's Pass and Identification Office, will be furnished without charge. Report any instances of lost or stolen badges to the Contracting Officer immediately.
- b. All Contractors who possess a Commercial Access Control (CAC) System Card are also required to submit an access request (5512) to support a valid purpose to be on the Portsmouth Naval Shipyard. A second form of valid ID may also be required, if requested, upon arrival at the Portsmouth Naval Shipyard's Entrance Gate. All personnel without CAC cards will need two (2) forms of approved identification for access to the Portsmouth Naval Shipyard.
- c. One-Day Passes: Participation in the vetting process is mandatory, unless a valid emergency exists. Then it is possible to utilize an escort from the department effected. If the Contractor chooses to not participate in the vetting process, they will not be allowed on the Portsmouth Naval Shipyard. The Government will not be responsible for any cost or lost time associated with obtaining daily passes or added vehicle inspections.
- d. PNS has an online appointment system. Appointments may be made using <https://kiosk.na4.qless.com/kiosk/app/home/191>.

1.5 PORTSMOUTH NAVAL SHIPYARD (PNS) REGULATIONS

1.5.1 Radiological

1.5.1.1 Radiological Indoctrination (PNSY)

All personnel working at the Portsmouth Naval Shipyard are required to view a 15 minute video briefing on radiological postings and controls in use at the Portsmouth Naval Shipyard. The briefing will be given at the Pass Office prior to issue of security badges and vehicle passes.

Any employee who disregards, alters, moves, or otherwise tampers with a radiological posting, or who disobeys a radiological instruction, may be removed from the Portsmouth Naval Shipyard and denied future access.

1.5.1.2 Yellow Materials (PNSY)

Do not use yellow or orange-yellow colored materials at the Portsmouth Naval Shipyard for the following purposes: Protective clothing, hoods, sheeting, tarpaulins, polyethylene bottles or other containers, tapes, bags, banding, identification marks on tools, boundary markers, ribbons, vent ducts, temporary erosion control devices, survey ribbon, etc. Contact the Contracting Officer for a list of yellow items that have been approved for use on the Portsmouth Naval Shipyard. Dispose of generated yellow colored waste off of the Portsmouth Naval Shipyard. Portsmouth Naval Shipyard refuse containers must not be used for disposal of yellow colored waste materials. Yellow colored items such as described above are of special significance within the Portsmouth Naval Shipyard and are subject to strict controls. Yellow colored Contract generated debris must be bagged in non-translucent containers, and promptly removed from the Portsmouth Naval Shipyard.

1.5.1.3 Smoke Detectors (PNSY)

Ionization type smoke detectors and duct smoke detectors contain radioactive material and are prohibited from use on the Portsmouth Naval Shipyard. Photoelectric smoke detectors are the only type authorized for use on the Portsmouth Naval Shipyard.

1.5.1.4 Radioactive Sources (PNSY)

All Contracts involving radiation generating devices must conform to the requirements listed in Section 01 35 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME) and U.S. Army Corps of Engineers Safety Manual EM 385-1-1. All requirements are to be submitted to the Contracting Officer at least 14 days prior to commencement of operations involving radiation generating devices. A requirements checklist will be provided by NAVFAC (COTs) Contractor Oversight Technician.

1.5.2 Laser Control

Comply with laser safety requirements under 21 CFR 1040 and ANSI Z136.1-1986 for any work under this Contract utilizing lasers.

1.5.3 Energy Conservation

In cooperation with Government representatives, participate in an active program directed toward the efficient use of energy.

1.5.4 Fire Prevention (PNSY)

Require employees to become familiar with fire prevention regulations within the Portsmouth Naval Shipyard to include the proper method of turning in a fire alarm, storage of flammable and combustible materials, and control of combustible waste and trash. Any HOT WORK (welding, burning, grinding, cutting, etc.) requires a HOT WORK PERMIT prior to commencing such work. This permit is obtained from the Portsmouth Naval Shipyard's Fire Department via the Contracting Officer and must be submitted at least three (3) working days prior to commencing any Hot Work.

1.5.5 Identification and Control of Seamed (Welded) Pipe and Tubing (PNSY)

Submarine Safety regulations prohibit the use of seamed (welded) pipe or tubing within the Portsmouth Naval Shipyard, unless such pipe or tubing is identified and controlled so as to prevent its inadvertent substitution for seamless pipe or tubing. The following requirements apply and will be strictly enforced:

Any seamed (welded) copper-nickel, carbon steel, carbon-moly steel, stainless steel, nickel-chromium-iron alloy, or nickel-copper pipe or tubing intended for use on the Portsmouth Naval Shipyard must be identified in the following manner PRIOR TO DELIVERY TO THE PORTSMOUTH NAVAL SHIPYARD:

Use a lead-free white paint, to mark a 24-inch long stripe and the word "welded" alternately along the entire length of the pipe or tubing. Apply a one-half inch wide stripe unless the size of the pipe or tubing requires use of a narrower stripe.

Maintain positive control over seamed pipe or tubing until worked into place or removed from the Portsmouth Naval Shipyard.

Seamless pipe or tubing may be substituted for any seamed (welded) pipe or tubing specified in the technical specifications.

The above requirements do not apply to square or rectangular tubing, copper or brass pipe or tubing, or to piping or tubing which has been incorporated into equipment or fixtures prior to delivery to the Portsmouth Naval Shipyard.

1.5.6 Pesticide and Herbicide Control

Do not apply pesticides nor herbicides unless specifically required by this Contract. Where application of pesticides or herbicides is required, provide the submittals required by the specification and obtain written approval prior to any application. The Contracting Officer will be required to review and approve pesticides or herbicides submittals.

1.5.7 Smoking Policy

In accordance with NAVFAC policy, smoking is prohibited inside all buildings and other facilities except those areas specifically identified as smoking areas (e.g., smoking shelters). Smoking is not permitted within 20 feet of air intakes, doorways, or windows.

1.5.8 Portal Crane Clearance Zone (PNSY)

Ensure there is no construction debris or materials within the Crane

Clearance Zone (i.e., between the painted yellow lines on each side of the rail) unless a rail outage/securement has been approved.

1.6 WORKING HOURS (PNSY)

Regular working hours must consist of a period established by the Contracting Officer between 7 AM and 3:30 PM, Monday through Friday, excluding Government holidays. The regular working hours must be confirmed with the Contracting Officer.

1.6.1 Work Outside Regular Hours (PNSY)

Work outside regular working hours requires Contracting Officer approval. Provide written requests fifteen (15) Calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress and to allow scheduling of full time escorts in the building(s) if required. During periods of darkness, the different parts of the work must be lighted in a manner approved by the Contracting Officer.

As part of the requests, provide the specific dates, hours, location(s), type(s) of work to be performed, Contract number, and project title. Based on the justification provided, the Contracting Officer may approve work outside regular hours.

Working on Weekends/Government Holidays: Any request to work on a weekend/Holiday must be submitted to the Contracting Officer no later than two (2) working days prior to the requested work weekend/Holiday.

1.7 WORK IN OCCUPIED AND EXISTING BUILDING(S)

Work under this Contract may be located in an occupied building. Move unfixed furniture away from working area(s) as required to perform the work; protect; and replace in original locations upon completion of the work. Leave fixed equipment in place and protect against damage or temporarily disconnect, relocate, protect, and reinstall at completion of work. If determined necessary by the Contracting Officer, the Government will remove and relocate other Government property in the areas of the buildings scheduled to receive work. After providing written notification, allow 15 calendar days for the Government to relocate Government property.

1.8 UTILITY CUTOVERS AND INTERRUPTIONS

Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, and Government holidays as approved by the Contracting Officer. Conform to procedures required in the paragraph entitled WORK OUTSIDE REGULAR HOURS (PNSY) herein. Anticipated costs must be included in the bid.

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

Interruption to Water, Sanitary Sewer, Storm Sewer, Telephone Service, Electric Service, Air Conditioning, Heating, Fire Alarm, Compressed Air, and other utilities must be considered utility cutovers pursuant to the paragraph entitled WORK OUTSIDE REGULAR HOURS (PNSY) herein. This time limit includes time for deactivation and reactivation.

Operation of Portsmouth Naval Shipyard Utilities: Do not operate nor

disturb the setting of control devices in the Portsmouth Naval Shipyard's utilities system, including water, sewer, electrical, air, and steam services. The Government will operate the control devices as required for normal conduct of the work. Notify the Contracting Officer in writing within 15 calendar days when such operation is required. The Contracting Officer will provide the Outage Request Form.

Any Outage requests denied due to incomplete information required to support the requested outages, will not be justification for a delay claim. The Contractor must review any planned outage with the NAVFAC Construction Management Team prior to submitting a outage request to ensure the necessary information is included with the request to avoid any delays.

Submit an Outage Plan as indicated.

1.9 CRANE AND RAILROAD TRACKAGE INTERRUPTIONS (PNSY)

Crane and railroad trackage are considered utilities, and as such are subject to strict scheduling approvals. Where the following Contract work is planned, submit written requests for Outages & Securements a minimum of 15 calendar days prior to the desired date of interruption to the Contracting Officer: (See Construction ET for Track Outage & Securement Request Forms.)

A. Track Outage:

Any excavation, that is within 10 feet of a rail that will extends below the depth of pavement.

Any work performed that will penetrate a track foundation.

Any work involving trackage replacement or repair.

Work must not be conducted in affected areas until a written approval to the request for outage is received.

B. Track Securement:

Track Securement differs from Track Outage in that it does not affect track certification. Track Securement requests must be prepared and submitted to the Contracting Officer to obtain scheduling approval from Code 740.2 before work that would curtail the use of tracks (e.g., placing equipment or hoses within the crane envelope or within the defined Crane Clearance Zones).

Work must not be conducted in affected areas until a written approval to the request for securement is received.

1.10 WORK ADJACENT TO CIA SECURITY FENCING (PNSY)

Work adjacent to Portsmouth Naval Shipyard Controlled Industrial Area (CIA) fencing is strictly controlled to ensure security is maintained at all times.

Work which will breach CIA fencing is prohibited unless approval has been obtained from Head of Security Operations (Code 1122) and a Portsmouth Naval Shipyard Police representative is at the worksite during the period that the fence is to be breached.

A minimum of 30 calendar days prior to performing work which requires breaching the CIA security fence, arrange through the Contracting Officer to obtain Head of Security Operations approval and scheduling of the Portsmouth Naval Shipyard Police representative. "Breaching the fence" is any repair, alteration, or other work which would allow access into the CIA either over, under, or through an opening in a CIA fence.

Conditions which breach the fence must be eliminated during all non-work periods to the satisfaction of the Portsmouth Naval Shipyard Police representative. Do not leave the worksite until such conditions are eliminated. All materials used to close openings in fencing and method of installation must be the same type and construction as adjacent, undisturbed CIA fencing.

Except for temporary off-loading of materials, the clear zone (10 feet on the inside and outside of the security fence) adjacent to CIA fencing must remain clear of vehicles, materials, tools, and equipment. Contractor personnel must be at the location throughout the entire time of any off-loading or work. Under no circumstances shall vehicles, materials, equipment, or tools be left unattended in the clear zone. Any work within the clear zones requires approval from Portsmouth Naval Shipyard Security. Any requests to work in the clear zone must be provided to the Contracting Officer at least five (5) working days in advance.

The Contractor shall be responsible for all costs associated with the staffing required by Naval Security Force (NSF) for any opening in the fence-line due to maintenance, repairs, or construction or the need for NSF to man a gate or any CIA perimeter crossing. Requests must be submitted to the Contracting Officer a minimum of 30 days in advance of the scheduled work.

If the Contractor violates the security requirements related to the CIA Fencing, Security will issue a Security Deficiency Log (SDL). Upon receiving a SDL, the Contractor must take immediate corrective actions as directed in the SDL including responding to the SDL with documentation of the corrective actions taken and what actions are being taken to prevent recurrence of any further violations.

If a second offense occurs, the Contractor will have a Security Stand Down in which all staff, including subcontractor(s), will need to be present for full review of the PNSY Security Requirements.

If a third offense occurs, the Project Superintendent is subject to removal by the Contracting Officer for non-compliance with security requirements specified in the Contract. 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 Stand Downs or stop work orders is acceptable as the subject of claim for extension of time for excess costs or damages by the Contractor.

1.10.1 CIA Lighting

Any CIA lighting outages must be approved through Code 1122 and temporary lighting must be provided at the Contractor's expense. The lighting provided must be equal to or greater than the current foot-candle rating of the area. The request must be submitted at least five (5) working days in advance.

1.11 WORK ADJACENT TO AN OVERHEAD CRANE

Provide a minimum vertical clearance of three (3) inches between the highest point of the crane and the lowest overhead obstruction. For buildings where truss sag becomes a factor, increase the clearance as necessary to maintain the minimum required clearance.

The horizontal clearance between the end of the crane and the building columns, knee braces or any other obstructions must not be less than two (2) inches with the crane centered on the runway rails. Pipes, conduits, etc. must not reduce this clearance.

The vertical clearance beneath a bridge crane is to be at least three (3) inches. This clearance is not applicable to the hook block unless it is in its up most position.

For work involving installation, adjustment, or replacement of rail fasteners (e.g. clips/bolts), verify the existing crane envelope and clearance measurements around the rail head prior to beginning work. Notify the Government if the work will reduce the clearance between the bridge crane and rail fasteners and ensure newly installed items will not obstruct bridge crane travel.

Notify the Government to verify that crane clearance has been maintained when the work performed may have changed any physical dimensions of objects or structures adjacent to the crane (e.g., changing or servicing lighting fixtures/pendant assemblies, removal and reinstallation of pipes, conduits, junction boxes, etc.). If the crane is not available (e.g., undergoing maintenance, inspection, etc.), verify crane clearance by taking measurements using reference points (e.g., vertical and horizontal distance from the top of crane rail with respect to the crane envelope, vertical distance from the floor with respect to the crane envelope, etc.).

Where bridge cranes within buildings exist, the Contractor must ensure that all installations, modifications, or other work included in this Contract does not create interferences that fall within the bridge crane clearance zone. The bridge crane clearance zone is 2 inches on any side of the crane, and 3 inches above or below the crane. In addition, where passageways or walkways are provided by this Contract, they must be placed so that personnel will not be struck by the movement of the crane. It is the responsibility of the Contractor to verify the accuracy of the building and crane dimensions in the field prior to conducting work.

1.12 FIRE PROTECTION

1.12.1 Compliance (PNSY)

Comply with COE EM 385-1-1, NFPA 241, and Portsmouth Naval Shipyard fire regulations. Obtain approval no later than two (2) working days from the Portsmouth Naval Shipyard Fire Chief via the Contracting Officer prior to commencement of hot work operations.

1.12.2 Fire Lanes

1.12.2.1 Fire Lane Width

Fire lanes must be a minimum of twenty (20) feet in width.

1.12.2.2 Vertical Clearance for Fire Lane

Fire lanes must have a minimum of thirteen (13) feet six (6) inches nominal vertical clearance and must be provided and maintained over the full width of the fire lane.

1.12.2.3 Angle of Approach/Departure

Minimum inside turn radius must be twenty-Five (25) feet and minimum outside turn radius must be fifty (50) feet.

1.12.2.4 Waiver Request for Fire Lane Size and Dimensions

Due to existing infrastructure, some requirements of this Section may not be achievable. The Contractor must submit a Waiver Request to the Fire Department for review. Additional provisions may be required for the approval of the waiver.

1.12.2.5 Parking in or Blocking Fire Lanes

Parking in or blocking fire lanes is expressly prohibited for any reason without prior approval. Vehicles left unattended in fire lanes are subject to towing. Contractors will be issued a Non-Compliance Notice for vehicles left unattended in fire lanes.

General Process:

Parking in or obstructing a fire lane:

- a. First Offense: The Contractor will remove the vehicle from the Project site immediately and the vehicle will not be allowed to return to the Project site for seven (7) days. The Contractor will perform a safety stand down within three (3) days of the incident and the Fire Department must be invited to attend the safety stand down.
- b. Second Offense: Contractor and Sub-Contractors vehicles will be permanently barred from the Project site and a Non-Compliance Notice will be issued. Individuals performing deliveries in support of the Project will be allowed but are expected to be on site for the shortest duration required to perform the delivery, and the driver/operator must remain in the immediate vicinity of the vehicle at all times.

1.12.2.6 Approval to Temporarily Block a Roadway/Fire Lane

The Contractor may request approval to temporarily block a roadway/fire lane as part of a Road Outage to complete work associated with the Project. Approval may only be given by the Fire Chief or his/her assigned representatives. The request must be submitted using the established Outage Request Process and must be submitted fifteen (15) days prior to the planned work and must contain the following to be considered:

- a. Description of the work to be completed and duration.
- b. Alternative analysis that discusses whether a practical alternative to the outage exists. The analysis must address the activity purpose and need, and why the activity cannot be completed by:
 - I. Utilizing, managing, or expanding the work area to avoid the fire

lane.

II. Reducing the size, scope, configuration or density of the activity as proposed (phasing).

- c. Illustration showing the location of Contractor equipment during the proposed outage.
- d. Provisions for emergency access (i.e. a steel plate must be kept within ten (10) feet of the excavation).
- e. Additional provisions may be required by the Fire Department on a site by site basis.

1.13 SECURITY REQUIREMENTS

1.13.1 General

Employees and representatives performing work under this Contract are required to be United States citizens. If naturalized, the individual must present his/her naturalization papers to the Security Officer for inspection. Foreign born personnel must present evidence of citizenship regardless of citizenship of parents, as required by immigration laws.

1.13.2 Access to the Portsmouth Naval Shipyard (PNSY)

Contract Clause "FAR 52.204-2, Security Requirements and Alternate II" and the following apply:

Access to areas designated as restricted NAVSEA spaces will require an escort by a Government Representative. Notify the Contracting Officer at least 14 Calendar Days in advance of the date access is required.

Obtain security badges and vehicle passes to enter the Portsmouth Naval Shipyard at the Portsmouth Naval Shipyard's Pass/Security Office. Furnish proof that employees are U.S. citizens to obtain badges to enter the Portsmouth Naval Shipyard.

Complete Department of Homeland Security Form I-9; Employment Eligibility Verification for each employee and furnish proof that employees are U.S. citizens to obtain badges to enter Portsmouth Naval Shipyard.

1.13.3 Application and Issue of Security Badges

"Temporary" Security Badges will be issued to Contractor personnel requiring access to the Shipyard for less than 90 days. Badge(s) will be issued upon satisfactory proof of U.S. citizenship, in the form of an original or certified birth certificate, passport, or naturalization papers. A picture ID is required in addition to satisfactory proof of citizenship. See Attachment B.

"Permanent" (photo) Standard Access Control Badges will be issued to Contractor personnel requiring access to the Shipyard for 90 or more days. Contractor personnel will be required to complete an authorization application form for local record check, and a personal information sheet. The forms will be furnished to the Contractor following Award of any Contract resulting from this solicitation, at time of pre-performance or pre-construction conference.

In the event access is required to Contract work areas not permitted by

the level of security badge issued, such need must be demonstrated and an escort obtained.

STANDARD ACCESS CONTROL BADGES MUST BE ATTACHED TO THE OUTER GARMENT AND DISPLAYED ABOVE THE WAISTLINE AT ALL TIMES WHILE ON THE PORTSMOUTH NAVAL SHIPYARD.

PERSONNEL MUST NOT ENTER AREAS FOR WHICH THEY HAVE NOT BEEN CLEARED. WHERE A NEED HAS BEEN DEMONSTRATED TO ENTER SUCH AREAS, PERSONNEL WILL BE UNDER CONSTANT ESCORT BY PERSONNEL WHO HAVE BEEN CLEARED. FAILURE TO ADHERE TO POSTED SECURITY REQUIREMENTS MAY RESULT IN REMOVAL OF THE EMPLOYEE FROM THE PORTSMOUTH NAVAL SHIPYARD WITH FUTURE ACCESS DENIED.

1.13.4 Application and Issue of Vehicle Passes (PNSY)

Vehicle passes will be issued upon satisfactory proof of a valid Operator's License, Vehicle Insurance, and State Vehicle Registration. Temporary passes will be issued for short term or single trip requirements on a case by case basis. All vehicles permitted to enter or park on the Portsmouth Naval Shipyard must comply with the Portsmouth Naval Shipyard's traffic and parking regulations and must only park in assigned areas, which may or may not be in the vicinity of the site of the Contract work. Do not park a vehicle in such a manner that crane tracks, railroad tracks, and vehicle access routes are blocked. Vehicles left unattended which are blocking such access routes are subject to towing and loss of vehicle passes. Parking on the Portsmouth Naval Shipyard may be in excess of one-half mile from the worksite.

1.13.5 Application and Issue of Vehicle Passes for Entry into Portsmouth Naval Shipyard's Controlled Industrial Areas (CIA)

Vehicular access to the CIA must be minimized and all vehicles must comply with the following requirements:

Vehicles must visibly display a CIA vehicle entry pass and inspection pass from the Commercial Vehicle Inspection Station (CVIS), Building 386. CIA passes will only be issued to company owned or leased vehicles, rental vehicles rented in the company name, or privately owned vehicles the company has certified in writing, to be necessary in the performance of Contracted work. CIA passes will be issued on weekends and holidays at Building 29, from the Watch Supervisor. Personnel not possessing the level security badge required for CIA access must be accompanied by a properly badged escort to obtain the CIA vehicle pass.

Vehicles will only be allowed in the CIA for the transportation of tools, parts, and materials to and from the worksite. An exception to this policy, employees may be transported to and from the worksite after full vehicle inspection at CVIS if a specific security plan has been developed and approved by the Portsmouth Naval Shipyard Security Officer.

Parking of privately owned or company owned vehicles not utilized in the execution of construction activities (e.g. not a working truck or specialty vehicle) within the CIA or in any project laydown space is prohibited.

For Vehicles remaining in the CIA for more than 24 hours: Obtain a CIA Overnight Parking Permit from the PWD ME Construction ET. Vehicles without this pass are subject to being towed. Passes will only be issued to those demonstrating a valid reason as determined by Portsmouth Naval

Shipyard Security.

1.13.6 Application and Issue of Crane Passes (PNSY)

Comply with EM 385-1-1. For Crane Passes at the Portsmouth Naval Shipyard to be valid, the Certificate of Compliance (FORM 16-1) must be completed and accepted.

1.13.7 Return of Badges and Vehicle Passes

Ensure all vehicle access permits and personnel badges are returned to the Portsmouth Naval Shipyard Security Officer when the need has ended. Account in writing for each missing pass or badge prior to final payment being made on the Contract. Any vehicle passes issued must be returned to Portsmouth Naval Shipyard Security daily.

1.13.8 Security Responsibilities (PNSY)

Employees must not transport, drink, or have in their possession any alcoholic beverages. Possession of any controlled substances without a physician's prescription is also prohibited. Any employee appearing to be under the influence of intoxicating liquor or narcotics will be apprehended by Portsmouth Naval Shipyard Police, escorted off of the Portsmouth Naval Shipyard, and turned over to the local Police Department.

Any vehicle found to contain controlled substances, including usable residue, may be seized and impounded. Within 24 hours of the work day following any vehicle seizure, the Portsmouth Naval Shipyard Police will have determined whether forfeiture of the vehicle is required. If not, the vehicle will be returned to the owner or authorized agent. If the vehicle is determined to be appropriate for forfeiture, the Portsmouth Naval Shipyard's Legal Officer will notify the Drug Enforcement Administration of such seizure and impoundment, for initiation of forfeiture proceedings pursuant to Title 21, U.S. Code, Section 881. Such actions may be taken regardless of whether the owner/operator of the vehicle had knowledge of the presence of drugs in the vehicle. The Government may pursue criminal or other disciplinary actions pursuant to Title 18, U.S. Code, Section 1382.

Possession of firearms, ammunition, and/or explosives is prohibited. In the event explosives are required for construction work, specific handling requirements and approvals must be obtained from the Portsmouth Naval Shipyard Security Officer via the Contracting Officer.

Cameras, video equipment, or similar photographic equipment must not be introduced into nor removed from the Portsmouth Naval Shipyard. In the event such equipment is required for performance of Contract work, approvals must be obtained from the Portsmouth Naval Shipyard Security Officer via the Contracting Officer.

Weapons (firearms, personal knives with blades 2-1/2 inch long or greater, Mace, Pepper Spray etc.) are not permitted aboard the Portsmouth Naval Shipyard.

The following are the penalties for any personnel that are found to be in possession of a camera or cell phone equipped with a camera taking photographs inside and outside NAVSEA spaces:

Camera/Camera Equipped Cell Phone Outside a NAVSEA Space

The following are the penalties for any Contractor personnel or Subcontractor personnel that are found to be in possession of a camera or cell phone equipped with a camera taking pictures outside of NAVSEA spaces:

1st offense with pictures: Full investigation with security forces and NCIS, camera or cell phone confiscation, and depending on results of investigation 30 days restriction.

2nd Offense with pictures: The offender will be permanently barred from access to NAVSEA spaces.

Camera/Camera Equipped Cell Phone Inside a NAVSEA Space

Cameras, or cell phones equipped with cameras, are not allowed in any NAVSEA space such as the CIA, NWA, CNIA, or Security Island. If a Contractor is found with a camera equipped cell phone in a NAVSEA space, the Standard Access Control Badge (SACB) and Defense Biometric Identification System card (DBIDS) will be confiscated. Access to the installation will be denied and a Security Deficiency Log (SDL) will be issued.

The following are the penalties for any Contractor personnel or Subcontractor personnel that are found to be in possession of a camera or cell phone with and without photos of NAVSEA Spaces:

Camera/Cell phones with no pictures of NAVSEA spaces:

1st Offense: SDL will be written to document with a 10-day deadline for completion. Credentials will be reissued to the offender once the SDL response is received from the contracting company and reviewed/accepted by the Security office.

2nd Offense: The offender will be permanently barred from access to NAVSEA spaces.

Camera/Cell phones with pictures of NAVSEA spaces:

1st offense: The offender will be permanently barred from access to NAVSEA spaces.

At a minimum, all Superintendents, QC Manager, and SSHO (and anyone acting in this capacity) must have a CIA compliant mobile phone on their persons any time while work is occurring at the Contract jobsite(s). The phone number(s) associated with these phones must be provided during the pre-con meeting and work will not be allowed to proceed without one.

Laptops and any other computer, regardless of form factor, must not be introduced nor removed from the Portsmouth Naval Shipyard without authorization. Only business use computers are allowed. Personally owned computers are not authorized on the Portsmouth Naval Shipyard. If a computer is required to perform work on the Portsmouth Naval Shipyard, a Visitors Portable Computer Equipment Registration form must be completed and submitted for approval. These forms can be obtained and completed at the pass office upon entrance to the Portsmouth Naval Shipyard or through the Portsmouth Naval Shipyard POC.

Any computing devices that also have or had an installed camera, must

follow the same requirements as cell phones. If the computing device is visiting a NAVSEA space, it cannot have a camera. If the device has a camera, the only acceptable remediation is that the camera be professionally removed or drilled out and the resulting void must be filled with a bright colored epoxy.

In the event that a camera is required for the performance of the Contracted work, approval must be obtained from the C1120 Security Office. In the event of any deviation from the requirement to remove and epoxy the camera, authorization must be sought from C1120. All requests for camera use and deviations must come to C1120 through the Contracting Officer's Representative or Portsmouth Naval Shipyard Point of Contact (POC). Authorizations and approved computer registrations must remain with the devices and be presentable upon request. Devices without a documented approval or observed being used in a manner that violates the terms of the Visitor Portable Computer Equipment Registration agreement are subject to search and seizure.

Basic guidance for use of Portable Electronic Devices (PED) at Portsmouth Naval Shipyard: Inform the Contracting Officer of their use, or intent to use, of any portable electronic device which has the capability to record, copy, store, export and transmit data, photography, digital images, video or audible information, inside the CIA or any NAVSEA controlled spaces. Provide the manufacturer's data describing the electronic capabilities of the device(s).

Use of wireless networking and communication on the Portsmouth Naval Shipyard requires prior authorization. Communication devices such as cellular hotspots and wireless routers must also be registered using the same Visitors Portable Computer Equipment Registration. This does not include air-cards and straight cellular data. It does include any device that transmits or broadcasts Wi-Fi, including cellular phones with the personal hot-spot feature enabled.

Broadband internet connections must be authorized prior to use on the Portsmouth Naval Shipyard. All requests for physical cable service from an internet service provider (ISP) must be authorized and coordinated through C109. Work through the COR to request broadband access.

Driver use of a hand-held cellular phone in a moving vehicle on the Portsmouth Naval Shipyard is prohibited. This prohibition does not include hands-free cellular phone devices. Hands-free devices include console/dash-mounted or otherwise secured cellular phones with integrated features such as voice-activation, speed dial, speakerphone or other similar technology for sending and receiving calls.

Driver use of any portable, personal listening device worn inside the aural canal, around or covering the driver's ear while operating a motor vehicle, is prohibited. Listening devices include wired or wireless earphones and headphones (including blue tooth or similar technology), and do not include hearing aids or devices designed and required for hearing protection.

The use of radar or laser detection devices to indicate the presence of speed recording instruments or to transmit simulated erroneous speeds is prohibited in accordance with OPNAVINST 5100.2H.

Indoctrinate personnel on access limitations to ensure security control is maintained as an integral part of their work pattern and habit.

Unescorted personnel found in security areas requiring a higher level clearance than the level represented by the badge displayed will be removed from the area with possible confiscation of security badges and vehicle passes.

1.13.9 Access to Unclassified Information

Access to U.S. Navy technical information manuals, documents, drawings, plans, specifications, and other information (e.g., photos, presentations, renderings, papers, etc.) is Government property and restricted to an official need-to-know basis. Handle, control, and safeguard to prevent oral, visual, and documentary disclosure to the public, to foreign sources, and to personnel not having an official need-to-know.

1.13.10 Disclosure of Information

- a. Do not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., hard copies, computer files, film, tape, document), pertaining to any part of this Contract or any program related to this Contract, unless the Contracting Officer has given prior written approval.
- b. Requests for approval under paragraph (a) must identify the specific information to be released, the medium to be used, and the purpose for the release. Submit the request to the Contracting Officer at least 10 business days before the proposed date for release.
- c. The Contractor agrees to include a similar requirement, including this paragraph (c), in each subcontract under this Contract. Subcontractors must submit requests for authorization to release through the Prime Contractor to the Contracting Officer.

1.13.11 Portsmouth Naval Shipyard Operations Security Statement

During the course of this Contract, in addition to those restrictions, instructions, and guidelines delineated in the Contract Statement of Work, Contract Data Requirements List (CDRL), and/or other references provided, adhere to the following minimum requirements in support of the Portsmouth Naval Shipyard (PNS) OPSEC Program:

Introduction of personal electronic devices, laptops, tablet PCs, cellular phones, cameras, recording devices, and data recording/storage devices into Government spaces is STRICTLY controlled and forbidden in most cases. Company issued equipment required for the performance of work must be approved by the PNS Code 1120 Security Office. Photography and recording is not allowed except for official use and by permit only. Photographs will be reviewed by Code 1123.2 to ensure sensitive information is not revealed.

Do not discuss Government operations in public or over unprotected or unencrypted communications. Do not post to company websites, publications, newsletters or other media, any images, data, or information that reveal sensitive Government operations, personnel, equipment, and/or classified or controlled unclassified information. When in doubt, company press releases related to this Contract must be coordinated through the Contracting Officer's Representative (COR) or Technical Point of Contact, as applicable, and in conjunction with PNS Public Affairs Office (PAO).

Due to observation of events, operations, physical changes, etc. which may reveal National Security Information or Naval Nuclear Propulsion Information (NNPI), specific restrictions are needed to preclude unintentional release of this information to unauthorized parties. (Unauthorized disclosure and transfer of National Security Information is punishable under 18 USC § 793.) Therefore, do not disclose to unauthorized third parties or post to unofficial sites (including Social Networking sites) any images, data or information, or observed events that reveal sensitive Government operations, personnel, equipment, including, but not limited to:

Tactics, techniques and procedures, production or work schedules, any visible or concealed modifications, upgrades, additions to vessels, weapons or equipment; increases, changes, or decreases in work/deployment frequency or Government personnel, vehicle, vessel movements; specialized equipment orders, deliveries, shipments, etc. Unauthorized disclosures and attempts to solicit this type of information by unauthorized third parties or others not affiliated with this Contract must be reported to PNS Code 1120 Security and/or PNS Police Department. Non-Disclosure requirements remain in effect during the duration of this Contract and indefinitely thereafter.

Government issued badges and identification must be removed and/or concealed from plain sight when off PNS and must not be left in vehicles or unprotected. Badges and passes may not be duplicated, copied, or loaned to others. Lost or stolen identification badges, vehicle passes, etc., must be immediately reported to PNS Code 1120 Security Office and/or PNS Police Department.

It is strongly recommended the Contractor mark and protect related internal production schedules, deliverables, inventories and shortages, and identified vulnerabilities related to production of Government material. Internal company markings (e.g., Business Sensitive, etc.) are appropriate for identifying the aforementioned as sensitive information. All Government information must be destroyed at Contract termination or returned to the Government at the Government's discretion.

1.14 MARINE ACTIVITIES (PNSY) (Not Applicable)

1.15 WORK WITHIN PUMPWELLS AND DRY DOCKS (PNSY) (Not Applicable)

1.16 CONSTRUCTION VEHICLES

Do not utilize any vehicle that will exceed an HS20 wheel load. The use of "off road", "Utility", "ATV", or any vehicles which cannot be legally operated on State roadways or highways is prohibited.

1.17 EMPLOYEE PARKING

Employees must park privately owned vehicles in the Jamaica Island Parking Lot only. Parking is not allowed in any other parking lot or area on the Portsmouth Naval Shipyard. Employee parking must not interfere with existing and established parking requirements of the Portsmouth Naval Shipyard. If a privately owned vehicle is found parked outside the Jamaica Island parking lot, the vehicle will be subject to towing, a non-compliance notice will be issued, and may reflect poorly on the Prime Contractor's performance rating (CPARS) and noted in their final performance evaluation.

1.18 PORTSMOUTH NAVAL SHIPYARD 6010 TRAINING

Personnel working inside of or within 10 feet of the coping of the dry dock and its associated structures must have Portsmouth Naval Shipyard 6010 training. Associated structures include pumpwells, service tunnels, altar pits, etc. This training will be provided, at the Portsmouth Naval Shipyard, at no cost and is approximately 4 hours in duration. Coordinate training schedule with the Contracting Officer.

Personnel that complete 6010 training can serve as an escort for 6010 purposes. The escort must be within 10 feet or audio range, whichever is closer, and is responsible for the safety of the personnel they are escorting in an emergency situation.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

ARE YOU A CONTRACTOR, VENDOR, OR SUPPLIER WHO NEEDS BASE ACCESS?

IF YES, please read below:

Effective 14 August 2017, NCACS credentials will no longer be accepted for base access. Please read below:

- If you applied for an NCACS credential **PRIOR to 17 April 2017**, your NCACS credential will remain in effect for base access through 14 August 2017, when NCACS credentials will no longer be accepted.
- If you applied for an NCACS credential **BETWEEN 17 April and 31 May 2017** you will also be required to obtain a DBIDS credential in order to obtain base access.
- **AFTER 31 May** no new NCACS applications will be accepted. All new contractors, vendors and/or suppliers requesting base access will be required to obtain a DBIDS credential.
- **AFTER 14 August 2017 only DBIDS credentials will be accepted for base access.**
- There is no cost to obtaining a DBIDS credential.

FOR MORE INFORMATION VISIT:

<https://www.cnic.navy.mil/om/dbids.html>



DBIDS ACCESS REQUEST FORM (NAVSHIPYD PTSMH 5500)

1. FIRST NAME:

2. LAST NAME:

3. COMPANY NAME:

4. TITLE:

5. PHONE NUMBER:

DBIDS INFORMATION:

ARE YOU THE PRIMARY DBIDS COMPANY:

DO YOU SUB TO A GC: ☐ No ☐ Yes If yes who:

COMPANY INFORMATION:

COMPANY NAME:

COMPANY ADDRESS:

COMPANY PHONE NUMBER:

PRIMARY POINT OF CONTACT:

FACILITY: *PORTSMOUTH NAVAL SHIPYARD*

ACCESS TIMEFRAME REQUIRED: : ☐ 0600-1800, ☐ 1400-2300, ☐ 24/7

SPONSOR INFORMATION (MUST BE SHIPYARD PERSONNEL):

SPONSOR ORGANIZATION:

SPONSOR OR NAME:

SPONSOR PHONE NUMBER:

SPONSOR TITLE:

SPONSOR EMAIL ADDRESS:

CONFIRM SPONSOR EMAIL ADDRESS:

CONTRACT NUMBER:

CONTRACT EXPIRATION DATE:

NUMBER OF EMPLOYEE REGISTERING AT THIS FACILITY:

All applications will be submitted to CNI_DBIDS@navy.mil

If you have any questions please contact CAPT Capozzi at 207-438-2147.

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installation.

(2) Persons requesting access who are not in possession of an approved, government issued credential listed in paragraph 1204.b. shall provide an unexpired document for identity proofing purposes listed in Table 12-1. Any fraudulent information passed during the process may lead to prosecution under appropriate legal authorities.

(3) Authorized government representatives shall, prior to acceptance, visually and tactilely (by touch or feel) inspect documents for evidence of tampering, alteration, or other indications of falsified/fraudulent documents. Authorized government representatives will not accept documents that appear to be fraudulent, forged, or counterfeit and follow the CO's directed standards for response actions to include detention of persons attempting to provide fraudulent documents. Indications of tampered documents include:

(a) Strange text, fonts, slightly altered text, incomplete letters, misaligned words, strange spacing and errors in punctuation or spelling.

(b) Texture or physical indication the photograph has been glued over the original.

Table 12-1. List of Identity Proofing Documents

Documents that Establish Identity
1. U.S. Passport or Passport Card
2. Permanent Resident Card or Alien Registration Receipt Card (Form I-551)
3. Foreign passport that contains a temporary I-551 stamp or temporary I-551 printed notation on a machine-readable immigrant visa (MRIV)
4. Employment Authorization Document (Card) that contains a photograph (Form I-766)
5. In the case of a nonimmigrant alien authorized to work for a specific employer incident to status: <ul style="list-style-type: none"> (a) Foreign passport; and (b) Form I-94 or Form I-94A has the following: <ul style="list-style-type: none"> (1) Bearing the same name as the passport; and (2) An endorsement of the alien's nonimmigrant status, as long as the period of endorsement has not yet expired and the proposed employment is not in conflict with any restrictions or limitations identified on the form.
6. Driver's license or ID card issued by a RealID Act compliant state or outlying possession of the U.S., provided it contains

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a photograph and biographic information such as name, date of birth, gender, height, eye color, and address. Licenses or IDs possessing "NOT APPLICABLE FOR FEDERAL PURPOSES" will not be accepted.
7. State-issued Enhanced Driver's licenses
8. Driver's license issued by the U.S. Department of State
9. Border Crossing Card (From DSP-150)
10. Identification card issued by Federal, State, or local government agencies, provided it contains a photograph and biographic information such as name, date of birth, gender, height, eye color, and address.
11. Veteran Health Identification Card (VHIC) issued by the Department of Veterans Affairs
12. Department of Homeland Security "Trusted Traveler" Cards (Global Entry, NEXUS, SENTRI, FAST)
13. U.S. Certificate of Naturalization or Certificate of Citizenship (Form N-550)
14. School identification card with a photograph
15. Persons under the age of 18 who are unable to present a document listed above may present one of the below documents. (a) School record or report card (b) Day care or nursery school record (c) Birth certificate (original or certified copy)
16. Native American Tribal Photo ID cards
17. U.S. Coast Guard Merchant Mariner Credential (MMC) or Merchant Mariner's Documents (MMD)
18. Other documents that may be provide for identity proofing purposes, but must be accompanied by a second form of ID with photograph and biographical information.
a. Social Security Number card
b. Original or certified copy of a birth certificate issued by a state, county, municipal authority, or outlying possession of the U.S. bearing an official seal.
c. Certification of birth Abroad issued by the U.S. Department of State (Form FS-545)
d. Certification of Report of Birth issued by the U.S. Department of State (Form DS-1350)
e. Voter's Registration Card

d. Outside the Continental United States (OCONUS)

(1) NSF will utilize appropriate identity proofing credentials such as a passport or nationally issued identity card, or other COCOM approved ID.

(2) ISO will codify approved non-U.S. identity proofing

DEPARTMENT OF THE NAVY LOCAL POPULATION ID CARD/BASE ACCESS PASS REGISTRATION

PRIVACY ACT STATEMENT:

AUTHORITY: 10 U.S.C. 113, Secretary of Defense; DoD Directive 1000.25, DoD Personnel Identity Protection (PIP) Program; DoD Instruction 5200.08, Security of DoD Installations and Resources and the DoD Physical Security Review Board (PSRB); DoD 5200.08-R, Physical Security Program; DoD Directive 5200.27, Acquisition of Information Concerning Persons and Organizations not Affiliated with the Department of Defense (Exception to policy memos); Directive-Type Memorandum (DTM) 09-012, Interim Policy Guidance for DoD Physical Access Control; DTM 14-005, DoD Identity Management Capability Enterprise Services Application (IMESA) Access to FBI National Crime Information Center (NCIC) Files; and E.O. 9397 (SSN), as amended; OPNAVINST 5530.14E, Navy Physical Security and Law Enforcement Program; Marine Corps Order P5530.14, Marine Corps Physical Security Program Manual; SORNMM05512-2 Badge and Access Control System Records and DMDC 16, Identity Management Engine for Security and Analysis (IMESA): <http://dpcld.defense.gov/Privacy/SORNIndex>

PURPOSE(S): To control physical access to Department of Defense (DoD), Department of the Navy (DON) or U.S. Marine Corps Installations/Units controlled information, installations, facilities, or areas over which DoD, DON, or U.S. Marine Corps has security responsibilities by identifying or verifying an individual through the use of biometric databases and associated data processing/information services for designated populations for purposes of protecting U.S./Coalition/allied government/national security areas of responsibility and information; to issue badges, replace lost badges, and retrieve passes upon separation; to maintain visitor statistics; collect information to adjudicate access to facility; and track the entry/exit times of personnel.

ROUTINE USE(S): To designated contractors, Federal agencies, and foreign governments for the purpose of granting Navy officials access to their facility.

DISCLOSURE: Providing registration information is voluntary. Failure to provide requested information may result in denial of access to benefits, privileges, and DoD installations, facilities and buildings.

IDENTITY PROOFING AND APPLICANT INFORMATION

1. LAST NAME:	2. FIRST NAME:	3. MIDDLE NAME:	4. NAME SUFFIX: <input type="checkbox"/> Jr. <input type="checkbox"/> Sr. <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV	
5. RACE (Check one or more): <input type="checkbox"/> AMERICAN INDIAN or ALASKA NATIVE <input type="checkbox"/> ASIAN <input type="checkbox"/> BLACK or AFRICAN AMERICAN <input type="checkbox"/> HISPANIC OR LATINO <input type="checkbox"/> NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER <input type="checkbox"/> WHITE				
6. GENDER (Check one): <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	7. DATE OF BIRTH:	8. CITY OF BIRTH:	9. STATE OF BIRTH:	10. BIRTH COUNTRY:
11. US CITIZEN (Check): <input type="checkbox"/> YES <input type="checkbox"/> NO		12. DUAL CITIZENSHIP: <input type="checkbox"/> YES <input type="checkbox"/> NO CITIZENSHIP IF OTHER THAN US (Country):		

U.S. Citizen Minimum Documentation Required:

By Birth - Social Security No and/or State ID/Drivers License.

Naturalized - Certification Number, Petition Number, Date, Place and Court, United States passport number, Social Security No and/or State ID/Drivers License.

Derived - Parent's certification number, Social Security No and/or State ID/Drivers License.

Alien Minimum Documentation Required:

Registration Number, Expiration date, Date of entry, Port of entry.

13. IDENTITY SOURCE DOCUMENTS PRESENTED:	14. DOCUMENT NUMBER:	15. ISSUED BY STATE/COURT:	16. ISSUED BY COUNTRY:	17. ISSUED:	18. EXPIRES:
<input type="checkbox"/> Social Security No.			United States		
<input type="checkbox"/> State ID/Drivers License			United States		
<input type="checkbox"/> Passport No.					
<input type="checkbox"/> Certification Number and Petition Number					
<input type="checkbox"/> Derived - Parent's Certification Number:			United States		
<input type="checkbox"/> Alien Registration No.			United States		
Date of Entry:			Port of Entry:		

OTHER APPROVED IDENTITY SOURCE DOCUMENTS:

<input type="checkbox"/>					
<input type="checkbox"/>					
19. WEIGHT (Pounds):	20. HEIGHT (Inches):	21. HAIR COLOR (Check one): <input type="checkbox"/> Blond <input type="checkbox"/> Brown <input type="checkbox"/> Black <input type="checkbox"/> Gray <input type="checkbox"/> Red <input type="checkbox"/> White <input type="checkbox"/> Silver <input type="checkbox"/> Auburn <input type="checkbox"/> Bald		22. EYE COLOR (Check one): <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Blue <input type="checkbox"/> Hazel <input type="checkbox"/> Black <input type="checkbox"/> Gray <input type="checkbox"/> Violet <input type="checkbox"/> Unknown	
23. HOME ADDRESS (Include city, state, zip code):				HOME PHONE (Include Area Code):	
24. BASE SPONSOR'S NAME:				SPONSOR PHONE (Include Area Code):	

EMPLOYMENT ACTIVITY INFORMATION			
25. EMPLOYER NAME AND ADDRESS (Include city/state/zip code):		EMPLOYER PHONE (Include Area Code):	
26. SUPERVISOR NAME AND ADDRESS (Include city/state/zip code):		SUPERVISOR PHONE (Include Area Code):	
27. Check the applicable box for WORK HOURS box or check the OTHER box and enter the work hours, then check the applicable box for WORK DAYS: WORK HOURS: <input type="checkbox"/> 0600-1800 <input type="checkbox"/> 0800-1700 <input type="checkbox"/> OTHER 24/7 WORK DAYS: <input type="checkbox"/> SN <input type="checkbox"/> M <input type="checkbox"/> T <input type="checkbox"/> W <input type="checkbox"/> TH <input type="checkbox"/> F <input type="checkbox"/> ST			
PRIOR FELONY CONVICTIONS			
28. Have you ever been convicted of a Felony? <input type="checkbox"/> YES <input type="checkbox"/> NO _____ Initial			
REQUIREMENT TO RETURN LOCAL POPULATION ID CARD			
29. I understand that I am required to return my Local Population Identification Card to the Base Pass Office when it expires or if my employment is terminated for any reason. _____ (initial)			
AUTHORIZATION AND RELEASE AND CERTIFICATION			
30. I hereby authorize the DOD/DON and other authorized Federal agencies to obtain any information required from the Federal government and/or state agencies, including but not limited to, the Federal Bureau of Investigation (FBI), the Defense Security Service (DSS), the U.S. Department of Homeland Security (DHS). I have been notified of DON right to perform minimal vetting and fitness determination as a condition of access to DON installation/facilities. I understand that I may request a record identifier; the source of the record and that I may obtain records from the State Law Enforcement Office as may be available to me under the law. I also understand that this information will be treated as privileged and confidential information. I release any individual, including records custodians, any component of the U.S. Government or the individual State Criminal History Repository supplying information, from all liability for damages that may result on account of compliance, or any attempts to comply with this authorization. This release is binding, now and in the future, on my heirs, assigns, associates, and personal representative(s) of any nature. Copies of this authorization that show my signature are as valid as the original release signed by me. FALSE STATEMENTS ARE PUNISHABLE BY LAW AND COULD RESULT IN FINES AND/OR IMPRISONMENT UP TO FIVE YEARS. BEFORE SIGNING THIS FORM, REVIEW IT CAREFULLY TO MAKE SURE YOU HAVE ANSWERED ALL QUESTIONS FULLY AND CORRECTLY. I DECLARE UNDER PENALTY OF PERJURY THAT THE STATEMENTS MADE BY ME ON THIS FORM ARE TRUE, COMPLETE AND CORRECT. <div style="display: flex; justify-content: space-between; margin-top: 20px;"> DATE _____ SIGNATURE _____ </div>			
FINAL DETERMINATION ON YOUR ACCESS: The Base Commanding Officer has final authority for determination on granting physical access to DON controlled installations/facilities under his/her jurisdiction.			
BELOW COMPLETED BY BASE REGISTRAR PERSON CONDUCTING IDENTITY PROOFING and NCIC CHECK			
31. INFORMATION VERIFIED BY:	32. ENTERED IN C/S SYSTEM BY:	33. PASS ISSUE DATE:	34. PASS EXPIRATION DATE:
35. NCIC CHECK PERFORMED BY:		36. RESULTS OF NCIC CHECK: <input type="checkbox"/> NO RECORDS <input type="checkbox"/> RECORD IDENTIFIER RECORD NUMBER: _____	37. RESULTS OF LOCAL RECORDS CHECK: <input type="checkbox"/> NO RECORDS <input type="checkbox"/> RECORD IDENTIFIER RECORD NUMBER: _____
Office of Under Secretary of Defense Directive-Type Memorandum (DTM) 09-012, "Interim Policy Guidance for DoD Physical Access Control," December 8, 2009. DTM 09-012 requires that DoD installation government representatives query the National Crime Information Center (NCIC) and Terrorist Screening Database to vet the claimed identity and to determine the fitness of non-federal government and non-DoD-issued card holders (i.e. visitors) who are requesting unescorted access to a DoD installation. The minimum criteria to determine the fitness of a visitor is: 1) not on a terrorist watch list; 2) not on an DoD installation debarment list; and 3) not on a FBI National Criminal Information Center (NCIC) felony wants and warrants list. Additionally, SECNAV Memo, Policy for Sex Offender Tracking and Assignment and Access Restrictions within the Department of the Navy, of 7 Oct 08 and OPNAVINST 1752.3 established the Navy's policy on sex offenders, requiring Region Commanders (REGCOMs) and Installation Commanding Officers (COs) to prohibit sex offender access to DoN facilities and Navy owned, leased or PPV housing. This form describes the authority and purpose to collect and share the required information; and identifies the applicant/visitor and sponsor; and authorizes the DoD to perform the minimum vetting and fitness determination criteria. A favorable response on the vetting and fitness determination is required to receive access to DOD-controlled installation/facilities.			

Instruction for completing the Local Population Access Registration Form

INSTRUCTIONS: Please complete all information in black ink (printed) or by typing. By voluntarily providing your Personal Information, you agree to the following terms and restrictions:

RESTRICTIONS: Local Population Identification Card/Base Access Pass may only be used by person to whom they are issued and for the specific business/purpose issued. Applicants are reminded that soliciting (i.e., door-to-door sales) is prohibited on the base, and that such activity is grounds for cancellation of the Pass.

Additionally, such action may result in debarment from the base and legal action. The Base Commanding Officer has discretion over specifying the period of validity for any Local Population ID Cards/Base Access Passes that are issued under his/her jurisdiction.

Review the Privacy At Statement that is printed at the top of the form

<p>Block 1: Enter the Last Name.</p> <p>Block 2: Enter the First Name.</p> <p>Block 3: Enter the Middle Name.</p> <p>Block 4: If applicable, check the box for Name Suffix.</p> <p>Block 5: Check the applicable box for Race.</p> <p>Block 6: Check the applicable box for Gender.</p> <p>Block 7: Enter Date of Birth.</p> <p>Block 8: Enter City of Birth.</p> <p>Block 9: Enter State of Birth.</p> <p>Block 10: Enter Country of Birth.</p> <p>Block 11: Check the applicable box for US Citizenship.</p> <p>Block 12: If not a US Citizen, enter the name of the Country of Citizenship.</p> <p>Block 13: Two forms of identity source documents from the list of acceptable documents listed below must be presented to the base registrar with this completed form. Check the box for the type of Documents that will be presented for identity proofing. If the document type is not listed, use the two rows under Other Approved Identity Source Documents to enter the type of document(s) that you will present.</p> <p>Block 14: Enter the Document Number located on the Identity Proofing Source document that was checked in Block 13.</p> <p>Block 15: Enter the State that issued the Identity Source Document.</p> <p>Block 16: Enter the Country that issued the Identity Source Document.</p>	<p>Block 17: Enter the Date that the Identity Source Document was issued.</p> <p>Block 18: Enter the Date that the Identity Source Document will expire.</p> <p>Block 19: Enter Weight in pounds.</p> <p>Block 20: Enter Height in inches.</p> <p>Block 21: Check the applicable box for Hair Color.</p> <p>Block 22: Check the applicable box for Eye Color.</p> <p>Block 23: Enter Home Address Including City, State, Zip Code, and Home Telephone Number.</p> <p>Block 24: Enter Name of Registrant's Base Sponsor and Base Sponsor's Telephone Number.</p> <p>Block 25: Enter Employer Name and address including City, State, Zip Code, and Employer's Telephone Number.</p> <p>Block 26: Enter Supervisor's Name including City, State, Zip Code, and Supervisor's Telephone Number.</p> <p>Block 27: Check the applicable box for Work Hours box or check the OTHER box and enter the work hours, then check applicable boxes for Work Days.</p> <p>Block 28: Check the applicable answer if you have been convicted of Felony and enter initials.</p> <p>Block 29: Check the applicable box for felony conviction.</p> <p>Block 30: Sign and date the form to attest that the foregoing information is true and complete to best of your knowledge.</p>
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LIST OF ACCEPTABLE DOCUMENTS - All documents must not be expired.

Must present one selection from List A or a combination of one selection from List B and one selection from List C.

List A - Documents that Establish Identity and Employment Authorization	OR	List B - Documents that Establish Identity	AND	List C - Documents that Establish Employment Authorization
<p>1. U.S. Passport or U.S. Passport Card</p> <p>2. Permanent Resident Card or Alien Registration Receipt Card (Form I-551).</p> <p>3. Foreign passport that contains a temporary I-551 stamp or temporary I-551 printed notation on a machine-readable immigrant visa.</p> <p>4. Employment Authorization Document that contains a photograph (Form I-766).</p> <p>5. For a nonimmigrant alien authorized to work for a specific employer because of his or her status:</p> <p>a. Foreign Passport; and</p> <p>b. Form I-94 or Form I-94A that has the following:</p> <p>(1) The same name as the passport; and</p> <p>(2) An endorsement of the alien's nonimmigrant status as long as that period of endorsement has not yet expired and the proposed employment is not in conflict with and restrictions or limitations identified on form.</p> <p>6. Passport from the Federal States of Micronesia (FSM) or the Republic of the Marshall Islands (RM) with Form I-94 or Form I-94A indicating nonimmigrant admission under the Compact of Free Association Between the United States and FSM or RM.</p>		<p>1. Driver's license or ID card issued by a State or outlying possession of the United States provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address.</p> <p>2. ID card issued by federal, state or local government agencies or entities, provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address.</p> <p>3. School ID card with a photograph</p> <p>4. Voter's registration card.</p> <p>5. U.S. Military card or draft record.</p> <p>6. Military dependent's ID card.</p> <p>7. U.S. Coast Guard Merchant Mariner Card.</p> <p>8. Native American tribal document.</p> <p>9. Driver's license issued by a Canadian government authority.</p> <p>For persons under age 18 who are unable to present a document listed above:</p> <p>10. School record or report card.</p> <p>11. Clinic, doctor, or hospital record.</p> <p>12. Day-care or nursery school record.</p>		<p>1. A Social Security Account Number card, unless the card includes one of the following restrictions:</p> <p>(1) NOT VALID FOR EMPLOYMENT</p> <p>(2) VALID FOR WORK ONLY WITH INS AUTHORIZATION.</p> <p>(3) VALID FOR WORK ONLY WITH DHS AUTHORIZATION.</p> <p>2. Certification of Birth Abroad issued by the Department of State (Form FS-545).</p> <p>3. Certification of Birth issued by the Department of State (Form DS-1360).</p> <p>4. Original or certified copy of birth certificate issued by a State, county, municipal authority or territory of the United States bearing an official seal.</p> <p>5. Native American tribal document.</p> <p>6. U.S. Citizen ID Card (Form I-197).</p> <p>7. Identification Card for Use of Resident Citizen in the United States (Form I-179).</p> <p>8. Employment authorization document issued by the Department of Homeland Security.</p>

The remainder of the form will be completed by the Base Registrar Person conducting Identify Proofing process and NCIC check.

AGENCY DISCLOSURE STATEMENT:

The public reporting burden for this collection of information, OMB 0703-0061, is estimated to average ten (10) minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, Executive Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN RESPONSE TO THE ABOVE ADDRESS.

Responses should be sent to the Base Registrar.

SECTION 01 20 00.00 22

PRICE AND PAYMENT PROCEDURES (PWD ME)
05/22

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. ARMY CORPS OF ENGINEERS (USACE)

EP-1110-1-8 (2016) Construction Equipment Ownership
and Operating Expense Schedule

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

Schedule of Prices; G

1.3 SCHEDULE OF PRICES

1.3.1 Data Required

Within 15 calendar days of notice of award, prepare and deliver to the Contracting Officer a Schedule of Prices (construction Contract) as directed by the Contracting Officer. Provide a detailed breakdown of the Contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices. Provide labor, material, equipment for each line item. Contractor overhead and profit including salaries for field office personnel, if applicable, must be proportionately spread over all pay items and not included as individual pay items. Summarize costs and for each construction category.

1.3.2 Payment Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer. Additionally, the Schedule of Prices must be separated as follows:

a. Primary Facilities Cost Breakdown:

Defined as work on the primary facilities out to the 5 foot line. Work out to the 5 foot line includes construction encompassed within a theoretical line 5 foot from the face of exterior walls and includes attendant construction, such as pad mounted HVAC cooling equipment, cooling towers, and transformers placed beyond the 5 foot line.

b. Supporting Facilities Cost Breakdown:

Defined as site work, including incidental work, outside the 5 foot line.

If as-built drawings, eOMSI, or operations and maintenance manuals are required, payments for either will not be made until complete and final submissions are approved by the Contracting Officer. The following minimum amounts must be included as Schedule of Prices line items:

Minimum Schedule of Prices values for complete final approved as-built drawings (based on awarded Contract amount: \$0-\$150K 4%; \$150k-\$700k 3%; \$700k - \$2.49M 2%; \$2.5M + 2% (max \$200k))

Minimum Schedule of Prices value for complete final approved Operation and Maintenance Manuals (based on awarded Contract amount: \$0-\$150K 2%; \$150k-\$700k 2%; \$700k - \$2.49M 1%; \$2.5M + 1% (max \$200k))

Minimum Schedule of Prices value for complete final approved eOMSI Workbook (based on awarded Contract amount: \$0-\$150K 2%; \$150k-\$700k 2%; \$700k - \$2.49M 1%; \$2.5M + 1% (max \$200k))

1.3.3 Real Property Assets

The Government will provide the Draft DD Form 1354, Transfer and Acceptance of Military Real Property filled in with the appropriate Real Property Unique Identifiers (RPUID) and related construction Category Codes to summarize the designed real property assets that apply to this Contract. Meet with the Contracting Officer and the Real Property Accounting Officer during the Pre-Construction Meeting and the Project Closeout Meetings to modify and include any necessary changes to the DD Form 1354. Provide the Interim DD Form 1354 that uses the appropriate division of the RPUIDs/Category Codes to represent the final constructed facility and include all associated cost. Coordinate the Price and Payment structure with the structure of the RPUIDs/Category Codes.

Divide detailed asset breakdown into the RPUIDs and related construction Category Codes and populate associated costs which represent all aspects of the work. Where assets diverge into multiple RPUID/Category Codes, divide the asset and provide the proportion of the assets in each RPUID/Category Code. Assets and related RPUID/Category Codes may be modified by the Contracting Officer as necessary during course of the work. Coordinate identification and proportion of these assets with the Government Real Property Accounting Officer.

Cost data accumulated under this Section are required in the preparation of DD Form 1354.

1.3.4 Schedule Requirements for HVAC TAB

The field work of HVAC TABS must be broken down in the Schedule of Prices and in the Construction Progress Documentation by separate line items which reflect measurable deliverables. Specific payment percentages for each line item must be determined on a case by case basis for each Contract. The line items must be as follows:

- a. Approval of Design Review Report: The TABS Agency is required to conduct a review of the project plans and specifications to identify any feature, or the lack thereof, that would preclude successful testing and balancing of the project HVAC systems. The resulting

findings must be submitted to the Government to allow correction of the design. The progress payment must be issued after review and approval of the report.

- b. Approval of the pre-field engineering report: The TABS Agency submits a report which outlines the scope of field work. The report must contain details of what systems will be tested, procedures to be used, sample report forms for reporting test results, and a quality control checklist of work items that must be completed before TABS field work commences.
- c. Season I field work: Incremental payments are issued as the TABS field work progresses. The TABS Agency mobilizes to the project site and executes the field work as outlined in the pre-field engineering report. The HVAC water and air systems are balanced and operational data must be collected for one seasonal condition (either summer or winter depending on project timing).
- d. Approval of Season I report: On completion of the Season I field work; the data is compiled into a report and submitted to the Government. The report is reviewed, and approved, after ensuring compliance with the pre-field engineering report scope of work.
- e. Completion of Season I field QA check: Contact QC and Government representatives and meet the TABS Agency at the jobsite to retest portions of the systems reported in the Season I report. The purpose of these tests is to validate the accuracy and completeness of the previously submitted Season I report.
- f. Approval of Season II report: The TABS Agency completes all Season II field work, which is normally comprised mainly of taking heat transfer temperature readings, in the season opposite of that under which Season I performance data was compiled. This data must be compiled into a report and submitted to the Government. On completion of submittal review to ensure compliance with the pre-field engineering report scope, progress payment is issued. Progress payment is less than that issued for the Season I report since most of the water and air balancing work effort is completed under Season I.

1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from accounting records, equipment use rates must be based upon the applicable provisions of the EP-1110-1-8.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause FAR 52.232-27 Prompt Payment Construction Contracts and FAR 52.232-5 Payments Under Fixed-Price Construction Contracts. Invoices not completed in accordance with Contract requirements will be returned to the Contractor for correction of the deficiencies. The requests for payment must include the documents listed below.

- a. The Contractor's invoice, on NAVFAC Form 4330 furnished by the

Government, showing in summary form, the basis for arriving at the amount of the invoice. Form 4330 must include certification by the Quality Control (QC) Manager as required by the Contract.

- b. The Estimate for Voucher/ Contract Performance Statement on NAVFAC Form 4330 furnished by the Government. Use NAVFAC Form 4330, unless otherwise directed by the Contracting Officer, on NAVFAC Contracts when a Monthly Estimate for Voucher is required.
- c. Contractor's Monthly Estimate for Voucher and Contractors Certification (NAVFAC Form 4330) with Subcontractor and supplier payment certification. Other documents, including but not limited to, that need to be received prior to processing payment include the following submittals as required. These items are still required monthly even when a pay voucher is not submitted.
- d. Monthly Work-hour report.
- e. Updated Construction Progress Schedule and tabular reports required by the Contract.
- f. Contractor Safety Self Evaluation Checklist.
- g. Updated submittal register.
- h. Solid Waste Disposal Report.
- i. Certified payrolls.
- j. Updated testing logs.
- k. Other supporting documents as requested.

1.5.2 Submission of Invoices

If DFARS Clause 252.232-7006 Wide Area Work Flow Payment Instructions is included in the Contract, provide the documents listed in above paragraph CONTENT OF INVOICE in their entirety as attachments in Wide Area Work Flow (WAWF) for each invoice submitted. The maximum size of each WAWF attachment is two megabytes, but there are no limits on the number of attachments. If a document cannot be attached in WAWF due to system or size restriction, provide it as instructed by the Contracting Officer.

Monthly invoices and supporting forms for work performed through the anniversary award date of the Contract must be submitted to the Contracting Officer within 5 calendar days of the date of invoice. For example, if Contract award date is the 7th of the month, the date of each monthly invoice must be the 7th and the invoice must be submitted by the 12th of the month.

1.5.3 Final Invoice

- a. A final invoice must be accompanied by the Final Release. If incorporated, the Final Release must contain the corporate seal. An officer of the corporation must sign and the corporate secretary must certify the Final Release.
- b. For final invoices being submitted via WAWF, the original Contractor's Final Release Form must be provided directly to the respective

Contracting Officer prior to submission of the final invoice. Once receipt of the original Final Release Form has been confirmed by the Contracting Officer, submit the final invoice and attach a copy of the Final Release Form in WAWF.

- c. Final invoices not accompanied by the Final Release will be considered incomplete and will be returned.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests which comply with the requirements of this Section, and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this Contract will, at the discretion of the Contracting Officer, be subject to reductions and/or suspensions permitted under the FAR and agency regulations including the following in accordance with FAR 32.103 Progress Payments Under Construction Contracts:

- a. Reasonable deductions due to defects in material or workmanship;
- b. Claims which the Government may have against the Contractor under or in connection with this Contract;
- c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor; and
- d. Failure to provide up to date record drawings not current as stated in Contract Clause FAR 52.236.21.

1.6.2 Payment for Onsite and Offsite Materials

Progress payments may be made for materials delivered on the site, for materials stored off construction sites, or materials that are in transit to the construction sites under the following conditions:

- a. FAR 52.232-5(b) Payments Under Fixed Price Construction Contracts.
- b. Materials delivered on the site but not installed, including completed preparatory work, and off-site materials to be considered for progress payment must be major high cost, long lead, special order, or specialty items, not susceptible to deterioration or physical damage in storage or in transit to the construction site. Examples of materials acceptable for payment consideration include, but are not limited to, structural steel, non-magnetic steel, non-magnetic aggregate, equipment, machinery, large pipe and fittings, precast/pre-stressed concrete products, plastic lumber (e.g., fender piles/curbs), and high-voltage electrical cable. Materials not acceptable for payment include consumable materials such as nails, fasteners, conduits; gypsum board, glass, insulation, and wall coverings.
- c. Materials to be considered for progress payment prior to installation must be specifically and separately identified in the estimates of work submitted for the Contracting Officer's approval in accordance

with Schedule of Prices requirement of this Contract. Requests for progress payment consideration for such items must be supported by documents establishing their value and that the title requirements of the clause at FAR 52.232-5 "Payments Under Fixed-Price Construction Contracts" have been met.

- d. Materials are adequately insured and protected from theft and exposure.
- e. Provide a written consent from the surety company with each payment request for offsite materials.
- f. Materials to be considered for progress payments prior to installation must be stored within 50 miles of the Installation (Portsmouth Naval Shipyard. Other locations are subject to written approval by the Contracting Officer.
- g. Materials in transit to the job site or storage site are not acceptable for payment.
- h. Provide written consent allowing the Government access to the remote storage location for inspection of the stored materials.
- i. Materials must be separated from other stored materials and must be clearly identified with the contract number indicating where the materials will be used.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 30 00.00 22

ADMINISTRATIVE REQUIREMENTS (PWD ME)
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. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health 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

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM; G

NAVFAC PWD ME Internal Service Requirements List; G

1.3 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.

1.4 SUPERVISION

1.4.1 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.

1.4.2 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 EM 385-1-1 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.

The Project Superintendent must be on site during working hours. The Superintendent **cannot** be the Quality Control Manager nor the Site Safety and Health Officer (SSHO).

1.4.2.1 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 NAVFAC Red Zone meetings, partnering meetings, Preparatory meetings, and quality control meetings. The superintendent or qualified alternate must be on-site at all times during the performance of this Contract until the work is completed and accepted.

1.4.3 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 insure 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.

1.5 PRECONSTRUCTION MEETING

Notify the Construction Manager assigned to this project to arrange and hold a preconstruction meeting with all interested parties prior to start of work. **The Pre-Construction meeting must be held no later than 30 Calendar days from receiving the Signed Contract or Task Order from the Contracting Officer, 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, Base-access, outage requests, hot work permits, schedule requirements, quality control, Government Quality Assurance procedures and required Contractor coordination, schedule of prices, 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.

1.5.1 Attendees

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

The following Preconstruction submittals must be submitted to the Contracting Officer fifteen (15) calendar days prior to the pre-construction meeting:

<u>Specification</u>	<u>Description</u>
01 32 17.00 20	Baseline Network Analysis Schedule (NAS)

01 32 17.00 20	Three-Week Look Ahead Schedules
01 32 17.00 20	Outages Schedule
01 35 26.00 22	Accident Prevention Plan (APP)
01 45 00.00 22	Construction Quality Control (QC) Plan

The following Pre-construction submittals must be submitted to the Contracting Officer at the pre-construction meeting:

<u>Specification</u>	<u>Description</u>
01 14 00.00 22	List of Contact Personnel
01 20 00.00 22	Schedule of Prices
01 30 00.00 22	NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM
01 30 00.00 22	NAVFAC PWD ME Internal Service Requirements List
01 31 23.13 20	List of Contractor Personnel (eCMS)
01 33 00	Submittal Register
01 50 00.00 22	Construction site plan

The following Pre-construction submittals must be submitted to the Contracting Officer prior to the start of construction:

<u>Specification</u>	<u>Description</u>
01 11 00	Work Sequencing and Preparation Plan
01 30 10.00 22	Coordination Drawings
01 50 00.00 22	Traffic control plan
01 57 19.00 22	Preconstruction Survey
01 57 19.00 22	Solid Waste Management Plan
01 57 19.00 22	Regulatory Notifications
01 57 19.00 22	Environmental Management Plan (EMP)
01 57 19.00 22	Dirt and Dust Control Plan
01 57 19.00 22	Contractor Hazardous Material Inventory Log
01 57 19.00 22	Storm Water Management/Erosion and Sedimentation Control Plan
01 57 19.00 22	Spill Prevention, Control, and Countermeasures (SPCC) Plan
01 74 19	Waste Management Plan

Confirm, in writing, the construction start date with the Contracting Officer's Representative at least two (2) working days prior to start date.

Prepare and distribute minutes of all meetings to the attendees within three (3) working days of the Pre-construction meeting.

1.6 FACILITY TURNOVER PLANNING MEETINGS (NAVFAC Red Zone - RZ)

Meet with the Government to identify strategies to ensure the project is carried to expeditious closure and turnover to the Client. Start the turnover process at the Pre-Construction Meeting with a discussion of the NAVFAC Red Zone (RZ) process and convene at regularly scheduled RZ Meetings beginning at approximately 75 percent of construction completion. Include the following in the facility Turnover effort:

1.6.1 RZ Checklist

Prepare a project specific NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM prior to 75 percent completion. See Appendix A of this Section for an example of the Facility Turnover Planning Meeting Agenda and Red Zone (RZ) Checklist-POAM. Contracting Officer's Representative (COR) will provide the Contractor a copy of the Red Zone

Checklist template in advance of the RZ turnover meeting

At the initial Red Zone Facility Turnover meeting, NAVFAC, the Client, and Contractor will modify the Red Zone Checklist template by adding or deleting critical activities applicable to the project and assign planned completion dates for each activity. This becomes the Red Zone POAM which will be utilized through to the Contract completion.

Items listed on the checklists are required to remain on the checklists if they are part of the project/Contract or required by construction convention. Items not listed on the checklists, but required in the Contract or by construction convention, must be added to the checklists by the Contractor, Client, and NAVFAC. The Contracting Officer may request additional activities be added to the Red Zone Checklist at any time as necessary. Checklists are applicable to all Contracts no matter what Category of Work. The Point of Contact and due date must initially be determined during the Facility Turnover Planning Meeting by NAVFAC, Client, and Contractor leads. During execution of the RZ process, for each item on the entire list, the Construction Manager (CM) must indicate date completed and initial to indicate completion of the item. If a party fails to complete an item by the due date, this must be noted on the checklist and a new due date established and indicated.

1.6.2 Meetings

- a. Upon Government acceptance of the RZ Checklist-POAM, the COR will send out the accepted RZ Checklist-POAM to all attendees. The Project Superintendent is required to lead regular Red Zone Meetings beginning at approximately 75 percent project completion, or three (3) to six (6) months prior to Beneficial Occupancy Date (BOD), whichever comes first.
- b. The Contracting Officer will determine the frequency of the meetings, which is expected to increase as the project completion draws nearer. At the beginning, Red Zone meetings may be every two (2) weeks then increase to weekly towards the final month of the project.
- c. Using the RZ Checklist-POAM as a Plan of Action and Milestones (POAM) and basis for discussion, review upcoming critical activities and strategies to ensure work is completed on time.
- d. Discuss and coordinate with the COR for upcoming activities that require Government involvement.
- e. All parties must maintain their copy of the RZ Checklist-POAM documenting the actual completion dates as work is completed and update the RZ Checklist-POAM with revised planned completion dates as necessary to match progress. The CM will maintain the master RZ Checklist-POAM, periodically distributing a scanned copy of the current RZ Checklist-POAM to attendees via email after significant progress is made.

1.6.3 NAVFAC PWD ME Internal Service Requirements List

An initial, pre-edited draft of the NAVFAC PWD ME Internal Service Requirements List is included in Appendix B of this Section.

Include all information usually listed on manufacturer's name plate. The Internal Service Requirements List must include, as applicable, the

following for each piece of equipment installed: description of item, location (by room number), manufacturer, model number, serial number, capacity, floor coverings, wall and ceiling surfaces; types and square footage of coverage, lighting fixtures, bathroom fixtures, windows, and HVAC filters.

Submit a preliminary Internal Service List to the COR at the initial Facility Turnover Meeting. Provide the final completed Internal Service List with all required facility system/equipment information to the COR at least ninety (90) calendar days prior to the project BOD.

1.7 PARTNERING

To most effectively accomplish this Contract, the Contractor and Government must form a cohesive partnership with the common goal of drawing on the strength of each organization in an effort to achieve a successful project without safety mishaps, conforming to the Contract, within budget, and on schedule. The partnering team must consist of personnel from both the Government and Contractor including project level and corporate level leadership positions. Key Personnel from the supported command, end user (who will occupy the facility), NAVFAC, PWD Maine Design and Construction team and Subject Matter Experts (SME's), FEAD, Design Manager (DM), Construction Manager (CM), Engineering Technician (ET), Contractor, key Subcontractors, and the Designer of Record are required to participate in the Partnering process.

The Contracting Officer will provide Information on the Partnering Process and a list of key and optional personnel who are to attend the Partnering meeting.

1.7.1 Team-Led (Informal) Partnering

- a. The Contracting Officer will coordinate the initial Team-Led (Informal) Partnering Session with key personnel of the project team, including Contractor and Government personnel. The Partnering Session will be co-led by the Government Construction Manager and Contractor's Project Manager.
- b. The Initial Team-led Partnering session may be held concurrently with the Pre-Construction meeting. Partnering sessions will be held at a location mutually agreed to by the Contracting Officer and the Contractor, typically at a conference room on-Base or at the Contractor's temporary trailer.
- c. The Partners will determine the frequency of the follow-on sessions.
- d. Participants will bear their own costs for meals, lodging, and transportation associated with Partnering.

1.8 ELECTRONIC MAIL (E-MAIL) ADDRESS

Establish and maintain electronic mail (e-mail) capability along with the capability to open various electronic attachments as text files, pdf files, and other similar formats. Within 10 days after Contract Award, provide the Contracting Officer a single (only one) e-mail address for electronic communications from the Contracting Officer related to this Contract including, but not limited to, Contract Documents, invoice information, request for proposals, and other correspondence. The Contracting Officer may also use email to notify the Contractor of Base

access conditions when emergency conditions warrant, such as hurricanes or terrorist threats. Multiple email addresses are not allowed.

It is the Contractor's responsibility to make timely distribution of all Contracting Officer initiated e-mail with its own organization including field office(s). Promptly notify the Contracting Officer, in writing, of any changes to this email address.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

01 30 00 APPENDIX A**NAVFAC Red Zone
Facility Turnover Planning Meeting****AGENDA****I. Introduction and Overview – Purpose****CM**

The purpose of the Facility Turnover Planning Meeting is to address elements within the project team's purview – schedule management, assure completed facility complies with contract requirements, and other contractual issues. Each member of the project delivery team (Client, NAVFAC, and the contractor) has critical responsibilities to ensure timely completion and turnover of the new facility and each member should execute the NRZ process to achieve this end. The NRZ process provides a final re-focusing of attention to details of those key elements critical for a successful construction contract completion. In implementing NRZ processes, the NAVFAC/Contractor/Client team take a collective "snapshot" of contract status, identifying remaining actions to be accomplished, and confirm required resources needed for successful contract completion and turnover to the Client.

The Facility Turnover Planning Meeting is a collaborative effort between the Client, NAVFAC, and the contractor and results in a completed "NRZ Checklist/POAM Items" list that identifies the major items (and their due dates) that must be completed by the Contractor, the Client and the NAVFAC team to ensure timely completion of the contract.

II. Attendees

NAVFAC Echelon IV (PM); NAVFAC FEAD/ROICC Team (AROICC, CM, ET/QA, Contracting Officer); Client Team (Project Manager, Program Coordinator, User/Tenant); Contractor Team (Project Manager, Project Superintendent, CQC Manager)

III. Schedule to Completion (POAM)**Contractor****IV. Schedule of Final Outfitting and Occupancy (POAM)****Client****V. Critical feature(s) of project (POAM)****CM****VI. Transfer of Maintenance Responsibility****CM****VII. Systems training & O&M Manuals (POAM)****CQC Manager****VIII. Other Items to include on NRZ checklists****All****IX. Summary of Required Actions and Responsibility****CM**

Guidelines for conducting Facility Turnover Planning Meeting are as follows:

- a. Meeting is held at approximately 75% construction contract completion or three to six months prior to BOD. NAVFAC representatives will include the Project Manager, Construction Manager/AROICC (CM) and Design Manager (DM), as appropriate. The contractor representatives include applicable prime contractor staff and decision-makers from major subcontractors. Design-Build contractors will have A-E representatives attending. The Client should include representatives from Public Works Officer (PWO) staff, a Client scope and financial decision maker, a user tenant representative, a facility start-up person, and others such as SPAWAR, NMCI, telephone, and furniture contractor, etc.
- b. The purpose of the meeting is to plan the remaining work, identify critical project features that still need to be completed (such as “soft” construction contract requirements as shown on the NRZ Checklist/POAM Items), and to complete the filling out of the “NRZ Checklist/POAM Items”.
- c. The contractor, client and NAVFAC provide a POC and due date for each item on their checklist. The team fills in the checklists by selecting items applicable to the project, selects due dates on each item, and appoints a person who has responsibility to ensure the item gets completed by the due date. The CM will be responsible to monitor the milestones.

NRZ Checklist/POAM Items

The table below provides typical NRZ checklist items for contractor, Client, and NAVFAC actions. Items listed on the checklists are required to remain on the checklists if they are part of the project/contract or required by construction convention. Items not listed on the checklists, but required in the contract or by construction convention, must be added to the checklists by the contractor, Client and NAVFAC. Checklists are applicable to all contracts no matter what Category of Work.

The Point of Contact and due date shall initially be determined during the Facility Turnover Planning Meeting by the NAVFAC, client and contractor leads. During execution of the NRZ process, for each item on the entire list, the Construction Manager (CM) shall indicate date completed and initial to indicate completion of the item. If a party fails to complete an item by the due date, this should be noted on the checklist and new due date established and indicated. The completed NRZ Checklist/POAM shall be placed in the contract file.

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
	Required for Facility Delivery					
KTR	Electrical Systems Testing					
NAVFAC	Transformer Performance Verification					
KTR	Final Electrical Connections					
NAVFAC	Coordinate Final Electrical Connections					Coordinate w/PW Shops
KTR	Final Gas Connections					
NAVFAC	Coordinate Final Gas Connections					Coordinate w/PW Shops
KTR	Final Water Connections					
KTR	Superchlorination of Potable Water Systems					
KTR	Plumbing/Backflow Testing					
NAVFAC	Coordinate Final Water Connections					Coordinate w/PW Shops
KTR	Critical System Start-up: (Edit accordingly)					
KTR	Duct Air Leakage Testing (DALT)					
NAVFAC	DALT Field Acceptance					
KTR	Air Barrier Testing					
KTR	Fire Alarm/Sprinkler Testing					
NAVFAC	FA & FP test results to ML & DOR					days prior to acceptance testing by FPE
NAVFAC	Fire Alarm/Sprinkler Acceptance Test					Notify ML FPE 30 days prior to required testing.

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
KTR	Keying Plan Meeting					
Client	Keying Plan Meeting					
NAVFAC	Keying plan to NAVFAC Locksmith					
KTR	Deliver Lockset Cores to CM/ET					
NAVFAC	Lockset cores & keys and installed					Locksmith
KTR	NMCI Connections/IT Systems Testing					
Client	NMCI Install or other networks (C109)					
Client	Secure Network Installations					
KTR	IDS & SCIF Testing					
Client	IDS & SCIF Security Insp & Acceptance					
NAVFAC	IDS & SCIF Insp & Test					
KTR	Telecommunications Connections & Test					
Client	Telecommunication install (BCO phones)					
Client	Mod service contracts for Phone/Utilities/Custodial/Grounds					
KTR	Commissioning Functional Performance Testing (FPT)					
KTR	TAB (Air and Water Balancing)					
KTR	TAB Proportional Balancing Report					
NAVFAC	Proportional Balanc'g TAB Field Accept					
KTR	TAB Field Acceptance Testing					

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
KTR	TAB Season 1 Report*					
KTR	TAB Field Acceptance Testing					
NAVFAC	1st Season TAB Field Acceptance					
KTR	DDC Trend Logs / Endurance Testing					
KTR	Performance Verification Testing (PVT) Controls					
NAVFAC	Performance Verification Testing (PVT) Controls NAVFAC Acceptance					
KTR	Facility-Related Control System Cybersecurity Commissioning					
NAVFAC	Completed Cyber Hygiene Checklist					
NAVFAC	Completed RMF Step 4 Validation					
Client	GFE status/delivery schedule (GFCI, GFGI)					
Client	Client provided equipment KTR installed					
Client	Client provided equipment SELF installed					
NAVFAC	Training Coordinated/Scheduled with FMS					
KTR	System Training of Navy Personnel					
Client	Attend Training					
KTR	Provide As-Built floor plans in CAD					
NAVFAC	CM to Submit floor plan As-Built to CAD Dept.					RQ'd for Fire Bill - RQ'd before BOD(A)
KTR	Submit sample as-built drawings for CAD review					Submit 3 drawings from ea. discipline for review

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
NAVFAC	CM to submit to DM who must review and submit Sample As-Built documents to CAD					
KTR	Pre-Warranty Conference					
KTR	Contractor's Pre Final Punch List Complete					
KTR	Pre Final Inspection					
NAVFAC	Client walk-thru Inspection					
KTR	Pre-Final Inspection					
NAVFAC	Pre-Final Inspection					
KTR	Punch List					
KTR	Final Inspection					
NAVFAC	Final Inspection					
NAVFAC	BOD/Use and Possession					
Client	Ribbon-cutting ceremony					
Client	Planned User Move-in					
KTR	Delivery of O&M Manuals					Must be provided before BOD
NAVFAC	CM to submit the O&M's to DM who must review and submit to NAVFAC PWD ME Requirements					
KTR	Delivery of Product Warranties					Must be provided before BOD
NAVFAC	CM to submit Warranties to NAVFAC PWD ME Requirements FMS					

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
KTR	As-Built Drawings					Must be provided 30 cal days before BOD
NAVFAC	CM to submit the As-Built to DM who must review and submit documents to CAD Dept.					
KTR	Submit eOMSI Facility Data Workbook					Must be provided before BOD
NAVFAC	CM to submit the eOMSI Workbook to the DM who must review and submit to the NAVFAC PWD ME FOS.					
KTR	Submit the Internal Service Requirement List (ISRL)					Must be provided before BOD
NAVFAC	CM to submit the ISRL to the DM who must review and submit to the NAVFAC PWD ME FSC.					
	Required for Contract Close-out:					
NAVFAC	Warranty documentation to FMS					Must be provided before CCD
KTR	Site Restoration					
KTR	Final Landscaping					
KTR	Spare Parts, Extra Stock, Special Tools, etc					
KTR	Final Demobilization and Clean-up					
KTR	Temp Construction Fence Removed					
KTR	Project Close-out Meeting					
KTR	Complete DD1354					
NAVFAC	DD 1354 Signed & turned over to RPAO					

NAVFAC Red Zone Facility Turnover Planning Meeting Checklist and POAM

Resp.	Critical Activities	Point of Contact	Due Date	Actual Complete Date	CM Initials	Notes
KTR	Closeout & submit permits and inspection reports					Notice of Termination (NOT); Storm water insp rpts; Stoemwater BMP Install rpts; Archaeological Monitor'g rpts and artifacts, salvaged mat. etc.
KTR	Seasonal/Deferred Commissioning FPT					
KTR	2 nd Season TAB Report					
NAVFAC	2 nd Season TAB Field Accept Testing					
NAVFAC	Authority to Operate delivered to client					
KTR	Commissioning 10-Month/Warranty Visit					
NAVFAC	Inform PM of BOD					
NAVFAC	BOD (A) entered into eContracts					
NAVFAC	BOD Letter to Contractor					
NAVFAC	Acceptance Letter to Client					
NAVFAC	Process recycled/recovered materials report					
NAVFAC	Contractor Evaluations (CPARS) Complete					
NAVFAC	Finalize Outstanding Contract Mods					

*** INFO / DIRECTIONS**

- The NRZ Checklist/POAM is a tool to track the status of critical activities required for BOD to help ensure their timely completion to prevent delays with the facility acceptance and turnover.
- The critical activities are organized by section according to the requirement (e.g. NMCI & BCO acceptance and connections)
- Critical items missing from this list should be added as necessary to ensure the list is comprehensive. Likewise, unnecessary items should be deleted.
- Any critical items left off the NRZ Checklist that are later identified after initial NRZ meeting is conducted should be added immediately so their progress can be tracked.
- A copy of the NRZ Checklist/POAM shall be maintained in the contract file.

Appendix B

ISRL Instruction Sheet

The new ISRL is broken out in 3 areas

Section 1 is known serviceable inventory currently under contract. This information needs be obtained during the design phase of a project and conveyed in the ISRL under “current inventory-filled out by government”. For a complete inventory, you will need to see the FSC department. Contact David Nedeau or Rachael Andrews. The following is an example:

Fire Suppression		
EQUIPMENT	quantity	INFORMATION / LOCATION
WET SYS	1	1st floor east side mechanical room
DRY SYS	1	1st floor east side mechanical room
PRE-ACTION	1	1st floor east side mechanical room
STAND PIPE	2	one in each stairwell
DIESEL FIRE PUMP	1	Cummins 6BTA59F, 208 HP / 1st floor east side mechanical room
ELECTRIC FIRE PUMP	1	1st floor east side pump room

Section 2 is the responsibility of the contractor. In the first block, the contractor needs to indicate what they have done with the known equipment or what they have added to the facility that was not previously there. You will see below, that all of the equipment noted by the government has either been removed, replaced, or is not part of the scope, with a small note section describing the action taken. If it is new to the facility, the contractor will indicate it on a blank line below the known listed inventory (example indicated in **RED**).

Fire Suppression							
EQUIPMENT	quantity	INFORMATION / LOCATION	removed	replaced	new to building	not part of scope	notes
WET SYS	1	1st floor east side mechanical room		x			like in kind
DRY SYS	1	1st floor east side mechanical room		x			replaced with wet
PRE-ACTION	1	1st floor east side mechanical room	x				removed from building
STAND PIPE	2	one in each stairwell				x	
DIESEL FIRE PUMP	1	cummins 6BTA59F, 208 HP / 1st floor east side mechanical room		x			like in kind
ELECTRIC FIRE PUMP	1	1st floor east side pump room				x	
					x		add wet system SE corner

Block 2 of the contractor required information is specific information related to the new systems installed. If an item was not part of the scope or removed from the building, then this information does not need to be filled in. If a system was replaced or is new to the building, then the subsequent data is required.

EQUIPMENT	Fire Pump Data		Fire Pump Driver Data				
	Manufacturer	GPM	Manufacturer	Model	Serial #	HP	RPM
WET SYS							
WET SYS							
DIESEL FIRE PUMP	Peerless	2500	Cummins	7BTK86E	125487	208	2500
WET SYS							

Section 3 is listed to the far right of the sheet labeled “information only”. The information contained in this column, are items that need to be captured if they do not already appear under the inventory that the government has already provided. For instance, if a system or component is newly installed in a facility, refer to the list of items in the category to see if it needs to be captured on this sheet, if you do not see it listed then it does not need to be recorded.

systems to include in this report are:	
Automatic Sprinkler Systems	Gas Systems
Fire Pumps and Drivers	Chemical Systems
Air Compressors	Range Hoods
Stand Pipes	Foam Systems
Drum Drips	

*** This form needs to be filled out at the end of each phase of the contract and turned into the government no less than 90 days prior to occupancy *** : Each ISRL needs to be job specific. If it doesn't pertain to the job, delete/hide the rows that do not apply. This will prevent the contractor from filling in information not pertinent to the job.

For information or assistance filling out the ISRL, please contact the FSC department.

David Nedeau – X4850

Rachael Andrews – X4851

NAVFAC Internal Services Requirements List

Project Name (include BLDG#): BUILDING 79 2nd & 3rd FLOOR RENOVATIONS	e-Project# 1591147
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**** this form needs to be filled out at the end of each phase of the contract and turned into the government no less than 90 days prior to occupancy****

[illegible]

NAVFAC Internal Services Requirements List																															
Project Name (include BLDG#): BUILDING 79 2nd & 3rd FLOOR RENOVATIONS															e-Project# 1591147																
**** this form needs to be filled out at the end of each phase of the contract and turned into the government no less than 90 days prior to occupancy****																															
N/A						X																									
Boilers and Unfired Pressure Vessels (UPV) Certification																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Boiler or UPV	Description		National Board #	USN Number	Date Inspected															systems to include in this report are:
TEAM TO HW HEAT EXCHANGER - SHELL AND TUBE	1	FIRST FLOOR NORTH MECH 111		1																											Boilers
HW TO GLYCOL HEAT EXCHANGER - SMALL BRAZED	1	FIRST FLOOR NORTH MECH 111		1																											Pressure Vessels
HX-2 STEAM TO HW HEAT EXCHANGER - SHELL AND TUBE	1	FIRST FLOOR NORTH MECH 111				1																									
HX-1 HW TO GLYCOL HEAT EXCHANGER - PLATE AND FRAME TYPE	1	FIRST FLOOR NORTH MECH 111				1																									
Back Flow Preventers																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT		Location Floor #	Manufacturer	Model	Serial #	Size	Type	System	Installed in												systems to include in this report are:
N/A		FIRST FLOOR NORTH MECH 111					X																								Backflow Prevention Devices
Emergency Generators																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Manufacturer	Model	Serial #	KW	HP															systems to include in this report are:	
N/A							X																								Emergency generators
Water Cooler Filters																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Floor	Water Cooler Mfg		Model #	Filter Model #	Water SENTRY Y/N														systems to include in this report are:	
FLOOR MOUNTED ELECTRIC WATER COOLER	2	1 EACH ON SECOND FLOOR AND THIRD FLOORS, ADJACENT TO TOILET ROOMS		2																										Water Coolers	
FWC-1 DUAL HEIGHT ELECTRIC WATER COOLER	4	2 EACH ON SECOND FLOOR AND THIRD FLOORS				4																									
Gutters & Downspouts																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Gutters				Downspouts				Roof Drains											systems to include in this report are:	
DOWNSPOUTS	2	ROOFTOP STAIR TOWER									Size	Material	Height	Length	Material	# of Drops	Size	Height	Quantity											Low Sloped Roofs	
						X																									
Overhead Doors																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Door #	Width	Height	Manufacturer	Type	Fire Door	Y / N	Electric / Manual	Interior / Exterior	Voltage										systems to include in this report are:	
N/A							X																								Overhead Doors
Motion Activated Glass Doors																															
EQUIPMENT	quantity	INFORMATION / LOCATION		removed	replaced	new to building	not part of scope	notes		EQUIPMENT	Model Number	Serial Number	Dimension Width	Height																systems to include in this report are:	
N/A							X																								Motion Activated Doors
Low Sloped Roof																															

NAVFAC Internal Services Requirements List

Project Name (include BLDG#): BUILDING 79 2nd & 3rd FLOOR RENOVATIONS	e-Project# 1591147
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[illegible]

Facilities Contract for Toilet/Restroom Supplies

JDD

Toilet Paper Dispenser: Kimberly Clark 09551-00

Toilet Paper: Kimberly Clark 67223

Paper Towel Dispenser: Kimberly Clark Professional 48857-00

Paper Towels: Kimberly Clark 01040-10

Soap Dispenser: Provon 5160-06

Foam Antimicro Soap: Provon 5186-03

Large Soap Dispenser for Men's Room: GOJO 7500-01

Large Soap for Men's Room: GOJO Pro 5000 Pumice Soap 7590-02

Small Soap Dispenser for Ladies' Room: GOJO 7200-01

Small Soap for Ladies' Room: GOJO Pro 2000 Pumice Soap 7290-04

SECTION 01 30 10.00 22

COORDINATION PROCEDURES AND COORDINATION DRAWINGS
01/22

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component part of, each Section of the specifications.

1.2 GENERAL COORDINATION PROCEDURES

1.2.1 Coordination

Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation. Each subcontractor must participate in coordination requirements. Certain areas of responsibility are assigned to a specific subcontractor.

- a. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
- b. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
- c. Make adequate provisions to accommodate items scheduled for later installation.

1.2.2 Distribution of Memoranda

Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

- a. Prepare similar memoranda for the Government and separate subcontractors if coordination of their Work is required.

1.2.3 Project Coordination Meetings

Conduct weekly Project Coordination Meetings either separately or in conjunction with weekly Quality Control Meetings to discuss project planning, coordination, and performance of on-going and future construction activities.

1.3 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-02 Shop Drawings

Coordination Drawings; G

1.4 COORDINATION DRAWINGS

1.4.1 General

At a minimum provide thorough and complete coordination drawings indicating as a minimum existing conditions including existing structure, walls, openings, floor to floor heights, ceiling heights, clear opening dimensions, existing utilities to remain, proposed openings to be provided by contractor through existing floors, walls, partitions, roof deck, along with proposed location, layout, and arrangement of fire suppression, fire alarm and mass notification system, plumbing, HVAC, electrical, communication, and electronic safety and security systems including, but not limited to, piping, HVAC equipment, ductwork, sprinkler system, cable tray, communications conduit trapeze runs, lighting fixtures, conduit feeders, floor poke throughs, equipment, panelboards, control panels, equipment service areas, and other items that must be shown to ensure a coordinated installation. Drawings must indicate adequate clearance for operation, maintenance, and replacement of operating equipment and devices. Coordinate with each applicable Section in this Project Specification.

Prepare coordination drawings according to requirements above and in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity. The intent of the coordination drawings is to identify conflicts, and resolve them prior to on-site construction activities to the benefit of the Contractor and the Government.

Note: Electronic files of the Contract Drawings will be made available for use in the preparation of coordination drawings.

- a. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 1. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 2. Coordinate the addition of trade-specific information to coordination drawings in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 3. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, plumbing, fire suppression, communication systems, fire alarm and mass notification system, and electrical systems.
 4. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the facility.
 5. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 6. Indicate required installation sequences.

7. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.4.2 Coordination Drawing Organization

Organize coordination drawings as follows:

- a. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire suppression, communication systems, fire alarm and mass notification system, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
- b. Ceiling Cavity Space: Indicate existing structural beams, trusses, and other components that provide for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling cavities to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
- c. Mechanical and Electrical Rooms: Provide coordination drawings for mechanical and electrical rooms showing plans and elevations of mechanical, plumbing, fire suppression, communication systems, fire alarm and mass notification system, and electrical equipment.
- d. Structural Penetrations: Indicate penetrations and openings required for all disciplines in existing floors and masonry walls.
- e. Mechanical and Plumbing Work: Show the following:
 1. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 2. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts, air handlers, terminal units, boiler plant equipment, control panels, and electrical distribution equipment.
 3. Fire-rated enclosures around ductwork.
 4. Plumbing piping locations and sizes and locations of plumbing fixtures and equipment.
 5. Drawings must include existing to remain portions of mechanical and plumbing systems including ductwork, piping, and equipment.
- f. Electrical Work: Show the following:
 1. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 2. Light fixture, exit light, smoke detector, and other fire alarm locations, including dimensions.
 3. Panelboards, transformers, control panels, relays, motor controls, and disconnect switches, including dimensions.
 4. Location and dimensions of pull boxes and junction boxes, dimensioned from column center lines.
 5. Locations and dimensions of cable trays.
 6. Drawings must include existing to remain portions of conduits and

electrical systems and components.

g. Communication Systems: Show the following:

1. Locations of panels and components.
2. Locations and dimensions of cable trays.
3. Drawings must include existing to remain portions of conduits and cable trays.

h. Fire Suppression System: Show the following:

1. Locations and dimensions of risers, main and branch lines, pipe drops, and sprinklers. Drawings must include the existing-to-remain portions of the system. Drawings must include temporary piping to be installed to minimize system impairments.

i. Fire Alarm and Mass Notification System: Show the following:

1. Locations of panels, initiating devices, notification appliances, and conduit risers. Drawings must include the existing portions of the system that are to remain until the new system has been approved.

j. Review: Coordination drawings will be reviewed by the Government to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If the Government determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Government will so inform Contractor, who must make suitable modifications and resubmit.

1.4.3 Coordination Digital Data Files

Prepare coordination digital data files according to the following requirements:

- a. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
- b. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format and PDF format.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 31 23.13 20

ELECTRONIC CONSTRUCTION AND FACILITY SUPPORT CONTRACT MANAGEMENT SYSTEM
05/17, CHG 6: 02/21

PART 1 GENERAL

1.1 CONTRACT ADMINISTRATION

Utilize the Naval Facilities Engineering Command's (NAVFAC's) Electronic Construction and Facility Support Contract Management System (eCMS) for the transfer, sharing, and management of electronic technical submittals and documents. The web-based eCMS is the designated means of transferring technical documents between the Contractor and the Government. Paper media or e-mail submission, including originals or copies, of the documents identified in Table 1 are not permitted, except where eCMS is unavailable, non-functional, or specifically requested in addition to electronic submission. When specifically requested to provide documents outside of eCMS, upload all final project documentation (e.g. documents that are signed and/or adjudicated by the Government) mentioned in Table 1 into the subject eCMS document management folders that are associated with that document type. Include the identification number of the document, type of document; the name/subject or title; and for daily reports the date (day of work) with format YYYY/MM/DD in the filename. For example: For RFI's 0011_RFI_Roof_Leaking.doc; For submittals 32a_Submittals_Light_Fixture.pdf; For Daily Reports 0132_Daily_Report_20190504.xls. Contact the Contracting Officer's Representative (COR) regarding availability of eCMS training and reference materials.

1.2 USER PRIVILEGES

The Contractor will be provided access to eCMS. All technical submittals and documents must be transmitted to the Government via the COR. Project roles and system roles will be established to control each user's menu, application, and software privileges, including the ability to create, edit, or delete objects.

1.3 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

List of Contractor's Personnel; G

1.4 SYSTEM REQUIREMENTS AND CONNECTIVITY

1.4.1 General

The eCMS requires a web-browser (platform-neutral) and Internet connection. Obtain from an approved vendor an External Certification Authority (ECA), Primary Key Infrastructure (PKI) certificate, or other similar digital identification to support two-factor authentication and access to eCMS. Provide and maintain computer hardware and software for

the eCMS access throughout the duration of the Contract for all Contractor-designated users. Provide connectivity, speed, bandwidth, and access to the Internet to ensure adequate functionality. Neither upgrading of Contractor's computer system nor delays associated from the usage of the eCMS will be justification or grounds for a time extension or cost adjustment to the Contract.

1.4.2 Contractor Personnel List

Within 20 calendar days of Contract award, provide to the Contracting Officer a list of Contractor's personnel who will have the responsibility for the transfer, sharing, and management of electronic technical submittals, and documents and will require access to the eCMS. Project personnel roles to be filled in the eCMS include the Contractor's Project Manager, Superintendent, Quality Control (QC) Manager, and Site Safety and Health Officer (SSHO). Personnel must be capable of electronic document management. Notify the COR immediately of any personnel changes to the project. The Contracting Officer reserves the right to perform a security check on all potential users. Provide the following information:

First Name

Last Name

E-mail Address (cannot be a personal email address server; e.g. gmail, yahoo)

Office Address

Project Role (e.g. Project Manager, QC Manager, Superintendent)

1.5 SECURITY CLASSIFICATION

In accordance with Department of Navy guidance, all military construction Contract data is unclassified, unless specified otherwise by a properly designated Original Classification Authority (OCA) and in accordance with an established Security Classification Guide (SCG). Refer to the project's OCA when questions arise about the proper classification of information.

The eCMS must only be used for the transaction of unclassified information associated with construction projects. In conformance with the Freedom of Information Act (FOIA), DoD INSTRUCTION 5200.48 CONTROLLED UNCLASSIFIED INFORMATION (CUI), and DoD requirements, any unclassified project documentation uploaded into the eCMS must be designated either "U - UNCLASSIFIED" (U) or "CUI - CONTROLLED UNCLASSIFIED INFORMATION" (CUI). Project photos must not be uploaded to eCMS. All photos must be reviewed by Portsmouth Naval Shipyard Security prior to any public release.

1.6 ECMS UTILIZATION

Establish, maintain, and update data and documentation in the eCMS throughout the duration of the Contract.

Personally Identifiable Information (PII) transmittal is not permitted in the eCMS.

1.6.1 Information Security Classification/Identification

The eCMS must be used for the transmittal of the following documents. This requirement supersedes conflicting requirements in other Sections, however, submittal review times in Section 01 33 00 SUBMITTAL PROCEDURES remain applicable. Table 1 - Project Documentation Types provides the

appropriate U and CUI designations for various types of project documents. Construction documents requiring CUI status must be marked accordingly. Apply the appropriate markings before any document is uploaded into eCMS. Markings are not required on U documents.

Table 1 also identifies which eCMS application is to be used in the transmittal of data (these are subject to change based on the latest software configuration). If a designated application is not functional within 4 hours of initial attempt, defer to the Submittal application and submit the required data as an uploaded portable document (e.g. PDF), word processor, spreadsheet, drawing, or other appropriate format. Hard copy or e-mail submission of these items is acceptable only if eCMS is documented to be not available or not functional or specifically requested in addition to electronic submission. After uploading documents to the Submittal application, transmit the submittals and attachments to the COR via the Transmittal application. For Submittals, select the following:

Preparation by = Contractor personnel assigned to prepare the submittal
Approval by = Contracting Officer's Representative (COR)
Returned by = Design Lead/Manager
Forwarded to = Contractor Project Manager

Table 1 - Project Documentation Types

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
As-Built Drawings	U	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals and Transmittals
Building Information Modeling (BIM)	U	1. Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager 2. Design reviews will be performed in existing "Dr Checks"	Submittals and Transmittals
Construction Permits	U	Refer to rules of the issuing activity, state or jurisdiction	Submittals and Transmittals

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
Construction Schedules (Activities and Milestones)	U	After the schedule submittal is approved by the COR, import the schedule file into the scheduling application, and select "Approve" to establish a new schedule baseline	Submittals, Transmittals, and Scheduling App
Construction Schedules (Cost-Loaded)	U	After the schedule submittal is approved by the COR, import the schedule file into the scheduling application, and select "Approve" to establish a new schedule baseline	Submittals, Transmittals, and Scheduling App
Construction Schedules (3-Week Lookahead)	U	Import the schedule file into the scheduling application, and select "Approve" to establish a new schedule baseline	Scheduling App
DD 1354 Transfer of Real Property	U		Submittals and Transmittals
Daily Production Reports	U	Provide weather conditions, crew size, man-hours, equipment, and materials information	Daily Report
Daily Quality Control (QC) Reports	U	Provide QC Phase, Definable Features of Work Identify visitors	Daily Report
Designs and Specifications	U	1. Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager 2. Design reviews will be performed in existing "Dr Checks"	Submittals and Transmittals
Environmental Notice of Violation (NOV), Corrective Action Plan	U	Refer to rules of the issuing activity, state or jurisdiction	Submittals and Transmittals

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
Environmental Protection Plan (EPP)	U		Submittals and Transmittals
Invoice (Supporting Documentation)	U	Applies to supporting documentation only. Invoices are submitted in Wide-Area Workflow (WAWF)	Submittals and Transmittals
Jobsite Documentation, Bulletin Board, Labor Laws, SDS	U		Submittals and Transmittals
Meeting Minutes	U		Meeting Minutes
Modification Documents	U	Provide final modification documents for the project. Upload into "Modifications - RFPs	Document Management
Operations & Maintenance Support Information (OMSI/eOMSI), Facility Data Worksheet	U	1. Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager 2. Design reviews will be performed in existing "Dr Checks"	Submittals and Transmittals
Photographs		MUST NOT BE SAVED TO ECMS. ALL PHOTOGRAPHS MUST BE REVIEWED BY PORTSMOUTH NAVAL SHIPYARD SECURITY.	Submittals and Transmittals
QCM Initial Phase Checklists	U		Checklists (Site Management)
QCM Preparatory Phase Checklists	U		Checklists (Site Management)

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
Quality Control Plans	U		Submittals and Transmittals
QC Certifications	U		Submittals and Transmittals
QC Punch List	U		Punch lists (Testing Logs)
Red-Zone Checklist	U		Checklists (Site Management)
Rework Items List	U		Punch lists (Testing Logs)
Request for Information (RFI) Post-Award	U		RFIs
Safety Plan	U		Daily Report
Safety - Activity Hazard Analyses (AHA)	U		Daily Report
Safety - Mishap Reports	U		Daily Report
SCIF/SAPF Accreditation Support Documents	CUI	Note: Some Construction Security plans may be classified as Secret. Classified information must not be uploaded into eCMS. Refer to the Site Security Manager, as applicable.	Submittals and Transmittals
Shop Drawings	U	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals and Transmittals

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
Storm Water Pollution Prevention (Notice of Intent - Notice of Termination)	U	Refer to rules of the issuing activity, state or jurisdiction	Submittals and Transmittals
Submittals and Submittal Log	U		Submittals and Transmittals
Testing Plans, Logs, and Reports	U		Submittals and Transmittals
Training/Reference Materials	U		Submittals and Transmittals
Training Records (Personnel)	U		Submittals and Transmittals
Utility Outage/Tie-In Request/Approval	U		Submittals and Transmittals
Warranties/BOD Letter	U		Submittals and Transmittals
Quality Assurance Reports	U		Checklists (Government Initiated)
Non-Compliance Notices	U		Non-Compliance Notices (Government initiated)
Other Government-prepared documents	U		GOV ONLY

SUBJECT/NAME	DESIG	REMARKS	ECMS APPLICATION
All Other Documents	U	Refer to FOIA guidelines and contact the FOIA official to determine whether exemptions exist	As applicable

1.6.2 Markings on CUI documents

- a. Only CUI documents being electronically uploaded into the eCMS (.docx, .xlsx, .pptx, .pdf, .jpg, .zip, and others as appropriate), and associated paper documents described in the paragraph CONTRACT ADMINISTRATION require CUI markings as indicated in the subparagraphs below.
- b. CUI documents that are originally created within the eCMS application using the web-based forms (RFIs, Daily Reports, and others as appropriate) will be automatically watermarked by the eCMS software, and these do not require additional markings.
- c. CUI documents must be marked "UNCLASSIFIED//FOR OFFICIAL USE ONLY" at the bottom of the outside of the front cover (if there is one), the title page, the first page, and the outside of the back cover (if there is one).
- d. CUI documents must be marked on the internal pages of the document as "CONTROLLED UNCLASSIFIED INFORMATION" at top and bottom.
- e. Where Installations require digital photographs to be designated CUI, place the markings on the face of the photograph.
- f. For visual documentation, other than photographs and audio documentation, mark with either visual or audio statements as appropriate at both the beginning and end of the file.

1.7 QUALITY ASSURANCE

Requested Government response dates on Transmittals and Submittals must be in accordance with the terms and conditions of the Contract. Requesting response dates earlier than the required review and response time, without concurrence by the Government COR, may be cause for rejection.

Incomplete submittals will be rejected without further review and must be resubmitted. Required Government response dates for resubmittals must reflect the date of resubmittal, not the original submittal date.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

B79 - 2ND & 3RD FLOOR RENOVATIONS
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

1591147

-- End of Section --

SECTION 01 32 17.00 20

NETWORK ANALYSIS SCHEDULES (NAS)
05/18, CHG 3: 08/20

PART 1 GENERAL

1.1 DEFINITIONS

The cost-loaded Network Analysis Schedule (NAS) is a tool to manage the project, both for Contractor and Government activities. The NAS is also used to report progress, evaluate time extensions, and provide the basis for progress payments.

For consistency, when scheduling software terminology is used in this Section, the terms in Primavera's scheduling programs are used.

1.2 SCHEDULE REQUIREMENTS PRIOR TO THE START OF WORK

1.2.1 Preliminary Scheduling Meeting

Before preparation of the Project Baseline Schedule, and prior to the start of work, meet with the Contracting Officer to discuss the proposed schedule and the requirements of this Section. Propose projected data dates for monthly update schedules for the project and incorporate each monthly update submittal into submittal register. Discuss required forms, terminology, and submittal requirements of this Section and other requirements related to schedule management for this Contract.

1.2.2 Project Baseline Schedule

Submit the Baseline NAS within 30 calendar days after Contract Award. Data date must be set to Contract Award date and no progress status for any activity. Only bonds may be paid prior to acceptance of the Baseline NAS. The acceptance of a Baseline NAS is a condition precedent to:

- a. The Contractor starting demolition work or construction stage(s) of the Contract.
- b. Processing Contractor's invoices(s) for any items other than bonds.
- c. Review of any schedule updates.

Submittal of the Baseline NAS is the Contractor's certification that the submitted schedule meets the requirements of the Contract Documents and represents the Contractor's plan on how the work will be accomplished. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES with baseline NAS submittal.

1.2.3 Outages Schedule

Submit a proposed outages schedule to the Contracting Officer for discussion and coordination with the Government prior to the Pre-construction Meeting.

1.3 THREE-WEEK LOOK AHEAD SCHEDULE

1.3.1 Weekly CQC Coordination and Production Meeting

Deliver electronic file of 3-Week Look Ahead Schedule to the Contracting Office at least 24 hours prior to the weekly scheduled CQC Coordination and Production Meeting. Contractor is required to provide all attendees at the CQC Coordination and Production Meeting with a hard copy of the 3-Week Look Ahead Schedule.

1.3.2 Look Ahead Schedule Requirements

Prepare and issue a 3-Week Look Ahead schedule to provide a more detailed day-to-day plan of upcoming work identified on the Project Network Analysis Schedule. Requirements include:

- a. For each Look Ahead schedule activity, identify parent NAS activity number(s). The parent NAS activity is the activity in the NAS that would incorporate the Look Ahead schedule activity requirement and or scope of work.
- b. Update schedule each week to show the planned work for the current and following two-week period. Also include previous week, as-built work, showing actual start and finish dates.
- c. Include upcoming outages, closures, preparatory meetings, and initial meetings, testing, and Special Inspections including any required Government QA inspections.
- d. Clearly identify longest path activities on the Three-Week Look Ahead Schedule. Include a key or legend that distinguishes longest path activities. Include all Longest Path activity NAS start/finish dates exceeded and/or occurring during this period.
- e. The detail work plans are to be bar chart type schedules, derived from but maintained separately from the Project NAS on an electronic spreadsheet program and printed on 11 by 17 inch sheets as directed by the Contracting Officer.
- f. 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.

1.4 MONTHLY NETWORK ANALYSIS

Submittal of Monthly NAS is the Contractor's certification that the submitted schedule meets the requirements of the Contract Documents and represents the Contractor's plan on how the work will be accomplished. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES with the monthly NAS submittal.

1.4.1 Monthly Network Analysis Updates

- a. Regardless of whether an invoice is being submitted monthly, an updated schedule must be submitted monthly to the Government. The Monthly NAS update must be submitted within 10 calendar days of the data date.
- b. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND

NATIVE P6 XER FILES, with each monthly NAS update submittal.

- c. Meet with Government representative(s) at monthly intervals to review and agree on the information presented in the updated project schedule. The submission of an accepted, updated schedule to the Government is a condition precedent to the processing of the Contractor's invoice.
- d. Activity progress must incorporate as-built events as they occurred and correspond to records including but not limited to submittals and daily production and quality control reports. Software Settings: Handle schedule calculations and Out-of-Sequence progress (if applicable) through Retained Logic, not Progress Override. Show all activity durations and float values in days. Show activity progress using Remaining Duration. Set default activity type to "Task Dependent".
- e. Update schedule must reflect current Contract Completion Date (CCD) and Contract value in accordance with all conformed Contract modifications issued prior to data date of NAS update.

1.4.2 As-Built Schedule

As a condition precedent to the release of retention and making final payment, submit an "As-Built Schedule," as the last schedule update showing all activities at 100 percent completion. This schedule must reflect the exact manner in which the project was actually constructed.

1.5 CORRESPONDENCE AND TEST REPORTS

Reference Schedule activity IDs that are being addressed in each correspondence (e.g., letters, Requests for Information (RFIs), e-mails, meeting minute items, Production and QC Daily Reports, material delivery tickets, photographs), and test report (e.g., concrete, soil compaction, weld, pressure).

1.6 ADDITIONAL SCHEDULING REQUIREMENTS

Other specification Sections may include additional scheduling requirements, including systems to be inspected, tested and commissioned, and submittal procedures. Those schedule requirements must be incorporated into the NAS schedule.

1.7 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

Baseline NAS; G

Designated Project Scheduler; G

Outages Schedule; G

SD-07 Certificates

Three-Week Look Ahead Schedule; G

Monthly Network Analysis Updates; G

SD-11 Closeout Submittals

As-Built Schedule; G

1.8 SOFTWARE

Prepare and maintain project schedules using Primavera P6 software in a version compatible with Government's current version. Importing data into P6 using data conversion techniques or third party software is cause for rejection of the submitted schedule. Schedules with Performing Organizational Breakdown Structure (POBS) data is cause for rejection.

1.9 DESIGNATED PROJECT SCHEDULER

Within 30 calendar days of Contract Award, submit to the Contracting Officer for approval an individual who will serve as the Designated Project Scheduler. Include a copy of the candidate's resume with qualifications. The Contracting Officer may remove the Designated Project Scheduler, and require replacement, if the scheduler does not effectively fulfill their duties in accordance with the Contract requirements. Payment request will not be processed without an approved Designated Project Scheduler.

1.9.1 Qualifications

The Designated Project Scheduler must have prepared and maintained at least three (3) previous construction schedules, of similar size and complexity to this Contract, using Primavera P6.

1.9.2 Duties

Duties of the Designated Project Scheduler:

- a. Prepare Baseline NAS.
- b. Prepare monthly schedule updates.
- c. Prepare tabular reports.
- d. Prepare Time Impact Analysis (TIA) as necessary.
- e. Provide certification that NAS and TIA submittals conform to the Contract requirements.
- f. Participate with the Prime Contractor and Government Representative in a monthly teleconference call or meeting at the job site in-person, and scheduled with sufficient time to support the Monthly Network Analysis Updates process, to discuss project status, schedule updates, critical activities, potential delays, and Contract modifications impacting the schedule. Have a computer with P6 software available during the meeting.

1.10 NETWORK SYSTEM FORMAT

Prepare the schedule in accordance with the following Primavera P6 settings and parameters. Deviation from these settings and parameters, without prior consent of the Contracting Officer, is cause for rejection of schedule submission.

1.10.1 Schedule Activity Properties and Level of Detail

1.10.1.1 Activity Identification and Organization

- a. Identify construction activities planned for the project and other activities that could impact project completion if delayed in the NAS.
- b. Each activity must have a unique name.
- c. Identify administrative type activity/milestones, including all pre-construction submittal and permit requirements prior to demolition or construction stage.
- d. Include times for procurement, Contractor quality control and construction, acceptance testing, and training in the schedule.
- e. Include the Government approval time required for the submittals that require Government Approval prior to construction, as indicated in Section 01 33 00 SUBMITTAL PROCEDURES.
- f. Create separate activities for each Phase, Area, Floor Level, and Location the activity is occurring.
- g. Do not use construction category activity to represent non-work type reference (e.g. Serial Letter, Request for Information) in NAS. Place Non-work reference within the P6 activity details notebook.

Activity categories included in the schedule are specified below.

1.10.1.2 Activity Logic

- a. With the exception of the Contract Award and Contract Completion Date (CCD) milestone activities, activity must not be open-ended; each activity must have at least one predecessor and at least one successor.
- b. Activities must not have open start or open finish (dangling) logic.
- c. Do not use lead or lag logic without Contracting Officer prior approval.
- d. Minimize redundant logic ties.
- e. Once an activity exists on the schedule it must not be deleted or renamed to change the scope of the activity and must not be removed from the schedule logic without approval from the Contracting Officer.
 - (1) While an activity cannot be deleted, where said activity is no longer applicable to the schedule, but must remain within the logic stream for historical record, change the activity original and remaining duration to zero and clearly label "(NO LONGER REQUIRED)" after the activity name. Actual finish date for activity that falls behind the data date. Redistribute

accordingly any remaining budget associated with that activity, to other remaining appropriate activity.

- (2) Document any such change in the activities' "Notebook," including a date and explanation for the change.
- (3) The ID number for a "NO LONGER REQUIRED" activity must not be re-used for another activity.

1.10.1.3 Longest Path Activity Baseline Limitation

For P6 settings, critical activities are defined as being on the Longest Path. Longest Path (Critical) Activities must not make up more than 30 percent of all activity within the Construction Baseline Schedule.

1.10.1.4 Assigned Calendars

All NAS activity must be assigned calendars that reflect required and anticipated non-work days.

1.10.1.5 Activity Categories

1.10.1.5.1 Pre-construction Activities

Examples of pre-construction activities include, but are not limited to, bond approval, permits, and pre-construction submittals and approvals. Include pre-construction activities that are required to be completed prior to the Contractor starting the demolition or construction stage of work.

1.10.1.5.2 Procurement Activities

Examples of procurement activities include, but are not limited to: Material/equipment submittal preparation, submittal, and approval of material/equipment; material/equipment fabrication and delivery, and material/equipment on-site. As a minimum, separate procurement activities must be provided for critical items, long lead items, items requiring Government approval and material/equipment procurement for which payment will be requested in advance of installation. Show each delivery with relationship tie to the Construction Activity specifically for the delivery.

1.10.1.5.3 Government Activities

Government and other agency activities that could impact progress must be clearly identified. Government activities include, but are not limited to; Government approved submittal reviews, Government conducted inspections/tests, environmental permit approvals by State regulators, utility outages, and delivery of Government Furnished Material/Equipment.

The Government will provide a list of QA inspections and testing at the pre-construction meeting. These inspections may vary based on the Contractor's performance and are subject to change throughout the duration of the project. (Note: These inspections are to be performed by the Government's QA Team and are separate from any special inspections required to be performed by the Contractor as part of the Contract.) The Contractor must include the Government QA Inspection items in the Project Schedule and highlighted in the 3-Week Look Ahead schedules. The Contractor's QC Manager must coordinate these inspections with the

Contracting Officer's Representative to ensure the inspections do not cause any construction delays.

1.10.1.5.4 Construction Quality Management (CQM) Activities

The Preparatory and Initial Phase meetings for each Definable Feature of Work identified in the Contractor's Quality Control Plan must be included in the Three-Week Look Ahead Schedule. Preparatory and Initial phase meetings are not required in the NAS, but can be represented by a start milestone linked to successor parent Construction Activity. The Follow-up Phase must be represented by the Construction Activities themselves in the NAS.

1.10.1.5.5 Construction Activities

On-site construction activities must not have a duration in excess of 20 working days. Contractor activities must be driven by calendars that reflect Saturdays, Sundays, and all Federal Holidays as non-work days, unless otherwise defined in this Contract.

1.10.1.5.6 Turnover and Closeout Activities

Include activities or milestones for items on the NAVFAC Red Zone Checklist/POAM that are applicable to this project. As a minimum, include required Contractor testing, required Government acceptance inspections on equipment, Pre-Final Inspection, Punch List Completion, Final Inspection, and Acceptance. Add an unconstrained start milestone for the initial NAVFAC Red Zone - Facility Turnover Planning Meeting at approximately 75 percent construction Contract completion or six (6) months prior to Contract Completion Date (CCD), whichever is sooner.

1.10.1.5.7 Testing of HVAC - DALT, TAB, and PVT Activities

Include in the baseline schedule, activities and milestones associated with Government acceptance of Duct Air Leakage Test (DALT), Testing, Adjusting, and Balancing (TAB) and Performance Verification Test (PVT) as required and in accordance with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC and Section 23 09 00.00 22 INSTRUMENTATION AND CONTROL FOR HVAC (PWD-MAINE) (J&A).

- a. Identify the general area or location(s) for Government Acceptance Testing of DALT, TAB, and PVT.
- b. Incorporate into the baseline schedule, time periods required for advance notification of work, and Government submittal review in accordance with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC, paragraph DALT AND TAB SUBMITTAL AND WORK SCHEDULE.
- c. Include the following as schedule activities or milestones:
 - (1) Pre-DALT/TAB/PVT Meeting
 - (2) TAB Design Review Report, Government review
 - (3) TAB Pre-Field Engineering Report, Government review
 - (4) DALT Field Work
 - (5) DALT Field Acceptance Testing

- (6) Certified Final DALT Report, Government review
- (7) Control Contractors PVT Plan, Government review
- (8) Equipment Suppliers PVT Plan, Government review
- (9) Season I TAB Field Work
- (10) Season I Certified Final TAB Report, Government review
- (11) Endurance Testing, Government review
- (12) PVT Field Work
- (13) PVT Report, Government review
- (14) Season I TAB Field Acceptance Testing
- (15) Season II TAB Field Work
- (16) Season II Certified Final TAB Report, Government review
- (17) Season II TAB Field Acceptance Testing
- (18) Post-Occupancy Endurance Testing Government review
- (19) Post-Occupancy PVT Field Work

1.10.1.5.8 Commissioning Activities

Include in the baseline schedule activities and milestones associated with Commissioning.

- a. Identify the general area or location(s) of systems for Commissioning Inspection and Testing
- b. Incorporate into the baseline schedule time periods for Government submittal review

1.10.1.6 Contract Milestones and Constraints

1.10.1.6.1 Project Start Date Milestones

Include as the first activity on the schedule a start milestone titled, "Contract Award", which must have a Mandatory Start constraint equal to the Contract Award Date.

1.10.1.6.2 Pre-Construction Meeting Milestone

Include an unconstrained finish milestone on the schedule titled, "Pre-Construction Meeting". The Pre-Construction meeting may be a single day, or it may range over several days. The intent is to cover all of the Pre-Con topics, including Partnering and DD1354.

1.10.1.6.3 Preconstruction Submittals Finish Milestone

Include an unconstrained finish milestone on the schedule titled, "Preconstruction Submittals". This milestone is complete when all

required preconstruction submittals have been reviewed and approved by the Government.

1.10.1.6.4 Contractor Mobilization Finish Milestone

Include an unconstrained finish milestone on the schedule titled, "Contractor Mobilization".

1.10.1.6.5 NAVFAC Red Zone - Facility Turnover Planning Meeting Milestones

See paragraph TURNOVER AND CLOSEOUT ACTIVITIES above.

1.10.1.6.6 Substantial Completion Milestone

Include an unconstrained finish milestone on the schedule titled "Substantial Completion." Substantial Completion is defined as the point in time the Government would consider the project ready for beneficial occupancy wherein by mutual agreement of the Government and Contractor, Government use of the facility is allowed while construction access continues in order to complete remaining items (e.g. punch list and other close out submittals). Include a separate Substantial Completion Milestone for each phase if the Contract requires construction to be completed in phases.

1.10.1.6.7 DD-1354 Finish Milestone

Add unconstrained finish milestone, titled "DD1354" and scheduled 30 calendar days prior to Substantial Completion, whenever a Form DD-1354 is required in accordance with Section 01 20 00.00 22 PRICE AND PAYMENT PROCEDURES (PWD ME).

1.10.1.6.8 Projected Completion Milestone

Include an unconstrained finish milestone on the schedule titled "Projected Completion." Projected Completion is defined as the point in time all Contract requirements are complete and verified by the Government with a successful Final Inspection in accordance with Section 01 45 00.00 22 QUALITY CONTROL (PWD ME). This milestone must have the Contract Completion Date (CCD) milestone as its only successor.

1.10.1.6.9 Contract Completion Date (CCD) Milestone

Last schedule entry must be an unconstrained finish milestone titled "Contract Completion (CCD: DD-MM-YY)." DD-MM-YYYY is the current Contract Completion Date at data date, day-month-year corresponding to P6 Must Finish By Date. NAS milestone updates of Project Completion finish date for longest path must reflect calculated float as positive or negative based on CCD. Calculation of schedule updates must be such that if the finish of the "Projected Completion" milestone falls after the Contract Completion Date, then negative float is calculated on the longest path. If the finish of the "Projected Completion" milestone falls before the Contract Completion Date, the float calculation must reflect positive float on the longest path.

1.10.1.6.10 Additional Milestones

Provide up to 5 additional milestones as required by Contracting Officer.

1.10.1.7 Work Breakdown Structure & Activity Code

At a minimum, establish a Work Breakdown Structure (WBS) and provide activity codes identified as follows:

1.10.1.7.1 Work Breakdown Structure (WBS)

Group all activities and milestones within appropriate WBS categories including, at a minimum, the following:

a. Project Milestones:

- (1) Management Milestones
- (2) Project Administrative Meetings
- (3) Permits

b. Pre-Construction Phase:

- (1) Submittals and Reviews
- (2) Procurement
- (3) Mobilization

c. Construction Phase: Create multiple sub-sections in accordance with project specific categories of work including in WBS descending order as follows:

- (1) General Area
 - (a) Type of Work Item
 - 1. Location

d. Commissioning & Testing:

- (1) Specific area/locations of commissioning
- (2) Final Testing
- (3) Training

di. Project Closeout: Include activity items such as, but not limited to, Punchlist, Demobilization, O&M, eOMSI, As-built Drawings, Training, Special Inspections Final Report, Special Inspections Final Report, and As-built NAS.

dii. Modifications: Create sub-category of Conformed and Non-Conformed under Modification WBS. Create multiple sub-sections as the project progresses identified by issue and Fragnet placed in Conformed for modifications issued prior data date, or Non-Conformed for issues not modified to Contract prior data date.

diii. Removed Activity: Activity is "removed" by remaining within logic sequence, eliminating duration and adding "(NO LONGER REQUIRED)" after Activity Name in Activity Table.

1.10.1.7.2 Responsibility Code

All activities in the project schedule must be identified with the resource for completing the task. Activities must not belong to more than one responsible party.

1.10.1.7.3 Activity Category Code

Provide user defined "CAT" codes for Project Level activity codes. Use the following codes:

- a. Assign "PROC" value to Procurement type activity
- b. Assign "PRE-CON" value to Pre-construction activity
- c. Assign "CONS" value to Construction type activity
- d. Assign "TEST" value to dedicated testing type activities
- e. Assign "CX" value to dedicated Commissioning type activities
- f. Assign "CLOS" value to dedicated Close Out type activity
- g. Assign "OTHR" to other activity not otherwise designated

1.10.1.7.4 Construction Specification Institute (CSI) Masterformat Code

Provide up to an additional five (5) activity codes as required by the Contracting Officer.

1.10.1.7.5 Drawing Code

Identify all activities in the project schedule with its respective Drawing Code. The Drawing Code is the Sheet Number on the primary project drawing which indicates work to be performed. If an activity does not have an applicable Drawing Code (e.g. Mobilize), the code must be "0000".

1.10.1.8 Adverse Weather Lost Work Days

Use the National Oceanic and Atmospheric Administration's (NOAA) Summary of Monthly Normals report to obtain the historical average number of days each month with precipitation, using a nominal 30-year, greater than 0.10 inch precipitation amount parameter, as indicated on the Station Report for the NOAA location closest to the project site as the basis for establishing a "Weather Calendar" showing the number of anticipated non-workdays for each month due to adverse weather, in addition to Saturdays, Sundays, and all Federal Holidays as non-work days.

Assign the Weather Calendar to any activity that could be impacted by adverse weather. The Contracting Officer will issue a modification in accordance with the Contract clauses, giving the Contractor a time only extension for the difference of days between the anticipated and actual adverse weather delay if the number of actual adverse weather delay days exceeds the number of days anticipated for the month in which the delay occurs and the adverse weather delayed activities are on the longest path to Contract completion in the period when delay occurred. A lost workday due to weather conditions is defined as a day in which the Contractor cannot work at least 50 percent of the day on the impacted activity. Impacts resulting from adverse weather must be documented in Narrative

Report for the month that it occurred.

Make changes to P6 project calendars to reflect as-built conditions where work occurred where originally anticipated as non-work days, and where work did not occur (lost work day).

1.10.1.9 Anticipated Restricted Delays

Unless otherwise noted or defined in Section 01 14 00.00 22 WORK RESTRICTIONS (PWD ME), allow in the schedule seven (7) lost workdays per calendar year for instances where Base access is not permitted or where work areas are temporarily not accessible for security reasons which causes a delay in the work. Use Anticipated Restricted Delays as basis for establishing a "Security Calendar" showing the number of anticipated non-workdays for each month due to anticipated restrictions, in addition to anticipated adverse weather, Saturdays, Sundays, and all Federal Holidays as non-work days. Assign the Security Calendar to any activity that could be impacted by restriction delays. The Contracting Officer will issue a modification in accordance with the Contract Clauses, giving the Contractor a time extension for the difference of days between the anticipated and actual lost work days if the number of actual restriction delay days exceeds seven (7) days per calendar year. A lost workday due to restriction delay is defined as a day in which the Contractor cannot work at least 50 percent of the day on the impacted activity.

Impacts resulting from restriction delays must be documented in Narrative Report for the month that it occurred.

Make changes to P6 project calendars to reflect as-built conditions where work occurred where originally anticipated as non-work days, and where work did not occur (lost work day).

1.10.1.10 Cost Loading

The Project Network Analysis Schedule (NAS) must be cost-loaded and will provide the basis for progress payments. Earned Value Reports must be derived from and correspond to cost loaded NAS. Use the Critical Path Method (CPM) and the Precedence Diagram Method (PDM) to satisfy time and cost applications.

1.10.1.10.1 Cost Loading Activities

Assign material and equipment costs, including their quantities, for which payment will be requested in advance of installation, to their respective procurement activity. Assign labor costs, including their quantities, for material and equipment paid for after installation to their respective construction activities. Include all typical mobilization costs dispersed over early construction activities. Costs for mobilization will not be paid as individual pay items with the exception of batch plant set-up, mobilization of dredging equipment or other similar labor-intensive situations. The value of commissioning, testing, and closeout WBS section may not be less than 10 percent of the total costs for procurement and construction activities. ALL activities assigned Government responsibility will have Zero Cost. No Contractor cost is to be assigned to an activity designated as a Government responsibility. Do not include field overhead positions as individual pay items. Evenly disperse overhead costs and profit to each activity over the duration of the project.

1.10.1.10.2 Partial Payment

Breakdown unit of measure and cost must be defined within P6 Activity Detail Expenses for partial payment of any cost loaded activity. Lump sum cost loaded activity will not be partially paid.

1.10.2 Schedule Software Settings and Restrictions

- a. Activity Constraints: Date/time constraint(s), other than those required by the Contract, are not allowed unless accepted by the Contracting Officer. Identify any constraints proposed and provide an explanation for the purpose of the constraint in the Narrative Report as described in paragraph REQUIRED TABULAR REPORTS.
- b. Default Progress Data Disallowed: Actual Start is date work begins on activity with intent to pursue work to substantial completion. Actual Finish is date work is substantially complete to point where successor activity can begin. Actual dates on the CPM schedule must correspond with activity dates reported on the Contractor Quality Control and Production Reports.
- c. At a minimum, include the following settings and parameters in P6 Schedule preparation:
 - (1) General: Define or establish Calendars and Activity Codes at the "Project" level, not the "Global" level.
 - (2) Admin Drop-Down Menu, Admin Preferences, Time Periods Tab:
 - (a) Set time periods for P6 to 8.0 Hours/Day, 40.0 Hours/Week, 172.0 Hours/Month and 2000.0 Hours/Year.
 - (b) Use assigned calendar to specify the number of work hours for each time period: Must be checked.
 - (3) Admin Drop-Down Menu, Admin Preferences, Earned Value Tab:
 - (a) Earned Value Calculation: Use "Budgeted values with current dates".
 - (4) Project Level, Dates Tab:
 - (a) Set "Must Finish By" date to "Contract Completion Date", and set "Must Finish By" time to 05:00pm.
 - (5) Project Level, Defaults Tab:
 - (a) Duration Type: Set to "Fixed Duration & Units".
 - (b) Percent Complete Type: Set to "Physical".
 - (c) Activity Type: Set to "Task Dependent".
 - (d) Calendar: Set to "Standard 5 Day Workweek". Calendar must reflect Saturday, Sunday, and all Federal holidays as non-work days. Alternative calendars may be used with Contracting Officer approval.
 - (6) Project Level, Calculations Tab:

- (a) Default Price/Unit for activities without resource or role
Price/Units: Set to "\$1/h".
- (b) Activity percent complete based on activity steps: Must be
Checked.
- (c) Link Budget and At Completion for not started activities:
Must be Checked.
- (d) Reset Remaining Duration and Units to Original: Must be
Selected.
- (e) Subtract Actual from At Completion: Must be Selected.
- (f) Recalculate Actual units and Cost when duration percent
complete changes: Must be Checked.
- (g) Update units when costs change on resource assignments: Must
be Unchecked.
- (h) Link Actual to Date and Actual This Period Units and Cost:
Must be Checked.

(7) Project Level, Settings Tab:

- (a) Define Critical Activities: Check "Longest Path".

(8) Work Breakdown Structure Level, Earned Value Tab:

- (a) Technique for Computing Performance Percent Complete:
"Activity percent complete" is selected.
- (b) Technique for Computing Estimate to Complete (ETC): "PF = 1"
is selected.

1.10.3 Required Tabular Reports and Native P6 XER Files

Include the following reports with the Baseline, Monthly Update and any other required schedule submittals:

a. Time Scaled Logic Schedule

Provide formatted 11 by 17-inch Time-scaled Logic Schedule in color and landscape-oriented with each schedule submittal. Clearly show activities on the longest path setting Gantt chart longest path activity bars to red. Group activities by WBS and sort by finish date in ascending order. Include the following information in column form for each activity and include accompanying Gantt chart:

- (1) Activity ID
- (2) Activity Name
- (3) Original Duration
- (4) Remaining duration
- (5) Physical Percent Complete

(6) Start Date

(7) Finish Date

(8) Total Float

- b. Previous Monthly Update Comparison Time Scaled Logic Schedule (Submit with all Monthly Update Schedule Submittals.)

Provide formatted 11 by 17-inch Time-scaled Logic Schedule in color and landscape-oriented with each monthly update schedule submittal. Clearly show activities on the current month longest path setting Gantt chart longest path activities bars to red. Show previous month activities as yellow bars and previous month milestones in yellow within Gantt chart. Sort by finish date in ascending order. Filter activities for longest path. Maintain and assign the accepted previous month update or the accepted baseline schedule for the first update submittal as the baseline and primary baseline in P6 before printing the schedule. Include the following information in column form for each activity and include accompanying Gantt chart:

(1) Activity ID

(2) Activity Name

(3) Original Duration

(4) Current Month Remaining Duration

(5) Current Month Start Date

(6) Previous Month Update Start Date (BL Project Start)

(7) Start Date Delta between Current Month and Previous Month
(Variance - BL Project Start Date)

(8) Current Month Finish Date

(9) Previous Month Finish Date (BL Project Finish)

(10) Finish Date Delta between Current Month and Previous Month
(Variance - BL Project Start Date)

(11) Current Month Total Float

- c. P6 native XER file: Include the back-up native .xer program file compatible with the Government version of P6. Each native schedule file must have a unique file name to include project name and data date using (yyyy-mm-dd) convention. Each native schedule must have a unique Project ID and Project Name.
- d. Log Report: P6 Scheduling/Leveling Report.
- e. Narrative Report: Identify and justify:

(1) Provide Project Summary Data in format below:

(a) Data Date _____

- (b) Award Date: _____
- (c) Original Project Duration: _____ days post Award Date
- (d) Current Project Duration: _____ days post Award Date
- (e) Time percent elapsed: _____ percent at data date
- (f) Original CCD: _____
- (g) Current CCD: _____ (thru MOD _____)
- (h) Anticipated CCD: _____ (____ calendar days early/late)
- (i) Original Contract Value: \$_____
- (j) Current Contract Value: \$_____
- (k) Invoiced Amount: \$_____ (____ percent)
- (l) Cost Growth: _____ percent
- (m) Schedule Growth: _____ percent
- (n) There are a total of _____ activities, _____ activities complete (____ percent), _____ activities in progress (____ percent), _____ activities not started (____ percent). Of the in progress and not started activities; _____ (____ percent) are on the longest path. The longest path has duration of _____ calendar days from data-date to anticipated project completion.
- (2) Progress made in each area of the project;
- (3) Longest Path;
- (4) Date/time constraint(s), other than those required by the Contract;
- (5) Listing of all changes made between the previous schedule and current updated schedule include: added or deleted 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;
- (6) Any decrease in previously reported activity Earned Amount;
- (7) Pending items and status thereof, including permits, changes orders, and time extensions;
- (8) Status of Contract Completion Date and interim milestones;
- (9) Status of Projected Completion Milestone and account of difference in calendar days between previous update Projected Completion Milestone;
- (10) Current and anticipated delays listing Activity Names and IDs for impacted activities (describe cause of delay and corrective actions(s) and mitigation measures to minimize);

- (11) Description of current and potential future schedule problem areas;
- (12) Identification of any weather and restricted lost time as compared to anticipated weather for the month and anticipated restricted days for which the update is submitted. Impacts resulting from adverse weather must be documented in tabular form showing the calendar month (or billing period) with the days on which construction activity incurred Lost Work Days due to adverse weather. In narrative form, describe the adverse weather cause such as precipitation measurement, temperature, wind, or other influencing factors, and why work was impacted. Describe the construction activity(s) that was (were) scheduled, impacted.

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

- f. Earned Value Report: Derive from and correspond to P6 cost loaded schedule. List all activities having a budget amount cost loaded. Compile total earnings on the project from notice to proceed to current progress payment request. Show current budget, previous physical percent complete, to-date physical percent complete, previous earned value, to-date earned value, cost this period, and cost to complete on the report for each activity.
- g. Schedule Variance Control (SVC) Diagram: With each schedule submission, provide a SVC diagram showing 1) A Cash Flow Curve indicating planned project cost based on each of projected early and projected late activity finish dates and 2) one curve for Earned Value to-date. Revise Cash Flow Curves when the Contract is modified, or as directed by the Contracting Officer Include a legend on report clearly indication 3 curves: early finish, late finish, and earned-value to date.

Use the following settings in Activity Usage Profile Options:

- (1) In the Data section, under Display, the radio box for Cost must be selected.
- (2) In the Data section, under Filter for Bars/Graphs, the checkbox for Total must be checked.
- (3) In the Show Bars/Curves section:
 - (a) Under the By Date column, the checkboxes for Baseline, Actual and Remaining Late must be checked. The checkboxes for Budgeted and Remaining Early must be unchecked.
 - (b) Under the Cumulative column, the checkboxes for Baseline, Actual and Remaining Late must be checked. The checkboxes for Budgeted and Remaining Early must be unchecked.
 - (c) Set the color for Baseline to green.
 - (d) Set the color for Actual to blue.
 - (e) Set the color for Remaining Late to red.

- (4) In the Show Earned Value Curves section, the checkboxes for Planned Value Cost, Earned Value Cost, and Estimate at Completion must be unchecked.
 - h. Logic Diagram showing timescale from data date to 60 days after data date with filter for longest path. Leave Group By selection blank and sort by finish date in ascending order.
 - i. Baseline or Monthly Update Checklist as applicable completed and certified by Qualified Scheduler. Baseline Project Schedule and Monthly Update Schedule Checklists can be found on the Whole Building Design Guide website at <https://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-01-32-17-00-20>
 - j. Screen shot PDF of P6 Time Periods Settings referenced in paragraph SCHEDULE SOFTWARE SETTINGS AND RESTRICTIONS, list item d.(2): ADMIN DROP-DOWN MENU, ADMIN PREFERENCES, TIME PERIODS TAB
 - k. Daily Reported Production Activity: Submit on a monthly basis, in electronic spreadsheet (format provided by the Government), summary of daily reported production activity for the reporting month in the update schedule. Use the following columns for reporting:
 - (1) Date
 - (2) Activity ID
 - (3) Work Description
 - (4) Contractor
 - (5) Billable Hours
 - l. HVAC/COMMISSIONING KTR Checklist. See Section 23 09 00.00 22 INSTRUMENTATION AND CONTROL FOR HVAC (PWD-MAINE) (J&A) for checklist requirements. Complete checklist listing all items with baseline submittal. Complete checklist as required to complete project, submitting complete checklist in intermediately following monthly update submittal.
- 1.11 CONTRACT MODIFICATION
- 1.11.1 Time Impact Analysis (TIA)
- Submit a Time Impact Analysis with each cost and time proposal for a proposed change. TIA must illustrate the influence of each change or delay on the Contract Completion Date or milestones. No time extensions will be granted nor delay damages paid unless a delay occurs which consumes all available Project Float, impacts the longest path, and extends the Projected Completion beyond the Contract Completion Date.
- a. Each TIA must be in both narrative and schedule form. The narrative must define the scope and conditions of the change; provide start and finish dates of impact, successor and predecessor activity to impact period, responsible party; describe how it originated, and how it impacts the schedule's longest path. The schedule submission must consist of three native XER files:

- (1) Fragnet used to define the scope of the changed condition.
 - (2) Most recent accepted schedule update as of the time of the impact start date. Update this schedule to show all activity progress as of the time of the impact start date. The impact start date is identified as the time when an existing activity is impeded for either starting or finishing.
 - (3) The impacted schedule that has the fragnet inserted in the updated schedule and the schedule "run" so that the new completion date is determined.
- b. For claimed as-built project delay, the inserted fragnet TIA method must be modified to account for as-built events known to occur after the data date of schedule update used. Updated schedules for periods following the impact start date will be used to evaluate how the project progressed (as-built) through the finish of impact. Impact to longest path must be determined for each following update period.
- c. All TIAs must include any mitigation, and must determine the apportionment of the overall delay assignable to each individual delay. Apportionment must provide identification of delay type and classification of delay by compensable and non-compensable events. The associated narrative must clearly describe analysis methodology used, and the findings in a chronological listing beginning with the earliest delay event.
- (1) Identify and classify types of delay defined as follows:
 - (a) Force majeure delay (e.g. weather delay): Any delay event caused by something or someone other than the Government or the Contractor, or the risk of which has not been assigned solely to the Government or the Contractor. If the force majeure delay is on the longest path, in absence of other types of concurrent delays, the Contractor is granted an extension of Contract time, classified as a non-compensable event.
 - (b) A Contractor-delay: Any delay event caused by the Contractor, or the risk of which has been assigned solely to the Contractor. If the Contractor-delay is on the longest path, in absence of other types of concurrent delays, Contractor is not granted extension of Contract time, and classified as a non-compensable event. Where absent other types of delays, and having impact to project completion, Contractor must provide to Contracting Officer a Corrective Action Plan identifying plan to mitigate delay.
 - (c) A Government-delay: Any delay event caused by the Government, or the risk of which has been assigned solely to the Government. If the Government-delay is on the longest path, in absence of other types of concurrent delays, the Contractor is granted an extension of Contract time, and classified as a compensable event.
 - (2) Functional concurrency must be used to analyze concurrent delays, where: separate delay issues delay project completion, do not necessarily occur at same time, rather occur within same monthly schedule update period at minimum, or within same as-built period under review. If a combination of functionally concurrent delay types occurs, it is considered Concurrent Delay, which is defined

in the following combinations:

(a) Government-delay concurrent with Contractor-delay: excusable time extension, classified non-compensable event.

(b) Government-delay concurrent with force majeure delay: excusable time extension, classified non-compensable event.

(c) Contractor-delay concurrent with force majeure delay: excusable time extension, classified non-compensable event.

(3) Pacing delay reacting to another delay (parent delay) equally or more critical than paced activity must be identified prior to pacing. Contracting Officer will notify Contractor prior to pacing. Contractor must notify Contracting Officer prior to pacing. Notification must include identification of parent delay issue, estimated parent delay time period, paced activity(s) identity, and pacing reason(s). Pacing Concurrency is defined as follows:

(a) Government-delay concurrent with Contractor-pacing: excusable time extension, classified compensable event.

(b) Contractor-delay concurrent with Government-pacing: inexcusable time extension, classified non-compensable event

d. Submit electronic file containing the narrative and the source schedule files used in the time impact analysis.

1.12 PROJECT FLOAT

Project Float is the length of time between the Contractor's Projected Completion Milestone and the Contract Completion Date. Project Float available in the schedule will not be for the exclusive use of either the Government or the Contractor.

The use of Resource Leveling or other techniques used for the purpose of artificially adjusting activity durations to consume float and influence longest path is prohibited.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES

05/22

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical Sections.
Submittals are identified by Submittal Description (SD) numbers and titles
as follows:

SD-01 Preconstruction Submittals

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

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

Submittals which are required prior to or commencing work on site.

Certificates of Insurance

Surety Bonds

List of Proposed Subcontractors

List of Proposed Products

Construction Progress Schedule

Outages Schedule

Network Analysis Schedule (NAS)

Submittal Register

Schedule of Prices or Earned Value Report

Accident Prevention Plan (APP)

Work Plans

Quality Control (QC) Plan

Environmental Management Plan

SD-02 Shop Drawings

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

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

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

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-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuing work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

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 accordance with specified requirements. Unless specified in another Section, testing must have been within three years of date of Contract award for the project.

Report which 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 which 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 product, system, or material meets specification requirements. Must be dated after award of project Contract and clearly name the project.

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

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

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

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.

Factory test reports.

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.

This data is intended to be incorporated in an operations and maintenance manual or control system.

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

eOMSI submittals per Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI).

SD-11 Closeout Submittals

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

Submittals required for Guiding Principal 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.

DD Form 1354 with cost breakout for all assets 30 days prior to facility turnover.

Red Zone documents per Section 01 30 00.00 22 ADMINISTRATIVE REQUIREMENTS (PWD ME).

Special Inspections comprehensive final report per Section 01 45 35 SPECIAL INSPECTIONS.

1.1.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.1.3 Work

As used in this Section, on- 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 Quality Control approval. Submit the following in accordance with this Section:

SD-01 Preconstruction Submittals

Submittal register;G

Other submittals required prior to beginning any work include, but are not limited to, the following:

Certificates of Insurance
Surety Bonds
List of Proposed Subcontractors
List of Proposed Products
Network Analysis Schedule (NAS)
Schedule of Prices or Earned Value Report
Outages Schedule
List of Contact Personal
Qualifications
Work Plans
Quality Control (QC) Plan
Environmental Management Plan

Solid Waste Management Plan and Permit
Storm Water Pollution Protection Plan
Accident Prevention Plan (APP)
Activity Hazard Analysis (AHA)
Crane Critical List Plan
Crane Operator Qualifications
Construction Site Plan
Traffic Control Plan
Dirt and Dust Control
Construction Hazardous Material Inventory Log

The following Preconstruction submittals must be submitted to the Contracting Officer fifteen (15) calendar days prior to the pre-construction meeting:

Specification Section	SD #	SD Description	Item Submitted	Paragraph #
01 32 17.00 20	01	Preconstruction Submittals	Baseline Network Analysis Schedule (NAS)	1.2.2
01 32 17.00 20	01	Preconstruction Submittals	Three-Week Look Ahead Schedules	1.3
01 32 17.00 20	01	Preconstruction Submittals	Outages Schedule	1.2.3
01 35 26.00 22	01	Preconstruction Submittals	Accident Prevention Plan (APP)	1.8.1
01 45 00.00 22	01	Preconstruction Submittals	QC Plan	1.6.1

The following Preconstruction submittals must be submitted to the Contracting Officer at the pre-construction meeting:

Specification Section	SD #	SD Description	Item Submitted	Paragraph #
01 14 00.00 22	01	Preconstruction Submittals	List of Contact Personnel	1.4.1.1
01 20 00.00 22	01	Preconstruction Submittals	Schedule of Prices	1.3
01 30 00.00 22	01	Preconstruction Submittals	NAVFAC Red Zone Checklist	1.6.1
01 30 00.00 22	01	Preconstruction Submittals	NAVFAC PWD ME Internal Service Requirements List	1.6.3
01 31 23.13 20	01	Preconstruction Submittals	List of Personnel (eCMS)	1.4.2
01 33 00	01	Preconstruction Submittals	Submittal Register	1.9
01 50 00.00 22	01	Preconstruction Submittals	Construction Site Plan	1.3

The following Preconstruction submittals must be submitted to the Contracting Officer prior to the start of construction:

Specification Section	SD #	SD Description	Item Submitted	Paragraph #
01 11 00.00 22	01	Preconstruction Submittals	Work Sequencing and Preparation Plan	1.3
01 30 10.00 22	01	Preconstruction Submittals	Coordination Drawings	1.4.1
01 50 00.00 22	01	Preconstruction Submittals	Traffic Control Plan	3.3.1
01 57 19.00 22	01	Preconstruction Submittals	Preconstruction Survey	1.5.1
01 57 19.00 22	01	Preconstruction Submittals	Solid Waste Management Plan	3.4
01 57 19.00 22	01	Preconstruction Submittals	Regulatory Notifications	1.5.2
01 57 19.00 22	01	Preconstruction Submittals	Environmental Management Plan (EMP)	3.1
01 57 19.00 22	01	Preconstruction Submittals	Dirt and Dust Control Plan	3.14.1
01 57 19.00 22	01	Preconstruction Submittals	Contractor Hazardous Material Inventory Log	3.6
01 57 19.00 22	01	Preconstruction Submittals	Storm Water Management/Erosion and Sedimentation Control Plan	3.2.1.a
01 57 19.00 22	01	Preconstruction Submittals	Spill Prevention, Control, and Countermeasures (SPCC) Plan	3.1.f.2
01 74 19	01	Preconstruction Submittals	Construction Waste Management Plan	1.7

1.3 PACKAGING AND SUBMISSION OF SUBMITTALS

Prepare and submit submittals required by each individual Specification Section. Each required submittal as listed in the submittal register must be packaged and submitted individually so that it can be tracked, reviewed, and returned in a concise and orderly fashion.

1.4 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4.1 Government Approved (G)

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system

must be checked, and other items as designated by the Government.

Government approval is required for any variations from the Solicitation or the Accepted Proposal and for other items as designated by the Government.

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

1.4.2 For Information Only

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

1.5 FORWARDING SUBMITTALS REQUIRING GOVERNMENT APPROVAL

1.5.1 Submittals Required from the Contractor

As soon as practicable after award of Contract, and before procurement of fabrication, forward to NAVFAC PWD ME 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.

The Architect-Engineer for this project and NAVFAC will review and approve for the Contracting Officer those submittals reserved for Contracting Officer approval to verify submittals comply with the Contract requirements.

1.5.1.1 O&M Data

The Architect-Engineer for this project and NAVFAC will review and approve for the Contracting Officer O&M Data to verify the submittals comply with the Contract requirements; submit data specified for a given item within 30 calendar days after the item is delivered to the Contract site.

- a. 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.

1.5.1.2 Submittals Reserved for NAVFAC MIDLANT Approval

- a. Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING: SD-06 Commissioning Plan, Certificate of Readiness, and Commissioning Report submittals.
- b. Section 23 09 00.00 22 INSTRUMENTATION AND CONTROL FOR HVAC (PWD-MAINE) (J&A): SD-06 field test report submittals.
- c. Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC: All submittals.
- d. All fire protection and fire alarm systems submittals are to be reviewed by:

NAVFAC MIDLANT CI45 Fire Protection
Attn: NAVFAC FPE

Bldg Z-140, RM 126
9742 Maryland Avenue
Norfolk, VA 23511

1.6 PREPARATION

1.6.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels to the office of 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.

Use the transmittal form provided by the Contracting Officer at the Pre-Construction meeting for submitting both Government-approved and information-only submittals. Submit in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the Contract drawings pertinent to the data submitted for each item.

1.6.2 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. Date 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.

1.6.3 Submittal Format

1.6.3.1 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.

1.6.3.2 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, military, industry, and technical society publication references.
- b. Dimension drawings, except diagrams and schematic drawings. Prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the Contract drawings. Identify materials and products for work shown.

Present shop drawings sized 8 1/2 by 11 inches as part of the bound volume for submittals. Present larger drawings in sets. Submit an electronic copy of drawings in PDF format.

1.6.3.2.1 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 3 by 4 inches on the right-hand side of each sheet for the Government disposition stamp.

1.6.3.3 Format of SD-03 Product Data

Present product data submittals for each Section as a complete, bound volume. 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.

1.6.3.3.1 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.

1.6.3.3.2 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.

1.6.3.3.3 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.

1.6.3.4 Format of SD-04 Samples

1.6.3.4.1 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.

1.6.3.4.2 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.

1.6.3.4.3 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.

1.6.3.5 Format of SD-05 Design Data

Provide design data and certificates on 8 1/2 by 11 inch paper. Provide a bound volume for submittals containing numerous pages.

1.6.3.6 Format of SD-06 Test Reports

Provide reports on 8 1/2 by 11 inch paper in a complete bound volume.

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

1.6.3.7 Format of SD-07 Certificates

Provide design data and certificates on 8 1/2 by 11 inch paper. Provide a bound volume for submittals containing numerous pages.

1.6.3.8 Format of SD-08 Manufacturer's Instructions

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

Submit the manufacturer's instructions before installation.

1.6.3.8.1 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.

1.6.3.9 Format of SD-09 Manufacturer's Field Reports

Provide reports on 8 1/2 by 11 inch paper in a complete bound volume.

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

1.6.3.10 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. Refer to Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI) for additional requirements.

1.6.3.11 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.

1.6.4 Source Drawings for Shop 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.

1.6.4.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim, and waives to the fullest extent permitted by law any claim or cause of action of any nature against the Government, its agents, or 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 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).

1.6.5 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. In addition to the electronic submittal, provide three (3) hard copies of the submittals. 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 both searchable and can be copied. If documents are scanned, Optical Character Resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or scan of a signature.

Email electronic submittal documents fewer than 10MB to an email address as directed by the Contracting Officer. Provide electronic documents over 10MB on an optical disc, or through an electronic file sharing system such as the DoD SAFE Web Application located at the following website:
<https://safe.amrdec.army.mil/safe/>.

Provide hard copies of submittals when requested by the Contracting Officer. Up to three (3) additional hard copies of any submittal may be requested at the discretion of the Contracting Officer, at no additional cost to the Government.

1.7 QUANTITY OF SUBMITTALS

Make use of electronic media for submittals to the greatest extent possible except for operation and maintenance manuals and associated submittals to be forwarded to NAVFAC PWD ME located at Portsmouth Naval Shipyard, Kittery, Maine. Refer to Section 01 31 23.13 20 ELECTRONIC CONSTRUCTION AND FACILITY SUPPORT CONTRACT MANAGEMENT SYSTEM (if applicable) for additional requirements.

1.7.1 Number of SD-01 Preconstruction Submittal Copies

Unless otherwise specified, submit three (3) sets of administrative submittals.

1.7.2 Number of Copies of SD-02 Shop Drawings

Submit six (6) copies of submittals of shop drawings requiring review and approval only by QC organization and seven (7) copies of shop drawings requiring review and approval by Contracting Officer.

1.7.3 Number of Copies of SD-03 Product Data

Submit in compliance with quantity requirements specified for shop drawings.

1.7.4 Number of Samples SD-04 Samples

- a. Submit two (2) samples, or two (2) sets of samples showing range of variation, of each required item. One (1) approved sample or set of samples will be retained by approving authority and one (1) will be returned to the Contractor.
- b. Submit one (1) sample panel or provide one (1) sample installation where directed. Include components listed in technical Sections or as directed.
- c. Submit one (1) sample installation, where directed.
- d. Submit one (1) sample of non-solid materials.

1.7.5 Number of Copies SD-05 Design Data

Submit in compliance with quantity requirements specified for shop drawings.

1.7.6 Number of Copies SD-06 Test Reports

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that must be submitted with QC reports.

1.7.7 Number of SD-07 Certificate Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.7.8 Number of SD-08 Manufacturer's Instructions Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.7.9 Number of SD-09 Manufacturer's Field Report Copies

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.7.10 Number of Copies of SD-10 Operation and Maintenance Data

Submit three (3) copies of O&M Data to the Contracting Officer for review and approval.

1.7.11 Number of Copies of SD-11 Closeout Submittals

Unless otherwise specified, submit two (2) sets of administrative submittals.

1.8 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.

1.9 PROJECT SUBMITTAL REGISTER

1.9.1 Submittal Management

Prepare and maintain submittal register, as the work progresses. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by Government; retain data which is output in columns (a), (g), (h), and (i) as approved. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. The attached Submittal Register may not be all inclusive and additional submittals may be required. **The Contractor must review the plans and specifications and ensure all required submittals are included in the Project Submittal Register which must be submitted to the Contracting Officer with the QC Plan and Project Schedule.**

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

Column (d): Lists each submittal description (SD No. and type, e.g. SD-02 Shop Drawings) required in each specification Section.

Column (e): Lists one principal paragraph in 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 project requirements.

Column (f): Indicate approving authority for each submittal.

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

1.9.2 Preconstruction Use of Submittal Register

Submit the submittal register. Include the QC plan and project schedule.

Verify that all submittals required for the project are listed and add missing submittals. The attached submittal register may not be complete. The Contractor must include all required submittals including any submittals that are required on the plans and specifications. 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 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.

1.9.3 Contractor Use of Submittal Register

Update the following fields with each submittal throughout 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.

1.9.4 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.

1.9.5 Action Codes

Entries for columns (j) and (o), are to be used are as follows (others may be prescribed by Transmittal Form):

1.9.5.1 Government Review Action Codes

"A" - "Approved as submitted"; "Completed"

"B" - "Approved, except as noted on drawings"; "Completed"

"C" - "Approved, except as noted on drawings; resubmission required"; "Resubmit"

"D" - "Returned by separate correspondence"; "Completed"

"E" - "Disapproved (See attached)"; "Resubmit"

"F" - "Receipt acknowledged"; "Completed"

"G" - "Other (Specify)"; "Resubmit"

"X" - "Receipt acknowledged, does not comply with Contract requirements"; "Resubmit"

1.9.6 Delivery of Copies

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

1.10 VARIATIONS

Variations from Contract requirements require both Designer of Record (DOR) and Contracting Officer approval pursuant to Contract Clause FAR 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION and will be considered where advantageous to Government.

1.10.1 Considering Variations

Discussion of variations with the Contracting Officer before submission, after consulting with the DOR, will help ensure functional and quality requirements are met and minimize rejections and re-submittals. For variations that include design changes or some material or product substitutions, the Government may require an evaluation and analysis by a licensed professional engineer hired by the Contractor. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from Contract requirements in a transmittal letter. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.10.2 Proposing Variations

When proposing variation, deliver 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 the Government, including 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.

1.10.3 Warranting that Variations are Compatible

When delivering a variation for approval, the Contractor, including its Designer(s) of Record, warrants that this Contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.10.4 Review Schedule Extension

In addition to normal submittal review period, a period of 10 working days will be allowed for the Government to consider submittals with variations.

1.11 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 20 calendar days for review and approval of submittals for 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 re-submittal is required.
- d. Except as specified otherwise, allow a review period, beginning with receipt by the approving authority, that includes at least 15 working days for submittals for QC Manager approval and 20 working 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.
- e. For submittals requiring review by a Government fire protection engineer, allow a review period, beginning when the Government receives the submittal from the QC organization, of 30 working days for return of submittal to the Contractor.

1.11.1 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.

1.11.2 Constraints

- a. Conform to provisions of this Section, unless explicitly stated otherwise for submittals listed or specified in this Contract.
- b. 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.
- c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, the submittal will be returned without review.
- d. Approval of a separate material, product, or component does not imply approval of the assembly in which the item functions.

1.11.3 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 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.

1.12 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 herein and with comments and markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date submittals. Two (2) copies of the submittal will be retained by the Contracting Officer and the remaining copies of the submittal will be returned to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be identified and returned, as described above.

1.12.1 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" or "disapproved," or "revise and resubmit" indicate an 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 the 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.

1.13 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 verifying dimensions of connection details and design of connection details and construction of work. Failure to point out variations may cause the Government to require the 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.

1.14 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals is not 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 within 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.

1.15 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 which 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 of 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.

Approval of the samples by the Contracting Officer does not relieve the Contractor of its responsibilities under the Contract.

1.16 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made unless all required DOR approvals or required Government approvals have been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information-only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.17 CERTIFICATION OF SUBMITTAL DATA

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

____NAME OF CONTRACTOR _____ SIGNATURE OF CONTRACTOR

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.
1591147

TITLE AND LOCATION

B79 - 2ND & 3RD FLOOR RENOVATIONS

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	CLASSIFICATION GOVT OR A/E REVIEWER	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	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 00.00 22	SD-01 Preconstruction Submittals														
			Cross Disciplinary Historic Facility	1.3	G												
			Coordination Drawings														
			Work Sequencing and	1.3	G												
			Preparation Plan														
			Salvage Plan	1.11	G												
			SD-11 Closeout Submittals														
			Certificate of Beneficial	1.12	G												
			Occupancy Acceptance Checklist														
		01 14 00.00 22	SD-01 Preconstruction Submittals														
			List of Contact Personnel	1.4.1.1	G												
			Outage Plan	1.8	G												
		01 20 00.00 22	SD-01 Preconstruction Submittals														
			Schedule of Prices	1.3	G												
		01 30 00.00 22	SD-01 Preconstruction Submittals														
			NAVFAC Red Zone Facility	1.6.1	G												
			Turnover Planning Meeting														
			Checklist and POAM														
			NAVFAC PWD ME Internal	1.6.3	G												
			Service Requirements List														
		01 30 10.00 22	SD-02 Shop Drawings														
			Coordination Drawings	1.4.1	G												
		01 31 23.13 20	SD-01 Preconstruction Submittals														
			List of Contractor's Personnel	1.4.2	G												
		01 32 17.00 20	SD-01 Preconstruction Submittals														
			Baseline NAS	1.2.2	G												

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						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 32 17.00 20	Designated Project Scheduler	1.9	G												
			Outages Schedule	1.2.3	G												
			SD-07 Certificates														
			Three-Week Look Ahead	1.3	G												
			Schedule														
			Monthly Network Analysis	1.4.1	G												
			Updates														
			SD-11 Closeout Submittals														
			As-Built Schedule	1.4.2	G												
		01 33 00	SD-01 Preconstruction Submittals														
			Submittal register	1.9	G												
		01 35 26.00 22	SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.8.1	G												
			SD-06 Test Reports														
			Monthly Exposure Reports	1.4	G												
			Notifications and Reports	1.13	G												
			Accident Reports	1.13.2	G												
			LHE Inspection Reports	1.13.3	G												
			SD-07 Certificates														
			Contractor Safety Self-Evaluation	1.5	G												
			Checklist														
			Crane Operators/Riggers	1.7.1.5	G												
			Standard Lift Plan	1.8.3.2	G												
			Critical Lift Plan	1.8.3.3	G												
			Activity Hazard Analysis (AHA)	1.9	G												
			Confined Space Entry Permit	1.10.1	G												

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		01 35 26.00 22	Hot Work Permit	1.10.1	G												
			Certificate of Compliance	1.13.4	G												
			License Certificates	1.15	G												
			Radiography Operation Planning Work Sheet	1.15.1	G												
		01 45 00.00 22	SD-01 Preconstruction Submittals														
			Construction Quality Control (QC) Plan	1.6.1	G												
			Indoor Air Quality (IAQ) Management Plan	1.18	G												
			Basis of Design and Design Intent	1.10.1													
			QC Manager	1.5.1	G												
			Commissioning Provider (Cx)C	1.5.5	G												
			QC Specialists	1.5.6	G												
			SD-05 Design Data														
			Design Review	1.10.2													
			SD-06 Test Reports														
			Preliminary Inspections And Final Acceptance Testing	1.5.8.3	G												
			Final Life Safety/Fire Protection Certification	1.5.8.4	G												
			Documentation	1.5.8.5	G												
			SD-07 Certificates														
			CxC Resume	1.5.5.2	G												

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 45 00.00 22	Contractor QC Self-Evaluation Checklist	1.18.3	G												
		01 45 35	SD-01 Preconstruction Submittals														
			Written NDT Practices	3.1.2	G												
			SD-06 Test Reports														
			Daily Reports	3.1.2	G												
			Biweekly Reports	3.1.1	G												
			SD-07 Certificates														
			AC472 Accreditation	2.1	G												
			Certificate of Compliance	2.1	G												
			Special Inspector	1.5	G												
			Qualification Records	3.1.2	G												
			SD-11 Closeout Submittals														
			Interim Report	3.1.2	G												
			Comprehensive Final Report	3.1.2	G												
		01 50 00.00 22	SD-01 Preconstruction Submittals														
			Construction site plan	1.3	G												
			Temporary cooling plan	2.6	G												
			Traffic control plan	3.3.1	G												
			Contractor Computer	1.6.1.4	G												
			Cybersecurity Compliance														
			Statements														
			Contractor Temporary Network	1.6.6	G												
			Cybersecurity Compliance														
			Statements														
			SD-03 Product Data														

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						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	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 00.00 22	Backflow Preventers	1.4	G												
			SD-06 Test Reports														
			Backflow Preventer Tests	2.7	G												
			Backflow Preventer Tests	3.4	G												
			SD-07 Certificates														
			Backflow Tester	1.4.1	G												
			Backflow Preventers	1.4	G												
		01 57 19.00 22	SD-01 Preconstruction Submittals														
			Preconstruction Survey	1.5.1	G												
			Solid Waste Management Plan	3.4	G												
			Regulatory Notifications	1.5.2	G												
			Environmental Management Plan (EMP)	3.1	G												
			Dirt and Dust Control Plan	3.14.1	G												
			Contractor Hazardous Material Inventory Log	3.6	G												
			Stormwater Management/Erosion and Sedimentation Control Plan	3.2.1	G												
			Spill Prevention, Control, and Countermeasures (SPCC) Plan	3.1	G												
			SD-06 Test Reports														
			Laboratory Analysis	3.13.4.2	G												
			Disposal Requirements	3.15.2	G												
			Erosion and Sediment Control	3.2.3	G												
			Inspection and Corrective Action														
			Solid Waste Management Report	3.4.1	G												

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		01 57 19.00 22	SD-11 Closeout Submittals														
			Stormwater Management and	3.2.1	G												
			Erosion Control Compliance														
			Notebook														
			Waste Determination	3.5	G												
			Documentation														
			Disposal Documentation for	3.13.4.4	G												
			Hazardous and Regulated Waste														
			Contractor 40 CFR Employee	1.5.5	G												
			Training Records														
			Solid Waste Management Report	3.4.1	G												
			Contractor Hazardous Material	3.6	G												
			Inventory Log														
			Hazardous Waste/Debris	3.13.4	G												
			Management														
			Regulatory Notifications	1.5.2	G												
			Asbestos Free Certification Form	3.13.4.3	G												
		01 58 00	SD-02 Shop Drawings														
			Preliminary Drawing Indicating	1.3.1	G												
			Layout And Text Content														
		01 74 19	SD-01 Preconstruction Submittals														
			Construction Waste Management	1.7	G												
			Plan														
			SD-11 Closeout Submittals														
			Final Construction Waste	1.9	G												
			Diversion Report														

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		01 78 00.00 22	SD-03 Product Data														
			Warranty Management Plan	1.6.1													
			Warranty Tags	1.6.4													
			Final Cleaning	3.5													
			Spare Parts Data	1.5													
			SD-08 Manufacturer's Instructions														
			Preventative Maintenance	1.8	G												
			Condition Monitoring (Predictive Testing)	1.8	G												
			Inspection	1.8	G												
			Instructions	1.6.1													
			SD-10 Operation and Maintenance Data														
			Operation and Maintenance Manuals	3.4	G												
			SD-11 Closeout Submittals														
			As-Built Drawings	3.1	G												
			Record Drawings	3.2	G												
			Record Drawings	3.3.1	G												
			As-Built Record of Equipment and Materials	1.6.1													
			As-Built Record of Equipment and Materials	1.7.1													
			Certification of EPA Designated Items	2.1	G												

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 78 00.00 22	Certification Of USDA Designated Items	2.2	G												
			Interim DD FORM 1354	3.6.1	G												
			Checklist for DD FORM 1354	3.6.2	G												
			Red Zone Documents	1.7.5	G												
			eOMSI, Final Submittal	1.7.6	G												
			Post Installation Sanitary System Survey	1.7.7	G												
		01 78 23	SD-10 Operation and Maintenance Data														
			Training Plan	3.1.1	G												
			Training Outline	3.1.3	G												
			Training Content	3.1.2	G												
			SD-11 Closeout Submittals														
			Training Video Recording	3.1.4	G												
			Validation of Training Completion	3.1.6	G												
		01 78 24.00 20	SD-11 Closeout Submittals														
			eOMSI, Progress Submittal	1.4.1	G												
			eOMSI, Prefinal Submittal	1.4.2	G												
			eOMSI, Final Submittal	1.4.3	G												
		01 91 00.15 20	SD-06 Test Reports														
			Design Review Report	3.1	G												
			Interim Construction Phase	3.5	G												
			Commissioning Plan														
			Final Construction Phase	3.5	G												
			Commissioning Plan														

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 91 00.15 20	Initial Commissioning Report	3.9	G												
			Issues Log	1.12	G												
			Completed Pre-Functional Checklists	3.6	G												
			SD-07 Certificates														
			Commissioning Firm	1.11	G												
			Certificate Of Readiness	1.13	G												
			SD-11 Closeout Submittals														
			Final Commissioning Report	3.9	G												
			Updated Final Commissioning Report	3.10	G												
		02 41 00	SD-01 Preconstruction Submittals														
			Demolition/Deconstruction Plan	1.2.1	G												
			Existing Conditions	1.10													
			Temporary Protection Plan	1.8.3	G												
			Temporary Egress Plan	1.11	G												
			SD-07 Certificates														
			Notification	1.7	G												
			SD-11 Closeout Submittals														
			Receipts	3.2.4	G												
		02 82 00.00 22	SD-03 Product Data														
			Amended Water	1.2.2	G												
			Safety Data Sheets (SDS) for All Materials	1.3.9	G												
			Encapsulants	2.1	G												
			Respirators	3.1.2.1	G												

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02 82 00.00 22	Local Exhaust Equipment	3.1.7	G												
			Pressure Differential Automatic	3.1.7	G												
			Recording Instrument														
			Vacuums	3.1.8	G												
			Glovebags	3.1.10	G												
			SD-06 Test Reports														
			Air Sampling Results	1.5.5	G												
			Pressure Differential Recordings	1.5.6	G												
			for Local Exhaust System														
			Clearance Sampling	3.2.11.5	G												
			Asbestos Disposal Quantity	3.3.3.2	G												
			Report														
			SD-07 Certificates														
			Employee Training	1.3.4	G												
			Notifications	1.3.5	G												
			Respiratory Protection Program	1.3.7	G												
			Asbestos Hazard Abatement Plan	1.3.10	G												
			Asbestos Hazard Abatement Plan	1.3.10	G												
			Checklist														
			Testing Laboratory	1.3.11	G												
			Medical Certification	1.3.14	G												
			Private Qualified Person	1.5.1	G												
			Documentation														
			Competent Person	1.5.2	G												
			Worker's License	1.5.3	G												
			Contractor's License	1.5.4	G												

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02 82 00.00 22	Federal, State or Local Citations on Previous Projects	1.5.7	G												
			Encapsulants	2.1	G												
			Equipment Used to Contain Airborne Asbestos Fibers	3.1	G												
			Water Filtration Equipment	3.1.3.3	G												
			Vacuums	3.1.8	G												
			Ventilation Systems	3.1.8	G												
			SD-11 Closeout Submittals														
			Permits	1.3.5													
			Licenses	1.3.5	G												
			Notifications	1.3.5	G												
			Respirator Program Records	1.3.7.1	G												
			Rental Equipment	1.7.1	G												
		02 83 00.00 22	SD-01 Preconstruction Submittals														
			Competent Person	1.5.1.1	G												
			Training Certification	1.5.1.2	G												
			Occupational and Environmental Assessment Data Report	1.5.2.4	G												
			Medical Examinations	1.5.2.5	G												
			Lead, Cadmium, and Chromium	1.5.2.9	G												
			Waste Management Plan														
			Licenses, Permits and	1.5.4	G												
			Notifications														
			Lead, Cadmium, and Chromium	1.5.2.2	G												
			Compliance Plan														

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02 83 00.00 22	Lead, Cadmium, and Chromium Compliance Plan Checklist	1.5.2.3	G												
			Waste Characterization Sampling Plan	1.5.2.10	G												
			Sample Results	3.4.1.1	G												
			SD-03 Product Data														
			Respirators	1.6.1	G												
			Vacuum Filters	1.6.4	G												
			Negative Air Pressure System	1.6.7	G												
			Materials and Equipment	2.1	G												
			Expendable Supplies	2.1.1	G												
			Local Exhaust Equipment	3.1.1.5	G												
			Pressure Differential Automatic Recording Instrument	3.1.1.5	G												
			Pressure Differential Log	3.1.1.6	G												
			SD-06 Test Reports														
			Sampling and Analysis	1.3.3	G												
			Occupational and Environmental Assessment Data Report	1.5.2.4	G												
			Sampling Results	1.5.2.4	G												
			Pressure Differential Recordings For Local Exhaust System	1.5.3	G												
			SD-07 Certificates														
			Testing Laboratory	1.5.1.3	G												
			Third Party Consultant	1.5.1.4	G												
			Qualifications														

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						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	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)
		02 83 00.00 22	Notification of the Commencement of Work Impacting Lead, Cadmium, or Chromium		G												
			Clearance Certification	3.5.1.1	G												
			SD-11 Closeout Submittals														
			Turn-In Documents or Weight Tickets	3.5.2.1	G												
		02 84 16	SD-07 Certificates														
			Qualifications of CIH	1.8.1	G												
			Training Certification	1.8.1	G												
			PCB and Lamp Removal Work Plan	1.8.2	G												
			PCB and Lamp Disposal Plan	1.8.3	G												
			PCB Quantity Report	3.5.1.1	G												
			SD-11 Closeout Submittals														
			Transporter certification	3.5.2	G												
			Certification of Decontamination	3.2.4	G												
			Certificate of Disposal and/or recycling	3.5.2.1	G												
			DD Form 1348-1	3.5.3.1													
		03 30 00	SD-02 Shop Drawings														
			Reinforcing Steel	1.6.2.1	G												
			SD-03 Product Data														
			Cementitious Materials	2.1.1													
			Concrete Curing Materials	2.2.1													

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		03 30 00	Reinforcement	2.4													
			Liquid Chemical Floor Hardeners and Sealers	2.2.2.1													
			Admixtures	2.1.4													
			Pumping Concrete	1.6.3.1													
			SD-05 Design Data														
			Concrete Mix Design	1.6.1.1	G												
			SD-06 Test Reports														
			Concrete Mix Design	1.6.1.1	G												
			Fly Ash	1.6.4.1													
			Pozzolan	1.6.4.1													
			Slag Cement	1.6.4.2													
			Aggregates	1.6.4.3													
			Compressive Strength Tests	3.9.2.3	G												
			Air Content	3.9.2.4													
			Slump Tests	3.9.2.1													
			Water	2.1.2													
			SD-07 Certificates														
			Reinforcing Bars	2.4.1													
		04 20 00	SD-03 Product Data														
			Hot Weather Procedures	1.5.1													
			Cold Weather Procedures	1.5.2													
			Clay or Shale Brick	2.2.2	G												
			Adjustable Anchors	2.5.2.2	G												
			Cementitious Materials	2.3.1.1	G												
			SD-04 Samples														

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		04 20 00	Mock-Up Panel	1.3.1.1	G												
			Clay or Shale Brick	2.2.2	G												
			SD-05 Design Data														
			Masonry Compressive Strength	2.1.1	G												
			SD-06 Test Reports														
			Efflorescence Test	2.2.2.1.3	G												
			SD-07 Certificates														
			Clay or Shale Brick	2.2.2													
			SD-08 Manufacturer's Instructions														
			Admixtures for Masonry Mortar	2.3.1.4													
			SD-10 Operation and Maintenance Data														
			Take-Back Program	3.8													
		05 12 00	SD-02 Shop Drawings														
			Fabrication Drawings	1.3.2	G												
			SD-03 Product Data														
			Welding Electrodes and Rods	2.4.1													
			Fiberglass Thermal Break Material	2.8	G												
			SD-06 Test Reports														
			Bolts, Nuts, and Washers	2.3													
			Weld Inspection Reports	3.7.1.2													
			Bolt Testing Reports	3.7.2.1													
			SD-07 Certificates														
			Steel	2.2													
			Bolts, Nuts, and Washers	2.3													

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		05 12 00	Galvanizing	2.5													
			Welding Procedures and Qualifications	1.3.3.1													
			Welding Electrodes and Rods	2.4.1													
			Certified Welding Inspector	3.7.1.1													
			NDT Technician	3.7.1.2													
			Welding Procedure Specifications (WPS)	3.4													
		05 30 00	SD-02 Shop Drawings														
			Fabrication Drawings	1.3.2	G												
			SD-03 Product Data														
			Accessories	2.2													
			Deck Units	2.1	G												
			Galvanizing Repair Paint	3.2.4.1													
			Mechanical Fasteners	2.2.7													
			SD-05 Design Data														
			Deck Units	2.1	G												
			SD-07 Certificates														
			Manufacturer's Certificate	1.3.1													
		05 40 00	SD-02 Shop Drawings														
			Framing Components	1.6.1	G												
			SD-03 Product Data														
			Studs, Joists	2.1													
			SD-07 Certificates														
			Load-Bearing Cold-Formed Metal Framing	1.4													

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		05 50 13	SD-02 Shop Drawings														
			Equipment Platform Gratings	2.3	G												
			SD-03 Product Data														
			Equipment Platform Gratings	2.3	G												
		05 51 00	SD-02 Shop Drawings														
			Metal Stair System	2.2.1	G												
			SD-03 Product Data														
			Steel Pan Stairs	2.2.2	G												
			Steel Stairs	2.3.1	G												
			SD-07 Certificates														
			Welding Procedures	1.3.1													
			Welder Qualification	1.3.1													
			SD-08 Manufacturer's Instructions														
			Protective Coating	2.2.3													
		05 52 00	SD-02 Shop Drawings														
			Fabrication Drawings	2.1	G												
			SD-03 Product Data														
			Structural-Steel Plates, Shapes, and Bars	2.2.1	G												
			Masonry Anchorage Devices	2.2.7	G												
			Protective Coating	2.1.2	G												
			Steel Railings and Handrails	2.2.9	G												
			SD-05 Design Data														
			Metal Railing Calculations	1.3.3	G												
			SD-07 Certificates														
			Welding Procedures	1.3.1													

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		05 52 00	Welder Qualification	1.3.2													
		06 10 00	SD-03 Product Data														
			Underlayment	2.4													
			Fire-retardant Treatment	1.8													
			Structural-use Panels	1.4.3													
			SD-06 Test Reports														
			Preservative-treated	1.4.4													
		06 41 16.00 10	SD-02 Shop Drawings														
			Shop Drawings	2.9	G												
			Installation	3.1													
			SD-03 Product Data														
			Wood Materials	2.1													
			High Pressure Decorative	2.3	G												
			Laminate (HPDL)														
		06 61 16	SD-02 Shop Drawings														
			Detail Drawings	1.4.2	G												
			Installation	3.1	G												
			SD-03 Product Data														
			Solid Polymer Material	2.1	G												
			Qualifications	1.4.1													
			Fabrications	2.3													
			SD-10 Operation and Maintenance														
			Data														
			Clean-up	3.2													
		07 21 13	SD-03 Product Data														
			Manufacturer's Standard Details	1.3	G												

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		07 21 13	Block or Board Insulation	2.1	G												
			Accessories	2.2													
			SD-07 Certificates														
			Block or Board Insulation	2.1													
			Special Warranties	1.7	G												
			SD-08 Manufacturer's Instructions														
			Block or Board Insulation	2.1													
			Adhesive	2.2.1													
		07 21 16	SD-03 Product Data														
			Blanket Insulation	2.1	G												
			Vapor Retarder	2.3													
			Pressure Sensitive Tape	2.4													
			Accessories	2.5													
			SD-08 Manufacturer's Instructions														
			Insulation	3.3.1													
		07 22 00	SD-02 Shop Drawings														
			Insulation Board Layout	1.3	G												
			Verification of Existing Conditions	1.3	G												
			SD-03 Product Data														
			Insulation	2.1	G												
			Cover Board	1.4	G												
			Fasteners	2.4													
			Moisture Control	2.3													
			SD-06 Test Reports														
			Flame Spread Rating	1.8.1													
			SD-07 Certificates														

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		07 22 00	Installer Qualifications	1.6													
			SD-08 Manufacturer's Instructions														
			Fasteners	2.4													
			Insulation	2.1													
		07 27 19.01	SD-01 Preconstruction Submittals														
			Qualifications of Manufacturer	1.6.1	G												
			Qualifications of Installer	1.6.2	G												
			SD-03 Product Data														
			Self-adhering Air Barrier	1.3	G												
			Primers, Adhesives, and Mastics	2.2													
			Safety Data Sheets	1.3.1													
			SD-06 Test Reports														
			Field Peel Adhesion Test	1.5													
			Flame Propagation of Wall Assemblies	1.3.3													
			Flame Spread and Smoke Developed Index Ratings	1.3.3													
			Site Inspections and Testing	3.4.1													
			SD-07 Certificates														
			Self-adhering Air Barrier	1.3													
			Qualifications of Manufacturer	1.6.1													
			Qualifications of Installer	1.6.2													
			SD-08 Manufacturer's Instructions														
			Self-adhering Air Barrier	1.3													
			Primers, Adhesives, and Mastics	2.2													
		07 52 00	SD-02 Shop Drawings														

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		07 52 00	Roof Plan	1.4.5	G												
			SD-03 Product Data														
			Modified Bitumen Sheets	2.2	G												
			Cold-Applied Membrane	2.4	G												
			Adhesive														
			Primer	2.6													
			Modified Bitumen Roof Cement	2.7													
			Pre-Manufactured Accessories	2.10													
			Fasteners And Plates	2.9													
			Warranty	1.8													
			SD-07 Certificates														
			Qualification of Manufacturer	1.4.1													
			Qualification of Applicator	1.4.2													
			Maintaining Existing Roof System	1.2													
			Warranty														
			Wind Uplift Resistance	1.4.4	G												
			Fire Resistance	1.4.3	G												
			SD-08 Manufacturer's Instructions														
			Modified Bitumen Membrane	3.3.5													
			Application														
			Flashing	3.3.6													
			Cold Adhesive Applied Modified	3.3.3.1													
			Bitumen Membrane														
			Primer	2.6													
			Fasteners	2.9.1													
			Cold Weather Installation	1.6													

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		07 52 00	SD-11 Closeout Submittals														
			Maintaining Existing Roof System	1.2	G												
			Warranty														
			Warranty	1.8	G												
			Information Card	3.8	G												
			Instructions To Government	3.7													
			Personnel														
		07 60 00	SD-02 Shop Drawings														
			Exposed Sheet Metal	2.1.1	G												
			Downspouts	3.1.12	G												
			Gravel Stops and fascia	2.1.1	G												
			Counterflashing	3.1.9	G												
			Reglets	2.1.4	G												
			Scuppers	3.1.13	G												
			Conductor Heads	3.1.14	G												
			SD-03 Product Data														
			Bird Spikes	2.1.12	G												
			Bird Spiders	2.1.13	G												
			SD-04 Samples														
			Finish Samples	1.4.2	G												
			SD-08 Manufacturer's Instructions														
			Instructions for Installation	1.4.3													
			Quality Control Plan	3.4													
			SD-10 Operation and Maintenance														
			Data														
			Cleaning and Maintenance	1.4.3													

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		07 84 00	SD-02 Shop Drawings														
			Firestopping and Smoke Sealing System	2.1	G												
			SD-03 Product Data														
			Firestopping Materials	2.2	G												
			Smoke Sealing Materials	2.3	G												
			Identification Labels	2.4.1	G												
			SD-06 Test Reports														
			Inspection Reports	3.4.3	G												
			SD-07 Certificates														
			Inspector Qualifications	1.5.2	G												
			Firestopping and Smoke Sealing Materials	2.4	G												
			Installer Qualifications	1.5.1	G												
			SD-11 Closeout Submittals														
			As-Built Drawings	3.5	G												
		07 92 00	SD-03 Product Data														
			Sealants	2.1	G												
			Primers	2.2													
			Bond Breakers	2.3													
			Backstops	2.4													
			SD-06 Test Reports														
			Field Adhesion	3.1	G												
		08 11 13	SD-02 Shop Drawings														
			Doors	2.1	G												
			Doors	2.1	G												

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		08 11 13	Frames	2.5	G												
			Frames	2.5	G												
			Accessories	2.3													
			Weatherstripping	2.7													
			SD-03 Product Data														
			Doors	2.1	G												
			Frames	2.5	G												
			Accessories	2.3													
			Weatherstripping	2.7													
		08 14 00	SD-02 Shop Drawings														
			Doors	2.1	G												
			SD-03 Product Data														
			Doors	2.1	G												
			Accessories	2.2													
			Water-resistant Sealer	2.3.7													
			Warranty	1.5													
			Fire Resistance Rating	2.1.2	G												
			SD-04 Samples														
			Doors	2.1													
			Door Finish Colors	2.3.6.2	G												
			SD-06 Test Reports														
			Cycle-Slam	2.4													
			Hinge Loading Resistance	2.4													
			SD-07 Certificates														
			Certificates of Grade	1.3.1													
			SD-11 Closeout Submittals														

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		08 14 00	Warranty	1.5	G												
		08 31 00	SD-02 Shop Drawings														
			Access Doors And Panels	1.3	G												
			SD-03 Product Data														
			Access Doors And Panels	1.3	G												
			Hardware	1.3.2													
			Accessories	2.1.7													
			SD-06 Test Reports														
			Fire-rating(s) of Assemblies	1.3.1	G												
		08 71 00	SD-02 Shop Drawings														
			Manufacturer's Detail Drawings	1.3	G												
			Verification of Existing Conditions	1.3	G												
			Hardware Schedule	1.5	G												
			Keying System	2.3.7	G												
			SD-03 Product Data														
			Hardware Items	2.3	G												
			SD-08 Manufacturer's Instructions														
			Installation	3.1													
			SD-10 Operation and Maintenance Data														
			Hardware Schedule	1.5	G												
			SD-11 Closeout Submittals														
			Key Bitting	1.6.1	G												
		08 81 00	SD-03 Product Data														
			Glass	2.1	G												
			Sealants	2.2.1.1													

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		08 81 00	Sealing Tapes	2.2.2													
			SD-08 Manufacturer's Instructions														
			Setting and Sealing Materials	2.2													
			Glass Setting	3.2													
		09 22 00	SD-02 Shop Drawings														
			Metal Support Systems	2.1	G												
			SD-03 Product Data														
			Metal Support Systems	2.1													
		09 29 00	SD-03 Product Data														
			Glass Mat Water-Resistant	2.1.3	G												
			Gypsum Tile Backing Board														
			Water-Resistant Gypsum Backing Board	2.1.2	G												
			Glass Mat Covered or Reinforced Gypsum Sheathing	2.1.4	G												
			Abuse Resistant Gypsum Board	2.1.5	G												
			Accessories	2.1.9	G												
			Gypsum Board	2.1.1	G												
			Recycled Content for Gypsum Board	2.1.1	G												
			SD-07 Certificates														
			Asbestos Free Materials	2.1	G												
			Indoor Air Quality for Gypsum Board	2.1.1	G												
			SD-08 Manufacturer's Instructions														
			Safety Data Sheets	2.1	G												

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		09 29 00	SD-10 Operation and Maintenance Data														
			Manufacturer Maintenance Instructions	2.1	G												
		09 30 10	SD-03 Product Data														
			Porcelain Tile	2.1.1	G												
			Glazed Wall Tile	2.1.2	G												
			Transition Strips	2.4	G												
			Mortar, Grout, and Adhesive	2.3	G												
			SD-08 Manufacturer's Instructions														
			Maintenance Instructions	3.7	G												
			SD-10 Operation and Maintenance Data														
			Installation	3.2	G												
		09 51 00	SD-03 Product Data														
			Acoustical Ceiling Systems	2.1	G												
		09 65 00	SD-03 Product Data														
			Resilient Flooring and Accessories	2.10	G												
			Adhesives	2.6	G												
			Sheet Vinyl Flooring	2.1	G												
			Rubber Tile	2.2	G												
			Wall Base	2.3	G												
			Stair Treads and Risers	2.4	G												
			SD-06 Test Reports														

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		09 65 00	Moisture, Alkalinity and Bond Tests	3.3	G												
			SD-08 Manufacturer's Instructions														
			Surface Preparation	3.2													
			Installation	3.1													
			SD-10 Operation and Maintenance Data														
			Resilient Flooring and Accessories	2.10	G												
		09 68 00	SD-03 Product Data														
			Carpet	2.1	G												
			Carpet	2.3	G												
			Carpet	2.5	G												
			Carpet	2.7	G												
			Moldings	2.10	G												
			SD-06 Test Reports														
			Moisture and Alkalinity Tests	3.2	G												
			SD-08 Manufacturer's Instructions														
			Surface Preparation	3.1													
			SD-10 Operation and Maintenance Data														
			Cleaning and Protection	3.5	G												
			SD-11 Closeout Submittals														
			Warranty	1.5	G												
		09 90 00	SD-03 Product Data														
			Coating	2.1	G												

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		09 90 00	SD-07 Certificates														
			Applicator's Qualifications	1.3													
			SD-08 Manufacturer's Instructions														
			Application Instructions	3.2.1													
			Mixing	2.1													
			SD-10 Operation and Maintenance														
			Data														
			Coatings	2.1	G												
		10 14 00.20	SD-02 Shop Drawings														
			Detail Drawings	1.4.1	G												
			SD-03 Product Data														
			Installation	3.1	G												
			Warranty	1.6	G												
			SD-04 Samples														
			Software	1.3	G												
			SD-10 Operation and Maintenance														
			Data														
			Protection and Cleaning	3.1.1	G												
		10 21 13	SD-02 Shop Drawings														
			Fabrication Drawings	2.1	G												
			Installation Drawings	3.2	G												
			SD-03 Product Data														
			Cleaning and Maintenance	2.1	G												
			Instructions														
			Colors And Finishes	2.7													
			Anchoring Devices and Fasteners	2.2.1													

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		10 21 13	Hardware and Fittings	2.2.3													
			Brackets	2.2.2													
			Door Hardware	2.2.4													
			Toilet Enclosures	2.3.1													
			Urinal Screens	2.3.2													
			Pilaster Shoes	2.5													
			Finishes	2.2.3.2	G												
			SD-07 Certificates														
			Warranty	1.5	G												
			SD-10 Operation and Maintenance Data														
			Plastic Identification	2.1.1	G												
		10 22 39	SD-01 Preconstruction Submittals														
			Manufacturer's Qualifications	2.1	G												
			Manufacturer's Sample Warranty	2.1													
			Statement of Code Compliance	2.1	G												
			Statement of Standards	2.1	G												
			Conformity														
			Verification of Field Measurements	2.1	G												
			SD-02 Shop Drawings														
			Installation	3.1	G												
			Layouts	3.1.1	G												
			Fabrication Drawings	2.1	G												
			SD-03 Product Data														
			Folding Panel Partitions	2.3	G												

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		10 22 39	Installation Instructions	2.1	G												
		10 28 13	SD-03 Product Data														
			Finishes	2.1.2	G												
			Accessory Items	2.2	G												
			SD-04 Samples														
			Finishes	2.1.2	G												
			Accessory Items	2.2													
		10 44 16	SD-02 Shop Drawings														
			Fire Extinguishers	2.1.1	G												
			Accessories	Part 2	G												
			Cabinets	Part 2	G												
			Wall Brackets	2.2.2	G												
			Schedule	1.5	G												
			SD-03 Product Data														
			Fire Extinguishers	2.1.1	G												
			Accessories	Part 2	G												
			Cabinets	Part 2	G												
			Wall Brackets	2.2.2	G												
			SD-07 Certificates														
			Fire Extinguishers Certifications	2.1.1	G												
			Manufacturer's Warranty with	1.4	G												
			Inspection Tag														
		12 24 13	SD-02 Shop Drawings														
			Installation	3.3	G												
			SD-03 Product Data														
			Window Shades	2.1	G												

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		12 24 13	SD-04 Samples														
			Window Shades	2.1	G												
			SD-06 Test Reports														
			Window Shades	2.1													
			SD-08 Manufacturer's Instructions														
			Window Shades	2.1													
			SD-10 Operation and Maintenance														
			Data														
			Window Shades	2.1	G												
			SD-11 Closeout Submittals														
			Warranty	1.6	G												
		21 13 13.00 20	SD-01 Preconstruction Submittals														
			Impairment Plan	1.5	G												
			SD-02 Shop Drawings														
			Shop Drawings	1.9.2	G												
			Coordination Information	1.3													
			SD-03 Product Data														
			Pipe	2.1.1	G												
			Fittings	2.1.1	G												
			Mechanical Couplings	2.1.1	G												
			Sprinklers	2.1.4	G												
			Valves	2.1.5	G												
			Pipe Hangers and Supports	2.1.6	G												
			Sprinkler Alarm Switches	2.2.1	G												
			Valve Supervisory (Tamper)	2.2.2	G												
			Switches														

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		21 13 13.00 20	Sprinkler Cabinet	2.3.2	G												
			Pipe Escutcheons	2.3.3	G												
			Automatic Air Release Valve	2.1.5	G												
			Inspector's Test Connection	2.1.5	G												
			Seismic Bracing	2.1.6	G												
			SD-05 Design Data														
			Hydraulic Calculations	1.7	G												
			SD-06 Test Reports														
			Hydrant Flow Test Results	1.7.6	G												
			Request to schedule Preliminary Tests	3.7	G												
			Preliminary Test Report	3.7	G												
			Request to schedule Final Acceptance Test	3.8	G												
			SD-07 Certificates														
			Inspection by Fire Protection Engineer	3.2	G												
			Qualified Fire Protection Engineer (QFPE)	1.9.1	G												
			Sprinkler System Installer	1.9.2	G												
			Qualifications of Welders	1.9.3	G												
			SD-10 Operation and Maintenance Data														
			Operating and Maintenance Instructions	3.9	G												
			SD-11 Closeout Submittals														

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		21 13 13.00 20	As-built drawings	1.9.2	G												
			Request to schedule on-site training	3.9	G												
		22 00 00	SD-02 Shop Drawings														
			Coordination Information	1.2													
			SD-03 Product Data														
			Thermostatic Mixing Valves	2.3.3	G												
			Automatic Flow Control Valves	2.3.5	G												
			Icemaker Outlet Box	2.4.1	G												
			Flush Valve Water Closets	2.5.2	G												
			Flush Valve Water Closets	2.5.3	G												
			Flush Valve Urinals	2.5.4	G												
			Wall Hung Lavatories	2.5.5	G												
			Countertop Lavatories	2.5.6	G												
			General Purpose Sinks	2.5.7	G												
			Electric Water Coolers	2.5.8	G												
			Expansion Tanks	2.8	G												
			Electric Water Heater	2.9	G												
			Pumps	2.10	G												
			Trap Primer Assembly	2.12.6	G												
			SD-06 Test Reports														
			Tests, Flushing and Disinfection	3.7	G												
			Post Installation Sanitary System Survey	3.7.1.1	G												
			SD-10 Operation and Maintenance Data														

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		22 00 00	Fixtures	2.5	G												
			Plumbing System	3.7.1	G												
		23 00 00	SD-02 Shop Drawings														
			Coordination Information	1.3													
			Detail Drawings	1.5.4	G												
			SD-03 Product Data														
			Insulated Nonmetallic Flexible Duct Runouts	2.7.1.1	G												
			Duct Connectors	2.7.1.1													
			Duct Access Doors	2.7.2	G												
			Fire Dampers	2.7.3	G												
			Manual Balancing Dampers	2.7.4	G												
			Diffusers	2.7.5.1	G												
			Registers and Grilles	2.7.5.2	G												
			In-Line Centrifugal Fans	2.8.1.1	G												
			Packaged Rooftop Air Handling Units	2.9	G												
			Variable Volume, Single Duct Terminal Units	2.10.1.1	G												
			Energy Recovery Devices	2.11	G												
			Hydronic Modular Panels	2.14.1	G												
			Test Procedures	1.5.5	G												
			Indoor Air Quality for Duct Sealants	2.7.1													
			SD-06 Test Reports														
			Performance Tests	3.10	G												

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		23 00 00	SD-07 Certificates														
			Ozone Depleting Substances	1.5.3													
			Technician Certification														
			SD-10 Operation and Maintenance														
			Data														
			Operation and Maintenance	3.13.1	G												
			Manuals														
			Fire Dampers	2.7.3	G												
			Manual Balancing Dampers	2.7.4	G												
			In-Line Centrifugal Fans	2.8.1.1	G												
			Packaged Rooftop Air Handling	2.9	G												
			Units														
			Variable Volume, Single Duct	2.10.1.1	G												
			Terminal Units														
			Energy Recovery Devices	2.11	G												
			Hydronic Modular Panels	2.14.1	G												
		23 03 00.00 20	SD-02 Shop Drawings														
			ATFP Bracing Details	1.10.1	G												
			SD-03 Product Data														
			ATFP Bracing Components	1.10.1	G												
		23 05 48.00 40	SD-02 Shop Drawings														
			Installation Drawings	1.2	G												
			Outline Drawings	1.2													
			SD-03 Product Data														
			Equipment and Performance	1.2	G												
			Data														

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		23 05 48.00 40	Isolators	1.2	G												
			SD-06 Test Reports														
			Vibration-Isolation Devices	3.2.1	G												
		23 05 93	SD-01 Preconstruction Submittals														
			Records of Existing Conditions	1.3.3	G												
			Independent TAB Agency and Personnel Qualifications	1.5.1	G												
			TAB Design Review Report	1.5.4.2	G												
			SD-02 Shop Drawings														
			TAB Schematic Drawings and Report Forms	1.3.3	G												
			SD-03 Product Data														
			Equipment and Performance Data	1.3	G												
			TAB Related HVAC Submittals	1.5.1.3	G												
			SD-06 Test Reports														
			Completed Pre-Final DALT Report	3.2.5	G												
			Certified Final DALT Report	3.2.8	G												
			Prerequisite HVAC Work Checkout List	1.5.4.4	G												
			Prerequisite HVAC Work Checkout List	1.5.4.4	G												
			Prerequisite HVAC Work Checkout List	1.5.4.4	G												
			Proportional Balancing	3.3.6.1	G												

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		23 05 93	Season 1	3.3.6.2	G												
			Season 2	3.3.6.2	G												
			SD-07 Certificates														
			Independent TAB Agency and Personnel Qualifications	1.5.1	G												
			DALT and TAB Submittal and Work Schedule	1.5.4.1	G												
			TAB Pre-Field Engineering Report	1.5.4.4	G												
			Instrument Calibration Certificates	1.5.5	G												
			DALT and TAB Procedures Summary	3.6	G												
			Completed Pre-Final DALT Work Checklist	3.6	G												
			Advance Notice of Pre-Final DALT Field Work	3.2.2	G												
			Proportional Balancing	3.3.6.1	G												
			Season 1	3.3.6.2	G												
			Season 2	3.3.6.2	G												
		23 07 00	SD-02 Shop Drawings														
			Coordination Information	1.3													
			SD-03 Product Data														
			Pipe Insulation Systems	2.3	G												
			Pipe Insulation Systems	3.2	G												
			Duct Insulation Systems	3.3	G												

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		23 07 00	Equipment Insulation Systems	3.4	G												
			SD-08 Manufacturer's Instructions														
			Pipe Insulation Systems	2.3													
			Pipe Insulation Systems	3.2													
			Duct Insulation Systems	3.3													
			Equipment Insulation Systems	3.4													
		23 09 00	SD-02 Shop Drawings														
			DDC Contractor Design Drawings	3.3	G												
			Draft As-Built Drawings	3.3	G												
			Final As-Built Drawings	3.3	G												
			SD-03 Product Data														
			Programming Software	1.9.3	G												
			Controller Application Programs	1.9.4	G												
			Configuration Software	1.9.1	G												
			Controller Configuration Settings	1.9.2	G												
			Manufacturer's Product Data	2.2	G												
			Low Voltage Power Panels	2.6.7	G												
			Niagara Framework Supervisory	1.9.5	G												
			Gateway Backups														
			Niagara Framework Engineering	1.9.6	G												
			Tool														
			SD-06 Test Reports														
			Existing Conditions Report	3.1.1	G												
			Start-Up Testing Report	3.5.2	G												
			PVT Procedures	3.6.1	G												
			PVT Report	3.6.3	G												

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		23 09 00	Pre-Construction Quality Control (QC) Checklist	1.10.1	G												
			Post-Construction Quality Control (QC) Checklist	1.10.2	G												
			SD-10 Operation and Maintenance Data														
			Operation and Maintenance (O&M) Instructions	3.7	G												
			Training Documentation	3.9.1	G												
			SD-11 Closeout Submittals														
			Enclosure Keys	2.5	G												
			Password Summary Report	3.2.7.1	G												
			Closeout Quality Control (QC) Checklist	1.10.3	G												
		23 21 13.00 20	SD-02 Shop Drawings														
			Hot water heating system	1.3.1	G												
			Coordination Information	1.2													
			SD-03 Product Data														
			Finned tube radiators	2.4.1	G												
			Wall Mounted Panel Radiators	2.4.2	G												
			Calibrated balancing valves	2.1.6.6	G												
			Combination strainer and pump suction diffuser	2.1.10	G												
			Pumps	2.3.1	G												
			Expansion tanks	2.3.2	G												
			Air separation tanks	2.3.3	G												

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		23 21 13.00 20	Hot water heating pipe	2.1.1	G												
			Plate/Frame Heat Exchanger	2.2.2	G												
			SD-06 Test Reports														
			Hydrostatic test of piping system	3.4.1	G												
			Auxiliary equipment and	3.4.2	G												
			accessory tests														
			SD-07 Certificates														
			Welding procedures	1.5.2.1													
			Welder's qualifications	1.5.2.2													
			SD-10 Operation and Maintenance														
			Data														
			Finned Tube Radiators	2.4.1	G												
			Wall Mounted Panel Radiators	2.4.2	G												
			Pumps	2.3.1	G												
			Calibrated Balancing Valves	2.1.6.6	G												
			Combination Strainer and Pump	2.1.10	G												
			Suction Diffuser														
			Expansion tanks	2.3.2	G												
			Air separation tanks	2.3.3	G												
			Plate/Frame Heat Exchanger	2.2.2	G												
		23 22 26.00 20	SD-02 Shop Drawings														
			Coordination Information	1.2													
			Equipment Support Frame Shop	3.1.6.1	G												
			Drawings														
			SD-03 Product Data														
			Convertors	2.2	G												

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						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		23 22 26.00 20	Valves	2.1.7	G												
			Valve Operating Mechanism	2.1.7.7	G												
			Traps	2.1.10.3	G												
			Strainers	2.1.10.4													
			Instrumentation	2.1.9													
			SD-06 Test Reports														
			Steam Piping	2.1.1													
			Valves	2.1.7													
			Pipe and Pipe System	2.1													
			Convertors	2.2													
			Field Tests and Inspection Reports	3.2	G												
			SD-07 Certificates														
			Welding Procedure	1.4.1													
			Welder's Performance	1.4.2													
			Qualification Record														
			List of Welders and Welder's Symbols	1.4.2													
			SD-08 Manufacturer's Instructions														
			Convertors	2.2	G												
			SD-10 Operation and Maintenance Data														
			Convertors	2.2	G												
			Valves	2.1.7	G												
		23 81 00.00 20	SD-02 Shop Drawings														

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		23 81 00.00 20	Field-Assembled Refrigerant Piping	2.4.2	G												
			Control System Wiring Diagrams	1.4.2	G												
			Coordination Information	1.2													
			SD-03 Product Data														
			Air Conditioners	2.1	G												
			Energy Star Label for Split-System Type Air Conditioners	2.1.1	G												
			Thermostats	2.1.6													
			Refrigerant Piping and Accessories	2.4	G												
			Coatings for Finned Tube Coils	2.2	G												
			SD-06 Test Reports														
			Leak Testing	3.7.1	G												
			Start-Up and Initial Operational Tests	3.7.3	G												
			SD-08 Manufacturer's Instructions														
			Air Conditioners	2.1													
			Thermostats	2.1.6													
			SD-10 Operation and Maintenance Data														
			Air Conditioners	2.1	G												
			Thermostats	2.1.6	G												
			SD-11 Closeout Submittals														
			Posted Operating Instructions	1.4.4													
		25 05 11	SD-01 Preconstruction Submittals														

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		25 05 11	Wireless Communication Request	3.1.5.3	G												
			Device Account Lock Exception Request	3.1.2.2	G												
			Multiple IP Connection Device Request	3.9	G												
			Contractor Computer Cybersecurity Compliance Statements	1.8.1.4	G												
			SD-02 Shop Drawings														
			User Interface Banner Schedule	3.1.3.1	G												
			Network Communication Report	1.6.2	G												
			Cybersecurity Riser Diagram	1.6.5	G												
			Control System Inventory Report	1.6.3	G												
			Cybersecurity Interconnection Schedule	1.6.1	G												
			SD-03 Product Data														
			Control System Cybersecurity Documentation	1.6.6	G												
			SD-06 Test Reports														
			Wireless Communication Test Report	1.4.1	G												
			SD-07 Certificates														
			Software Licenses	1.7	G												
			SD-11 Closeout Submittals														
			Password Summary Report	3.5.2.2.5	G												

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		25 05 11	Software Recovery And Reconstitution Images	1.6.4	G												
			Device Audit Record Upload Software	3.2.2.1	G												
		25 08 10	SD-06 Test Reports														
			UMCS and Building Level DDC Testing Sequence	3.1	G												
			Performance Verification Test	3.5	G												
			Endurance Testing	3.6	G												
			Performance Verification and Endurance Test Plan	3.5.1	G												
		25 10 10	SD-02 Shop Drawings														
			UMCS Contractor Design Drawings	3.2.2	G												
			Draft As-Built Drawings	3.2.3	G												
			Final As-Built Drawings	3.2.3	G												
			SD-03 Product Data														
			Product Data Sheets	2.1.5	G												
			Computer Software	2.4	G												
			Enclosure Keys	2.5.1													
			SD-05 Design Data														
			UMCS IP Network Bandwidth Usage Estimate	3.2.1	G												
			SD-06 Test Reports														
			Pre-Construction QC Checklist	1.7	G												
			Post-Construction QC Checklist	1.7	G												

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		25 10 10	Existing Conditions Report	3.1	G												
			SD-10 Operation and Maintenance Data														
			Operation and Maintenance (O&M) Instructions	1.8	G												
			Basic Training Documentation	3.9.1	G												
			Advanced Training Documentation	3.9.1	G												
			Refresher Training Documentation	3.9.1	G												
			SD-11 Closeout Submittals														
			Closeout QC Checklist	1.7	G												
		26 08 00	SD-06 Test Reports														
			Acceptance tests and inspections	3.1	G												
			SWITCHBOARDS	3.1	G												
			MSB(A) and MSB (B)	3.1	G												
			Panel MDP/A	3.1	G												
			Panel MDP2	3.1	G												
			Panel MDP3	3.1	G												
			Panel DP2	3.1	G												
			Panel DP3	3.1	G												
			VFD at P-H1	3.1	G												
			VFD at P-H2	3.1	G												
			SD-07 Certificates														
			Qualifications	1.4.1	G												

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		26 08 00	Acceptance test and inspections procedure	1.4.3	G												
		26 20 00	SD-02 Shop Drawings														
			Coordination Information	1.2													
			Panelboards	2.14	G												
			Transformers	2.15	G												
			Telecommunications and Signal System Pathway	3.1.2.10	G												
			Cable trays	2.4	G												
			Wireways	2.26	G												
			Coordinated power system protection	2.30	G												
			Poke Through Ground Penetrating Radar Report	3.1.5.3	G												
			SD-03 Product Data														
			Coordination Data, Fuses	1.5.1	G												
			Receptacles	2.13	G												
			Weatherproof Receptacles and WP-IN-USE Covers	2.13.1	G												
			Special Purpose Receptacles	2.13.3	G												
			Circuit breakers	2.14.3	G												
			Cable Trays	2.4	G												
			Open Top Cable Supports	2.5.1	G												
			Recessed Outlet Poke Through Devices	2.6.1	G												
			Outlet Boxes for Exterior Devices	2.6.3	G												

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		26 20 00	Metal Clad Cable	2.8.5	G												
			Switches	2.11	G												
			Disconnect Switches	2.11.2	G												
			Fuses	1.5.1	G												
			Fuses	2.12	G												
			Shunt Trip Disconnect Switch	2.11.3	G												
			Panelboards	2.14	G												
			Transformers	2.15	G												
			Motors	2.16	G												
			Motors for VFD Control	2.16.5	G												
			Motor controllers	2.17	G												
			Manual motor starters	2.18	G												
			Grounding Busbar	2.21.3	G												
			Surge protective devices	2.27	G												
			Fabric Inner Duct	2.31	G												
			SD-06 Test Reports														
			600-volt wiring test	3.5.2	G												
			Grounding system test	3.5.5	G												
			Grounding system test	3.5.5	G												
			Transformer tests	3.5.3	G												
			Ground-fault receptacle test	3.5.4	G												
			Surge protection device	3.5.6	G												
			installation checks														
			Recessed Outlet Poke Through	3.1.5.3	G												
			Ground Rods and Plates	3.1.12.1	G												
			Ground Rods and Plates	3.1.12.1	G												

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		26 20 00	Resistance	3.1.12.4	G												
			Phase Rotation Test	3.5.7	G												
			Continuation of Service	3.1.16.4	G												
			Cybersecurity Hygiene Checklist	3.5.8	G												
			Load Center 6 Existing Settings	3.6	G												
			SD-07 Certificates														
			Fuses	1.5.1													
			Fuses	2.12													
			SD-09 Manufacturer's Field														
			Reports														
			Transformer factory Tests	2.29.1	G												
			Cybersecurity Hygiene Checklist	3.5.8	G												
			SD-10 Operation and Maintenance														
			Data														
			Electrical Systems	1.6.1	G												
			Single line diagram	1.6.1	G												
		26 24 13	SD-03 Product Data														
			Switchboard Circuit Breakers	2.2	G												
			SD-06 Test Reports														
			Acceptance Checks and Tests	3.3.2	G												
			Acceptance Checks and Tests	3.3.2	G												
			Circuit Breaker Settings	3.3.1	G												
			Visual and Mechanical Inspection	3.3.2.1	G												
			Electrical Tests	3.3.2.1	G												
			SD-09 Manufacturer's Field														
			Reports														

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		26 24 13	Cybersecurity Hygiene Checklist	3.3.5	G												
			Adjust Breaker Settings	3.3.3	G												
			Follow-Up Verification	3.3.4	G												
			SD-10 Operation and Maintenance Data														
			Switchboard Operation and Maintenance	1.6.1	G												
			SD-11 Closeout Submittals Assembled Operation and Maintenance Manuals	1.6.2	G												
			Required Settings	3.3.1	G												
		26 29 23	SD-02 Shop Drawings														
			Schematic diagrams	1.5.1	G												
			Interconnecting diagrams	1.5.2	G												
			Installation drawings	1.5.3	G												
			SD-03 Product Data														
			Variable frequency drives	2.1	G												
			Wires and cables	2.3	G												
			Equipment schedule	1.5.4	G												
			SD-06 Test Reports														
			VFD Test	3.2.1	G												
			Performance Verification Tests	3.2.2	G												
			Endurance Test	3.2.3	G												
			SD-08 Manufacturer's Instructions														
			Installation instructions	1.5.5													
			Demonstration	3.4	G												

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		26 29 23	SD-09 Manufacturer's Field Reports														
			VFD Factory Test Plan	2.5.1	G												
			Factory test results	1.5.6	G												
			Cybersecurity Hygiene Checklist	3.2.4	G												
			SD-10 Operation and Maintenance Data														
			Variable frequency drives	2.1	G												
		26 41 00	SD-01 Preconstruction Submittals														
			Lightning Protection and Grounding System Test Plan	1.4.3	G												
			Lightning Protection System Installers Documentation	1.2.3	G												
			SD-02 Shop Drawings														
			Overall lightning protection system	1.4.1.1	G												
			Each major component	1.4.1.2	G												
			SD-06 Test Reports														
			Lightning Protection and Grounding System Test	3.4.1	G												
			SD-07 Certificates														
			Component UL Listed and Labeled	1.4.2	G												
			Lightning protection system inspection certificate	1.4.4	G												
			Roof manufacturer's warranty	3.1.1	G												

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		26 41 00	UL Master System Label Certification	3.4.2	G												
		26 51 00	SD-02 Shop Drawings														
			Coordination Information	1.2													
			Luminaire Drawings	1.5.1	G												
			Occupancy/Vacancy Sensor Coverage Layout	1.5.2	G												
			Control Panel Programming Narrative	2.6.2	G												
			SD-03 Product Data														
			Luminaires	2.2	G												
			Light Sources	2.4	G												
			Drivers	2.3	G												
			LED Luminaire Warranty	1.6.1	G												
			Luminaire Design Data	1.5.4	G												
			Sensors for Lighting Control	2.5.3	G												
			Low Voltage Switch	2.5.2	G												
			Lighting Bypass Relay	2.5.5	G												
			Exit Signs	2.7.1	G												
			LED Emergency Drivers	2.7.2	G												
			Photocell/Daylight Sensor	2.5.4	G												
			Local Area Lighting Controller (Room/Scene Controller)	2.5.6	G												
			Lighting Control Panel	2.6	G												
			Luminaire Support Hardware	2.8													
			Power Packs for Sensors	2.5.3.1.4													

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		26 51 00	SD-06 Test Reports														
			LED Luminaire - IES LM-79 Test Report	1.5.5													
			LED Light Source - IES LM-80 Test Report	1.5.6													
			LED Light Source - IES TM-21 Test Report	1.5.7													
			Occupancy/Vacancy Sensor Verification Tests	1.5.8	G												
			Occupancy/Vacancy Sensors (Testing)	3.1.7	G												
			Daylight Sensor	3.1.10	G												
			Emergency Lighting Testing	3.1.8	G												
			Bypass Control Relay Testing	3.1.9	G												
			Energy Efficiency	1.5.11.3	G												
			SD-07 Certificates														
			Luminaire Useful Life Certificate	1.6.1.1	G												
			LED Driver and Dimming Switch Compatibility Certificate	1.5.3	G												
			Lighting Controls-Cybersecurity	2.5	G												
			SD-09 Manufacturer's Field Reports														
			Commissioning	3.3	G												
			Field Quality Control	3.2	G												
			Cybersecurity Hygiene Checklist	3.2.3	G												

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		26 51 00	SD-10 Operation and Maintenance Data														
			Lighting Control System, Data Package 5	3.3.3	G												
		26 56 00	SD-01 Preconstruction Submittals														
			LED Luminaire Warranty	1.6.1	G												
			SD-02 Shop Drawings														
			Luminaire drawings	1.5.1.1	G												
			SD-03 Product Data														
			LED Luminaires	2.2	G												
			Luminaire Light Sources	2.2.2													
			Luminaire Power Supply Units (Drivers)	2.2.3													
			Existing Exterior Building Mounted Lights	3.3.6	G												
			SD-04 Samples														
			LED Luminaires	2.2	G												
			SD-05 Design Data														
			Design Data for luminaires	1.5.2	G												
			SD-06 Test Reports														
			LED Luminaire - IES LM-79 Test Report	1.5.3													
			LED Light Source - IES LM-80 Test Report	1.5.4													
			Commissioning	3.3	G												
			Operating test	3.2	G												

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		26 56 00	Emergency Lighting Test Report	3.3.3	G												
			SD-07 Certificates														
			Luminaire Useful Life Certificate	1.6.1													
			SD-09 Manufacturer's Field Reports														
			Commissioning	3.3	G												
			Cybersecurity Hygiene Checklist	3.2.1	G												
			SD-10 Operation and Maintenance Data														
			Lighting Control System Data	3.3.4	G												
			Package 5														
		27 05 29.00 10	SD-01 Preconstruction Submittals														
			Manufacturer's Qualifications	1.5.1	G												
			Installer's Qualifications	1.5.2	G												
			SD-02 Shop Drawings														
			PDS Design	1.3.3	G												
			PDS Design Technical Review	1.3.4	G												
			PDS Design Approval	1.3.5	G												
			PDS Carrier Routing	3.2	G												
			SD-03 Product Data														
			Equipment	1.5.3	G												
			Secure Raceway Carrier	2.1.1	G												
			PDS Hardened Carrier	1.5.3	G												
			Conduit Carrier	2.1.2	G												
			User Drop Box	2.2	G												
			User Drop Box	3.3.2.1	G												

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		27 05 29.00 10	SD-04 Samples														
			PDS Carrier Surface Mounted	2.1.1													
			Pull Boxes	2.1.2.5													
			Fittings	2.1.2.3													
			SD-06 Test Reports														
			Magnetic Test	3.4.2	G												
			SD-11 Closeout Submittals														
			User Drop Box	2.2													
			User Drop Box	3.3.2.1													
			Other Enclosures	3.3.2.2													
		27 10 00	SD-01 Preconstruction Submittals														
			Telecommunications Contractor	1.6.2	G												
			Qualifications														
			Key Personnel Qualifications	1.6.2.2	G												
			SD-02 Shop Drawings														
			Coordination Information	1.2													
			Telecommunications drawings	1.6.1.1	G												
			(T1, T2, T4)														
			Telecommunications Space	1.6.1.2	G												
			Drawings (T3)														
			SD-03 Product Data														
			Telecommunications cabling	2.3	G												
			Patch panels	2.4.5	G												
			Patch Cords	2.4.7	G												
			Telecommunications	2.5	G												
			outlet/connector assemblies														

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		27 10 00	Equipment support frame	2.4.2	G												
			Connector blocks	2.4.3	G												
			SD-06 Test Reports														
			Telecommunications cabling testing	3.5.1	G												
			Performance Tests	3.5.1.3	G												
			SD-07 Certificates														
			Manufacturer Qualifications	1.6.2.3													
			Test plan	1.6.3	G												
			SD-09 Manufacturer's Field Reports														
			Factory Reel Tests	2.10.1													
			SD-10 Operation and Maintenance Data														
			Telecommunications cabling and pathway system	1.10.1	G												
			SD-11 Closeout Submittals														
			Record Documentation (T5)	1.10.2	G												
		28 08 10	SD-01 Preconstruction Submittals														
			Test Director	1.4.1.2	G												
			Operator	1.4.1.3	G												
			Technician	1.4.1.4	G												
			SD-05 Design Data														
			Test Plan	3.1	G												
			Personnel	3.1.1													
			Equipment	3.1.2													

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		28 08 10	Procedures	3.1.3													
			SD-06 Test Reports														
			Draft Test Reports	3.2.2	G												
			Pre-Acceptance Testing	3.2	G												
			System Acceptance	3.3	G												
			Summary	3.4.1	G												
			Final Test Reports	3.4	G												
			SD-07 Certificates														
			Qualifications	1.4.1	G												
		28 10 05	SD-01 Preconstruction Submittals														
			Contractor Qualifications	1.3.4.1	G												
			Instructor Qualifications	1.3.4.2	G												
			SD-02 Shop Drawings														
			ESS Components	1.3.3.1	G												
			Overall System Schematic	1.3.3.2	G												
			SD-03 Product Data														
			Premise Control Unit	2.3.6	G												
			Detection Sensors	2.3.7	G												
			Access Control Unit	2.4.4	G												
			Access Control Devices	2.4.5	G												
			Component Enclosure	2.7	G												
			Wire and Cable	2.5.1	G												
			Locks and Key Lock	2.8	G												
			SD-05 Design Data														
			Backup Battery Capacity	1.5.1	G												
			Calculations														

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GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME)

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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 A10.22	(2007; R 2017) Safety Requirements for Rope-Guided and Non-Guided Workers' Hoists
ASSP A10.34	(2001; R 2012) 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	(2016) The Fall Protection Code
ASSP Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSP Z359.12	(2009) 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
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

ASME INTERNATIONAL (ASME)

- 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; R2020) Rigging Hardware
- ASME B30.3 (2020) Tower Cranes
- ASME B30.5 (2018) Mobile and Locomotive Cranes
- ASME B30.7 (2016) Winches
- ASME B30.8 (2015) Floating Cranes and Floating
Derricks
- ASME B30.9 (2018) Slings

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 (2017; Errata 1-2 2017; INT 1 2017)
National Electrical Safety Code

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA Z535.2 (2011; R 2017) Environmental and Facility
Safety Signs

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2022) Standard for Portable Fire Extinguishers
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 306	(2019) Standard for Control of Gas Hazards on Vessels
NFPA 51B	(2019) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2020; TIA 22-1; ERTA 1 2022) National Electrical Code
NFPA 70E	(2021) Standard for Electrical Safety in the Workplace

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	(2014) Safety and Health Requirements Manual
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	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 1926.1400	Cranes and Derricks in 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
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146
ATTACHMENT A	"CONTRACTOR CRANE, LHE, CONSTRUCTION EQUIPMENT, AND RIGGING GEAR REQUIREMENTS"
ATTACHMENT B	"PORTSMOUTH NAVAL SHIPYARD UTILITY LOCATING PROCEDURES"

The attachments are included at the end of this Section. If the attachments are missing, notify the Contracting Officer.

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 29 CFR 1926 Subpart AA, 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 and include experience on the specific scaffolding systems/types being used, 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 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 through 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 requirements of EM 385-1-1 Appendix Q, and ASSP Z359.0, with 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 USACE 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, or 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). Document an LHE mishap or accident using the NAVFAC prescribed Navy Crane Center (NCC) accident form.

1.3 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

Accident Prevention Plan (APP); G

SD-06 Test Reports

Monthly Exposure Reports; G

Notifications and Reports; G

Accident Reports; G

LHE Inspection Reports; G

SD-07 Certificates

Contractor Safety Self-Evaluation Checklist; G

Crane Operators/Riggers; G

Standard Lift Plan; G

Critical Lift Plan; G

Activity Hazard Analysis (AHA); G

Confined Space Entry Permit; G

Hot Work Permit; G

Certificate of Compliance; G

License Certificates; G

Radiography Operation Planning Work Sheet; G

1.4 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the monthly 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 CONTRACTOR SAFETY SELF-EVALUATION CHECKLIST

Contracting Officer will provide a "Contractor Safety Self-Evaluation checklist" to the Contractor at the pre-construction meeting. Complete the checklist monthly and submit with each request for payment voucher. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90 may result in retention of up to 10 percent of the voucher. The Contractor Safety Self-Evaluation checklist can be found on the Whole Building Design Guide website at www.wbdg.org/ffc/dod/unifiedfacilities-guide-specifications-ufgs/ufgs-01-35-26

1.6 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 applicable 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.

1.6.1 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.

1.6.1.1 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.

1.6.1.2 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:

$$(N/EH) \times 200,000$$

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.

1.7 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.7.1 Personnel Qualifications

1.7.1.1 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 (1) 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. Note the "Project Site" is the specific area of construction within the limits of work as defined by the Contract Documents.

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. The DR may not relieve an Alternate SSHO. Note that the DR is a collateral duty safety position, with safety duties in addition to their full time occupation. The primary SSHO may not be absent from the site for more than two weeks at one time and not more than 30 work days in a calendar year.

1.7.1.2 Quality Control (QC) Manager:

The Quality Control Manager cannot be the SSHO on the project.

1.7.1.3 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 the Contracting Officer for information in consultation with the Portsmouth Naval Shipyard Safety Office.

1.7.1.3.1 Competent Person for Confined Space Entry

Provide a Confined Space Competent Person (CP) 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.

If work involves marine operations that handle combustible or hazardous materials, this person must have the ability to understand and follow through on the air sampling, Personal Protective Equipment (PPE), and instructions of a Marine Chemist, Coast Guard authorized persons, or Certified Industrial Hygienist. Confined space and enclosed space work must comply with NFPA 306, OSHA 29 CFR 1915, Subpart B, "Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment," or as applicable, 29 CFR 1910.147 for general industry.

1.7.1.3.2 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.

1.7.1.3.3 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 and herein.

1.7.1.4 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. 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 (5) 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.
- b. Update training course materials whenever an update of the EM 385-1-1 becomes available.
- c. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.
- d. Request, review, and incorporate student feedback into a continuous course improvement program.

1.7.1.5 Crane Operators/Riggers

Provide Operators, Signal Persons, and Riggers meeting the requirements in EM 385-1-1, Section 15.B for Riggers, and Section 16.B for Crane Operators and Signal Persons. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, designate crane operators qualified by a source that qualifies crane operators (i.e., union, a Government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualification.

1.7.2 Personnel Duties

1.7.2.1 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, and estimated and actual dates of corrections. Attach safety inspection logs to the Contractor's 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 300 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 associated Safety Data Sheets (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. The dismissal of the Superintendent, QC Manager, and/or SSHO will not be cause for claims for a Contract modification(s) for an extension to the Contract duration or for additional compensation.

1.7.3 Meetings

1.7.3.1 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 at the

conference 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.

1.7.3.2 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 on the project location. The SSHO, supervisors, foremen, or Collateral Duty Safety Officer's (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.

1.8 ACCIDENT PREVENTION PLAN (APP)

1.8.1 Accident Prevention Plan (APP)

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. Contractor's 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 trade/craft from interfering with or creating hazardous working conditions for other trades/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 (CIH). 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 15 calendar days prior to the

date of the preconstruction meeting 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 twenty-four (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.

1.8.2 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.

1.8.3 Plans

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

1.8.3.1 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.)

1.8.3.2 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe

control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed, and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of three (3) months.

1.8.3.3 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. In addition, Critical Lift Plans are required for the following:

- a. Lifts over 50 percent of the capacity of barge mounted mobile crane's hoist.
- b. When working around energized power lines where the work will get closer than the minimum clearance distance in EM 385-1-1 Table 16-1.
- c. For lifts with anticipated binding conditions.
- d. When erecting cranes.

1.8.3.3.1 Critical Lift Plan Planning and Schedule

Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

1.8.3.3.2 Lifts of Personnel

In addition to the requirements of EM 385-1-1, Section 16.H.02, for lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

1.8.3.4 Multi-Purpose Machines, Material Handling Equipment, and Construction Equipment Lift Plan

Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Written approval from a qualified registered professional engineer, after a safety analysis is performed, is allowed in lieu of the OEM's approval. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.8.3.5 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 (6) 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).

1.8.3.6 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.

1.8.3.7 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.

1.8.3.8 Excavation Plan

Identify the safety and health aspects of excavation and provide and prepare the plan in accordance with EM 385-1-1, Section 25.A.

1.8.3.9 Lead, Cadmium, and Chromium Compliance Plan

Identify the safety and health aspects of work involving lead, cadmium, and chromium, including occupant protection and prepare in accordance with Section 02 83 00.00 22 MANAGEMENT OF LEAD, CADMIUM, AND CHROMIUM DURING RENOVATION, DEMOLITION, REMOVAL, AND ABATEMENT (PNS PROJECTS).

1.8.3.10 Asbestos Hazard Abatement Plan

Identify the safety and health aspects of asbestos work, and prepare in accordance with Section 02 82 00.00 22 ASBESTOS REMEDIATION (PNS PROJECTS).

1.8.3.11 Lighting Lamps and Ballasts Containing PCBs and Mercury Plan

Identify the safety and health aspects of Polychlorinated Biphenyls and Mercury work, and prepare in accordance with Section 02 84 16 HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY.

1.8.3.12 Site Demolition Plan

Identify the safety and health aspects, and prepare in accordance with Section 02 41 00 DEMOLITION AND DECONSTRUCTION and referenced sources. Include engineering survey as applicable.

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. Confined space entry permit.
- b. 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 must be 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; and
- 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 (24) 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 (4) hours after the 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 (if applicable). These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; Contract 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. Complete the applicable NAVFAC Contractor Significant Incident Report (CSIR). The Contracting Officer will provide copies of any required or special forms.
- b. Near Misses: The Contracting Officer will provide the required forms. Near miss reports are considered positive and proactive Contractor safety management actions.
- c. Conduct an accident investigation for any load handling equipment accident (including rigging gear accidents) to establish the root cause(s) of the accident. Complete the LHE Accident Report (Crane and Rigging Gear) 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.

1.13.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.13.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

Provide a FORM 16-1 Certificate of Compliance for LHE entering the Portsmouth Naval Shipyard under this Contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1, Section 16.H.03 using Form 16-2 Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

1.14 HOT WORK

1.14.1 Permit and Personnel Requirements

Submit and obtain a written permit no later than two (2) working days prior to performing "Hot Work" (i.e. welding or cutting) or operating other flame-producing/spark producing devices, from the Portsmouth Naval Shipyard Fire Department. 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 (2) 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" performed at the Portsmouth Naval Shipyard. 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 Portsmouth Naval Shipyard Fire Department phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE PORTSMOUTH NAVAL SHIPYARD FIRE DEPARTMENT AND THE CONTRACTING OFFICER IMMEDIATELY.

a. Duration of Hot Work

At the discretion of the Portsmouth Naval Shipyard Fire Inspectors, a hot work permit may be written for up to one work week, (Monday through Friday), provided work is being performed at one specific location and will not hinder any life safety code.

Hot work permits must be issued for five (5) work days with a time period not to exceed twelve (12) hours. Request for weekend permits must be submitted at least two (2) working days in advance of the work to be performed and will only be valid for the weekend requested.

b. Hot Work Within a Confined Space

Hot work permits within a confined space will be issued on a daily basis with a time period not to exceed a twelve (12) hour shift. All requests for hot work permits within a confined space must be received a minimum of two (2) complete working days prior to entry. A duplicate copy of the air monitoring results will be furnished to the fire inspector at time of issuance.

1.14.2 Work Around Flammable Materials

Obtain services from a NFPA Certified Marine Chemist 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 RADIATION SAFETY REQUIREMENTS

Submit License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment to the Contracting Officer and Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment proposed for use on the construction project. Maintain on-site records whenever licensed radiological materials or ionizing equipment are on Government

property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.15.1 Radiography Operation Planning Work Sheet

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices for all equipment to be used on Portsmouth Naval Shipyard. (PNSY)

The Contracting Officer and COT will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.15.2 Site Access and Security

Coordinate site access and security requirements with the Contracting Officer and COT for all radiological materials and equipment containing ionizing radiation that are proposed for use on a Government facility. For gamma radiography materials and equipment, a Government escort is required for any travels on the Portsmouth Naval Shipyard. The Navy COT or Government authorized representative will meet the Contractor at a designated location outside the Portsmouth Naval Shipyard, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Portsmouth Naval Shipyard, to the job site, and off the Portsmouth Naval Shipyard.

Provide a copy of all calibration records, and utilization records to the COT for radiological operations performed on the site.

1.15.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Portsmouth Naval Shipyard Security Department Emergency Number.

1.15.4 Site Demarcation and Barricade

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the Government without written permission from the Contracting Officer.

1.15.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in a Contractor's vehicle or other approved storage location during

transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.15.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.15.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must be scheduled only upon final approval from the local COTS or RSO Representative.

1.15.8 Transmitter Requirements

Adhere to the Portsmouth Naval Shipyard policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.16 CONFINED SPACE ENTRY REQUIREMENTS.

Confined space entry must comply with Section 34 of EM 385-1-1, OSHA 29 CFR 1926, OSHA 29 CFR 1910, OSHA 29 CFR 1910.146, and OSHA Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used. Contractors entering and working in confined spaces while performing shipyard industry work are required to follow the requirements of OSHA 29 CFR 1915 Subpart B.

1.16.1 Entry Procedures

Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. Comply with EM 385-1-1, Section 34 for entry procedures. Hazards pertaining to the space must be reviewed with each employee during review of the AHA.

1.16.2 Forced Air Ventilation

Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its action level.

1.16.3 Sewer Wet Wells

Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

1.16.4 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.17 HIGH NOISE LEVEL PROTECTION

Operations that involve the use of equipment with output of high noise levels (i.e. jackhammers, air compressors, and explosive-actuated devices) must be coordinated with the Contracting Officer. Use of any such equipment outside normal working hours must be approved in writing by the Contracting Officer prior to commencement of work.

1.18 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 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs for confined spaces must comply with NEMA Z535.2. Signs wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" in bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" must be red and readable from 5 feet.

PART 3 EXECUTION

3.1 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 Portsmouth Naval Shipyard 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 minimum PPE includes:

- a. Hard Hat
- b. Long Pants
- c. Appropriate Safety Shoes

- d. Appropriate Class Reflective Vests
- e. Gloves
- f. Safety Glasses
- g. Hearing Protection
- h. Fall Protection
- i. Reflective Foul Weather Gear when needed

3.1.1 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. An employee check-in/check-out communication procedure must be developed to ensure employee safety.

3.1.2 Hazardous Material Use

Each hazardous material must receive approval from the Contracting Officer 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.

3.1.3 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, 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 Portsmouth Naval Shipyard.

3.1.4 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 the material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If the 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.

3.2 UTILITY OUTAGE REQUIREMENTS

Apply for utility outages at least 15 calendar 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, the location of the outage, LOTO boundaries, 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 HEC 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.

3.3 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 NAVFAC PWD ME UEM 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 HEC training in accordance with EM 385-1-1, Section 12.C. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

3.4 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 entitled HAZARDOUS ENERGY CONTROL PROGRAM (HECP) herein.

Contracting Officer will, upon request, apply lockout/tag-out tags and take other actions that, because of experience and knowledge, are known to be necessary to make the particular equipment safe to work on.

No person, regardless of position or authority, must operate any switch, valve, or equipment that has an official lockout/tag-out tag attached to it, nor can such tag be removed except as provided in this Section.

No person must work on any equipment that requires a lockout/tag-out tag unless he/she, his/her immediate supervisor, project leader, or a

subordinate has in his/her possession the stubs of the required lockout/tag-out tags.

When work is to be performed on electrical circuits, only qualified personnel are to perform work on electrical circuits.

A supervisor who is required to enter an area protected by a lockout/tag-out tag will be considered a member of the protected group provided he/she notifies the holder of the tag stub each time he/she enters and departs from the protected area.

Portsmouth Naval Shipyard and NAVFAC Personnel use a red lock and a red tag to indicate personnel are working on the systems. Use of a red lock and a red tag is highly encouraged to maintain continuity throughout the Portsmouth Naval Shipyard. The use of another colored locks and tags (blue for Portsmouth Naval Shipyard workers and Yellow for NAVFAC personnel) indicate that the system is out of service for some reason.

Identification markings on building light and power distribution circuits must not be relied on for established safe work conditions.

Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems must be secured in a passive condition with the appropriate vents, pins, and locks.

Pressurized or vacuum systems must be vented to relieve differential pressure completely.

Vent valves must be tagged open during the course of the work. (PNSY)

Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, system or areas must be purged, ventilated, or otherwise made safe prior to entry.

3.4.1 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.

3.4.2 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.

3.4.3 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.

3.4.4 Tag Placement (PNSY)

Lockout/tag-out tags must be completed in accordance with the regulations printed on the back thereof and attached to any device which, if operated, could cause an unsafe condition to exist.

If more than one group is to work on any circuit or equipment, the employee in charge of each group must have a separate set of lockout/tag-out tags completed and properly attached.

When it is required that certain equipment be tagged, the Government will review the characteristics of the various systems involved that affect the safety of the operations and the work to be performed; take the necessary actions, including voltage and pressure checks, grounding, and venting, to make the system and equipment safe to work on; and apply such lockout/tag-out tags to those switches, valves, vents, or other mechanical devices needed to preserve the safety provided. This operation is referred to as "Providing Safety Clearance."

3.4.5 Tag Removal (PNSY)

When any individual or group has completed its part of the work and is clear of the circuits or equipment, the supervisor, project leader, or individual for whom the equipment was tagged must turn in his/her signed lockout/tag-out tag stub to the Contracting Officer. That group's or individual's lockout/tag-out tags on equipment may then be removed on authorization by the Contracting Officer.

3.5 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.

3.5.1 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.

3.5.2 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.

3.5.2.1 Additional Personal Fall Protection

In addition to the required fall protection systems, other protection 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.

3.5.2.2 Personal Fall Protection Harnesses

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 carabiners 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.

3.5.3 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 of an edge, on 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, in 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.

3.5.4 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.

3.5.5 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.

3.5.6 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.

3.6 SHIPYARD REQUIREMENTS

All personnel who enter the Controlled Industrial Area (CIA) must wear mandatory personal protective equipment (PPE) at all times and comply with PPE postings of shops both inside and outside the CIA.

3.7 WORK PLATFORMS

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

3.7.2 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 a worker from climbing out of the 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 AWP's must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

3.8 EQUIPMENT

3.8.1 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.

3.8.2 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 Portsmouth Naval Shipyard 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 Portsmouth Naval Shipyard, 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 comply 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. Under no circumstance make a lift at or above 90 percent of the cranes rated capacity in any configuration.
- f. 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.
- g. 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.
- h. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.
- i. All employees must keep clear of loads about to be lifted and of suspended loads, except for employees required to handle the load.
- j. Use cribbing when performing lifts on outriggers.
- k. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
- l. 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.
- m. 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.
- n. 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.
- o. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).
- p. 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, the rigger, and the 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.
- q. Follow FAA guidelines when required based on project location.

3.8.3 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.

3.8.4 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.

3.8.5 Use of Explosives

Use of explosives is not allowed on Portsmouth Naval Shipyard.

3.9 EXCAVATIONS AND UTILITY LOCATING

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

3.9.1 Utility Locations

3.9.1.1 General

Excavation or ground penetrating work is defined as any operation in which earth, rock, or other material below ground is moved or otherwise displaced, by means of power and hand tools, power equipment which includes grading, trenching, digging, boring, auguring, tunneling, scraping, and cable or pipe driving except tilling of soil, gardening, or displacement of earth, rock, or other material for agricultural purposes. Removal of bituminous concrete pavement or concrete is not considered excavation.

Ground penetrating work may include, but is not limited to, installing fence posts, probes, borings, piles, sign posts, stakes, or anchor rods of any kind that penetrates the soil more than 3-inches. The "Excavator" is defined as the person directly responsible for performing the excavation or ground penetrating work.

3.9.1.2 Underground Utilities Location

The Contractor/Excavator must fully comply with the State of Maine "DIG SAFE" law (Title 23, MRSA 3360-A). Existing underground utilities shown on the plans are based on PNS Yard Plates and are shown in their approximate locations only.

The Excavator must pre-mark the excavation area in "White Paint Only" (Field notes may be done in Pink paint). The Excavator must notify "DIG SAFE" (1-888-344-7233) at least within 14 calendar days, but no more than 30 calendar days prior to the commencement of the excavation or ground penetrating activity.

The Excavator must prepare a PWD ME Dig Safe Utility Locate Request Form (Attachment B) at least within 14 calendar days prior to the commencement of the excavation or ground penetrating activity and submit the Form to the Contracting Officer. (The PWD ME Dig Safe Form Attachment B is attached at the end of this Section.)

The Government will locate and mark the underground utilities within 14 calendar days of receiving the Dig Safe Notification.

Excavation or ground penetrating activities cannot commence until the utilities have been marked in the field and the PWD ME Dig Safe Utility Locate Form has been returned indicating the PWD ME Dig Safe review process has been completed and excavation has been approved by the Contracting Officer.

If the excavation or ground penetrating activities do not commence within 27 days of Dig Safe notification or the excavation work is expanded outside the location originally specified in the notification, the Excavator must re-notify Dig Safe, the Contracting Officer, and the PWD ME Dig Safe Coordinator.

The Contractor must maintain the utility markings throughout the Contract period. If additional markings are required, the Excavator must re-notify Dig Safe, the Contracting Officer, and the PWD ME Dig Safe Coordinator. Re-markings must be completed at the Contractor's expense.

The Contractor must contact the PWD ME Dig Safe Coordinator (DSC) if there are any questions regarding the underground utilities or the Dig Safe notification.

3.9.1.3 Third Party Utility Locate

The Contractor must provide the services of a third party, qualified independent utility locating company/person(s) (Cannot be the Government's Utility Locating Firm) to positively identify underground utilities in the work area. The third party independent locating firm is in addition to the PWD ME Dig Safe Process.

The Third Party review must be completed after the PWD ME Dig Safe Marking has been completed. Once the Third Party Locate Company has completed

their review of the excavation area and the Government markings are confirmed, the Third Party Locate Company and Contractor must sign the Third Party Utility Locate Certification Form (Attachment C) and submit the form to the Contracting Officer prior to commencing excavation. If the Third Party Locate Company finds any discrepancies with the Government's utility markings, the Contractor must notify the Contracting Officer immediately.

3.9.2 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 three feet of the underground system.

3.9.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces (Including Dry Dock and Berthing Walls and Decks)

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 Portsmouth Naval Shipyard 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. Any markings made during the utility investigation must be maintained throughout the Contract.

3.9.4 Excavating with Hazardous or Mission Critical Utilities Within the Excavation Area

- a. The Contractor must employ supplement daily Dig Safe procedures to include an additional checkoff on Contractor Daily Activity Plan asking if all utilities have been clearly marked and reviewed with the SSHO. The SSHO and the Excavator must complete and sign a UTILITY LOCATE - PRE-EXCAVATION SAFETY CHECKLIST (Attachment D). This checklist must be reviewed and signed by the PWD ME ET prior to the commencement of any excavation trenching work.
- b. The Contractor must provide a Dig Safe laminated utility color coding system posted in or near all heavy digging equipment for easy reference to type of utility.
- c. The SSHO must complete a pre-excavation walk as part of the morning procedure to help ensure all known utilities are identified and markings are refreshed with the appropriate color-coded paint. The Excavation/Trenching Competent person must complete the Contractor Daily Checklist for Trenching/Excavation included in Attachment E. The Daily Checklist must be completed prior to commencing excavation/trenching work and must be submitted with the CM/ET daily.
- d. Contractor must provide additional danger signage, to mark areas of known live underground utilities.

- e. Contractor must ensure a 'spotter' accompanies the equipment operator during excavation work.
- f. Contractor must provide Construction CM/ET notification no later than 7 working days prior to the date of the preparatory and initial pre-excavation/demo safety review meeting.
- g. The Contractor must confirm and identify the closest utility isolation points and develop mitigation strategies with the utility owner (Coordinate with the PWD ME DSC) to ensure the safe excavation adjacent to these utilities. Utility Outages to isolate utility systems may need to be considered in circumstances where the excavation work cannot be completed safely.

3.10 ELECTRICAL

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

3.10.1 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.

3.10.2 Qualifications

Electrical work must be performed by QP personnel 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 and Local requirements applicable to where work is being performed.

3.10.3 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.

3.10.4 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.

3.10.5 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.

3.10.6 Portable Extension Cords

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately remove from service all damaged extension cords. Portable extension cords must meet the requirements of EM 385-1-1, NFPA 70E, and OSHA electrical standards.

-- End of Section --

SECTION 01 35 26 – ATTACHMENT A
CONTRACTOR CRANE, MULTI-PURPOSE MACHINE, FORKLIFT, CONSTRUCTION EQUIPMENT,
AND RIGGING GEAR REQUIREMENTS

1 CONTRACTOR CRANE, MULTI-PURPOSE MACHINE, FORKLIFT, CONSTRUCTION EQUIPMENT, AND RIGGING GEAR REQUIREMENTS

1.1 The following is a list of requirements that contractors shall comply with for all contracts that may result in the use of a category 1 or 4 crane, multi-purpose machines, forklifts, construction equipment, and rigging gear when used on Navy property to lift suspended loads. Non-compliance with the requirements of this instruction may result in denial of access, stopping of operations, or removal from Navy property.

1.2 References:

1.2.1 NAVFAC P-307, Management of Weight Handling Equipment

1.2.2 American Society of Mechanical Engineers (ASME) B30.3 (tower cranes), B30.5 (mobile cranes), B30.8 (floating cranes), B30.9 (slings), B30.20 (below the hook lifting devices), B30.22 (articulating booms), B30.26 (rigging hardware); ANSI/ITSDF B56.6 (rough terrain forklifts); Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

1.2.3 CFR, Title 29, Chapter XVII, Part 1917, Marine Terminals.

1.2.4 CFR, Title 29, Chapter XVII, Part 1926, Safety and Health Regulations for Construction

1.2.5 CFR, Title 29, Chapter XVII, Part 1915, Occupational Safety and Health Standards for Shipyard Employment

1.2.6 OPNAVINST 5100.23, Navy Safety and Occupational Health Program Manual

1.2.7 EM 385-1-1, Safety and Health Requirements Manual, U.S. Army Corps of Engineers

1.2.8 NAVFAC Guide Specification NFGS-01525D, Safety Requirements

1.3 These requirements are solely intended to provide for the protection of Government property and personnel and are not intended to, and do not, in any manner whatsoever, relieve the contractor of its responsibility, including, without limitation, its responsibility for the protection of its equipment and personnel.

1.4 Notification Requirement: Contractor shall notify the Contracting Officer 7 calendar days in advance of the intent of bringing a non-Navy owned crane onto Navy property or of any multi-purpose machines, material handling equipment, or construction equipment that may be used in a crane-like application to lift suspended loads. The contractor shall also specify when crane entry onto Navy property is scheduled during back shift, weekend, or holiday hours of operation. All entries shall be through a prearranged entry point. The following documentation shall be provided along with notification: a copy of Form 16-1 and objective evidence of operator qualifications for cranes with rated capacities of 2,000 lbs. or greater. Failure to schedule or provide necessary documentation may result in the crane being denied access to the facility.

1.5 The contractor shall comply with applicable reference 1.2.2 standards (e.g., B30.3 for construction tower cranes, B30.5 for mobile cranes, B30.8 for floating cranes, B30.9 for slings, B30.20 for below the hook lifting devices, and B30.22 for articulating boom cranes), B30.26 for rigging hardware, and ANSI/ITSDF B56.6 for rough terrain forklifts). For barge mounted mobile cranes, require a third party certification from an OSHA accredited organization (or from a state accredited organization for those states with OSHA approved state plans), a load indicating device, a wind-indicating device, and a marine type list and trim indicator readable in one-half degree increments. Third party certification is not required for barge-mounted mobile cranes at naval activities in foreign countries.

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1.6 Certification of Compliance (reference 1.2.1): The contractor shall complete a certificate of compliance that the crane (or other machine if used to lift suspended loads) and rigging gear meet applicable OSHA and ANSI/ASME regulations (with the contractor citing which OSHA regulations are applicable, e.g., cranes/multi-purpose machines used in cargo transfer shall comply with reference 1.2.3; cranes/multi-purpose machines used in construction, demolition, or maintenance shall comply with reference 1.2.4; cranes/multi-purpose machines used in ship repair shall comply with reference 1.2.5; slings shall comply with ASME B30.9; rigging hardware shall comply with ASME B30.26). For cranes (or other machine if used to lift suspended loads) and rigging equipment at naval activities in foreign countries, the contractor shall certify that the crane and rigging gear conform to the appropriate host country safety standards. The contractor shall also certify that all of its crane (or other machine) operators working on the naval activity have been trained not to bypass safety devices (e.g., anti-two block devices) during lifting operations, and that its operators, riggers, and company officials are aware of the actions required in the event of an accident as specified in the contract. Require that the certifications be posted on the crane. When a crane on Navy property is not authorized for use, the Certification of Compliance shall state, "Operation of this Crane is NOT Authorized."

1.7 The contractor shall certify (reference 1.2.1) that the crane or machine operator is qualified and trained for the operation of the crane to be used. For mobile and commercial truck mounted cranes with OEM rated capacities of greater than 2,000 pounds, the crane operator shall be designated as qualified by a source that qualifies crane operators (i.e., a union, a government agency, or an organization that tests and qualifies crane operators). Proof of current qualification shall be provided.

1.8 For multi-purpose machines, material handling equipment and construction equipment used to lift loads suspended by rigging equipment, the contractor shall have proof or authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. The contractor shall demonstrate that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.9 All hooks used on cranes, hoists, other machines, and rigging gear shall have self-closing latches or the throat opening shall be "moused" (secured with wire, rope, heavy tape, etc.) or otherwise secured to prevent the attached item from coming free of the hook under a slack condition. The following exceptions apply and shall be approved by the contractor's technical organization: items where the hook throat is fully obstructed and not available for manual securing and lifts where securing the hook throat increases the danger to personnel such as forge shop, dip tank, or underwater work.

1.10 Loading Limitations:

CAUTION: Piers and waterfront areas such as along dry docks and quay walls may have load restrictions.

1.10.1 The contractor shall notify the Contracting Officer prior to moving a crane on a pier, dry dock, or other waterfront area. Provide the Contracting Officer with the crane make, model, and configuration in which it is to be used.

1.10.2 The contractor shall comply with crane access routes and load limitations issued with the contract.

1.10.3 Allowable Surface Loads. Loads transferred to soils and pavements shall be minimized to a desired maximum of 3000 pounds per square foot, by placement of cribbing or steel pads under rubber-tired crane outriggers and trailer stanchions/sand shoes, or by placement of mats under treads of crawler cranes. Visually inspect areas adjacent to cribbing or plates and report any unusual bituminous pavement surface conditions, irregularities, or cracking to the Contracting Officer.

1.10.3.1 Outriggers of rubber-tired cranes shall be landed on two layers of timbers of appropriate thickness, oriented at right angles to each other, or landed on properly designed steel pads. Treads of crawler cranes shall run on appropriate mats. Use and design of cribbing, plates and mats shall be in a manner consistent with general construction industry standards.

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1.10.3.2 Position loads that will remain on trailers detached from tractors to attain a distribution of 65 percent to rear axles and 35 percent to front support stanchions/sand shoes. For example, assuming an 83000 pound maximum gross weight and a soil bearing pressure of 3000 pounds per square foot, the required support under each sand shoe would be 2.5 feet x 2.5 feet. Accordingly, two tiers of timber cribbing at right angles, each 2.5 feet x 2.5 feet x 4 inches, or a properly designed 2.5 feet x 2.5 feet steel pad would be utilized under each trailer stanchion/sand shoe.

1.11 Prior to making any critical lift, the contractor shall provide a critical lift plan for each of the following lifts: lifts over 75 percent of the capacity of the crane, hoist, or other machine (50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane, hoist, or other machine; lifts of personnel (lifts of personnel suspended by rigging equipment from multi-purpose machines, material handling equipment, or construction equipment shall not be permitted); lifts made in the vicinity of overhead power lines; erection of cranes; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall include the following as applicable:

1.11.1 The size and weight of the load to be lifted, including crane (or other machine) and rigging equipment that add to the weight. The OEM's maximum load capacities for the entire range of the lift shall also be provided.

1.11.2 The lift geometry, including the crane (or other machine) position, boom length and angle, height of lift, and radius for the entire range of the lift. Applies to both single and tandem crane/machine lifts.

1.11.3 A rigging plan, showing the lift points, rigging equipment, and rigging procedures.

1.11.4 The environmental conditions under which lift operations are to be stopped.

1.11.5 For lifts of personnel, the plan shall demonstrate compliance with the requirements of reference

1.11.6 For barge mounted mobile cranes, barge stability calculations identifying crane placement/footprint; barge list and trim based on anticipated loading; and load charts based on calculated list and trim specific to the barge the crane is mounted on. The amount of list and trim shall be within the crane manufacturer's requirements.

1.11.7 For lifts in the vicinity of overhead power lines (i.e., if any part of the crane or other machine, including the fully extended boom of a telescoping boom crane or machine, or the load could approach the distances noted in figure 10-3 of reference 1.2.1 during a proposed operation), the plan shall demonstrate compliance to 29 CFR 1926.550(a)(15).

1.12 The following additional documentation is required for contractor provided tower cranes (those cranes defined by ASME B30.3).

1.12.1 Foundation design and requirements

1.12.2 Installation instructions 1.12.4

1.12.3 Assembly and disassembly instructions including climbing/jumping instructions if applicable

1.12.4 Operating manual, limitations, and precautions

1.12.5 Periodic inspection and maintenance requirements

1.13 Crane and Rigging Gear Accident Reporting and Record Keeping: Contractor's operating cranes on Navy property shall report all WHE accidents that occur incidental to an operation, project, or facility as

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prescribed by paragraphs (1.10.1) through (1.10.3) requirements below. Contractors shall report directly to their respective Contracting Officer. There are two general categories of accidents as defined below. Crane accidents are those that occur during operation of a crane. Rigging gear accidents are those that occur when gear is used by itself in weight handling operation i.e., without a crane.

1.13.1 Crane Accident: For the purpose of this definition, it is assumed there is an "operating envelope" around any crane, and inside the envelope are the following elements:

- The crane
- The operator
- The rigger(s) and crane walker
- Other personnel involved in the operation (supervisor, mechanic, tag line handler, engineer, etc.)
- The rigging gear between the hook and the load
- The load
- The crane's supporting structure (ground, rail, etc.)
- The lift procedure

1.13.1.1 Definition: A crane accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance, or testing resulting in the following:

- Personnel injury or death. Minor injuries that are inherent in any industrial operation, including strains and repetitive motion related injuries, shall be reported by the normal personnel injury reporting process in lieu of these requirements.
- Material or equipment damage
- Dropped load
- Derailment
- Two-blocking
- Overload (This includes load tests when the test load tolerance is exceeded.)
- Collision, including unplanned contact between the load, crane, and/or other objects.

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, roll over, etc.). [Bullets] 3, 4, 5, 6, and 7 are considered crane accidents even though no material damage or injury occurs.

Exception: If a crane is used as an anchor point for a portable hoist/rigging gear, rigging gear accident as defined in paragraph 1.10.2 below is not considered a crane accident if the crane is not being operated (no functions are in motion) at the time of the rigging gear accident, unless the accident results in an overload or damage to the crane, in which case it shall be reported as a crane accident.

1.13.2 Rigging Gear Accidents: For the purpose of this definition, it is assumed there is an "operating envelope" around any weight handling operation, and inside the envelope are the following:

- Rigging gear and miscellaneous equipment
- The user of the gear or equipment
- Other personnel involved in the operation (supervisor, mechanic, tag line handler, engineer, etc.)
- The load
- The gear or equipment's supporting structure
- The load's rigging path

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- The rigging procedure

1.13.2.1 Definition. A rigging gear accident occurs when any one or more of the five elements in the operating envelope fails to perform correctly during weight handling operations resulting in the following:

- Personnel injury or death. Minor injuries that are inherent in any industrial operation, including strains and repetitive motion related injuries, shall be reported by the normal personnel injury reporting process of the activity in lieu of these requirements.
- Material or equipment damage that requires the damaged item to be repaired because it can no longer perform its intended function. This does not include superficial damage such as scratched paint, damaged lagging, or normal wear on rigging gear.
- Dropped load.
- Two-blocking of cranes and powered hoists.
- Overload. (This includes load tests when the test load tolerance is exceeded.)

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 load, damaged load, etc.). [Bullets] 3, 4, and 5 are considered accidents even though no material damage or injury occurs.

1.13.3 The contractor shall notify the Contracting Officer as soon as practical, but not later than four hours, after any WHE accident. The contractor shall secure the accident site and protect evidence until released by the Contracting Officer. The contractor shall conduct an accident investigation to establish the root cause(s) of the accident. Crane operations shall not proceed until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The contractor shall provide the Contracting Officer within 30 days of any accident a Crane and Rigging Gear Accident Report using the form provided in reference 1.2.1 consisting of a summary of circumstances, an explanation of causes(s), photographs if available, and corrective actions taken. These notifications and reporting requirements are in addition to those promulgated by reference 1.2.6 and related claimant instructions.

1.14 Each contractor shall perform the following actions prior to conducting crane operations on Navy property:

1.14.1 Inspection Requirements: It shall be the sole responsibility of the contractor to assure the Contracting Officer and/or designated Navy personnel that the crane and associated rigging gear are in good working order and safe for use.

1.14.1.1 Crane Inspection: Perform pre-operational inspection of the crane in the presence of a representative of the Contracting Office of the crane prior to starting work on Navy property. Inspection shall meet all applicable reference 1.2.2, reference 1.2.7 (for NAVFAC construction contracts), and OSHA requirements.

1.14.1.2 Wire Rope Inspection: Perform a Wire Rope Inspection in the presence of a representative of the contracting office to applicable reference 1.2.2, reference 1.2.7 (for NAVFAC construction contracts), and OSHA requirements.

1.14.1.3 Rigging Gear Inspection: Perform a Rigging Gear Inspection in the presence of a representative of the contracting office to applicable reference 1.2.2, reference 1.2.7 (for NAVFAC construction contracts), and OSHA requirements.

SECTION 01 35 26 – ATTACHMENT A
CONTRACTOR CRANE ENTRY CHECKLIST

1	Crane Company:		Date of Entry:			
	Crane Manufacturer/Crane Model/Crane Number:		Time of Entry:			
2	Date of Annual Inspection Expiration					
3	Date of Quadrennial Inspection Expiration					
4	Name & phone number of Contracting Official (or designated local representative)		Contracting Official			
			Phone Number			
5	Does the package include a routine or critical lift plan?			<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	
6	Location of lift site?					
7	Duration crane will be continuously on the job site (hrs, days, weeks...)					
8	Does plan include certification from contractor that the crane complies with ASME B30 standard [B30.5 (mobile cranes), B30.8 (floating cranes), B30.22 (articulating boom cranes), or B30.3 (construction tower cranes)] as applicable?			<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	
9	Does plan include a certificate of compliance?			<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	
10	Which OSHA regulations does the certificate of compliance indicate? (For cranes used in cargo transfer, 29 CFR 1917 applies; for cranes used in construction, demolition, or maintenance, 29 CFR 1926 applies; for cranes used in shipbuilding, ship repair, or ship breaking, 29 CFR 1915 applies).					
11	Does plan include valid medical certificate and proof of operator qualification from a source that qualifies crane operators (union, governmental agency, or an organization that tests and qualifies crane operators)? Verify qualification for each back-up operator (if provided) on the certificate of compliance.			<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	<div>N/A</div> <input type="checkbox"/>
12	Does the plan designate a qualified Rigger-in-Charge			<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	
13	What is the weight of the heaviest load to be lifted?			lbs.		
14	What is the weight of the rigging gear?			lbs.		
15	What are the crane components (and their weights) that add to the weight of the load (hook, jib, etc.)?		Main Block	lbs.		
			Aux. Block	lbs.		
			Jib (Stowed)	lbs.		
			Jib (Erected)	lbs.		
			Other	lbs.		
16	What is the maximum total crane lift (sum of 13, 14 & 15 above)?		TOTAL	lbs.		
17	What is the capacity of the crane as configured			lbs.		
18	What percentage of crane capacity does this lift represent?			%		

SECTION 01 35 26 – ATTACHMENT A
CONTRACTOR CRANE ENTRY CHECKLIST

19	What is the main boom length? If a jib will be utilized, indicate the length and offset.	MAIN	JIB	OFFSET	
20	What are the minimum and maximum load radii?	Min	Max		
21	Does the plan include the manufacturer's load chart for entire range of lift(s)?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
22	Does plan include ground loading and outrigger reaction data to determine cribbing requirements, or a Waterfront Operational Permit?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
23	For crawler crane, does the plan indicate area restrictions for operation?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
24	For floating crane, does plan include maximum allowable list?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
25	For mobile crane mounted on barge, is crane equipped with load indicating device? Wind indicating device? Marine type list and trim indicator (readable in one-half degree increments)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
26	For mobile crane mounted on barge, does plan include revised load chart?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
27	What are the environmental conditions under which crane operations are to be stopped?				
28	Will the crane perform critical lifts? (If no, skip items 29 –49.)			Yes <input type="checkbox"/>	No <input type="checkbox"/>
29	What circumstances require this lift to be classified as a critical lift? (Blind lift, 75% of chart, non-routine rigging, etc.)				
30	What are the exact dimensions of the load? (L x W x H)				
31	Does the plan indicate the crane position? (Overhead view)			Yes <input type="checkbox"/>	No <input type="checkbox"/>
32	What is the maximum lift height of the lift?				
33	What is the minimum boom angle?				
34	What is the maximum boom angle?				
35	What is the name of the operator?				
36	Indicate name(s) of backup operator (if required).				
37	Does the plan show lift points?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
38	Does the plan describe the rigging procedures?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
39	Does the plan indicate rigging hardware requirements?			Yes <input type="checkbox"/>	No <input type="checkbox"/>

SECTION 01 35 26 – ATTACHMENT A
CONTRACTOR CRANE ENTRY CHECKLIST

40	For personnel lifts, does the plan demonstrate compliance with 29 CFR 1926.550?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
41	Does EM 385-1-1 govern this lift?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
42	What are the coordination and communication requirements for the lift (e.g., radio and hand signals)?			
43	For tandem or tailing crane lifts, does the plan indicate the make and model of the crane, the line, boom, and swing speeds, and the requirement for an equalizer beam?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
44	For floating cranes, refer to questions 20-22?			
45	What is the name of the lift supervisor?			
56	Does the plan indicate the qualifications of the lift supervisor?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
47	What are the names of the riggers?			
48	Does the plan indicate the qualifications of the riggers?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
49	Did all involved personnel (Operator, Riggers, Lift Supervisor, etc.) sign the critical lift plan?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

Name	Organization	Signature	Date	Phone
Contracting Official:				
Wed By				

<u>FORM 16-1</u> <u>Certificate of Compliance for LHE and Rigging</u>	
This certificate shall be signed by an official of the company that provides LHE/cranes and rigging gear for any application under this contract.	
Contracting Officer's Point of Contact: (Government Designated Representative)	Phone #:
Prime Contractor/Phone #:	Contract Number:
SSHO/QC:	Phone #:
LHE Manufacturer/Type/Capacity:	
LHE Operator(s) Name(s):	
I certify that: 1. The above noted LHE and all rigging gear conform to the EM 385-1-1, applicable OSHA regulations (host country regulations in foreign countries) and applicable ASME standards. 2. The operator(s) noted above has been trained, qualified and designated in accordance with the requirements in Section 16, EM 385-1-1 for the operation of the above noted LHE. 3. The operator(s) noted above has been trained not to bypass safety devices during LHE operations. 4. The operator(s), rigger(s) and company official (staff) are aware that immediate notification to the GDA of any incident or accident involving this equipment is required.	
Company Official Signature:	Date:
Company Official Name/Title:	
Post on Crane/LHE. (In Cab and Contractor's Office for each LHE onto USACE Project/Property)	

EM 385-1-1
XX Jul 14

FORM 16-2
Standard Pre-Lift Crane Plan/Checklist

DATE: ___/___/___ Job Number: _____ Location: _____

TIME: _____ Completed By (Competent Person): _____

NOTE: Applies to Cranes, Derricks, Hoists and Power-Operated equipment that can be used to hoist, lower and/or horizontally move a suspended load (includes excavators, forklifts, Rough Terrain equipment, etc., when used with rigging).

Crane Considerations		Yes	No
1	Are the lifts within the crane's rated capacities? (based on boom height, radius)		
2	Boom deflections considered?		
3	Have all potential crane boom obstructions been identified?		
4	Have Environmental Considerations been addressed? (Wind, Weather-Lightning)		
5	Have electrical hazards been addressed (Overhead / Underground) - Clearance distances established? - Is a spotter required? - Public Utility contact required?		
6	Crane swing radius properly barricaded and personnel advised of hazards?		

Comments:

Load		Yes	No
1	Weights and Centers of Gravity (COG) have been Determined?		
2	Anything Inside / Outside the loads that could shift during the lift?		
3	Determine if the rigging needs protection from the loads?		
4	All anchor bolts, hold downs, or fasteners have been removed?		
5	Potential for binding – are load cells required to verify the loads are free?		
6	Attachment points rated to take load weight?		
7	Are the loads structurally capable of being lifted? (bending & twisting issues)		
8	Is a critical lift plan required per the EM section 16.H?		

Comments:

FORM 16-2 (cont'd)
Standard Pre-Lift Crane Plan/Checklist

Rigging		Yes	No
1	All rigging has been inspected by a Qualified Rigger?		
2	Have sling angles been calculated?		
3	Are shackles correctly sized for the sling eyes?		
4	Are softeners needed?		

Comments:

Personnel		Yes	No
1	The roles, responsibilities and qualifications for personnel have been defined? (Operator, Lift Supervisor, Rigger, Signal Person)		
2	A Pre-Lift meeting has been conducted?		
3	Personnel trained per the EM?		

Comments:

Area Preparation		Yes	No
1	The locations for the load landings has been selected and prepared?		
2	Blocking and or Cribbing is available to set the loads on?		
3	Travel paths have been determined and cordoned off?		
4	Other personnel in the area have been notified of the lifts?		
5	Have ground bearing support questions been addressed?		

Comments:

Crane Operator: _____ Date: _____

Riggers: _____ Date: _____

Signal Person: _____ Date: _____

Others: _____ Date: _____

NAVFAC MIDLANT CRITICAL LIFT PLAN																																																																				
Date:		Qualified Person:																																																																		
Location:																																																																				
<i>Contractor is required to fill sections A.thru F. prior to submitting plan. Sections G.- H to be completed by PWD Maine ET</i>																																																																				
A. TOTAL LOAD 1. Load Weight lbs 2. Wt. of Aux. Block lbs 3. Wt. of Main Block lbs 4. Wt. of Lifting Beam lbs 5. Wt. of Sling/Shackles lbs 6. Wt. of Jib/Ext. (erected/stowed) lbs 7. Wt. of Hoist Rope lbs 8. Other: lbs <div style="text-align: right;">TOTAL WEIGHT</div>		E. CRANE PLACEMENT (Mobile Cranes Only) 1. Maximum Bearing Pressure PSF <small>Note: Bearing Pressure Calculations must be attached on Page 3.</small> 2. Ground Conditions Suitable for Load? YES / NO <small>Note: Ground Condition Calculations must be attached on Page 3.</small> 3. High Voltage or Electrical Hazards? YES / NO <small>Note: If Electrical Hazards are present they must be shown on Page 4.</small> 4. Obstructions to Lift or Swing? YES / NO <small>Note: If Obstructions are present they must be shown on Page 4.</small> 5. Travel with Load Required? YES / NO 6. Other?																																																																		
B. CRANE 1. Type of Crane <u>Mobile Hydraulic Truck</u> 2. Maximum Crane Capacity lbs. 3. Radius (Maximum) ft. 4. Radius (Minimum) ft. 5. Boom Length (Maximum) ft. 6. Boom Length (Minimum) ft. 7. Crane Capacity (Max Radius) lbs. 8. Crane Capacity (Min Radius) lbs. 9. Boom Angle (Maximum) deg. 10. Boom Angle (Minimum) deg. 11. Gross Load of Crane lbs. 12. Lift is _____ % of the Crane's rated capacity 13. If Jib/Ext. is to be used: <div style="text-align: right;">Length ft.</div> <div style="text-align: right;">Offset ft.</div> 14. Rated Capacity of Jib/Ext. lbs		F. OPERATOR QUALIFICATIONS 1. Certified Operator? YES / NO 2. Option? YES / NO 3. Certified for Type, Class & Capacity? YES / NO 4. Designated in writing by emp YES / NO <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">G. COMPLETED IN FIELD:</th> <th style="text-align: center; padding: 2px;">(YES)</th> <th style="text-align: center; padding: 2px;">NO</th> <th style="text-align: center; padding: 2px;">PWD ET</th> </tr> </thead> <tbody> <tr><td>1. Crane Inspected</td><td></td><td></td><td></td></tr> <tr><td>2. Rigging Inspected</td><td></td><td></td><td></td></tr> <tr><td>3. Crane Set-up</td><td></td><td></td><td></td></tr> <tr><td>4. Overhead Hazard Check</td><td></td><td></td><td></td></tr> <tr><td>5. Swing Check</td><td></td><td></td><td></td></tr> <tr><td>6. Counterweight Check</td><td></td><td></td><td></td></tr> <tr><td>7. Operator Qualifications</td><td></td><td></td><td></td></tr> <tr><td>8. Signal Person Qualifications</td><td></td><td></td><td></td></tr> <tr><td>9. Rigger Qualifications</td><td></td><td></td><td></td></tr> <tr><td>10. Load Chart in Crane</td><td></td><td></td><td></td></tr> <tr><td>11. Load Test</td><td></td><td></td><td></td></tr> <tr><td>12. Tag Lines</td><td></td><td></td><td></td></tr> <tr><td>13. Wind Conditions</td><td></td><td></td><td></td></tr> <tr><td>14. Traffic Hazard Check</td><td></td><td></td><td></td></tr> <tr><td>15. Site Control</td><td></td><td></td><td></td></tr> </tbody> </table>			G. COMPLETED IN FIELD:	(YES)	NO	PWD ET	1. Crane Inspected				2. Rigging Inspected				3. Crane Set-up				4. Overhead Hazard Check				5. Swing Check				6. Counterweight Check				7. Operator Qualifications				8. Signal Person Qualifications				9. Rigger Qualifications				10. Load Chart in Crane				11. Load Test				12. Tag Lines				13. Wind Conditions				14. Traffic Hazard Check				15. Site Control			
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C. HOIST ROPE <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 15%;">Main</th> <th style="width: 15%;">Aux 1</th> <th style="width: 15%;">Aux 2</th> <th style="width: 15%;"></th> </tr> </thead> <tbody> <tr> <td>1. # of Parts</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Rope Diamter</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Capacity</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Main	Aux 1	Aux 2		1. # of Parts					2. Rope Diamter					3. Capacity					H. SIGNATURES IN FIELD: 1. Crane Operator _____ 2. Rigger _____ 3. Signal Person _____ 4. Lift Supervisor _____ 5. PWD ET _____ 6. Other _____																																														
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2. Rope Diamter																																																																				
3. Capacity																																																																				
D. RIGGING 1. Hitch Type(s) _____ 2. No. of Slings: _____ Size: _____ 3. Sling Type: _____ 4. Sling Assembly Capacity: _____ lbs. 5. Shackle Size(s): _____ 6. Shackle Rated Capacity(s) _____ lbs.																																																																				

EM 385-1-1
XX Jul 14

U.S. Army Corps of Engineers
CRITICAL LIFT PLAN

For use of this form, see EM 385-1-1, Section 16. Proponent agency is Crane HHWG.

SITE PLAN

Show here or attach site plan and sequencing



CRANE AND RIGGING ACCIDENT REPORT																
Accident Category: <input type="checkbox"/> Crane Accident <input type="checkbox"/> Rigging Accident																
Reporting Activity: UIC:			Copy To: Navy Crane Center Bldg. 491 NNSY Portsmouth, VA 23709 Fax: 757-967-3808													
Activity Responsible for the Accident: UIC:		Report No: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 2px;">Accident Location:</td> <td style="width: 20%; padding: 2px;">Accident Date:</td> <td style="width: 40%; padding: 2px;">Time:</td> </tr> </table>			Accident Location:	Accident Date:	Time:									
Accident Location:	Accident Date:	Time:														
BOS Contractor: <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Contract No:		Contractor Equip. <input type="checkbox"/> Yes <input type="checkbox"/> No														
Crane No:	Crane Type:	Category:	Crane OEM:													
Crane Capacity:	Hoist Capacity:	Weight of Load on hook:	Weather:													
Complex Lift or Complex Non-Crane Rigging Operation? <input type="checkbox"/> Yes <input type="checkbox"/> No																
Lost Work Days? <input type="checkbox"/> Yes <input type="checkbox"/> No		Fatality or Permanent Disability? <input type="checkbox"/> Yes <input type="checkbox"/> No		Material/ Property Cost Estimate:												
Accident Type (check all that apply): <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Personal Injury</td> <td><input type="checkbox"/> Overload</td> <td><input type="checkbox"/> Two Blocked</td> <td><input type="checkbox"/> Power Line Contact</td> </tr> <tr> <td><input type="checkbox"/> Dropped Load</td> <td><input type="checkbox"/> Derail</td> <td><input type="checkbox"/> Crane Collision</td> <td><input type="checkbox"/> Damaged Crane</td> </tr> <tr> <td><input type="checkbox"/> Damaged Rigging Gear</td> <td><input type="checkbox"/> Damaged Load</td> <td><input type="checkbox"/> Load Collision</td> <td><input type="checkbox"/> Other: Specify _____</td> </tr> </table>					<input type="checkbox"/> Personal Injury	<input type="checkbox"/> Overload	<input type="checkbox"/> Two Blocked	<input type="checkbox"/> Power Line Contact	<input type="checkbox"/> Dropped Load	<input type="checkbox"/> Derail	<input type="checkbox"/> Crane Collision	<input type="checkbox"/> Damaged Crane	<input type="checkbox"/> Damaged Rigging Gear	<input type="checkbox"/> Damaged Load	<input type="checkbox"/> Load Collision	<input type="checkbox"/> Other: Specify _____
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Cause of Accident (check all that apply): <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Improper Operation</td> <td><input type="checkbox"/> Equipment Failure</td> <td><input type="checkbox"/> Inadequate Visibility</td> </tr> <tr> <td><input type="checkbox"/> Improper Rigging</td> <td><input type="checkbox"/> Switch Alignment</td> <td><input type="checkbox"/> Inadequate Communication</td> </tr> <tr> <td><input type="checkbox"/> Track Condition</td> <td><input type="checkbox"/> Procedural Failure</td> <td><input type="checkbox"/> Other: Specify _____</td> </tr> </table>					<input type="checkbox"/> Improper Operation	<input type="checkbox"/> Equipment Failure	<input type="checkbox"/> Inadequate Visibility	<input type="checkbox"/> Improper Rigging	<input type="checkbox"/> Switch Alignment	<input type="checkbox"/> Inadequate Communication	<input type="checkbox"/> Track Condition	<input type="checkbox"/> Procedural Failure	<input type="checkbox"/> Other: Specify _____			
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Responsibility (check all that apply): <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Crane Walker</td> <td><input type="checkbox"/> Rigger</td> <td><input type="checkbox"/> Operator</td> <td><input type="checkbox"/> Signal Person</td> </tr> <tr> <td><input type="checkbox"/> Maintenance</td> <td><input type="checkbox"/> Management/Supervision</td> <td colspan="2"><input type="checkbox"/> Other: Specify _____</td> </tr> </table>					<input type="checkbox"/> Crane Walker	<input type="checkbox"/> Rigger	<input type="checkbox"/> Operator	<input type="checkbox"/> Signal Person	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Management/Supervision	<input type="checkbox"/> Other: Specify _____					
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Crane Function: <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Travel</td> <td><input type="checkbox"/> Hoist</td> <td><input type="checkbox"/> Rotate</td> <td><input type="checkbox"/> Luffing</td> <td><input type="checkbox"/> Telescoping</td> <td><input type="checkbox"/> Other</td> <td><input type="checkbox"/> N/A</td> </tr> </table>					<input type="checkbox"/> Travel	<input type="checkbox"/> Hoist	<input type="checkbox"/> Rotate	<input type="checkbox"/> Luffing	<input type="checkbox"/> Telescoping	<input type="checkbox"/> Other	<input type="checkbox"/> N/A					
<input type="checkbox"/> Travel	<input type="checkbox"/> Hoist	<input type="checkbox"/> Rotate	<input type="checkbox"/> Luffing	<input type="checkbox"/> Telescoping	<input type="checkbox"/> Other	<input type="checkbox"/> N/A										
Is this accident indicative of a recurring problem? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, list Accident Report Nos.: _____																
ATTACH COMPLETE AND CONCISE SITUATION DESCRIPTION AND CORRECTIVE/PREVENTIVE ACTIONS TAKEN AS ENCLOSURE (1). Include root cause and contributing factors. Assess damages and define responsibility. For equipment malfunction or failure, include specific description of the component and the resulting effect or problem caused by the malfunction or failure. List immediate and long term corrective/preventive actions assigned and respective codes.																
INCLUDE: Printed Name, Code and Date.																
Preparer:	Phone:	E-mail:	Code:	Date:												
Concurrence		Code:	Date:													
Concurrence WHE Program Manager (if Applicable)		Code:	Date:													
Certifying Official (Crane Accident Only):																

CRANE AND RIGGING GEAR ACCIDENT REPORT INSTRUCTIONS

This form is designed for fax transmission without a cover page or by e-mail and with enclosures and signatures shall be the official document. Electronic Submission will be accepted without signatures but the names of the preparer, concurring personnel and certifying official (for crane accidents only) shall be filled in.

1. Accident Category: Indicate either crane accident or rigging gear accident.
2. From: The naval activity that is responsible for reporting the accident and UIC number.
3. Activity: The naval activity where the accident took place.
4. Report No.: The activity assigned accident number (e.g.. 95-001).
5. Crane No.: The activity assigned crane number (e.g.. PC-5). if applicable.
6. Category: Identify category of crane (i.e.. 1,,2 3, or 4), if applicable.
7. Accident Date: The date the accident occurred.
8. Time: The time (24 hour clock) the accident occurred (e.g. 1300).
9. Category of Service: Check the applicable service (SPS as defined by NAVSEA 0989-030-7000).
10. Crane Type: The type of crane involved in the accident (e.g. mobile. bridge). if applicable.
11. Crane Manufacturer: The manufacturer of the crane (e.g. Dravo. Grove, P&H). if applicable.
12. SPS: Was the crane or rigging gear being used in an SPS lift?
13. Complex lift: Was the crane or rigging gear being used in a complex lift?
14. Location: The detailed location where the accident took place (e.g. build flg 213. dry dock 5).
15. Weather: The weather conditions at time of accident (e.g. wind, rain, cold).
16. Crane Capacity: The certified capacity of the crane (e.g*. 120.000 pounds). if applicable.
17. Hook Capacity: The capacity of the hook involved in the accident at the max radius of the operation. if applicable.
18. Weight of Load on Hook: If applicable. the weight of the load on the hook.
19. Fatality or Permanent Disability?: Check yes or no.
20. Material/Property Cost Estimate: Estimate total cost of damage resulting from the accident.
21. Reported to NAVSAFECEN?: Self-explanatory.
22. Accident Type: Check all that apply.
23. Cause of Accident: Check all that apply.
24. Chargeable to: Check all that apply.
25. Crane Function: Check all functions in operation at time of accident. Check NA if a rigging gear accident.
26. Is this a recurring problem?: Check yes or no. Identify any other similar accidents.
27. Situation Description/Corrective Actions: Self-explanatory.
28. Preparer. Self-explanatory.
29. Concurrences: Self-explanatory
30. Certifying Official (Crane Accidents Only)= Self-explanatory.

FIGURE 12-1 (2 of 2)

NEAR MISS AND UNPLANNED OCCURRENCE REPORT					
Near Miss Category:		<input type="checkbox"/> Crane Near Miss		<input type="checkbox"/> Rigging Near Miss	
		<input type="checkbox"/> Unplanned Occurrence			
Reporting Activity:			Copy To: Navy Crane Center Bldg. 491 NNSY Portsmouth, VA 23709 Fax: 757-967-3808		
UIC:					
Activity Responsible for the Near Miss:			Report No:		
UIC:			Location:	Near Miss Date:	Time:
BOS Contractor: <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Contract No:			Contractor Equip. <input type="checkbox"/> Yes <input type="checkbox"/> No		
Crane No:	Crane Type:	Category:		Crane OEM:	
Crane Capacity:		Hoist Capacity:	Weight of Load on hook:		Weather:
Complex Lift or Complex Non-Crane Rigging Operation?			<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is this near miss indicative of a recurring problem? <input type="checkbox"/> Yes <input type="checkbox"/> No					
In the space below, include a description of the event, root cause and corrective actions taken to prevent recurrence:					
Brief description:					
Root cause:					
Corrective Actions:					
INCLUDE: Printed Name, Code and Date unless otherwise specified.					
Preparer:		Phone:	E-mail:		Code: Date:

CRANE AND RIGGING GEAR NEAR MISS INSTRUCTIONS

This form is designed for fax transmission without a cover page or by e-mail and with enclosures and signatures shall be the official document. Electronic Submission will be accepted without signatures but the names of the preparer, concurring personnel and certifying official (for crane accidents only) shall be filled in.

1. Near Miss Category: Indicate either crane or rigging gear near miss.
2. From: The naval activity that is responsible for reporting the near miss and UIC number.
3. Activity: The naval activity where the near miss took place.
4. Report No.: The activity assigned near miss number (e.g. 95-001).
5. Crane No.: The activity assigned crane number (e.g., PC-5), if applicable.
6. Category: Identify category of crane (i.e., 1, 2, 3, or 4), if applicable.
7. Near Miss Date: The date the near miss occurred.
8. Time: The time (24 hour clock) the near miss occurred (e.g. 1300).
9. Category of Service: Check the applicable service (SPS as defined by NAVSEA 0989-030-7000).
10. Crane Type: The type of crane involved in the near miss (e.g. mobile, bridge), if applicable.
11. Crane Manufacturer: The manufacturer of the crane (e.g. Dravo, Grove, P&H), if applicable.
12. Location: The detailed location where the near miss took place (e.g. building 213, dry dock 5).
13. Weather: The weather conditions at time of the near miss (e.g. wind, rain, cold).
14. Crane Capacity: The certified capacity of the crane (e.g. 120,000 pounds), if applicable.
15. Hook Capacity: The capacity of the hook involved in the near miss at the maximum radius of the operation, if applicable.
16. Weight of load on Hook: If applicable. The weight of the load on the hook.
17. Is this a reoccurring problem? Check Yes or No. Identify any other similar near misses or accidents.
18. Situation Description/Corrective Actions: Self-explanatory.
19. Preparer: Self-explanatory.

FIGURE 12-2(2 of 2)



Public Works Department, Maine

ATTACHMENT B

PWD-ME DIG SAFE UTILITY LOCATE REQUEST FORM

A Utility Locate Request Form is required for ANY Excavation (i.e. ground penetrating or concrete slab cutting, coring or drilling) either inside or outside of a building, which will penetrate more than 3", on the Shipyard. This Form shall be submitted to PWD-ME DSC at least fourteen (14) calendar days prior to Excavation.

PART 1 INFORMATION THE EXCAVATOR WILL NEED TO OBTAIN A DIG SAFE

TICKET (when the Excavator contacts DIG SAFE they will obtain a Dig Safe Ticket as proof of notification.)

Caller Details:

Caller Name _____ Title _____
Phone # _____ Fax # _____ Alt # _____
Email address _____ Business Hours _____ to _____
Company
Name _____
Address _____
City _____ State _____ Zip _____

Location Details (where excavation is planned)

(Check one) State: MA _____ ME _____ NH _____ RI _____ VT _____

City/Town _____

(Optional) Latitude _____ Longitude _____

Address/Intersection _____

Nearest Cross Street _____

Additional Information _____

Type of Work _____

Excavation Planned Depth (feet) _____

Area (i.e. St to building, in the St., sidewalk area, right side of building)

Pre-marked? Yes _____ No _____

Excavation planned Start Month _____ Day _____ Year _____ Time (military) _____

Excavator Doing Work (if not same as above) _____



ATTACHMENT B (CONT'D)

PWD-ME DIG SAFE UTILITY LOCATE REQUEST FORM

A Utility Locate Request Form is required for ANY Excavation (i.e. ground penetrating or concrete slab cutting, coring or drilling) either inside or outside of a building, which will penetrate more than 3", on the Shipyard. Submit this Form to PWD-ME DSC at least fourteen (14) calendar days prior to Excavation.

Part I – Completed by the Excavator.

Today's Date: ____/____/____ DIG SAFE Ticket #: _____

Utility Companies Dig Safe will notify: _____

Requested by: _____ Phone #: _____

Code # / Company: _____ E-mail: _____

Contract #: _____ Project Title: _____

Shipyard POC: _____ Phone # _____

Excavation Location: _____ Area Pre-Marked YES____, NO____

Type of work: _____

Depth: (ft): _____ Anticipated Excavation Date: ____/____/____ Time: (military) _____

Attach a map or the contract drawings showing the excavation/ground penetrating area.

PWD ME Construction Contractors: Complete Part 1 and Submit Form to PWD ME CM/ET

PWD ME AE Firms/Sub consultants: Complete Part 1 and Submit Form to PWD ME DM

Shipyard Personnel: Complete Parts 1 & 2 and Submit Form to PWD-ME DSC

Part 2 – To be completed by the PWD ME CM/ET/DM (If Shipyard work, Part 2 must be completed by Requestor)

Date: ____/____/____ Name: _____ Phone # _____

Locate Priority: Routine (> 14 days) _____; Urgent (< 14 days) _____; Emergency (<2 days) _____ (DSC Approval Req.)

Part 1 Reviewed and Complete: YES____, NO____ Initial: _____

Submit Completed Form to DSC. The DSC will review the Request and forward to the PWD ME FSC Utility Locate Contract Rep who will review and forward to the Utility Locating Company for action.

Part 3 – To be completed by FSC Utility Locating Company

Approved by FSC Utility Locate Contractor: Initials _____

Date Utilities marked in the field: ____/____/____ Name: _____

Comments: _____

Utility Plan Discrepancies Noted: YES____, NO____ PWD ME FSC PAR & DSC Notified:

YES____ NO____ (notification is required if there are Plan Discrepancies)

Comments: _____



ATTACHMENT B (CONT'D)

Submit to PWD ME FSC Contract Rep who will forward to the DSC. If Plan Discrepancies are noted, provide a scaled markup plan showing the correct utility locations.

Part 4 – To be completed by PWD ME DSC

Date ___/___/___ Logged Into Database: YES ___ NO ___ # _____

Any Hazardous/Mission Critical Utilities within 10' (within 20' of gas line) of Excavation Area:
YES ___ NO ___ (if YES, ensure Excavator is briefed to include additional controls of Appendix B.)

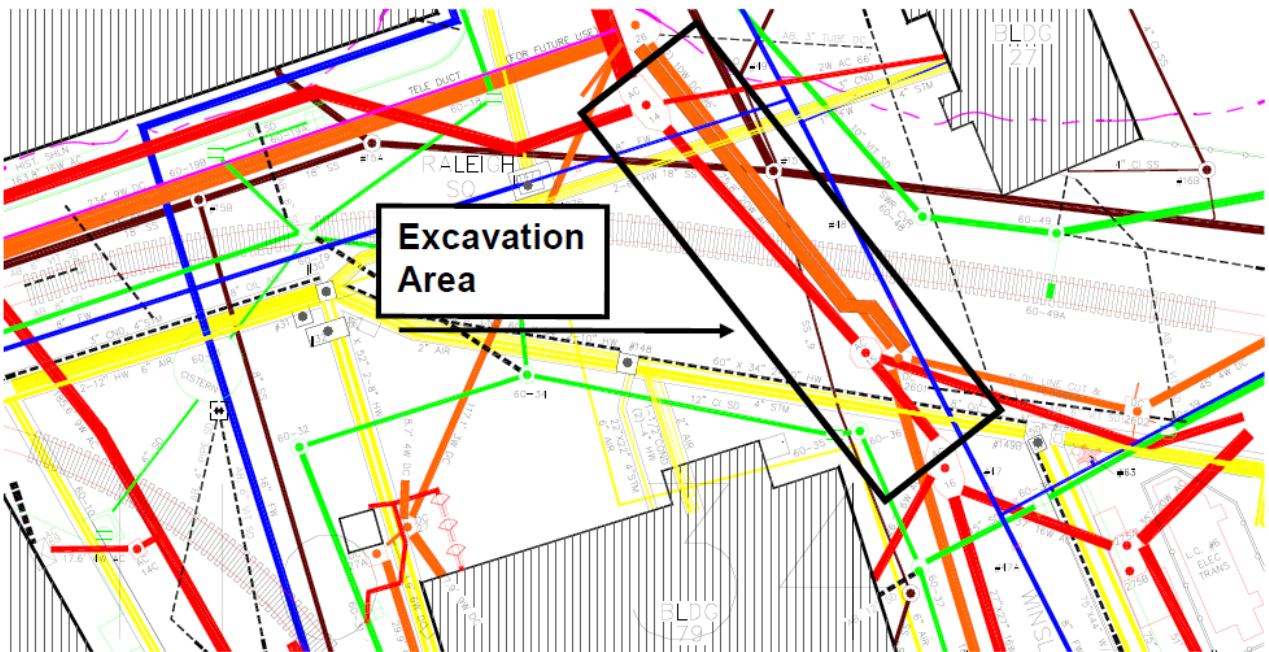
Comments: _____

DSC return a copy of the completed Form to PWD ME CM/ET/DM or Shipyard Personnel Requesting the Utility Locate.

PWD ME CM/ET/DM/Requestor ensure the Excavator is aware if any Plan Discrepancies were found and to use extreme caution when excavating.

If Plan Discrepancies are noted, the PWD DSC shall coordinate any Utility Plan Updates with PWD DC CADD Rep.

Sample Drawing





ATTACHMENT C

CONTRACTOR UTILITY LOCATE – PRE-EXCAVATION SAFETY CHECKLIST

Project Title: _____

Prime Contractor: _____

Contract No.: _____

Excavator: _____

_____ **Gov't and Utility (if listed in Part 1 ATTACHMENT A) Dig Safe Markings Completed & Visible in the field.**

_____ **PWD ME Dig Safe Utility Locate Request Form returned from DSC and any Noted Discrepancies are Resolved.**

_____ **Contractor's Independent Third Party Utility Locate Completed and any discrepancies are resolved with PWD-ME (Attach Third Party Certification Form).**

Excavating with Hazardous or Mission Critical Utilities within 10' of the excavation area (within 20' of gas line) (as identified by DSC or plans):

Yes _____ **or No:** _____ **If Yes complete the following:**

_____ The Contractor must supplement daily Dig Safe procedures to include an additional checkoff on Contractor Daily Activity Plan ensuring all utilities have been clearly marked and reviewed with the SSHO.

_____ The Contractor must have a Dig Safe laminated utility color coding system posted in or near all heavy digging equipment for easy reference to type of utility.

_____ The SSHO must complete a pre-excavation walk as part of the morning procedure to ensure all known utilities are identified and markings are refreshed with the appropriate color-coded paint.

_____ Contractor must provide additional danger signage, to mark areas of known live underground utilities.

_____ Contractor must ensure a 'spotter' accompanies the equipment operator during excavation work.

_____ Contractor must provide Construction CM/ET notification no later than 7 working days prior to the preparatory and initial pre-excavation/ demo safety review meeting. **(The CM/ET and the DSC will attend this meeting to ensure safety and preservation of Critical Utilities is discussed with adequate focus.)**

_____ The Contractor must confirm & identify the closest utility isolation points & develop mitigation strategies with the utility owner (Coordinate with the DSC) to ensure the safe excavation adjacent to these utilities. Utility Outages to isolate utility systems may need to be considered in circumstances where the excavation work cannot be completed safely.

Prime Contractor SSHO Signature/Date: _____

Excavator Signature/Date: _____

PWD ME ET Signature/Date: _____

Public Works Department, Maine

UTILITY LOCATE – PRE-EXCAVATION SAFETY CHECKLIST

Project Title: _____**Prime Contractor:** _____**Contract No.:** _____**Excavator:** __________ **Gov't Dig Safe Markings Completed & Visible in the field**_____ **Third Party Utility Locate Completed (Attach Third Party Certification Form)**_____ **PWD ME Dig Safe Form Returned with any Discrepancies Noted & Resolved**

Excavating with Hazardous or Mission Critical Utilities within the excavation area: Yes_____ or No:_____ If Yes complete the following:

_____The Contractor must employ supplement daily Dig Safe procedures to include an additional checkoff on Contractor Daily Activity Plan asking if all utilities have been clearly marked and reviewed with the SSHO.

_____The Contractor must have a Dig Safe laminated utility color coding system posted in or near all heavy digging equipment for easy reference to type of utility.

_____The SSHO must complete a pre-excavation walk as part of the morning procedure to help ensure all known utilities are identified and markings are refreshed with the appropriate color-coded paint.

_____ Contractor must provide additional danger signage, to mark areas of known live underground utilities.

_____ Contractor must ensure a 'spotter' accompanies the equipment operator during excavation work.

_____ Contractor must provide Construction CM/ET notification no later than 7 working days prior to the date of the preparatory and initial pre-excavation/demo safety review meeting. (The CM/ET & as well as the PWD ME DSC will attend this meeting to ensure safety and preservation of Critical Utilities is discussed with adequate focus.)

_____The Contractor must confirm & identify the closest utility isolation points & develop mitigation strategies with the utility owner (Coordinate with the PWD ME DSC) to ensure the safe excavation adjacent to these utilities. Utility Outages to isolate utility systems may need to be considered in circumstances where the excavation work cannot be completed safely.

Prime Contractor SSHO Signature/Date: _____**Excavator Signature/Date:** _____**PWD ME ET Signature/Date:** _____

ATTACHMENT E

Contractor Daily Checklist for Trenching/Excavation

Project:		Date:	Weather:	Soil Classification:
Trench Depth:	Length:	Width:	Type of Protective System:	

Name and Signature of Competent Person:

Yes	No	N/A	Excavation
			Trench box extends at least 18 inches above the vertical wall of the excavation and to within 2 feet of the bottom of the trench (or less if soil collapsing behind or below trench box).
			Trench box installed in accordance with manufacturers specific instructions and use limitations.
			Trench box inspected for damage or defects and pins and spreaders are securely installed.
			If other soil protective systems are used, they are installed in accordance with Manufacturer's Instructions OR are approved by a Registered Professional Engineer.
			All employees at worksite trained in trenching safety procedures.
			Surface encumbrances such as utility poles, heavy equipment supported or removed.
			Heavy equipment safety zone at least 1½ times depth of trench for if not supported.
			Employees protected from loose rock or soil.
			Spoils, materials, and equipment set back a minimum of 2' from edge of excavation.
			Walkways and bridges over excavations 6' or more in depth are at least 20 inches wide and are equipped with required guardrails.
			Ladders placed no more than 25 feet apart.
			Employees prohibited from working or walking under suspended loads.
			Employees prohibited from working on faces of sloped or benched excavations above other employees.
			Warning system established and used when mobile equipment is operating near edge of excavation.
			Barriers provided if trench opening is not readily apparent.
			Barriers, fences available to secure area if left overnight.

Yes	No	N/A	Personal Protective Equipment
			Hard hats worn by all employees.
			Work boots or safety shoes worn by all employees.
			Eye protection worn by all employees (if applicable).
			Hearing protection worn by all employees (if applicable).
			Warning vests, or other highly visible PPE provided and worn by all employees exposed to vehicular traffic.

ATTACHMENT E (CONT'D)

Daily Worksite Checklist for Trenching/Excavation Sites – pg 2

Yes	No	N/A	Utilities
			Utility companies contacted and/or utilities located.
			Exact location of utilities marked when near excavation.
			Underground installations protected, supported, or removed when excavation is open.
			Equipment available to survey underground utility installations, existing utilities and any other buried foundations or structures.

Yes	No	N/A	Wet Conditions
			Precautions taken to protect employees from accumulation of water.
			Water removal equipment monitored by Competent Person.
			Surface water controlled or diverted.
			Inspection made after each rainstorm.

Yes	No	N/A	Hazardous Atmosphere
			Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases. If yes, atmosphere will be tested every_____.
			Oxygen content is between 19.5% and 21%.
			Flammable gas build-up to 20% of lower explosive limit (LEL).
			Toxic Levels of gases are below limits set on gas monitor.
			Ventilation blowing into space and air intake placed away from vehicle exhaust.
			Program Manager contacted if atmosphere is above established limits. Source of contaminant to be determined and eliminated prior to entry or Program Manager will establish special procedures for entry.

-
-
-
-
-
-
-
-

Daily Worksite Checklist for Trenching/Excavation Sites – pg 2

Emergency Procedures for Trench Cave-Ins

- **GET ALL OTHER EMPLOYEES OUT OF THE TRENCH!!**
- **CALL 438-2333**
- **NOTIFY COMPETENT PERSON**

Note time

Note location of trapped worker(s)

Leave all victims hand tools in place

Shut down all heavy equipment

Stop nearby traffic that may cause vibration

Keep everyone back from trench at least 50 feet

Gather information for rescue team

WAIT for rescue team. Do not attempt to rescue.

Note-Do not attempt to dig the person out using hand tools or heavy equipment. This could cause the trench to collapse further and could cause further injuries!!!!

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.

ACOUSTICAL SOCIETY OF AMERICA (ASA)
1305 Walt Whitman Road, Suite 300
Melville, NY 11747-4300
Ph: 516-576-2360
Fax: 631-923-2875
E-mail: asa@acousticalsociety.org
Internet: <https://acousticalsociety.org/>

AIR BARRIER ASSOCIATION OF AMERICA (ABAA)
1600 Boston-Providence Hwy
Walpole, MA 02081
Ph: 1-866-956-5888
Fax: 1-866-956-5819
Internet: <https://www.airbarrier.org/>

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)
2111 Wilson Blvd, Suite 400
Arlington, VA 22201
Ph: 703-524-8800
Internet: <http://www.ahrinet.org>

ALUMINUM ASSOCIATION (AA)
1400 Crystal Drive
Suite 430
Arlington, VA 22202
Ph: 703-358-2960
E-Mail: info@aluminum.org
Internet: <https://www.aluminum.org/>

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)
444 North Capital Street, NW, Suite 249

Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aatcc.org
Internet: <https://www.transportation.org/>

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)
1 Davis Drive
P.O. Box 12215
Research Triangle Park, NC 27709-2215
Ph: 919-549-8141
Fax: 919-549-8933
Internet: <https://www.aatcc.org/>

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)
330 N. Wabash Ave., Suite 2000
Chicago, IL 60611
Ph: 202-367-1155
E-mail: info@americanbearings.org
Internet: <https://www.americanbearings.org/>

AMERICAN CONCRETE INSTITUTE (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331-3439
Ph: 248-848-3700
Fax: 248-848-3701
Internet: <https://www.concrete.org/>

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
1330 Kemper Meadow Drive
Cincinnati, OH 45240
Ph: 513-742-2020
Fax: 513-742-3355
Internet: <https://www.acgih.org/>

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
130 East Randolph, Suite 2000
Chicago, IL 60601
Ph: 312-670-5444
Fax: 312-670-5403
Steel Solutions Center: 866-275-2472
E-mail: solutions@aisc.org
Internet: <https://www.aisc.org/>

AMERICAN IRON AND STEEL INSTITUTE (AISI)
25 Massachusetts Avenue, NW Suite 800
Washington, DC 20001
Ph: 202-452-7100
Internet: <https://www.steel.org/>

AMERICAN LUMBER STANDARDS COMMITTEE (ALSC)
7470 New Technology Way, Suite F
Frederick, MD 21703
Ph: 301-972-1700
Fax: 301-540-8004
E-mail: alsc@alsc.org
Internet: <http://www.alsc.org>

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1899 L Street, NW, 11th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
E-mail: storemanager@ansi.org
Internet: <https://www.ansi.org/>

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)
P.O. Box 28518
1711 Arlingate Lane
Columbus, OH 43228-0518
Ph: 800-222-2768 or 614-274-6003
Fax: 614-274-6899
E-mail: tjones@asnt.org
Internet: <https://www.asnt.org/>

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191
Ph: 800-548-2723; 703-295-6300
Internet: <https://www.asce.org/>

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)
1791 Tullie Circle, NE
Atlanta, GA 30329
Ph: 404-636-8400 or 800-527-4723
Fax: 404-321-5478
E-mail: ashrae@ashrae.org
Internet: <https://www.ashrae.org/>

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/>

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)
18927 Hickory Creek Drive, Suite 220
Mokena, IL 60448
Ph: 708-995-3019
Fax: 708-479-6139
Internet: <http://www.asse-plumbing.org>

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 W. Quincy Avenue
Denver, CO 80235 USA
Ph: 303-794-7711 or 800-926-7337
Fax: 303-347-0804

Internet: <https://www.awwa.org/>

AMERICAN WELDING SOCIETY (AWS)
8669 NW 36 Street, #130
Miami, FL 33166-6672
Ph: 800-443-9353
Internet: <https://www.aws.org/>

AMERICAN WOOD COUNCIL (AWC)
222 Catoctin Circle SE, Suite 201
Leesburg, VA 20175
Ph: 800-890-7732
Fax: 412-741-0609
E-mail: publications@awc.org
Internet: <https://www.awc.org/>

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)
P.O. Box 361784
Birmingham, AL 35236-1784
Ph: 205-733-4077
Fax: 205-733-4075
Internet: <http://www.awpa.com>

APA - THE ENGINEERED WOOD ASSOCIATION (APA)
7011 South 19th St.
Tacoma, WA 98466-5333
Ph: 253-565-6600
Fax: 253-565-7265
Internet: <https://www.apawood.org/>

ASPHALT ROOFING MANUFACTURER'S ASSOCIATION (ARMA)
750 National Press Building
529 14th Street, NW
Washington, DC 20045
Ph: 202-591-2450
Fax: 202-591-2445
Internet: <https://asphaltroofing.org/>

ASSOCIATED AIR BALANCE COUNCIL (AABC)
1220 19th St NW, Suite 410
Washington, DC 20036
Ph: 202-737-0202
Fax: 202-315-0285
E-mail: info@aabc.com
Internet: <https://www.aabc.com/>

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/>

BACNET INTERNATIONAL (BTL)
BACnet Testing Laboratories
1827 Powers Ferry Road
Building 14, Suite 100
Atlanta, GA 30339

Ph: 770-971-6003
Fax: 678-229-2777
E-mail: info@bacnetinternational.org
Internet: <https://www.bacnetlabs.org/>

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
355 Lexington Avenue, 15th Floor
New York, NY 10017
Ph: 212-297-2122
Fax: 212-370-9047
Internet: <https://www.buildershardware.com/>

CALIFORNIA AIR RESOURCES BOARD (CARB)
1001 I Street
Sacramento, CA 95814
Ph: 800-242-4450
Email: helpline@arb.ca.gov
Internet: <https://ww2.arb.ca.gov/>

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)
PO Box 997377, MS 0500
Sacramento, CA 95899-7377
Ph: 916-558-1784
Internet: <https://www.cdph.ca.gov/>

CALIFORNIA ENERGY COMMISSION (CEC)
Media and Public Communications Office
1516 Ninth Street, MS-29
Sacramento, CA 95814-5512
Ph: 916-654-5106
E-mail: appliances@energy.ca.gov
Internet: <https://www.energy.ca.gov/>

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/>

CAST IRON SOIL PIPE INSTITUTE (CISPI)
2401 Fieldcrest Drive
Mundelein, IL 60060
Ph: 224-864-2910
Internet: <https://www.cispi.org/>

COMPOSITE PANEL ASSOCIATION (CPA)
19465 Deerfield Avenue, Suite 306
Leesburg, VA 20176
Ph: 703-724-1128
Fax: 703-724-1588
Internet: <https://www.compositepanel.org/>

COMPRESSED GAS ASSOCIATION (CGA)
14501 George Carter Way, Suite 103
Chantilly, VA 20151-1788
Ph: 703-788-2700
Fax: 703-961-1831

E-mail: cga@cganet.com
Internet: <https://www.cganet.com/>

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 North Plum Grove Road
Schaumburg, IL 60173-4758
Ph: 847-517-1200
Fax: 847-517-1206
Internet: <http://www.crsi.org/>

CONSUMER ELECTRONICS ASSOCIATION (CEA)
1919 South Eads St.
Arlington, VA 22202
Ph: 703-907-7600
E-mail: CTA@CTA.tech
Internet: <https://www.cta.tech/>

COPPER DEVELOPMENT ASSOCIATION (CDA)
Internet: <https://www.copper.org/>

CSA GROUP (CSA)
178 Rexdale Blvd.
Toronto, ON, Canada M9W 1R3
Ph: 416-747-4044
Fax: 416-747-2510
E-mail: member@csagroup.org
Internet: <https://www.csagroup.org/>

ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION (ECIA)
310 Maxwell Road, Suite 200
Alpharetta, GA 30009
Ph: 678-393-9990
Fax: 678-393-9998
E-mail: emikoski@ecianow.org
Internet: <https://www.ecianow.org>

FLUID CONTROLS INSTITUTE (FCI)
1300 Sumner Avenue
Cleveland, OH 44115
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: fcf@fluidcontrolsinsitute.org
Internet: <https://fluidcontrolsinsitute.org/>

FM GLOBAL (FM)
270 Central Avenue
Johnston, RI 02919-4949
Ph: 401-275-3000
Fax: 401-275-3029
Internet: <https://www.fmglobal.com/>

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH
(FCCCHR)
USC Foundation Office
Research Annex 219
Los Angeles, CA 90089-7700
Ph: 866-545-6340
Fax: 213-740-8399
E-mail: fccchr@usc.edu

Internet: <https://fccchr.usc.edu/>

GERMAN INSTITUTE FOR STANDARDIZATION (DIN)
Americas
Englewood, CO, US
Ph: +1 800-447-2273 (Toll Free), +1 303-736-3001 (US/Canada)

GLASS ASSOCIATION OF NORTH AMERICA (GANA)
National Glass Association
1945 Old Gallows Rd., Suite 750
Vienna, VA 22182
Ph: 866-342-5642
Ph: 703-442-4890
Fax: 703-442-0630
Internet: <http://www.glasswebsite.com>

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

GYPSUM ASSOCIATION (GA)
962 Wayne Ave., Suite 620
Silver Spring, MD 20910
Ph: 301-277-8686
Fax: 301-277-8747
E-mail: info@gypsum.org
Internet: <https://www.gypsum.org/>

HYDRAULIC INSTITUTE (HI)
6 Campus Drive, First Floor North
Parsippany, NJ 07054-4405
Ph: 973-267-9700
Fax: 973-267-9055
Internet: <http://www.pumps.org>

ILLUMINATING ENGINEERING SOCIETY (IES)
120 Wall Street, Floor 17
New York, NY 10005-4001
Ph: 212-248-5000
Fax: 212-248-5018
E-mail: membership@ies.org
Internet: <https://www.ies.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/>

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
P.O. Box 493

Miamitown, OH 45041-9998
E-mail: info@icea.net
Internet: <https://www.icea.net/>

INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)
27 N. Wacker Dr. Suite 365
Chicago, IL 60606-2800
Ph: 613-233-1510
Fax: 613-482-9436
E-mail: enquiries@igmaonline.org
Internet: <https://www.igmaonline.org/>

INTELLIGENCE COMMUNITY STANDARD (ICS)
Homeland Security Digital Library
Ph: 831-272-2437
E-mail: hsdl@nps.edu
Internet: <https://www.hsdl.org/c/>

INTERNATIONAL CODE COUNCIL (ICC)
500 New Jersey Avenue, NW
6th Floor, Washington, DC 20001
Ph: 800-786-4452 or 888-422-7233
Fax: 202-783-2348
E-mail: order@iccsafe.org
Internet: <https://www.iccsafe.org/>

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
3050 Old Centre Ave. Suite 101
Portage, MI 49024
Ph: 269-488-6382
Fax: 269-488-6383
Internet: <https://www.netaworld.org/>

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
ISO Central Secretariat
BIBC II
Chemin de Blandonnet 8
CP 401 - 1214 Vernier, Geneva
Switzerland
Ph: 41-22-749-01-11
E-mail: central@iso.ch
Internet: <https://www.iso.org>

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)
1901 North Moore Street
Arlington, VA 22209-1762
Ph: 703-525-1695
Fax: 703-528-2148
Internet: <https://safetyequipment.org/>

INTERNET ENGINEERING TASK FORCE (IETF)
c/o Association Management Solutions, LLC (AMS)
5177 Brandin Court
Fremont, California 94538
Ph: 510-492-4080
Fax: 510-492-4001
E-mail: ietf-info@ietf.org
Internet: <https://www.ietf.org/>

LONMARK INTERNATIONAL (LonMark)
3600 Peterson Way
Santa Clara, CA 95054
Ph: 866-566-6275 or 408-790-3247
Fax: 408-790-3838
Internet: <http://www.lonmark.org>

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS
INDUSTRY (MSS)
127 Park Street, NE
Vienna, VA 22180-4602
Ph: 703-281-6613
E-mail: info@msshq.org
Internet: <http://msshq.org>

MASTER PAINTERS INSTITUTE (MPI)
2800 Ingleton Avenue
Burnaby, BC CANADA V5C 6G7
Ph: 1-888-674-8937
Fax: 1-888-211-8708
E-mail: info@paintinfo.com or techservices@mpi.net
Internet: <http://www.mpi.net/>

MIDWEST INSULATION CONTRACTORS ASSOCIATION (MICA)
16712 Elm Circle
Omaha, NE 68130
Ph: 402-342-3463 or 800-747-6422
Fax: 402-330-9702
Internet: <https://www.micainsulation.org/>

MODBUS ORGANIZATION, INC (MODBUS)
PO Box 628
Hopkinton, MA 01748
Ph: 508-435-7170
Fax: 508-435-7172
Internet: <http://www.modbus.org>

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)
800 Roosevelt Road, Bldg C, Suite 312
Glen Ellyn, IL 60137
Ph: 630-942-6591
Fax: 630-790-3095
E-mail: info@naamm.org
Internet: <http://www.naamm.org>

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA)
3 Bethesda Metro Center, Suite 1100
Bethesda, MD 20814
Ph: 301-657-3110
Fax: 301-215-4500
Internet: <https://www.necanet.org/>

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
1300 North 17th Street, Suite 900
Arlington, VA 22209
Ph: 703-841-3200
Internet: <https://www.nema.org>

NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)
8575 Grovemont Circle
Gaithersburg, MD 20877
Ph: 301-977-3698
Fax: 301-977-9589
Internet: <http://www.nebb.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>

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
Patriots Plaza 1
395 E Street, SW, Suite 9200
Washington, DC 20201
Ph: 800-232-4636
Fax: 513-533-8347
Internet: <https://www.cdc.gov/niosh/>

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
100 Bureau Drive
Gaithersburg, MD 20899
Ph: 301-975-2000
Internet: <https://www.nist.gov/>

NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
10255 West Higgins Road, Suite 600
Rosemont, IL 60018-5607
Ph: 847-299-9070
Fax: 847-299-1183
Internet: <http://www.nrca.net>

NATIONAL SECURITY TELECOMMUNICATIONS AND INFORMATION SYSTEMS
SECURITY (NSTISS)
CNSS Secretariat
National Security Agency
9800 Savage Road, Ste 6716
Fort George G. Meade, MD 20755-6716
Ph: 410-854-6805
Fax: 410-854-6814
E-mail: cnss@radium.ncsc.mil
Publication available on the internet: <http://www.dtic.mil/dtic/>

NSF INTERNATIONAL (NSF)
789 North Dixboro Road
P.O. Box 130140
Ann Arbor, MI 48105
Ph: 734-769-8010 or 800-NSF-MARK
Fax: 734-769-0109
E-mail: info@nsf.org
Internet: <http://www.nsf.org>

OPC FOUNDATION (OPC)
16101 N. 82nd Street
Suite 3B
Scottsdale, AZ 85260-1868

Ph: 480-483-6644
Fax: 480-483-7202
Internet: <https://opcfoundation.org/>

PLUMBING AND DRAINAGE INSTITUTE (PDI)
800 Turnpike Street, Suite 300
North Andover, MA 01845
Ph: 978-557-0720 or 800-589-8956
E-Mail: pdionline.org
Internet: <http://www.pdionline.org>

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)
2000 Powell Street, Suite 600
Emeryville, CA 94608
Ph: 510-452-8000
Fax: 510-452-8001
E-mail: info@SCSglobalservices.com
Internet: <https://www.scsglobalservices.com/>

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)
4201 Lafayette Center Drive
Chantilly, VA 20151-1219
Ph: 703-803-2980
Fax: 703-803-3732
Internet: <https://www.smacna.org/>

SINGLE PLY ROOFING INDUSTRY (SPRI)
465 Waverley Oaks Road, Suite 421
Waltham, MA 02452
Ph: 781-647-7026
Fax: 781-647-7222
E-mail: info@spri.org
Internet: <https://www.spri.org/>

SOCIETY FOR PROTECTIVE COATINGS (SSPC)
800 Trumbull Drive
Pittsburgh, PA 15205
Ph: 877-281-7772 or 412-281-2331
Fax: 412-444-3591
E-mail: customerservice@sspc.org
Internet: <http://www.sspc.org>

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Ph: 909-396-2000
E-mail: webinquiry@aqmd.gov
Internet: <http://www.aqmd.gov>

STEEL DECK INSTITUTE (SDI)
P.O. Box 426
Glenshaw, PA 15116
Ph: 412-487-3325
Fax: 412-487-3326
Internet: <https://www.sdi.org/>

STEEL DOOR INSTITUTE (SDI/DOOR)
30200 Detroit Road
Westlake, OH 44145
Ph: 440-899-0010
Fax: 440-892-1404
E-mail: info@steeldoor.org
Internet: <https://www.steeldoor.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>

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)
1320 North Courthouse Road, Suite 200
Arlington, VA 22201
Ph: 703-907-7700
Fax: 703-907-7727
E-mail: marketing@tiaonline.org
Internet: <https://www.tiaonline.org/>

THE MASONRY SOCIETY (TMS)
105 South Sunset Street, Suite Q
Longmont, CO 80501-6172
Ph: 303-939-9700
Fax: 303-541-9215
E-mail: info@masonrysociety.org
<https://masonrysociety.org/>

TILE COUNCIL OF NORTH AMERICA (TCNA)
100 Clemson Research Boulevard
Anderson, SC 29625
Ph: 864-646-8453
Fax: 864-646-2821
E-mail: info@tileusa.com
Internet: <https://www.tcnatile.com/>

TRIDIUM, INC (TRIDIUM)
3951 Westerre Parkway, Suite 350
Richmond, VA 23233
Ph: 804-747-4771
Fax: 804-747-5204
E-mail: support@tridium.com
Internet: <https://www.tridium.com/>

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet:
<http://www.wbdg.org/ffc/army-coe/standards>
Order Other Documents from:
Official Publications of the Headquarters, USACE
E-mail: hqpublications@usace.army.mil
Internet: <http://www.publications.usace.army.mil/>
or
<https://www.hnc.usace.army.mil/Missions/Engineering-Directorate/TECHINFO/>

U.S. DEFENSE LOGISTICS AGENCY (DLA)
Andrew T. McNamara Building
8725 John J. Kingman Road
Fort Belvoir, VA 22060-6221
Ph: 877-352-2255
E-mail: dlacontactcenter@dla.mil
Internet: <http://www.dla.mil>

U.S. DEPARTMENT OF DEFENSE (DOD)
Order DOD Documents from:
Room 3A750-The Pentagon
1400 Defense Pentagon
Washington, DC 20301-1400
Ph: 703-571-3343
Fax: 215-697-1462
E-mail: customerservice@ntis.gov
Internet: <https://www.ntis.gov/>
Obtain Military Specifications, Standards and Related Publications
from:
Acquisition Streamlining and Standardization Information System
(ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Ph: 215-697-6396 - for account/password issues
Internet: <https://assist.dla.mil/online/start/>; account
registration required
Obtain Unified Facilities Criteria (UFC) from:
Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
1090 Vermont Avenue NW, Suite 700
Washington, DC 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet:
<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc>

U.S. DEPARTMENT OF ENERGY (DOE)
1000 Independence Avenue Southwest
Washington, D.C. 20585
Ph: 202-586-5000
Fax: 202-586-4403
E-mail: The.Secretary@hq.doe.gov
Internet: <https://www.energy.gov/>

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)
HUD User
P.O. Box 23268
Washington, DC 20026-3268
Ph: 800-245-2691 or 202-708-3178
TDD: 800-927-7589
Fax: 202-708-9981
E-mail: helpdesk@huduser.gov
Internet: <https://www.huduser.gov>

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
1200 Pennsylvania Avenue, N.W.

Washington, DC 20004
Ph: 202-564-4700
Internet: <https://www.epa.gov>
--- Some EPA documents are available only from:
National Technical Information Service (NTIS)
5301 Shawnee Road
Alexandria, VA 22312
Ph: 703-605-6060 or 1-800-363-2068
Fax: 703-605-6880
TDD: 703-487-4639
E-mail: info@ntis.gov
Internet: <https://www.ntis.gov/>

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Internet: <https://www.faa.gov/>

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Internet: <https://www.gpo.gov/>

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

General Services Administration

1800 F Street, NW

Washington, DC 20405

Ph: 1-844-472-4111

Internet: <https://www.gsaelibrary.gsa.gov/ElibMain/home.do>

Obtain documents from:

Acquisition Streamlining and Standardization Information System
(ASSIST)

Internet: <https://assist.dla.mil/online/start/>; account
registration required

U. S. GREEN BUILDING COUNCIL (USGBC)

2101 L St NW, Suite 500

Washington, DC 20037

Ph: 202-828-7422

Internet: <https://new.usgbc.org/>

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

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Washington, DC 20401

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Bookstore: 202-512-0132

Internet: <https://www.gpo.gov/>

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

1322 Patterson Ave. SE, Suite 1000

Washington Navy Yard, DC 20374-5065

Ph: 202-685-9387

Internet: <http://www.navfac.navy.mil>

UNDERWRITERS LABORATORIES (UL)

2600 N.W. Lake Road

Camas, WA 98607-8542

Ph: 877-854-3577 or 360-817-5500

E-mail: CustomerExperienceCenter@ul.com

Internet: <https://www.ul.com/>

UL Directories available through IHS at <https://ihsmarkit.com/>

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

2025 M Street, NW, Suite 800

Washington, DC 20036-3309

Ph: 202-367-1157

or

330 N Wabash Avenue, Suite 2000

Chicago, IL 60611

Ph: 312-321-6802

E-mail: membersupport@wdma.com

Internet: <https://www.wdma.com/>

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>

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.00 22

QUALITY CONTROL (PWD ME)
05/21

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 in the text by the basic designation only.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)

ASHRAE 52.2 (2012; Errata 2013) Method of Testing
General Ventilation Air-Cleaning Devices
for Removal Efficiency by Particle Size

ASTM INTERNATIONAL (ASTM)

ASTM D6245 (2012) Using Indoor Carbon Dioxide
Concentrations to Evaluate Indoor Air
Quality and Ventilation

ASTM D6345 (2010) Selection of Methods for Active,
Integrative Sampling of Volatile Organic
Compounds in Air

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)

ANSI/SMACNA 008 (2007) IAQ Guidelines for Occupied
Buildings Under Construction, 2nd Edition

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements
Manual

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED GBDC (2009) LEED Reference Guide for Green
Building Design and Construction

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

Construction Quality Control (QC) Plan; G

Submit a Construction QC Plan prior to start of construction.

Indoor Air Quality (IAQ) Management Plan; G

Basis of Design and Design Intent

QC Manager Qualifications; G

Commissioning Provider (Cx) Qualifications; G

QC Specialists Qualifications; G

SD-05 Design Data

Design Review

SD-06 Test Reports

Preliminary Inspections And Final Acceptance Testing; G

Final Life Safety/Fire Protection Certification; G

Documentation; G

SD-07 Certificates

Cx Resume; G

Contractor QC Self-Evaluation Checklist; G

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, obtain a single copy set of the current report forms from the Contracting Officer. 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 Contracting Officer during Construction:

- a. CQC Report: Submit the report electronically by 10:00 AM the next working day after each day that work is performed and for every seven (7) consecutive calendar days of no-work. Include copies of the Special Inspector's daily reports as well as any discrepancies that are observed during Special Inspections that were reported to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed discrepancies must be documented in the daily report (See Section 01 45 35 for SPECIAL INSPECTIONS for requirements).
- b. Contractor Production Report: Submit the report electronically by 10:00 AM the next working day after each day that work is performed and for every seven (7) consecutive calendar days of no-work.
- c. Preparatory Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Preparatory Phase held.
- d. Initial Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Initial Phase held.

- e. QC Specialist Reports: Submit the report electronically by 10:00 AM the next working day after each day that work is performed.
- f. Field Test Reports: Within two (2) working days after the test is performed, submit the report as an electronic attachment to the CQC Report.
- g. Monthly Summary Report of Tests: Submit the report as an electronic attachment to the CQC Report at the end of each month.
- h. Testing Plan and Log: Submit the report as an electronic attachment to the CQC Report, at the end of each month. Provide a copy of the final Testing Plan and Log to the eOMSI preparer for inclusion into the eOMSI documentation.
- i. Rework Items List: Submit lists containing new entries daily, in the same manner as the CQC Report.
- j. CQC Meeting Minutes: Within two (2) working days after the meeting is held, submit the report as an electronic attachment to the CQC Report.
- k. QC Certifications: As required by the paragraph entitled QC CERTIFICATIONS.
- l. Special Inspection Report: Submit the Special Inspection reports, in the same manner as the CQC Report.

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this Section. This QC program is a key element in meeting the objectives of NAVFAC Commissioning. The QC program consists of a QC Organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, historic coordination drawings review and approval, testing, completion inspections, QC certifications, independent Special Inspections in accordance with Section 01 45 35 SPECIAL INSPECTIONS, and documentation necessary to provide materials, equipment, workmanship, fabrication, construction, and operations which comply with the requirements of this Contract. The QC program must cover on-site and off-site work and be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager must report to an officer of the firm and not be subordinate to the Project Superintendent, or the Project Manager. The QC Manager, Project Superintendent, and Project Manager must work together effectively. Although the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job. The QC Manager will be subject to removal by the Contracting Officer for non-compliance with the QC requirements specified in the Contract, failure to perform the duties of the QC Manager specified herein, or failure to manage the QC program. The removal and replacement of the QC Manager will not be cause for claim of additional compensation or extensions of the Contract Completion Date (CCD).

1.4.1 Commissioning

Refer to Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING for project commissioning requirements.

Commissioning (Cx) is a systematic process of ensuring that all building systems included in the project meet the requirements and perform interactively according to the Contract. The QC Program is key in supporting the objectives of the Cx process, specifically to coordinate, document, and verify compliance with Contract requirements. Refer to commissioning requirements in Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING. A key to this process by coordinating, verifying and documenting measures to achieve the following objectives:

- a. Verify and document that the applicable equipment and systems are installed in accordance with the design intent as expressed through the Contract and according to the manufacturer's recommendations and industry accepted minimum standards.
- b. Verify and document that equipment and systems receive complete operational checkout by the installing Contractors.
- c. Verify and document proper performance of equipment and systems.
- d. Verify that Electronic Operation and Maintenance Support Information (eOMSI) documentation is complete.
- e. Verify the Training Plan and training materials are accurate and provide correct instruction and documentation on the critical elements of the products, materials, and systems in the constructed facility. Verify that all identified Government operating personnel are trained.
- f. Site Observations: Perform site visits, as necessary, to observe component and system installation.

1.4.2 Acceptance of the Construction Quality Control (QC) Plan

Acceptance of the QC Plan is required prior to the start of construction. The Contracting Officer 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 Contracting Officer reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel are subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the Contract. The removal and replacement of QC organization personnel will not be cause for claim of additional compensation or extensions of the Contract Completion Date (CCD).

1.4.3 Preliminary Construction Work Authorized Prior to Acceptance

The only construction 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.

1.4.4 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed changes in the QC Plan or changes to the QC organization personnel, a minimum of 10 work days prior to a proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

1.4.5 Special Inspections

Perform all required Special Inspections per Section 01 45 35 SPECIAL INSPECTIONS, the statement of Special Inspections and the Schedule of Special Inspections.

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. The QC Manager must not perform the duties of Project Superintendent, nor the duties of Project Manager, or SSHO. The only duties and responsibilities of the QC Manager are to manage and implement the QC program on this Contract. The QC Manager is required to attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control except for those phases of control designated to be performed by QC Specialists, 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 the QC Specialists, testing laboratory personnel, and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities and must not be the Special Inspector. The QC manager is responsible for notifying the Special Inspector of activities which require their review. The QC manager is responsible for coordinating the Special Inspection activities, see paragraph QUALITY CONTROL MANAGER, in Section 01 45 35 SPECIAL INSPECTIONS.

1.5.1.2 Qualifications

An individual with a minimum of 10 years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must have at least two years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1, and have experience in the areas of hazard identification, safety compliance, and sustainability.

1.5.2 Lead Commissioning Specialist (CxC)

Provide the Lead Commissioning Specialist (CxC) as key person for the commissioning requirements in Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING.

1.5.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager must have completed the course entitled "Construction Quality Management (CQM) for Contractors." If the QC Manager does not have a current certification, they must obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the Contracting Officer for information on the next scheduled class.

1.5.4 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site 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 must be the same as for the QC Manager.

1.5.5 Commissioning Provider (Cx/C)

1.5.5.1 Duties

Provide a Commissioning Authority (Cx/C) as key person for the Cx and documentation thereof. The Cx/C directs and coordinates Cx activities and submits Cx reports directly to the Contracting Officer. The Cx/C coordinates the actions of the QC Specialists, Testing Laboratory personnel, eOMSI Preparer, and other inspection and testing personnel required by this Contract for building Cx. The Cx/C must be a first tier Subcontractor with no affiliation to the Contractor or his/her Subcontractors.

1.5.5.2 Qualifications

The Cx/C must be certified as a commissioning professional by the Association of Energy Engineers (AEE), the Building Commissioning Association (BCA), the National Environmental Balancing Bureau (NEBB), or the University of Wisconsin - Madison (UWM). Cx/C resume is required, providing education, experience and management capabilities on at least two similar size and type contracts. The Cx/C may not have been involved with the project design, construction management, or supervision, and must be with a third-party firm that is not on the design team.

1.5.6 QC Specialists Duties and Qualifications

Provide a separate QC Specialist at the work site for each of the areas of responsibilities, specified in Part 3, Execution, of the technical Sections, who must assist and report to the QC Manager and who must have no duties other than their assigned quality control duties. QC Specialists are required to attend the Coordination and Mutual Understanding Meeting, QC meetings, and be physically present at the construction site to perform the three phases of control and prepare documentation for each definable feature of work in their area of responsibility at the frequency specified below. QC Specialists must not be the special inspector.

Qualification/Experience in Area of Responsibility	Area of Responsibility	Frequency
Roofing Manufacturer's Technical Representative/five years minimum	Installation and testing of roofing systems, Section 07 52 00 MODIFIED BITUMINOUS ROOFING	Full time

Qualification/Experience in Area of Responsibility	Area of Responsibility	Frequency
Mechanical Inspector: International Code Council (ICC) Certified/five years minimum	Installation and testing of HVAC Systems	Minimum three times a week during installation and full time during testing

1.5.7 Special Inspector

The Special Inspector (SI) must be an independent third party hired directly by the Prime Contractor. The SI must not be a company employee of the Contractor or any Sub-Contractor performing the work to be inspected. The qualifications of the SI are defined in Section 01 45 35 SPECIAL INSPECTIONS.

1.5.8 Registered Fire Protection Engineer

The Registered Fire Protection Engineer serves as the subject matter expert within the QC organization on all matters related to fire protection and life safety (FPQC).

1.5.8.1 Qualifications

- a. License/Registration: The FPQC must be a currently registered Professional Engineer (P.E.) licensed by a Licensing Board in the United States, the District of Columbia, Guam, or Puerto Rico, having passed the National Council of Examiners for Engineering and Surveying (NCEES) written examination specifically in the discipline of Fire Protection Engineering.
- b. Experience: The FPQC must have a minimum five (5) years of fire protection engineering experience. Project experience must be relevant and similar in level of complexity to the fire protection work specified under this Contract.
- c. Association: Other than the contractual obligations with the prime Contractor, the FPQC must have no other business relationship (employee, owner, partner, operating officer, distributor, salesman, or technical representative) or family relationship, or financial investment with the prime construction Contractor or subcontractors.
- d. Single Source: The prime construction Contractor must obtain FPQC services from a single engineering firm or company. The firm may identify multiple licensed fire protection engineers from the firm for performance of the duties, but must submit the name and current license for each individual identified; these individuals may not be substituted without prior approval from the Contracting Officer.

1.5.8.2 Roles and Responsibilities During Construction

- a. The FPQC must be a member of the QC Organization and reports to the QC Manager.
- b. The FPQC must review each submittal related to fire and life safety prior to the Contractor forwarding the submittal to the Government. The Government FPE retains the role as the Authority Having Jurisdiction (AHJ). The FPQC is responsible for ensuring submittals

are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not been reviewed first by the FPQC and so marked, in writing, attesting to such review and completeness of the submittal.

- c. The FPQC must provide construction surveillance at the following milestones. This includes providing a written summary of findings, a conclusion on compliance with the Contract Documents, and signature. On-site construction surveillance is required by the FPQC for the following:
- (1) Visually inspect the installation of underground water pipe, thrust blocks, tie-rods, and connection to aboveground piping.
 - (2) Witness the flushing of the underground system prior to connection to the riser.
 - (3) Visually inspect interior and exterior attachments, coatings, and vortex plate prior to filling a fire protection water tank.
 - (4) A visual inspection of the fire alarm system after conduit and wiring have been pulled, but before the installation of devices. The FPQC must inspect all conduit, wiring, conduit fill, wire type, installation heights of back boxes, location of isolator modules, monitor modules, surge arrestors, amplifiers, batteries, and all other aspects of the installation.
 - (5) A visual inspection of the sprinkler system after installation of piping but prior to close-in of the walls and ceilings. The FPQC must inspect pipe hangars, bracing, sprinkler head types, sprinkler head obstructions, damage, painted or covered heads, location of control valves, drains and vents, component mounting heights, and all other aspects of the installation.
 - (6) Building construction features including fire rated walls, partitions, rated doors, coatings, and penetrations.
 - (7) Life Safety features including means of egress, stair enclosures, emergency lighting, and locking arrangements.
 - (8) All rework related to the above inspections, which may be inspected during the Pre-Final.

1.5.8.3 Preliminary Inspections And Final Acceptance Testing

- a. As part of the QC program, the Contractor's QC Manager must arrange for a preliminary on-site walkthrough by the FPQC who must visually inspect the systems installed, as well as witness functional testing. The FPQC must:
- (1) Visually inspect all fire protection systems and all life safety features of the facility within the contract scope of work.
 - (2) Witness functional testing of all fire and life safety systems.
 - (3) Record all deficiencies in writing.
 - (4) Provide the deficiency list to the QC manager for rework.

(5) Confirm satisfactory completion of rework and testing.

(6) Review/confirm all record of completion forms.

- b. The FPQC must witness a successful pretest prior to any Final Acceptance testing.
- c. Upon completion of rework and successful Pre-Final testing, the FPQC must certify in writing the satisfactory installation and operation of all systems in accordance with the Contract Documents, confirming the systems are ready for Final Acceptance testing.
- d. The QC Manager can then forward the FPQC's certification and request a Final Acceptance test to be witnessed by the AHJ.

1.5.8.4 Final Life Safety/Fire Protection Certification

- a. The Contractor's QC Manager must arrange for the final walkthrough and Final Acceptance testing by the Government FPE (AHJ).
- b. The QC Manager must arrange all logistics including the presence of necessary contractors, manufacturer's representatives, and notifications/outages.
- c. The QC Manager must provide two-week's notice on the request for Final Acceptance testing.

1.5.8.5 Documentation

- a. The FPQC must maintain a running list of inspection discrepancies, including confirmation of rework and final resolution of each discrepancy.
- b. The running list must be attached to the FPQC's certification of successful pre-Final Acceptance testing.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Construction Quality Control (QC) Plan

Submit a Construction QC Plan prior to start of construction.

1.6.1.1 Requirements

Provide, for acceptance by the Contracting Officer, a Construction QC Plan, prior to start of construction, that includes a table of contents, with major sections identified, with pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing quality control during the construction of the project:

- a. QC ORGANIZATION: A chart showing the QC organizational structure.
- b. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, for each person in the QC organization. Include the CQM for Contractors course certifications for the QC Manager and Alternate QC Manager as required by the paragraphs entitled CONSTRUCTION QUALITY MANAGEMENT TRAINING and ALTERNATE QC MANAGER DUTIES AND QUALIFICATIONS.

- c. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.
- d. 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. Example: The fire protection engineer who designs the sprinkler system.
- e. 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 implementing and managing the QC program as described in this Contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work which is not in compliance with the Contract. Letters of direction are to be issued by the QC Manager to all other QC Specialists outlining their duties, authorities, and responsibilities. Include copies of the letters in the QC Plan.
- f. 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. Provide the initial submittal of the Submittal Register as specified in Section 01 33 00 SUBMITTAL PROCEDURES.
- g. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs entitled ACCREDITATION REQUIREMENTS, as applicable.
- h. 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. Use Government forms to log and track tests.
- i. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track, and complete rework items. Use Government forms to record and track rework items.
- j. DOCUMENTATION PROCEDURES: Use Government form.
- k. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines and is an item or activity on the construction schedule. Include in the list of DFOWs, but not be limited to, all critical path activities on the Network Analysis Schedule (NAS). Include all activities for which this specification requires QC Specialists or specialty inspection personnel. Provide separate DFOWs in the NAS for each design development stage and submittal package.
- l. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL: Identify procedures used to ensure the three phases of control to manage the quality on this project. For each DFOW, a Preparatory and Initial phase checklist must be filled out during the Preparatory and Initial phase meetings. Conduct the Preparatory and Initial Phases and

meetings with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.

- m. PERSONNEL MATRIX: A personnel matrix showing for each Section of the specification who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.
- n. PROCEDURES FOR COMPLETION INSPECTION: Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.
- o. TRAINING PROCEDURES AND TRAINING LOG: Procedures for coordinating and documenting the training of personnel required by the Contract. Include 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 who attended the training.
- p. ORGANIZATION AND PERSONNEL CERTIFICATIONS LOG: Procedures for coordinating, tracking and documenting all certifications on Subcontractors, testing laboratories, suppliers, personnel, etc. QC Manager must ensure that certifications are current, appropriate for the work being performed, and will not lapse during any period of the Contract that the work is being performed.
- q. DAILY CONTRACTOR QUALITY CONTROL REPORT FORM: Template that includes fields for the following:
 - 1) Date.
 - 2) Sequential report number.
 - 3) Weather and temperature.
 - 4) Number of personnel on site by trade or by Subcontract.
 - 5) Kind and number of major equipment on site.
 - 6) Tests performed and their results, if known.
 - 7) Materials and equipment delivered to the site and their conditions.
 - 8) Names, affiliations, and positions of visitors to the site with brief explanations of the reasons for visits.
 - 9) Brief description of each work activity, noting items that were completed that day.
 - 10) Items of work that need attention at a later date, and why.
 - 11) Any accidents and injuries.
 - 12) Items of concern with respect to maintenance of quality.
 - 13) Accounting update of unit price items specified in Section 00 41 00 BID SCHEDULES utilizing the numbering convention indicated in the Unit Prices Form (e.g., 0001a).
 - 14) Any other items of significance.

1.7 QC PLAN MEETINGS

Prior to submission of the QC Plan, the QC Manager will meet with the Contracting Officer to discuss the QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the list of DFOWs.

1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to Government approval and the

start of construction, the QC Manager must meet with the Contracting Officer to present the QC program required by this Contract. When a new QC Manager is appointed, the coordination and mutual understanding meeting must be repeated. Also, review the Special Inspection requirements outlined in Section 01 45 35 SPECIAL INSPECTIONS. The Contractor's Special Inspections Project Manual will be reviewed to verify that all parties have a clear understanding of the Special Inspections provisions and the individual duties and responsibilities of each party.

1.8.1 Purpose

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, design intent, Cx in accordance with Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING, environmental requirements and procedures, coordination of activities to be performed, Special Inspections, and the coordination of the management, production, and QC personnel. At the meeting, explain in detail how the three phases of control will be implemented for each DFO, as well as how each DFO will be affected by each management plan or requirement as listed below:

- a. Waste Management Plan.
- b. IAQ Management Plan.
- c. Procedures for noise and acoustics management.
- d. Environmental Management Plan.
- e. Environmental regulatory requirements.
- f. Cx Plan requirements in accordance with Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING.
- g. Special Inspections.

1.8.2 Coordination of Activities

Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation. Schedule construction operations with consideration for indoor air quality as specified in the IAQ Management Plan. Coordinate prefunctional tests and startup testing with CxC. Coordinate special inspections.

1.8.3 Attendees

As a minimum, the personnel required to attend include an officer of the firm, the Project Manager, Project Superintendent, QC Manager, Alternate QC Manager, Assistant QC Manager, QC Specialists, Special Inspector, CxC, A/E (DOR), Commissioning Provider (CxC), Environmental Manager, and Subcontractor representatives as approved by the Contracting Officer. Each Subcontractor who will be assigned QC responsibilities must have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, the A/E (DOR), and the Contracting Officer. Provide a copy of the signed minutes to all attendees and must be included in the QC Plan.

1.9 QC MEETINGS

After the start of construction, conduct weekly QC meetings by the QC Manager at the work site with the Project Superintendent, the QC Specialists, the Special Inspector, CxC, and the foremen who are performing the work of the DFOWs. The QC Manager must prepare the minutes of the meeting and provide a copy to the Contracting Officer within two (2) working days after the meeting. The Contracting Officer may attend these meetings. As a minimum, accomplish the following 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 items (RFI, etc.).
- f. Address items that may require revising the QC Plan.
- g. Review Accident Prevention Plan (APP).
- h. Review environmental requirements and procedures.
- i. Review Waste Management Plan.
- j. Review IAQ Management Plan.
- k. Review Environmental Management Plan.
- l. Review the status of training completion.
- m. Review Cx requirements in accordance with Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING.
- n. Review and confirm status of accounting of unit price items specified in Section 00 41 00 BID SCHEDULES.
- o. Review Non-Compliance Notices and any actions required to address non-complaint work/actions.
- p. Review Special Inspections (Section 01 45 35 SPECIAL INSPECTIONS) and any deficiencies identified by the Special Inspectors. Review actions taken or planned actions to correct any deficiencies noted.

1.10 DESIGN REVIEW AND DOCUMENTATION

1.10.1 Basis of Design and Design Intent

Review the basis of design received from the Contracting Officer and the design intent.

1.10.2 Design Review

Review design documents to verify that each commissioned system meets the design intent relative to functionality, energy performance, water

performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. Fully document review in written report.

1.10.3 Contract Document Review

Review the Contract Documents to verify that Cx is adequately specified, and that each commissioned system is likely to meet the design intent relative to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts.

1.11 THREE PHASES OF CONTROL

Adequately cover both on-site and off-site work with the Three Phases of Control and include the following for each DFOV.

1.11.1 Preparatory Phase

The meeting must be conducted by the QC Manager and attended by the QC Specialists, the Project Superintendent, the Project SSHO, the CxC, the Special Inspector, and the foreman responsible for the DFOV or as approved by the Contracting Officer. When the DFOV will be accomplished by a Subcontractor, that Subcontractor's foreman must attend the preparatory phase meeting. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each DFOV (Note: Preparatory Meeting must only be held if the shop drawings or submittals have been approved, hard copies are printed for the meeting, the APP and appropriate AHA related to the DFOV have been submitted, and the appropriate personnel as stated above are present for the meeting):

- 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 and applicable required A/E (DOR) Quality Assurance Inspections.
- e. Review special inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the statement of special inspections, and the schedule of special inspections.
- f. Examine the work area to ensure that the required preliminary work has been completed.
- g. 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.
- h. 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.

- i. Discuss specific controls used and construction methods, construction tolerances, layout/survey controls (horizontal and vertical controls) necessary, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOV.
- j. Discuss the QC documentation required to be collected as part of the work.
- k. Identify any changed conditions or modifications that may impact the execution of the work.
- l. Review the processes/strategies that will be implemented to address any issues if the work does not go as planned or if any unforeseen conditions are encountered or if any changes arise that may impact the successful execution of the work.
- m. Review the listing of Government QA inspections that may be implemented as part of the execution of the work.
- n. Review any Special Inspections (Section 01 45 35 SPECIAL INSPECTIONS) required as part of the execution of the work.
- o. If work includes demolition work, review demolition work plan to ensure compliance with EM 385-1-1 Section 23 Demolition, Renovation and Re-Occupancy.
- p. If work includes excavation, review Utility Locating Requirements. (Note: Special attention is required if Hazardous or Mission Critical Utilities are within the excavation area.) If Hazardous and Mission Critical Utilities (as identified in the Scope of Work and Contract Drawings) are located within the excavation area, the PWD ME Dig Safe Coordinator, PWD ME CM/ET, PWD ME Design Manager (DM), and the assigned PWD ME Project Civil Engineer must be present at the meeting to review requirements to ensure safety and preservation of critical utilities is discussed with adequate focus.
- q. If work includes excavation, review Soil Management Requirements. (Note: Special attention is required if the work is within an IR site or Hazardous Soils are within the excavation area. Include Code 106.3 Representatives at this meeting to discuss Soil Management processes and procedures.)
- r. If the work is subject to any environmental (EV) permitting, Archaeological Monitoring, or SHPO approvals, review the terms and conditions of the applicable permits as well as any supplemental controls/approvals that are required to complete the work. (Note: Include PWD ME EV Representatives at this meeting to review the project specific requirements.)
- s. If work includes the removal and disposal of Hazardous materials, review the appropriate work plans to ensure the work plans have been approved and any comments are understood by the work execution team. (Note: Include Code 106.3 Representatives at this meeting to discuss Hazardous Materials handling and disposal processes and procedures.)

1.11.2 Initial Phase

Notify the Contracting Officer at least two (2) 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 QC Specialists, the Project Superintendent, the Special Inspector, and the foreman responsible for that DFOW. Observe the initial segment of the DFOW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily CQC Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each DFOW:

- a. Establish level of workmanship and verify that it meets the minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- b. Resolve any workmanship issues.
- c. Resolve conflicts.
- d. Ensure that testing is performed by the approved laboratory.
- e. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.
- f. Review project specific work plans (i.e. Cx, HAZMAT Abatement, Stormwater Management) to ensure all preparatory work items have been completed and documented.
- g. Review the Cx Plan and ensure all work items, testing, and documentation has been completed.
- h. Coordinate scheduled work with special inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the statement of special inspections and the schedule of special inspections.

1.11.3 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:

- 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.
- e. Assure manufacturers representatives have performed necessary inspections if required and perform safety inspections.
- f. Assure applicable required A/E (DOR) Quality Assurance Inspections are scheduled.
- g. Review the Cx requirements in accordance with Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING.
- h. Coordinate scheduled work with special inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the statement of special inspections and

the schedule of special inspections.

1.11.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases 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.

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

Notify the Contracting Officer at least two (2) weeks prior to the start of the preparatory and initial phases.

1.12 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review, and approval of submittals are described in Section 01 33 00 SUBMITTAL PROCEDURES.

1.13 TESTING

Except as stated otherwise in the specification Sections, perform sampling and testing required under this Contract. The testing and retesting must be performed at no additional cost to the Government.

1.13.1 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 (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 must meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

1.13.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at <https://www.nist.gov/nvlap>, the American Association of State Highway and Transportation Officials (AASHTO) program at <http://www.aashtoresource.org/aap/overview>, International Accreditation Services, Inc. (IAS) at <http://www.iasonline.org>, U. S. Army Corps of Engineers Materials Testing Center (MTC) at <http://www.erdc.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/9254/Article/476661/materials-testing-center.aspx>, and the American Association for Laboratory Accreditation (A2LA) program at <http://www.a2la.org/>.

1.13.3 Capability Check

The Contracting Officer 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.

1.13.4 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 Contracting Officer 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 must be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month, per the paragraph entitled INFORMATION FOR THE CONTRACTING OFFICER.

1.13.5 Test Reports and Monthly Summary Report of Tests

Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month. Provide a copy of the signed test reports and certifications to the eOMSI preparer for inclusion into the eOMSI documentation, in accordance with Sections 01 78 23 OPERATION AND MAINTENANCE DATA and 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI).

1.14 QC CERTIFICATIONS

1.14.1 CQC Report Certification

Contain the following statement within the CQC Report: "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."

1.14.2 Invoice Certification

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

1.14.3 Completion Certification

Upon completion of work under this Contract, the QC Manager must furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract." Provide a copy of this final QC Certification for completion to the eOMSI preparer for inclusion into the eOMSI documentation.

1.15 COMPLETION INSPECTIONS

1.15.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement,

Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager and the CxC (if applicable) must conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications, and Contract. Include in the punch list any remaining items on the "Rework Items List", which were not corrected prior to the Punch-Out Inspection. Include within the punch list the estimated date by which the deficiencies will be corrected. Provide a copy of the punch list to the Contracting Officer. The QC Manager, or staff, must make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished, notify the Government that the facility is ready for the Government "Pre-Final Inspection".

1.15.2 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" will be documented by the QC Manager as a result of this inspection. The QC Manager must ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the Client can be scheduled. Any items noted on the "Pre-Final" inspection must be corrected in a timely manner and be accomplished before the Contract Completion Date (CCD) for the work, or any particular increment thereof, if the project is divided into increments by separate completion dates.

1.15.3 Final Acceptance Inspection

Notify the Contracting Officer at least 14 calendar days prior to the date a final acceptance inspection can be held. State within the notice that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The QC Manager, the Project Superintendent, the CxC, and others deemed necessary must be present. Attendees for the Government will include the Contracting Officer, other FEAD personnel, and personnel representing the Client. Failure of the Contractor to have all Contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction."

1.16 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.16.1 Construction Documentation

Reports are required for each day that work is performed and must be attached to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph entitled INFORMATION FOR THE CONTRACTING OFFICER herein must 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 Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work must be identified by terminology consistent with the

construction schedule. In the "remarks" sections of the reports, enter 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, a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, and meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

1.16.2 Quality Control Validation

Establish and maintain the following in an electronic folder. Divide folder into a series of tabbed sections as shown below. Ensure folder is updated at each required progress meeting. This information must be readily available to the Contracting Officer during all business hours.

- a. All completed Preparatory and Initial Phase Checklists, arranged by specification Section.
- b. All milestone inspections, arranged by Activity Number.
- c. An up-to-date copy of the Testing Plan and 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. An up-to-date copy of the Rework Items List.
- f. Maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and Sub-Contractors and all punch lists issued by the Government.
- g. Cx documentation in accordance with Section 01 91 00.15 20 TOTAL BUILDING COMMISSIONING.
- h. Special inspection reports.

1.16.3 Reports from the QC Specialist(s)

Reports are required for each day that work is performed in their area of responsibility. QC Specialist reports must include the same documentation requirements as the CQC Report for their area of responsibility. QC Specialist reports are to be prepared, signed and dated by the QC Specialists and must be attached to the CQC Report prepared for the same day.

1.16.4 Testing Plan and Log

As tests are performed, the CxC and the QC Manager must record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the Contracting Officer. Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month, per the paragraph entitled INFORMATION FOR THE CONTRACTING OFFICER. Provide a copy of the final "Testing Plan and Log" to the eOMSI preparer for inclusion into the eOMSI documentation.

1.16.5 Rework Items List

The QC Manager must maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily CQC Report of each month. The Contractor is responsible for including those items identified by the Contracting Officer.

1.16.6 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by Section 01 78 00.00 22 CLOSEOUT SUBMITTALS (PWD ME) 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 No., Modification No., Request for Information No., etc.). The QC Manager or QC Specialist assigned to an area of responsibility must initial each revision. Upon completion of work, the QC Manager must furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.17 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, must be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, 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 will be made the subject of claim for extension of time for excess costs or damages.

1.18 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

Submit an IAQ Management Plan within 15 calendar days after Contract Award and not less than 10 calendar days before the preconstruction meeting. Revise and resubmit the Plan as required by the Contracting Officer. Make copies of the final plan available to all workers on site. Include provisions in the Plan to meet the requirements specified below and to ensure safe, healthy air for construction workers and building occupants.

1.18.1 Requirements During Construction

Provide for evaluation of indoor Carbon Dioxide concentrations in accordance with ASTM D6245. Provide for evaluation of volatile organic compounds (VOCs) in indoor air in accordance with ASTM D6345. Use filters with a Minimum Efficiency Reporting Value (MERV) of 8 in permanently installed air handlers during construction.

1.18.1.1 Control Measures

Meet or exceed the requirements of ANSI/SMACNA 008, Chapter 3, to help minimize contamination of the building from construction activities. The five requirements of this manual which must be adhered to are described below:

- a. HVAC protection: Isolate return side of HVAC system from surrounding environment to prevent construction dust and debris from entering the duct work and spaces.
- b. Source control: Use low emitting paints and other finishes, sealants, adhesives, and other materials as specified. When available, cleaning products must have a low VOC content and be non-toxic to minimize building contamination. Utilize cleaning techniques that minimize dust generation. Cycle equipment off when not needed. Prohibit idling motor vehicles where emissions could be drawn into building. Designate receiving/storage areas for incoming material that minimize IAQ impacts.
- c. Pathway interruption: When pollutants are generated use strategies such as 100 percent outside air ventilation or erection of physical barriers between work and non-work areas to prevent contamination.
- d. Housekeeping: Clean frequently to remove construction dust and debris. Promptly clean up spills. Remove accumulated water and keep work areas dry to discourage the growth of mold and bacteria. Take extra measures when hazardous materials are involved.
- e. Scheduling: Control the sequence of construction to minimize the absorption of VOCs by other building materials.

1.18.1.2 Moisture Contamination

- a. Remove accumulated water and keep work dry.
- b. Use dehumidification to remove moist, humid air from a work area.
- c. Do not use combustion heaters or generators inside the building.
- d. Protect porous materials from exposure to moisture.
- e. Remove and replace items which remain damp for more than a few hours.

1.18.2 Requirements after Construction

After construction ends and prior to occupancy, conduct a building flush-out or test the indoor air contaminant levels. Flush-out must be a minimum of two (2) weeks with MERV-13 filtration media as determined by ASHRAE 52.2 at 100 percent outside air, or in accordance with LEED GBDC. Air contamination testing must be consistent with EPA's current Compendium of Methods for the Determination of Air Pollutants in Indoor Air, and with the LEED GBDC. After building flush-out or testing and prior to occupancy, replace filtration media. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2.

1.18.3 Contractor QC Self-Evaluation Checklist

Contracting Officer will provide a "Contractor QC Self-Evaluation Checklist" to the Contractor at the pre-construction meeting. Complete the checklist monthly and submit with each request for payment voucher. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90 may result in retention of up to 10 percent of the voucher. The Government will randomly perform QC inspections following the provided

checklist. If the Government inspection score is less than 90 the Government will withhold 10 percent from the next invoice.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PREPARATION

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

-- End of Section --

SECTION 01 45 35

SPECIAL INSPECTIONS

02/20

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 CIVIL ENGINEERS (ASCE)

ASCE 7-16 (2017; Errata 2018; Supp 1 2018) Minimum
Design Loads and Associated Criteria for
Buildings and Other Structures

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC (2018) International Building Code

1.2 GENERAL REQUIREMENTS

Perform Special Inspections in accordance with the Statement of Special Inspections, Schedule of Special Inspections and Chapter 17 of ICC IBC. The Statement of Special Inspections and Schedule of Special Inspections are included as an attachment located at the end of this Section. Special Inspections are to be performed by an independent third party and are intended to ensure that the work of the Prime Contractor is in accordance with the Contract Documents and applicable building codes. Special inspections do not take the place of the three phases of control inspections performed by the Contractor's QC Manager or any testing and inspections required by other Sections of the specifications.

Structural observations will be performed separately by the Government and/or the Structural Engineer of Record (SER). The Contractor must provide notification to the Contracting Officer and the SER 14 calendar days prior to completing any construction elements requiring Special Inspections.

For required Post Installation Sanitary System Survey refer to Section 22 00 00 PLUMBING, GENERAL PURPOSE.

1.3 DEFINITIONS

1.3.1 Continuous Special Inspections

Continuous Special Inspections is the constant monitoring of specific tasks by a special inspector when active construction is on going. These inspections must be carried out continuously over the duration of the particular tasks.

1.3.2 Perform

Perform these Special Inspections tasks for each welded joint or member.

1.3.3 Observe

Observe these Special Inspections items on a periodic daily basis. Operations need not be delayed pending these inspections.

1.3.4 Special Inspector (SI)

A qualified person retained by the Contractor and approved by the Contracting Officer as having the competence necessary to inspect a particular type of construction requiring Special Inspections. The SI must be an independent third party hired directly by the Prime Contractor.

1.3.5 Associate Special Inspector (ASI)

A qualified person who assists the SI in performing Special Inspections but must perform inspection under the direct supervision of the SI and cannot perform inspections without the SI on site.

1.3.6 Third Party

A Special inspector must not be an employee of the Contractor or of any Sub-Contractor performing the work to be inspected.

1.3.7 Contracting Officer

The Government official having overall authority for administrative contracting actions. Certain contracting actions may be delegated to the Contracting Officer's Representative (COR).

1.3.8 Contractor's Quality Control (QC) Manager

An individual retained by the Prime Contractor and qualified in accordance with the Section 01 45 00.00 22 QUALITY CONTROL (PWD ME) having the overall responsibility for the Contractor's QC organization.

1.3.9 Structural Engineer of Record (SER)

A registered design professional contracted by the Government as an A/E responsible for the overall design and review of submittal documents prepared by others. The SER is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in state in which the design professional works. The SER is also referred to as the Engineer of Record (EOR) in design code documents.

1.3.10 Statement of Special Inspections (SSI)

A document developed by the SER identifying the material, systems, components and work required to have Special Inspections. This statement should be at the end of this specification.

1.3.11 Schedule of Special Inspections (SSI)

A schedule which lists each of the required Special Inspections, the extent to which each Special Inspection is to be performed, and the required frequency for each in accordance with ICC IBC Chapter 17. This schedule is located at the end of this Section.

1.3.12 Designated Seismic Systems (DSS)

Those nonstructural components that require design in accordance with ASCE 7-16 Chapter 13 and for which the component importance factor, I_p , is greater than 1.0. This designation applies to systems that are required to be operational following the Design Earthquake for RC I - IV structures and following the MCER for RC V structures. All systems in RC V facilities designated as MC-1 in accordance with UFC 3-301-02 are considered part of the Designated Seismic Systems. Designated Seismic Systems will have an Importance Factor $I_p = 1.5$.

1.3.13 Definable Feature of Work (DFOW)

An inspection group that is separate and distinct from other inspection groups, having inspection requirements or inspectors that are unique.

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

Special Inspections Agency's Written NDT Practices; G with method and evidence of regular equipment calibration where applicable

SD-06 Test Reports

Special Inspections Daily Reports; G

Special Inspections Biweekly Reports; G

SD-07 Certificates

AC472 Accreditation; G

Certificate of Compliance; G

Special Inspector Qualifications; G

Qualification Records for NDT technicians; G

SD-11 Closeout Submittals

Interim Report of Special Inspections for Each DFOW; G

Comprehensive Final Report of Special Inspections; G

1.5 SPECIAL INSPECTOR QUALIFICATIONS

Submit qualifications for each special inspector.

1.5.1 Steel Construction and High Strength Bolting

1.5.1.1 Special Inspector

- a. ICC Structural Steel and Bolting Special Inspector certificate with

one year of related experience, or

- b. Licensed Professional Engineer with three years of related experience

1.5.1.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.2 Welding Structural Steel

1.5.2.1 Special Inspector

- a. ICC Structural Welding Special Inspector certificate with one year of related experience, or

- b. AWS Certified Welding Inspector

1.5.2.2 Associate Special Inspector

AWS Certified Associate Welding Inspector

1.5.3 Nondestructive Testing of Welds

1.5.3.1 Special Inspector

NDT Level III Certificate

1.5.3.2 Associate Special Inspector

NDT Level II Certificate plus one year of related experience

1.5.4 Cold Formed Steel Framing

1.5.4.1 Special Inspector

- a. ICC Structural Steel and Bolting Special Inspector Certificate with one year of related experience, or

- b. ICC Commercial Building Inspector with one year of experience, or

- c. Licensed Professional Engineer with three years of related experience

1.5.4.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

PART 2 PRODUCTS

2.1 FABRICATOR SPECIAL INSPECTIONS

Special Inspections of fabricator's work performed in the fabricator's shop is required to be inspected in accordance with the Statement of Special Inspections and the Schedule of Special Inspections unless the fabricator is certified by the approved agency to perform such work without Special Inspections. Submit the following certification to the Contracting Officer for information to allow work performed in the fabricator's shop to not be subjected to Special Inspections.

International Accreditation Service, AC472 Accreditation

At the completion of fabrication, submit a certificate of compliance, to be included with the comprehensive final report of Special Inspections, stating that the materials supplied and work performed by the fabricator are in accordance the construction documents.

PART 3 EXECUTION

3.1 RESPONSIBILITIES

3.1.1 Quality Control Manager

- a. Supervise all Special Inspectors required by the Contract Documents and the IBC.
- b. Verify the qualifications of all of the Special Inspectors.
- c. Verify the qualifications of fabricators.
- d. Maintain a 3- ring binder for the Special Inspector's daily and biweekly reports. This file must be located in a conspicuous place in the project trailer/office to allow review by the Contracting Officer and the SER.
- e. Maintain a rework items list that includes discrepancies noted on the Special Inspectors daily report.

3.1.2 Special Inspectors

- a. Inspect all elements of the project for which the special inspector is qualified to inspect and are identified in the Schedule of Special Inspections.
- b. Attend preparatory phase meetings related to the Definable Feature of Work (DFOW) for which the special inspector is qualified to inspect.
- c. Submit Special Inspections agency's written NDT practices for the monitoring and control of the agency's operations to include the following:
 - (1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualifications and certification of inspection personnel.
 - (2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection.
- d. Submit qualification records for nondestructive testing (NDT) technicians designated for the project.
- e. Submit NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project.
- f. Submit a copy of the daily reports to the QC Manager.
- g. Report discrepancies that are observed during Special Inspections to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed

discrepancies must be documented in the daily report.

- h. Submit a weekly Special Inspection Report until all inspections are complete. A report is required for each weekly period in which Special Inspections activity occurs, and must include the following:
 - (1) A summary of the work performed during the reporting time frame. The reports must cover the inspection requirements specified on the attached list of Special Inspections included at the end of this Section. Copies of the daily reports must be included.
 - (2) Changes and/or discrepancies with the drawings, specifications, and mechanical and electrical component certification that were observed during the reporting period.
 - (3) Discrepancies which were resolved or corrected.
 - (4) A list of nonconforming items requiring resolution.
 - (5) All applicable test result including nondestructive testing reports.
- i. At the completion of each DFOV requiring Special Inspections, submit an interim report of Special Inspections that documents the Special Inspections completed for that DFOV. Identify the inspector responsible for each item inspected and corrections of all discrepancies noted in the daily reports. The interim report of Special Inspections must be signed, dated and indicate the certification of the special inspector qualifying them to conduct the inspection.
- j. At the completion of the project submit a comprehensive final report of Special Inspections that documents the Special Inspections completed for the project and corrections of all discrepancies noted in the daily reports. The comprehensive final report of Special Inspections must be signed, dated and indicate the certification of the special inspector qualifying them to conduct the inspection.

3.2 DEFECTIVE WORK

Check work as it progresses, but failure to detect any defective work or materials must in no way prevent later rejection if defective work or materials are discovered, nor obligate the Contracting Officer to accept such work. The Contractor's failure to comply with the Special Inspections specified herein will be grounds for the Contracting Officer taking any or all of the following actions including issuing a Stop Work Order, the removal of the QC Manager, and a Marginal or Unsatisfactory CPARS rating.

-- End of Section --

Project: B79 - 2nd & 3rd Floor Renovations
 Location: Portsmouth Naval Shipyard, Kittery, ME
 Project #: 1591147
 Date: 6/12/2020



STATEMENT OF SPECIAL INSPECTIONS

Project Seismic Design Category: D
 Project Risk Category: II
 Project Design Wind Speed (mph): 115
 Number of Stories: 3
 Structure Height Above Grade (ft): 65
 Hazardous Occupancy or attached to such? No Group H Occupancies (2015 IBC, Section 415)

Special Inspector of Record (SIOR)

A Special Inspector of Record (SIOR) IS NOT required (per UFGS 01 45 35, Section 1.3.8)

Lateral Force Resisting System (LFRS)

2015 IBC 1704.3.2 and 1704.3.3

Following is a listing of critical main wind/seismic force resisting systems for this structure. Carefully inspect these elements as part of the roles and responsibilities of the Special Inspector (reference the Schedule of Special Inspections for inspection checklists).

Vertical LFRS Elements	Notes
OSB Sheathed Shear Walls (nailing, sill bolting, Etc)	See schedule on plan
Shear Wall Hold Downs	Identified on Plan & in Detail Sheet X.XX
Horizontal LFRS Elements	Notes
Metal Roof Deck & Related Fastening System	See Roof Plan

Project: B79 - 2nd & 3rd Floor Renovations
Location: Portsmouth Naval Shipyard, Kitter
Project #: 1591147
Date: 6/12/2020

Designated Seismic Systems (DSS)

(2015 IBC 1705.13.3.4) (ASCE 7-10, 13.2.2, C13.2.2) (UFC 3-310-04, 2-11.2 & 2-13.2.2)

Non-structural 'Designated Seismic Systems' (DSS) must remain operable and contain hazardous substances following a design earthquake. Accordingly, all Designated Seismic Systems must be listed below and must be certified by the manufacturer to remain both operable and/or to contain hazardous substances after a design earthquake per UFC 3-301-01, Section 2-13.2.2. Submit said Certificates of Compliance to the Contracting Officer for each DSS after they have been reviewed and accepted by the EOR/DOR.

Additionally, the below listed Designated Seismic Systems must be carefully inspected by the Special Inspector according to the requirements noted in the Schedule of Special Inspections, Section AA.

ELECTRICAL Designated Seismic Systems (DSS) Requiring a Certificate of Compliance

1.	DSS Emergency or Standby Power System
2.	
3.	
4.	
5.	

If additional space is required, append an additional sheet listing the remaining DSS

MECHANICAL/PLUMBING Designated Seismic Systems (DSS) Requiring a Certificate of Compliance

1.	N/A
2.	
3.	
4.	
5.	
6.	

If additional space is required, append an additional sheet listing the remaining DSS

OTHER Designated Seismic Systems (DSS) Requiring a Certificate of Compliance

1.	DSS Building egress stair systems
2.	DSS Building fire sprinkler systems
3.	
4.	
5.	
6.	

Final Walk Down Inspection and Report

(UFC 3 301 01 SECTION 2-2.4.3)

Designated Seismic Systems shall receive a final walk-down inspection by the Registered Design Professional in Responsible Charge

Final Walk Down Report, Prepared by the Registered Design Professional in Responsible Charge, Must Include:

1. Record observations of Final Walk Down Inspection
2. Document that Inspections were performed in accordance with the Schedule of Special Inspections
3. Document that all Designated Seismic Systems are installed according to construction/manufacture document requirements, and that Compliance Certificates have been collected (UFC 03 301 01, 2-13.2.2.1).

SCHEDULE OF SPECIAL INSPECTIONS

Reference UFGS 01 45 35 for all requirements not noted as part of this schedule.

INSPECTION DEFINITIONS:

- PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and noted verification.
- OBSERVE:** Observe these items randomly during the course of each work day to insure that applicable requirements are being met. Operations need not be delayed pending these inspections at contractor's risk.
- DOCUMENT:** Document, with a report, that the work has been performed in accordance with the contract documents. This is in addition to any other reports required in the Special Inspections guide specification.
- CONTINUOUS:** Constant monitoring of identified tasks by a special inspector over the duration of performance of said tasks.

A. STRUCTURAL - STEEL – WELDING SECTION**THIS SECTION APPLICABLE IF BOX IS CHECKED: ☒**

STEEL INSPECTION PRIOR TO WELDING – VERIFY THE FOLLOWING ARE IN COMPLIANCE IBC 1705.2.1, AISC 360-10: Table C-N5.4-1		
TASK	INSPECTION TYPE ¹	DESCRIPTION
1. Verify that the welding procedures specification (WPS) is available	PERFORM	
2. Verify manufacturer certifications for welding consumables are available	PERFORM	
3. Verify material identification	PERFORM	Type and grade.
4. Welder Identification System	PERFORM	The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.
5. Fit-up of groove welds (including joint geometry)	OBSERVE	<ul style="list-style-type: none"> ✓ Joint preparation ✓ Dimensions (alignment, root opening, root face, bevel) ✓ Cleanliness (condition of steel surfaces) ✓ Tacking (tack weld quality and location) ✓ Backing type and fit (if applicable)
6. Configuration and finish of access holes	OBSERVE	
7. Fit-up of fillet welds	OBSERVE	<ul style="list-style-type: none"> ✓ Dimensions (alignment, gaps at root) ✓ Cleanliness (condition of steel surfaces) ✓ Tacking (tack weld quality and location)
STEEL INSPECTION DURING WELDING – VERIFY THE FOLLOWING ARE IN COMPLIANCE IBC 1705.2.1, AISC 360-10: Table C-N5.4-2		
TASK	INSPECTION TYPE	DESCRIPTION
8. Use of qualified welders	PERFORM	Welding by welders, welding operators, and tack welders who are qualified in conformance with requirements.
9. Control and handling of welding consumables	OBSERVE	<ul style="list-style-type: none"> ✓ Packaging ✓ Electrode atmospheric exposure control
10. No welding over cracked tack welds	OBSERVE	
11. Environmental conditions	OBSERVE	<ul style="list-style-type: none"> ✓ Wind speed within limits ✓ Precipitation and temperature
12. Welding Procedures Specification followed	OBSERVE	<ul style="list-style-type: none"> ✓ Settings on welding equipment ✓ Travel speed ✓ Selected welding materials ✓ Shielding gas type/flow rate ✓ Preheat applied ✓ Interpass temperature maintained (min./max.) ✓ Proper position (F, V, H, OH) ✓ Intermix of filler metals avoided
13. Welding techniques	OBSERVE	<ul style="list-style-type: none"> ✓ Interpass and final cleaning ✓ Each pass within profile limitations ✓ Each pass meets quality requirements

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.

OBSERVE: Observe these items on a random sampling basis daily to insure that applicable requirements are met. Operations need not be delayed pending these inspections at contractor's risk.

A. STRUCTURAL - STEEL – WELDING SECTION (CONTINUED)

STEEL INSPECTION AFTER WELDING – VERIFY THE FOLLOWING ARE IN COMPLIANCE
IBC 2015 1705.2.1, AISC 360-10: Table C-N5.4-3

TASK	INSPECTION TYPE ¹	DESCRIPTION
14. Welds cleaned	OBSERVE	
15. Size, length, and location of all welds	PERFORM	Size, length, and location of all welds conform to the requirements of the detail drawings.
16. Welds meet visual acceptance criteria	PERFORM AND DOCUMENT	<ul style="list-style-type: none"> ✓ Crack prohibition ✓ Weld/base-metal fusion ✓ Crater cross section ✓ Weld profiles ✓ Weld size ✓ Undercut ✓ Porosity
17. Arc strikes	PERFORM	
18. k-area	PERFORM	When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks.
19. Backing removed, weld tabs removed and finished, and fillet welds added where required	PERFORM	
20. Repair activities	PERFORM AND DOCUMENT	
21. Document acceptance or rejection of welded joint or member	PERFORM	

END SECTION

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.
DOCUMENT: Document in a report that the work has been performed as required. This is in addition to all other required reports.

B. STRUCTURAL - STEEL – BOLTING SECTION**THIS SECTION APPLICABLE IF BOX IS CHECKED: ☒**

STEEL INSPECTION TASKS <u>PRIOR</u> TO BOLTING – VERIFY THE FOLLOWING ARE IN COMPLIANCE IBC 1705.2.1, AISC 360-10: Table C-N5.6-1		
TASK	INSPECTION TYPE ¹	DESCRIPTION
1. Manufacture's certifications available for fastener materials	PERFORM	
2. Fasteners marked in accordance with ASTM requirements	OBSERVE	
3. Proper fasteners selected for joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	OBSERVE	
4. Proper bolting procedure selected for joint detail	OBSERVE	
5. Connecting elements, including appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	OBSERVE	
6. Proper storage provided for bolts, nuts, washers, and other fastener components	OBSERVE	
STEEL INSPECTION TASKS <u>DURING</u> BOLTING – VERIFY THE FOLLOWING ARE IN COMPLIANCE IBC 1705.2.1, AISC 360-10: Table C-N5.6-2		
TASK	INSPECTION TYPE ¹	DESCRIPTION
7. Fastener assemblies of suitable condition, placed in all holes and washers (if required) are positioned as required	OBSERVE	
8. Joint brought to the snug-tight condition prior to pretensioning operation	OBSERVE	
9. Fastener component not turned by the wrench prevented from rotating	OBSERVE	
10. Bolts are pretensioned in accordance with RCSC Specification, progressing systematically from the most rigid point toward the free edges	OBSERVE	
STEEL INSPECTION TASKS <u>AFTER</u> BOLTING – VERIFY THE FOLLOWING ARE IN COMPLIANCE IBC 1705.2.1, AISC 360-10: Table C-N5.6-3		
TASK	INSPECTION TYPE ¹	DESCRIPTION
11. Document acceptance or rejection of all bolted connections	DOCUMENT	

END SECTION

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.
OBSERVE: Observe these items on a random sampling basis daily to insure that applicable requirements are met. Operations need not be delayed pending these inspections at contractor's risk.
DOCUMENT: Document in a report that the work has been performed as required. This is in addition to all other required reports.

C. STRUCTURAL - STEEL - NON DESTRUCTIVE TESTING SECTION**THIS SECTION APPLICABLE IF BOX IS CHECKED: ☒**

NONDESTRUCTIVE TESTING OF WELDED JOINTS – VERIFY THE FOLLOWING ARE IN COMPLIANCE
 IBC 1705.2.1, AISC 360-10: Section N5.5

TASK	INSPECTION TYPE ¹	DESCRIPTION
1. Use of qualified nondestructive testing personnel	PERFORM	Visual weld inspection and nondestructive testing (NDT) shall be conducted by personnel qualified in accordance with AWS D1.8 clause 7.2
2. Weld tab removal sites	OBSERVE	At the end of welds where weld tabs have been removed, magnetic particle testing shall be performed on the same beam-to-column joints receiving UT

END SECTION

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.
OBSERVE: Observe these items on a random sampling basis daily to insure that applicable requirements are met. Operations need not be delayed pending these inspections at contractor's risk.

D. STRUCTURAL - COLD-FORMED METAL DECK - PLACEMENT SECTION**THIS SECTION APPLICABLE IF BOX IS CHECKED: ☒**

METAL DECK INSPECTION PRIOR TO DECK PLACEMENT – VERIFY THE FOLLOWING ARE IN COMPLIANCE SDI QA/QC-2011, Appendix 1, Table 1.1		
TASK	INSPECTION TYPE ¹	DESCRIPTION
1. Verify compliance of materials (deck and all deck accessories) with construction documents, including profiles, material properties, and base metal thickness	PERFORM	
2. Document acceptance or rejection of deck and deck accessories	DOCUMENT	
METAL DECK INSPECTION DURING DECK PLACEMENT – VERIFY THE FOLLOWING ARE IN COMPLIANCE SDI QA/QC-2011, Appendix 1, Table 1.2		
TASK	INSPECTION TYPE ¹	DESCRIPTION
3. Verify compliance of deck and all deck accessories installation with construction documents	PERFORM	
4. Verify deck materials are represented by the mill certifications that comply with the construction documents	PERFORM	
5. Document acceptance or rejection of installation of deck and deck accessories	DOCUMENT	
METAL DECK INSPECTION AFTER DECK PLACEMENT – VERIFY THE FOLLOWING ARE IN COMPLIANCE SDI QA/QC-2011, Appendix 1, Table 1.3		
TASK	INSPECTION TYPE ¹	DESCRIPTION
6. Welding procedure specification (WPS) available	PERFORM	
7. Manufactures certifications for welding consumables available	OBSERVE	
8. Material identification (type/grade)	OBSERVE	
9. Check welding equipment	OBSERVE	

END SECTION

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.
OBSERVE: Observe these items on a random sampling basis daily to insure that applicable requirements are met. Operations need not be delayed pending these inspections at contractor's risk.
DOCUMENT: Document in a report that the work has been performed as required. This is in addition to all other required reports.

E. STRUCTURAL - COLD-FORMED METAL DECK – WELDING SECTION**THIS SECTION APPLICABLE IF BOX IS CHECKED: ☒**

METAL DECK INSPECTION <u>DURING</u> WELDING – VERIFY THE FOLLOWING ARE IN COMPLIANCE SDI QA/QC-2011, Appendix 1, Table 1.4		
TASK	INSPECTION TYPE ¹	DESCRIPTION
1. Use of qualified welders	OBSERVE	
2. Control and handling of welding consumables	OBSERVE	
3. Environmental conditions (wind speed, moisture, temperature)	OBSERVE	
4. WPS followed	OBSERVE	
METAL DECK INSPECTION <u>AFTER</u> WELDING – VERIFY THE FOLLOWING ARE IN COMPLIANCE SDI QA/QC-2011, Appendix 1, Table 1.5		
TASK	INSPECTION TYPE ¹	DESCRIPTION
5. Verify size and location of welds, including support, sidelap, and perimeter welds.	PERFORM	
6. Welds meet visual acceptance criteria	PERFORM	
7. Verify repair activities	PERFORM	
8. Document acceptance or rejection of welds	DOCUMENT	

END SECTION

¹ **PERFORM:** Perform these tasks for each weld, fastener or bolted connection, and required verification.
OBSERVE: Observe these items on a random sampling basis daily to insure that applicable requirements are met. Operations need not be delayed pending these inspections at contractor's risk.
DOCUMENT: Document in a report that the work has been performed as required. This is in addition to all other required reports.

SECTION 01 50 00.00 22

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS (PWD ME)
03/22

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.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511 (2007) Reduced-Pressure Principle Backflow
Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH
(FCCCHR)

FCCCHR List (continuously updated) List of Approved
Backflow Prevention Assemblies

FCCCHR Manual (10th Edition) Manual of Cross-Connection
Control

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2022) Standard for Safeguarding
Construction, Alteration, and Demolition
Operations

NFPA 70 (2020; TIA 22-1; ERTA 1 2022) National
Electrical Code

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements
Manual

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1 (2016; Rev L; Change 2) Obstruction
Marking and Lighting

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD (2009; Rev 2012) Manual of Uniform Traffic
Control Devices

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

Construction site plan; G

Temporary cooling plan; G

Traffic control plan; G

Contractor Computer Cybersecurity Compliance Statements; G

Contractor Temporary Network Cybersecurity Compliance Statements; G

SD-03 Product Data

Backflow Preventers; G

SD-06 Test Reports

Backflow Preventer Tests; G

SD-07 Certificates

Backflow Tester Certification; G

Backflow Preventers Certificate of Full Approval; G

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit for Government approval a site construction plan showing the locations and dimensions of temporary facilities (including layouts and details and equipment and material onsite and offsite storage areas), access and haul routes, avenues of ingress/egress to the fenced area and details of the temporary construction safety fencing/barriers systems that complies with EM 385-1-1 Sections 4 and 8.

Identify any areas where vehicle track pads will be installed to prevent the tracking of mud onto the pavement outside the project site limits. 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 dewatering system storage tanks and infiltration pits.

Prior to the start of Construction, furnish and erect temporary project safety fencing at the work site in accordance with the plans and the following requirements:

- a. Temporary project fencing (or a substitute acceptable to the Contracting Officer (GDA) and delineated in the APP) must be provided on all projects. See also EM 385-1-1 Sections 4 and 8.
- b. Fencing must extend from grade to a minimum of 4 feet above grade and must have a maximum mesh size of 2 inches. Fencing must remain rigid/taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.
- c. Signs warning of the presence of construction hazards and requiring unauthorized persons to keep out of the construction area must be

posted on the fencing. At a minimum, signs must be posted every 150 feet. Fenced sides of projects that are less than 150 feet must, at minimum, have at least one warning sign.

- d. Depending upon the nature and location of the project site, the Contractor may request not to install temporary fencing in some sections of the project site. The SSHO must submit a risk analysis (AHA) to the Contracting Officer for review. This must be based on a risk analysis of public exposure and other project specific considerations, and must be included in the applicable AHA.

If the Contracting Officer approves the request and has determined fencing is not required, install signs and other acceptable barrier systems, warning of construction hazards, and must be conspicuously posted.

If at any time it is determined the risk to the public changes based on the work, take immediate action to address any risk to the public.

1.4 BACKFLOW PREVENTERS CERTIFICATE

1.4.1 Backflow Tester Certificate

Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with any company participating in any other phase of this Contract.

1.4.2 Backflow Prevention Training Certificate

Submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.5 DOD CONDITION OF READINESS (COR)

DOD 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 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 Portsmouth Naval Shipyard 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.

1.6 CYBERSECURITY DURING CONSTRUCTION

The Contractor must meet the following requirements throughout the construction process.

1.6.1 Contractor Computer Equipment

Contractor owned computers may be used for construction. When used, Contractor computers must meet the following requirements along with the requirements of paragraph SECURITY RESPONSIBILITIES (PNSY) of Section 01 14 00.00 22 WORK RESTRICTIONS (PWD ME):

Note: Any Computers (including tablet, laptop, or other computers) must not be introduced into nor removed from the Portsmouth Naval Shipyard. Obtain approvals from the PNSY Security Officer via the Contracting Officer. Cameras, video equipment, or similar photographic equipment installed in computers must be disabled. Proof of computer Portsmouth Naval Shipyard Security Officer approval must be with the tablet, laptop, or other computers at all times.

1.6.1.1 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.

1.6.1.2 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.

1.6.1.3 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.

1.6.1.4 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.

1.6.2 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:

1.6.2.1 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.

1.6.3 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.

1.6.4 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.

1.6.5 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 of 8 characters with a minimum of one uppercase letter, one lowercase letter, one number, and one special character.

1.6.6 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.

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 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME). 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 Project Identification Signs

The requirements for the signs, their content, and location are as indicated and as specified in Section 01 58 00 PROJECT IDENTIFICATION. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

2.1.3 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 a maximum of 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 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 people. 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. Fencing must be installed to be able to restrain a force of at least 250 pounds against it.

2.3.1 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. Completely remove fencing and posts at the completion of construction and restore surfaces disturbed or damaged to its original condition. Equip fence with a lockable gate. Gate must remain locked when construction personnel are not present.

2.3.2 Post-Driven Chain Link Fencing

Temporary post-driven fencing must be galvanized chain link fencing 6 feet high supported by and tightly secured to galvanized steel posts driven below grade. Fence posts must be located on minimum 10 foot centers. Posts may be set in various surfaces such as sand, soil, asphalt, or concrete as necessary. Chain link 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. Completely remove fencing and posts at the completion of construction and restore surfaces disturbed or damaged to its original condition. Locate and identify underground utilities prior to setting fence posts. Equip fence with a lockable gate. Gate must remain locked when construction personnel are not present.

2.4 TEMPORARY SECURITY LIGHTING

Provide temporary security lighting if any existing permanent security lighting is disturbed during the execution of the work. Any CIA lighting outages must be approved through Code 1122 and temporary lighting must be provided that is equal to or greater than the current foot-candle rating of the area. Allow 5 working days for review.

2.5 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.

2.6 TEMPORARY COOLING

Existing third-floor server room must remain operational, including cooling, throughout the duration of this project. Provide temporary cooling for the space, via the existing raised floor supply air plenum, whenever the existing cooling equipment-to-remain must be shut off to accommodate the mechanical and electrical work of this Contract, which includes shutdown of electrical service to the entire building. Note that a least one electrical shutdown of the cooling system will occur during Phase 1 when the surrounding third floor is still occupied.

Existing server room cooling system (to remain) is a nominal 8-ton computer room air conditioner (CRAC) with an associated glycol condenser on the roof above and supply air distribution down into the raised floor of the room with a top return air inlet. The existing system is on regular building power and is not redundant.

Temporary cooling system must supply cold air to the raised floor plenum, similar to the existing system. System heat rejection cannot be into any occupied or otherwise Government - operated space. Ensure installed ductwork is not kinked, crushed, or otherwise obstructed whenever system is operating. Provide cooling condensate removal in accordance with the International Plumbing Code and International Mechanical Code.

Temporary cooling system must maintain room conditions between 65 and 75 deg F and between 35 and 50 percent relative humidity. Contactor must monitor and record server room conditions whenever temporary cooling system is in operational. Note that Government may choose to independently monitor the conditions as well.

Configure temporary cooling system to maintain security requirements of the server room.

At least 30 calendar days prior to the installation and operation of temporary cooling system, submit a Temporary Cooling Plan for Government approval, detailing the proposed cooling system. Plan must include cooling capacity of proposed system, power source and power wiring for cooling system, location of system heat rejection, details of condensate disposal, required connection(s) to building utilities, security measures provided for server room during operation of temporary system, details of temperature and relative humidity monitoring and recording, and impact to surrounding spaces.

2.7 BACKFLOW PREVENTERS

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size, and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval is not acceptable.

Reduced pressure principle type conforming to the applicable requirements of AWWA C511. Provide backflow preventers complete with 150 pound flanged cast iron mounted gate valve for water lines greater than 2 inches and a lead free, brass body valve on water lines 2 inches and smaller, strainer, and 304 stainless steel or bronze internal parts.

Backflow Preventers must be reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers complete with 150 pound flanged mounted gate valve, stainless steel or bronze, internal parts. The particular make, model/design, and size of backflow preventers to be installed must be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the FCCCHR List and be accompanied by a Certificate of Full Approval from FCCCHR List. After installation conduct Backflow Preventer Tests and provide test reports verifying that the installation meets the FCCCHR Manual Standards.

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. Refer to Section 01 14 00.00 22 WORK RESTRICIONS

(PWD ME) paragraph EMPLOYEE PARKING for additional requirements.

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.

3.2.2 Government Provided Utility Services

- a. The Government will make all reasonably required utilities available from existing outlets and supplies, as specified in the Contract. Reasonable amounts of the following utilities will be made available without charge. Carefully conserve utilities furnished without charge.

Electricity
Water

- b. The point at which the Government will deliver such utilities and the quantity available must be coordinated with the Contracting Officer. Pay all costs incurred in connecting, converting, and transferring the utilities to the work. Make connections, including providing backflow-preventing devices on connections to domestic water lines; providing meters; and providing transformers; and make disconnections. Provide the backflow devices as specified above and NAVFAC PWD ME shop personnel (at the Portsmouth Naval Shipyard only) will install the backflow preventer. Do not operate any Portsmouth Naval Shipyard water system valves. Notify the Contracting Officer a minimum of 15 calendar days prior to the desired date of the installation of the backflow device.

3.2.3 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved in accordance with EM 385-1-1 Section 02 and by the Contracting Officer. 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 Portsmouth Naval Shipyard 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. Maintain these conveniences at all times without nuisance. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

3.2.4 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.2.5 Obstruction Lighting of Cranes

Provide a minimum of two (2) aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the Contracting Officer.

3.2.6 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 any thoroughfare or interfere in any way 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 to the Contracting Officer 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 and the MUTCD, Part VI. Oversized and slow-moving vehicles may be moved to the worksite provided requirements of the State of Maine Department of Transportation 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 vehicle or pedestrian traffic.
- c. Provide, erect, and maintain, at no expense to the Government, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage and overhead protection authority having jurisdiction.
- d. The area adjacent to the project site is an active Shipyard work site. All work must be coordinated to avoid impacting Portsmouth Naval Shipyard operations. Work must not impact Portsmouth Naval Shipyard Fire Department access in any way unless otherwise approved by the Contracting Officer and Portsmouth Naval Shipyard Fire Department via outage request process.

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 and 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. The Contractor is responsible for the repair of damage to roads caused by construction operations.

3.3.3 Rush Hour Restrictions

Do not interfere with the peak traffic flows preceding and during normal operations without notification to and approval by the Contracting Officer.

3.3.4 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Coordinate dust control methods with Section 01 57 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME).

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 monthly 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 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 Safety Systems

Protect the integrity of any 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.

3.5.2 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to Contractor personnel.

3.5.3 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 boundaries of the Portsmouth Naval Shipyard. 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.

3.5.4 Supplemental Storage Area

Upon request, and pending availability, the Contracting Officer will designate another or supplemental area for the use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but will be within the Portsmouth Naval Shipyard boundaries. Maintain the area in a clean and orderly fashion and secured if needed to protect supplies and equipment. Utilities will not be provided to this area by the Government.

3.5.5 Maintenance of Storage Area(s)

Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, 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; gravel gradation will be at the Contractor's discretion. 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.

3.5.6 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 Portsmouth Naval Shipyard 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.

3.5.7 Laydown Space

Parking and laydown space on the site is limited to the area shown on the plans. Manage the on-site work including equipment, storage trailers, material, material deliveries to allow the work to be completed within the specified Contract duration. This may require the Contractor to locate suitable storage off-site and multiple equipment mobilizations to allow the work to be completed. Equipment or materials not used to complete the work must be removed from the site. If additional offsite storage, additional mobilization or demobilizations are required, all these costs must be included in the base bid.

Failure to plan the work based on the space limitations must not be the basis for any claim nor an equitable price or Contract time adjustment.

3.5.8 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the temporary facilities 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 temporary facilities from damage.

3.5.9 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.

3.5.10 Temporary Partitions

Provide "No Dust" temporary partitions of wood or metal frame, heavy duty plastic sheathing, and negative pressure HEPA filtered ventilation. Provide access door and vestibules as required to prevent dust from escaping the enclosure. Refer to Section 02 41 00 DEMOLITION AND DECONSTRUCTION for additional information and requirements if included as part of the specifications.

3.6 PLANT COMMUNICATION

Whenever there are individual elements of the plant located so that operation by normal voice between these elements is not satisfactory, install a satisfactory means of communication, such as telephone or other suitable devices and made available for use by Government personnel.

3.7 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 as specified in paragraph entitled CONSTRUCTION SITE PLAN herein. Maintain the safety fencing during the life of the Contract and, upon completion and acceptance of the work, remove from the work site.

3.8 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.

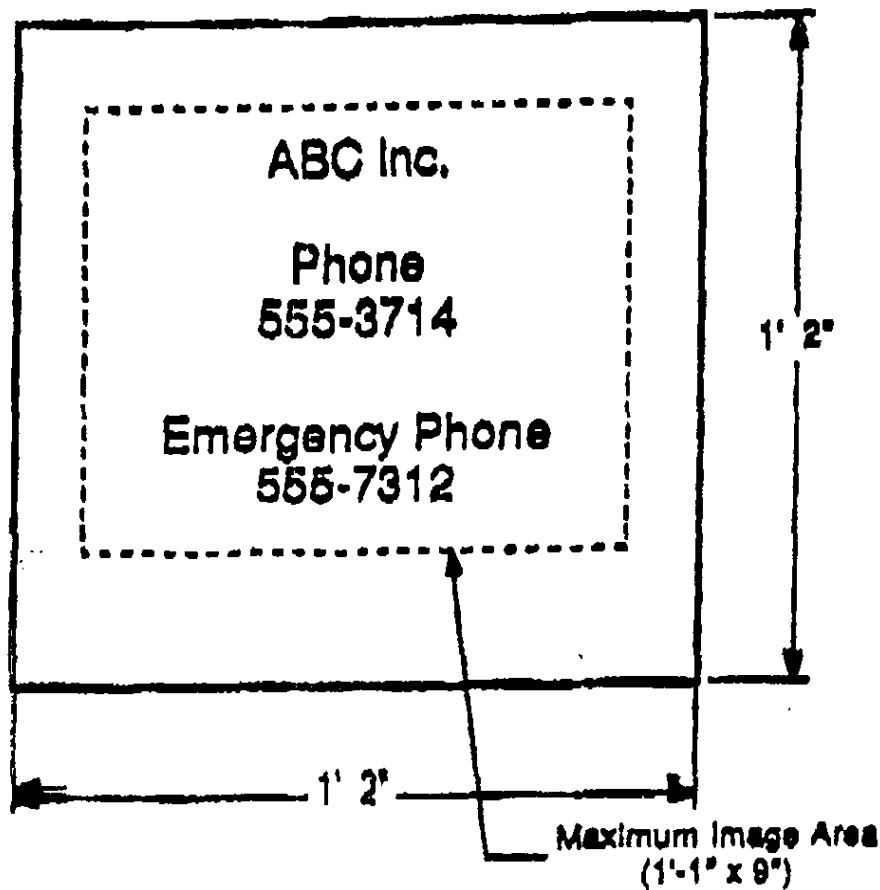
3.9 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, fencing, haul roads, and any other temporary products from the site. After removal of trailers, temporary utilities, materials, and equipment from within the fenced area, remove the fence. Restore areas

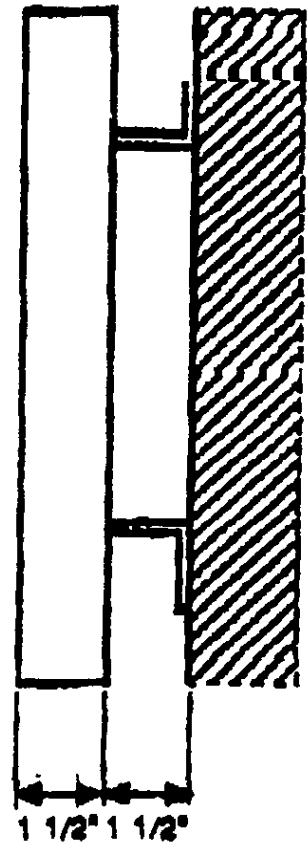
used during the performance of the Contract to the original or better condition. Remove gravel, wood timbers, steel plates, or polyethylene sheeting used to traverse grassed areas and restore the areas to their original condition, including top soil and seeding as necessary.

-- End of Section --

SIGN FACE



MOUNTING DETAIL



Sign requirements:

Graphic panel: Aluminum, painted blue

Copy: Screen painted or vinyl die-cut, white

Typeface: Univers 65 u/lc

SECTION 01 57 19.00 22

TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME)
09/22

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. Note: This is not an all-inclusive list of publications and other references may be applicable.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(Third Edition; Update IV) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards
40 CFR 82	Protection of Stratospheric Ozone
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 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 272	Approved State Hazardous Waste Management Programs
40 CFR 273	Standards for Universal Waste Management
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
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 302	Designation, Reportable Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	Specific Toxic Chemical Listings
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

STATE OF MAINE REGULATIONS

The following STATE OF MAINE REGULATIONS are available on the Internet at:
<http://www.maine.gov/dep/permits.htm>

STATE OF MAINE Statutes are available on the internet at
<https://legislature.maine.gov/statutes/38/title38ch0sec0.html>

STATE OF MAINE RULES are available on the internet at
<https://www.maine.gov/sos/cec/rules/06/chaps06.htm>

MAINE DEP AIR BUREAU CHAPTER 101 Visible Emissions Regulations;
<http://www.maine.gov/dep/air/rules/index.html>

MAINE DEP AIR BUREAU CHAPTER 151 Architectural and Industrial Maintenance
(AIM) COATINGS; <http://www.maine.gov/dep/air/rules/index.html>

MAINE DEP AIR BUREAU CHAPTER 159 Control of Volatile Organic Compounds
from Adhesives and Sealants; <http://www.maine.gov/dep/air/rules/index.html>

MAINE DEP 38 MSRA 420-C Erosion and Sedimentation Control Law and Rules

MAINE DEP 38 MSRA 420-D Stormwater Management

MAINE 38 MRSa 439-B Contractors Certified in Erosion Control
(Latest Edition)

MAINE DEP MSRA 481-490 Site Location of Development

MAINE 38 MSRA 850 Identification of Hazardous Waste

MAINE 38 MSRA 851 Standards for Generators of Hazardous Waste

MAINE 38 MSRA 852 Land Disposal Restrictions

MAINE 38 MSRA 853 Licensing of Transporters of Hazardous Waste

MAINE 38 MSRA 857 Hazardous Waste Manifest Requirements

MAINE 38 MSRA 858 Universal Waste Rules

MAINE 38 MSRA 860 Waste Oil Management Rules

MAINE 88 MRSa 480A-480Z Natural Resources Protection Act

CODE OF MAINE RULE 06-096 Chapter 500 Stormwater Management

CODE OF MAINE RULE 06-096 Chapter 573 Snow Dumps: Best Management
Practices for Pollution Prevention

MAINE DEP Maine Erosion and Sediment Control Practices
Field Guide for Contractors, latest edition.

MEPDES Permit #MER042000 General Permit for the Discharge of
Stormwater from State or Federally Owned
Municipal Separate Storm Sewer Systems

PORTSMOUTH NAVAL SHIPYARD INSTRUCTIONS

NAVSHIPY PTSMH INST 5090.8 Environmental Sampling Manual

NAVSHIPY PTSMH INST 5090.30 Hazardous Waste Generator Standards

1.2 DEFINITIONS

1.2.1 Chemical Wastes

This includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.2 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.3 Hazardous Debris

As defined in Solid Waste paragraph, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) per 40 CFR 261; or debris that exhibits a characteristic of hazardous waste per 40 CFR 261.

1.2.4 Hazardous Materials

Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.

Hazardous material is any material that:

- a. Is regulated as a hazardous material per 49 CFR 173, or
- b. Requires a Safety Data Sheet (SDS) per 29 CFR 1910.120, or
- c. 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 instructions or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this instruction 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). Nonetheless, the exposure may occur incident to manufacture, storage, use and demilitarization of these items.

1.2.5 Hazardous Waste

Hazardous Waste is any material that meets the definition of a solid waste and exhibit 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 as identified by Maine Department of Environmental Protection (MEDEP) MAINE 38 MSRA 850-860. Hazardous waste controls also apply to Universal Wastes.

1.2.6 Municipal Separate Storm Sewer System (MS4) Permit

MS4 permits are those held by installations to obtain NPDES permit

coverage for their stormwater discharges.

1.2.7 National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

1.2.8 Non-Emergency Spill Event

A non-emergency spill event is a discharge of a known material or any hazardous substance that does not pose an immediate threat to human health or the environment, can be cleaned up as part of normal housekeeping by the personnel who discovered the spill, and is not released on the soil or into any waterway inlet (for example, storm drain) or outside Navy property boundaries.

1.2.9 Oil or Oily Waste

Oil: Oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animals, fish or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged oil.

Oily Waste: Those materials which 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.

All oily waste must be collected and turned in to Building 357 for disposal. A hazardous waste determination form may be required prior to disposal. All waste characterization sampling must be conducted in accordance with Paragraph 3.13.4.2 herein entitled SAMPLING AND ANALYSIS OF HAZARDOUS WASTE. Oily waste must be minimized through good housekeeping practices and employee education.

1.2.10 Ozone Depleting Substance (ODS)

Chlorofluorocarbons (CFCs), halons or chlorinated hydrocarbons (such as carbon tetrachloride and methyl chloroform), and hydrochlorofluorocarbon (HCFCs) which have been linked to depletion of the earth's ozone layer are all substances collectively known as ozone depleting substances or ODSs. Class I or Class II ODS substances are defined and listed in the Clean Air Act Section 602 and 40 CFR 82.

1.2.11 Regulated Waste

Those solid wastes that have specific additional Federal, State, or local controls for handling, storage, or disposal.

1.2.12 Reportable Release

A reportable release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a known or unknown material or hazardous substance that poses an immediate threat to human health or the environment to the air, soil, or water. Reportable releases are: a sheen

of oil on the water; a violation of the Installation's or project's water permit (NPDES permit(s)); A sewage spill that threatens human health or the environment; a Comprehensive Environmental Response, Compensation, and Liability Act reportable quantity for hazardous/toxic substances (40 CFR 302); an air or hazardous substance release that is a threat to human health or the environment or released outside the facility boundaries.

1.2.13 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.14 Solid Waste

Garbage, refuse, debris, sludge, or other discharged material, including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Types of solid waste typically generated at construction sites may include:

- a. Debris: Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. 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.
- b. Green waste: 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.
- c. Hazardous Waste: By definition, to be a hazardous waste a material must first meet the definition of a solid waste. Hazardous waste and hazardous debris are special cases of solid waste. They have additional regulatory controls and must be handled separately. They are thus defined separately in this document.
- d. Non-Hazardous Waste: Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 263.
- e. Paint cans: Metal cans that are RCRA empty of paints, solvents, thinners, and adhesives. NOTE: Aerosol (paint) cans are Hazardous Wastes and must not be disposed of as solid waste or be considered in any definition of "empty", "paint", or "metal" cans.
- f. Recyclables: Materials, equipment, and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing, and mirrors that are recovered and sold as recyclables. 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.
- g. Scrap metal: 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.

- h. Surplus soil: Existing non-hazardous soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars, and paving.
- i. Wood: Dimension and non-dimension lumber, plywood, chipboard, and hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.
- j. Material not regulated as solid waste are: 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.
- k. Special Waste: "Special waste" means any solid waste generated by sources other than household and typical commercial establishments that do not meet the definition of a hazardous waste but exists in such an unusual quantity or in such a chemical or physical state, or any combination thereof, that may disrupt or impair effective waste management or threaten the public health, human safety, or the environment and requires special handling, transportation, and disposal procedures. Special waste includes, but is not limited to:
 - (1) Ash;
 - (2) Industrial and industrial process waste;
 - (3) Sludge and dewatered septage;
 - (4) Debris from nonhazardous chemical spills and cleanup of those spills;
 - (5) Contaminated soils and dredge materials;
 - (6) Asbestos and asbestos-containing waste;
 - (7) Sand blast grit and non-liquid paint waste;
 - (8) High and low pH waste;
 - (9) Spent filter media residue;
 - (10) Shredder residue; and
 - (11) Railroad ties with or without creosote.

1.2.15 Sewage

Liquid waste designated by the Government as "domestic sanitary sewage" and normally discharged through domestic sanitary sewage systems. Liquids designated as "sewage" include human body waste, and wastewater from sinks, showers, laundries, dishwashers, and garbage disposals when these liquids use only chemicals approved by the Government for discharge into the sanitary sewer.

1.2.16 Spill Event

A spill is any release of oil or hazardous substances to the water or ground that is not controlled or permitted. This includes any spilling, leaking, pumping, emitting, discharging, injecting, escaping, leaching, disposing, or dumping of liquid or solid material that is not authorized in writing by the Contracting Officer.

1.2.17 Universal Waste

The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, and mercury-containing equipment (e.g., thermostats) and lamps (e.g., 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 Waste Hazardous Material (WHM)

Any waste material which because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a substantial hazard to human health or the environment and which has been so designated. Used oil not containing any hazardous waste, as defined above, falls under this definition.

1.3 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

Preconstruction Survey; G

Solid Waste Management Plan; G

Regulatory Notifications; G

Environmental Management Plan (EMP); G

Dirt and Dust Control Plan; G

Contractor Hazardous Material Inventory Log; G

Stormwater Management/Erosion and Sedimentation Control Plan; G

Spill Prevention, Control, and Countermeasures (SPCC) Plan; G

SD-06 Test Reports

Laboratory Analysis; G

Disposal Requirements; G

Erosion and Sediment Control Inspection and Corrective Action; G

Solid Waste Management Report; G

SD-11 Closeout Submittals

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable sub items listed below.

Stormwater Management and Erosion Control Compliance Notebook; G

Waste Determination Documentation; G

Disposal Documentation for Hazardous and Regulated Waste; G

Contractor 40 CFR Employee Training Records; G

Solid Waste Management Report; G

Contractor Hazardous Material Inventory Log; G

Hazardous Waste/Debris Management; G

Regulatory Notifications; G

Asbestos Free Certification Form; G

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the Contract, environmental protection as defined herein. Plan for and provide environmental protective measures to control pollution that develops during normal 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. 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.

Conduct tests and procedures for the purpose of assessing whether construction operations are in compliance with Applicable Environmental Laws. Analytical work must be done by qualified laboratories; and where required by law, the laboratories must be certified.

1.4.1 Environmental Compliance Assessment Training and Tracking System (ECATTS)

The QC Manager is responsible for environmental compliance on projects unless an Environmental Manager is named. The QC Manager (and alternative QC Manager) or Environmental Manager must complete ECATTS training prior to starting respective portions of on-site work under this Contract. If personnel changes occur for any of these positions after starting work, replacement personnel must complete ECATTS training within 14 days of assignment to the project.

Submit an ECATTS certificate of completion for personnel who have completed the required "Environmental Compliance Assessment Training and Tracking System (ECATTS)" training. This training is web-based and can be

accessed from any computer with Internet access using the following instructions.

Register for NAVFAC Environmental Compliance Training and Tracking System, by logging on to <https://environmentaltraining.ecatts.com/start>. Obtain the password for registration from the Contracting Officer.

This training has been structured to allow personnel to receive credit under this Contract and also to carry forward credit to future contracts. Ensure the QC Manager (and alternate QC Manager) or Environmental Manager review their training plans for new modules or updated training requirements prior to beginning work. Some training modules are tailored for specific State regulatory requirements; therefore, working in multiple States will require personnel to re-take modules tailored to the State where the Contract work is being performed.

ECATTS is available for use by all personnel associated with this project. These other personnel are encouraged (but not required) to take the training and may do so at their discretion.

1.5 QUALITY ASSURANCE

1.5.1 Preconstruction Survey

Perform a Preconstruction Survey of the project site with the Contracting Officer, and when requested, take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record with a copy provided to the Contracting Officer. Obtain a camera pass from Portsmouth Naval Shipyard Security (via Contracting Officer) prior to use of a camera at Portsmouth Naval Shipyard. Digital cameras can only be used. All computer discs must be turned over to Portsmouth Naval Shipyard Security (via Contracting Officer) for review and clearance prior to use.

1.5.2 Regulatory Notifications

Prepare all regulatory notification requirements in accordance with Federal, State, and local regulations. Regulatory notifications must be submitted by the Government unless otherwise directed by the Contracting Officer. Submit copies of all regulatory notifications to the Contracting Officer prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.5.3 Environmental Brief

Attend an environmental brief prior to commencing any work on the Portsmouth Naval Shipyard. The brief will be conducted by the Contracting Officer's Representative (COR) and is part of the Pre-Construction Meeting agenda including details for environmental protection, expectations for the Environmental Management Plan, important notes regarding Installation Restoration (IR), Historic, and Cultural Resources, Wetlands, and Concrete Wash Water/Wastewater. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the Portsmouth Naval Shipyard; types and quantities of wastes/wastewater that may be generated during the Contract; types and quantities of oil that will be brought onto the activity; and pollution control measures for spill prevention and control, and any bulk oil storage container

information including quantity and type of product stored. Discuss the results of the Preconstruction Survey at this time.

Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, historic properties, required reports, required permits, specific permit requirements, and other measures to be taken. Identify additional environmental concerns specific to the site (e.g., historic, archaeological and natural resources, IR, erosion and sediment control, spill prevention and control, soil management, testing and disposal requirements, etc.).

1.5.4 Environmental Manager

Appoint in writing an Environmental Manager for the project site. The Environmental Manager will be directly responsible for coordinating compliance with Federal, State, local, and Portsmouth Naval Shipyard requirements. The Environmental Manager cannot perform the duties of the Project Superintendent or the SSHO. The Environmental Manager must ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, daily turn-in, manifesting, and disposal as applicable); implement the Environmental Management Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Stormwater Program Management requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers, etc.). This can be a collateral position; however, the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal or turn-in of waste containers; implement, inspect, and maintain erosion and sediment controls as required by State law; and maintain the Environmental Records binder and required documentation, ensure compliance with all Spill Prevention, Control, and Countermeasures (SPCC) requirements, including but not limited to, the proper storage of tanks and containers and their secondary containment, inspections, spill procedures, etc. including environmental permits compliance and close-out.

1.5.5 Contractor 40 CFR Employee Training Records

Prepare and maintain employee training records throughout the term of the Contract meeting applicable 40 CFR requirements. Ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with Federal, State, and local regulatory requirements for a RCRA Large Quantity Generator. Provide a Position Description for each employee, by Subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, evaluating the employee's association with hazardous and regulated wastes. This Position Description will include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility. Submit these training records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

1.6 SOLID WASTE DISPOSAL PLAN

Provide a Solid Waste Disposal Plan to Portsmouth Naval Shipyard

Environmental Division (Code 106.3) and NAVFAC Environmental (PWD-ME EV) Staff in accordance with Paragraph entitled SOLID WASTE MANAGEMENT PLAN in Part 3 of this Section.

1.7 SITE WASTE REMOVAL (SWR) MEETING

A SWR meeting must be held with the PWD ME CM and Code 106.3 fourteen (14) calendar days prior to the removal of wastes from a project site to ensure all pertinent requirements of the Standard Operating Procedure for Site Waste Removal (SWR) (Attachment B) have been met. No transport of wastes will be allowed until full concurrence is provided by the PWD ME CM and Code 106.3 following the satisfactory completion of the SWR.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Prior to initiating any work on site, meet with the Contracting Officer, Code 106.3, and PWD-ME EV Staff to discuss the proposed Environmental Management Plan (EMP) and develop a mutual understanding relative to the details of environmental protection required to be addressed in the EMP as discussed at the Pre-Construction Meeting, including measures for protecting natural resources and other measures to be taken. The EMP must be submitted in the following format and must include the elements specified below.

a. Description of the Environmental Management Plan

(1) General overview and purpose

- (a) A brief description of each specific plan required by environmental permit or elsewhere in this Contract.
- (b) The duties and level of authority assigned to the person(s) on the job site that oversee environmental compliance.
- (c) A copy of any standard or project specific operating procedures that will be used to effectively manage and protect the environment on the project site.
- (d) Communication and training procedures that will be used to convey environmental management requirements to employees and Subcontractors.
- (e) Emergency contact information (office phone number, cell phone number, and e-mail address).

(2) General site information including a site plan showing haul routes, stockpile and material laydown and storage areas, dust control, construction trailers locations, sanitary facilities, any required dewatering facilities and infiltration areas, and all other construction facilities required for the work.

(3) A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for

managing and implementing the Environmental Program as described in this Contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

b. Management of Natural Resources

- (1) Land resources
- (2) Tree protection
- (3) Replacement of damaged landscape features
- (4) Temporary construction
- (5) Stream crossings
- (6) Fish and wildlife resources
- (7) Wetland areas

c. Protection of Historical and Archaeological Resources

- (1) Objectives
- (2) Methods

d. Stormwater Management and Control

- (1) Ground cover
- (2) Erodible soils
- (3) Temporary measures
 - (a) Mechanical retardation and control runoff
 - (b) Vegetation and mulch
- (4) Effective selection, implementation and maintenance of Best Management practices (BMPs)
- (5) Wastewater disposal methods
- (6) Include a draft (or blank) inspection form that will be used for the Erosion and Sediment Control Inspections.

e. Protection of the Environment from Waste Derived from Contract Operations

- (1) Control and disposal of solid and sanitary waste.
- (2) Control and disposal of hazardous materials and hazardous waste (Hazardous Waste Management Section)

This item will consist of the management procedures for all hazardous waste to be generated. The elements of those procedures will coincide with NAVSHIPY PTSMH INST 5090.30 Hazardous Waste Generator Standards. PTSMH INST 5090.30 will be provided by the

Contracting Officer. As a minimum, include the following:

(a) Procedures to be employed to complete a written waste determination for wastes which are to be generated. Written waste determinations will be as requested by the Government;

(b) Sampling/analysis plan;

(c) Management procedures for hazardous materials and hazardous waste daily accumulation, storage (if approved), labeling, transportation, turn-in and disposal of waste. Disposal or treatment of hazardous waste by the Contractor is not allowed unless specifically noted or approved by Code 106.3;

(d) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions, as applicable (40 CFR 268);

(e) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and similar;

(f) Used oil management procedures in accordance with 40 CFR 279;

(g) Pollution prevention/hazardous waste minimization procedures;

(h) Plans for the disposal of hazardous and other regulated waste by permitted facilities (as applicable); and

(i) Procedures to be employed to ensure all required employee training records are maintained.

f. Prevention of Releases to the Environment

(1) At a minimum, procedures to prevent releases to the environment and the notifications to make in the event of a release to the environment.

(2) A Spill Prevention, Control, and Countermeasures (SPCC) Plan is required if work is anticipated to extend beyond 6 months, AND will use bulk oil storage containers 55 gallons or greater, in accordance with 40 CFR 112. All SPCC plans must be approved by Code 106.3. Plans need not be certified by a Professional Engineer but must clearly demonstrate proper management of all tanks and containers on site.

(3) Spill plans at a minimum must include:

(a) Type of tank or container, quantity stored, type of product stored, and location.

(b) Secondary containment required for tanks/containers 55 gallons or greater; double-wall tanks preferred.

(c) Tank inspection forms (industry standard forms are acceptable, but the use of Portsmouth Naval Shipyard inspection forms is preferred). Records must be kept for 3 years or for the duration of the project. Tanks must be inspected monthly.

i) Bulk storage containers, to include those on equipment, 55

gallons or greater require monthly inspection.

ii) Inspection procedures and an inspection sheet for the release of retained stormwater from secondary containment used for bulk storage tanks and containers.

(d) Where spill kits are located and a description of the spill kit contents for the type of spill anticipated.

(e) If transferring fuel: how often, what type of fuel, and where. Coordinate with the Contracting Officer's Representative (COR) and Code 106.3 prior to transferring fuel over water.

(f) Who to notify in case of ANY spill (Portsmouth Naval Shipyard Fire Department: 207-438-2333, Contracting Officer's Representative, Code 106.3: 207-438-4477, NRC, MEDEP, etc.).

(g) How to clean up a spill safely and bring the spill cleanup waste to Building 357 by the end of the shift generated.

g. Regulatory Notification and Permits

List what notifications and permit applications must be made. Demonstrate that those permits have been obtained by including copies of all applicable environmental permits.

3.1.1 Environmental Management Plan Review

Within 30 calendar days after the Contract award date, submit the proposed Environmental Management Plan for further discussion, review, and approval. Commencement of work must not begin until the environmental management plan has been approved by the Contracting Officer, Code 106.3, and PWD-ME EV Staff.

3.1.2 Licenses, State and Federal Permits

Copies of the approved permit(s) are available from the Contracting Officer. Maintain copies of all permits at the project site. Comply with all terms and conditions of the approved permits.

Where required by the State regulatory authority, the inspections and certifications will be provided through the services of a Professional Engineer (PE), registered (licensed) in the State of Maine. Where a PE is not required, the individual must be otherwise qualified by other current State licensure, specific training, and prior experience (minimum 5 years). As a part of the quality control plan, which is required to be submitted for approval by the Quality Control section, provide a sub item containing the name, appropriate professional registration or license number, address, and telephone number of the professionals or other qualified persons who will be performing the inspections and certifications for each permit.

3.2 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work and as specified in the permits issued for the work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor will be responsible for any resultant damage.

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed. Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Contracting Officer's approval before replacement. Tree wound paint must not be used for tree cuts or stumps.

3.2.1 Erosion and Sediment Control Measures

The State of Maine Erosion and Sediment Control Law requires persons undertaking activity involving filling, displacing, or exposing soil or other earthen materials to take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource.

At the Portsmouth Naval Shipyard, the Piscataqua River, Upper Meade Pond, and Lower Meade Pond are protected natural resources under State Law. Erosion control measures must be in place before the activity begins, maintained and must remain in place and functional until the site is permanently stabilized.

Temporary and permanent erosion control measures must meet, at a minimum, the Best Management Practices (BMPs) presented in the Maine Erosion and Sediment Control Practices Field Guide for Contractors, latest edition. Other techniques may be employed if approved by Code 106.3 and PWD-ME EV and demonstrated to the Contracting Officer that the practice will achieve the required result of no release of sediment per State law.

Site work including any filling, excavation, landscaping, and/or other earthwork in excess of one cubic yard of disturbance, must comply with State of Maine requirements for certification in erosion and sediment control practices within a shoreland zone. A certified individual must be responsible for management of erosion and sediment control practices at the site each day earth moving activities occur. A certified individual is required to visit the site every day to ensure proper erosion and sediment control practices are followed. As an alternative, the Contractor may choose to contract with a certified individual to supervise the work in shoreland areas.

Under the State of Maine's Shoreland Zoning Statutes, the Portsmouth Naval Shipyard is located entirely within the state's Shoreland zone.

a. Stormwater Management/Erosion and Sedimentation Control Plan

- (1) Submit a Stormwater Management/Erosion and Sedimentation Control Plan to the Contracting Officer, for review and approval by Code 106.3 and PWD-ME Environmental, for all earthwork in excess of one cubic yard of disturbance. The Plan must demonstrate effective selection, implementation and maintenance of Best Management Practices (BMPs) demonstrating compliance with the Portsmouth Naval Shipyard's Maine Pollutant Discharge Elimination System Municipal Storm-Separate Sewer System Permit (MS4).

CMR 06-096 Chapter 500 Stormwater Management and terms and conditions specified in other approved permits (e.g., Maine Construction General Permit (MCGP), U.S. Army Corps of Engineers (ACOE)) issued for the work.

Provide details of chosen temporary erosion and sediment controls to be employed specific to the work site to include a site plan showing the locations of controls. Ensure proposed controls comply with MEDEP approved plans and State regulations.

Submit Stormwater Management and Erosion Control Compliance Notebook at project completion or as directed by the Contracting Officer.

The Plan must:

- (a) Identify potential sources of pollution which may be reasonably expected to affect the quality of stormwater discharge from the site.
- (b) Describe and ensure implementation of practices which will be used to reduce the pollutants in stormwater discharge at the manufacturing, storage and lay down, and construction sites.
- (c) Describe and ensure full compliance with all MEDEP General Permits (MS4/MCGP) and any other regulatory permits (e.g., ACOE, USEPA) specific to the project.
- (d) Describe and ensure compliance with MEDEP over winter stabilization and construction requirements, as applicable.
- (e) Identify inspections and maintenance schedules for Best Management Practices (BMPs) demonstrating compliance with the State of Maine standards. Maintenance procedures must address regular cleaning of drainage structures and repair of temporary erosion control structures, as well as a final cleaning of all drainage structures and removal and reclamation of temporary erosion and sediment control BMP's upon completion of the project.
- (f) Select applicable best management practices from the Maine Erosion and Sediment Control Practices Field Guide for Contractors, latest edition. Submit a site plan showing locations of controls and provide manufacturer's product sheets for each control to be used.
- (g) Include documentation that the individual responsible for management of erosion and sediment control practices at the site is certified in accordance with the State of Maine DEP regulations.
- (h) Control of Manufactured Concrete Product Waste Plan. At a minimum, must include a description of concrete manufacturing

activities and the management of concrete wastewater/wash water as described in Paragraph 3.19 herein entitled CONCRETE WASH WATER.

3.2.2 Stockpiles

Assumed Non-Hazardous soil stockpiles require erosion and sediment controls around the downhill leading edge of the stockpile, or if a leading edge cannot be found, around the entire stockpile perimeter; a MEDEP approved erosion control cover on top of the stockpile when inactive 7 or more days, when stockpile operations are complete and while awaiting soil characterization test results; while awaiting test results, placarded as Pending Characterization and based on those sample results placarded as either Non-Hazardous or Hazardous; immediately cover with 6 mil plastic sheeting if soil characterization test results return as Hazardous.

Known Hazardous (IR Soil) or suspect contaminated soil stockpiles require 6 mil plastic sheeting underneath; erosion control sock around the entire stockpile perimeter; a 6 mil plastic sheeting cover unless actively being worked or while obtaining soil characterization test samples; at all times placarded as Hazardous for IR soil stockpiles. Suspect contaminated soil stockpiles must be placarded as Pending Characterization while awaiting soil characterization test results and based on those results placarded as either Non-Hazardous or Hazardous.

3.2.3 Erosion and Sediment Control Inspection and Corrective Action

Inspection reports must be kept on file at the project site and submitted electronically to the Contracting Officer upon request. The State of Maine requires inspections of disturbed and impervious areas, erosion and sediment control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the site.

Inspections must be performed at least once per week as well as BEFORE and AFTER a storm event. A storm event is any precipitation event with the potential to create runoff but at a minimum should be every storm resulting in 0.25 inches of precipitation or greater. Inspection reports must document compliance with State of Maine requirements. If erosion and sediment control BMPs need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection report the corrective action taken and when it was taken.

3.2.4 Burnoff

Burnoff of the ground cover is not permitted.

3.3 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Identify presence of historic properties impacted by the project and outline any required protection methodologies. Carefully protect in-place and report immediately to the Contracting Officer historical and archaeological items or human skeletal remains discovered in the course of work. Upon discovery, stop work in the immediate area of the discovery and protect the area from further disturbance. Notify the Contracting Officer immediately. Do not resume activities within the area until directed by the Contracting Officer to resume work. The Government

retains ownership and control over historical and archaeological resources. If historical, archaeological items, or human remains are discovered during excavations for the project, a certified Maine Archaeologist must be on site to evaluate the discovery and monitor excavation work. The qualifications of the Archaeologist must be submitted and approved by the Contracting Officer. A site monitoring report prepared by the Archaeologist must be submitted to the Contracting Officer within 21 calendar days of completing site excavation work.

3.4 SOLID WASTE MANAGEMENT PLAN

Provide a written Solid Waste Disposal Plan (SWDP) to the Contracting Officer, of intended licensed disposal sites for Government approval and for submission to State regulatory agencies. At a minimum, the SWDP must contain, but not be limited to, the following wastes: stumps and grubblings, excess soil, construction debris, demolition debris, household solid waste, special waste, and industrial solid waste. The submission must contain the name of the disposal facility, address, facility phone number, and the waste type and quantity to be disposed of at the facility.

If waste from the site is taken to a transfer station, identify the facility or facilities at which the waste is ultimately disposed. Government approval for the facility must be obtained prior to transporting wastes off Government property.

Provide to the Contracting Officer written notification of the quantity of solid waste/debris that is anticipated 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 or as applicable, submit one copy of a State license showing such agency's approval of the disposal plan before transporting wastes off Government property.

3.4.1 Solid Waste Management Report

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

Include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, submit a statement indicating the disposal location for the solid waste which is signed by an officer of the firm authorized to legally obligate or bind the firm. The sales documentation or certification 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 use, submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received will not be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

3.4.2 Control and Management of Solid Wastes

Pick up solid wastes and place into containers which are regularly emptied. Containers must be kept covered except when being loaded with trash and debris. Watertight covered dumpsters and roll-offs are preferred. 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. Recycling is encouraged and can be coordinated with the Contracting Officer and the Portsmouth Naval Shipyard Recycling Coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with the most stringent local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258. Discharges from dumpsters and roll-offs are prohibited.

Manage spent hazardous material used in construction including, but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, as per environmental law and Portsmouth Naval Shipyard requirements.

3.4.2.1 Dumpsters and Roll-offs

Dry weather discharges from dumpsters and roll-offs are prohibited. Equip dumpsters and roll-offs with a secure lid or covering. Keep covers closed at all times, except when being loaded with trash and debris, or provide secondary containment to ensure that discharges have a control. Locate dumpsters and roll-offs behind the construction fence or out of the public view and away from storm drains. Empty site dumpsters and roll-offs at least once a week or as needed to keep the site free of debris and trash. If necessary, provide 55-gallon trash containers to collect debris in the construction site area. Locate the trash containers behind the construction fence or out of the public view. Empty trash containers at least once a day. For large demolitions, dumpsters and roll-offs must use a cover and watertight containers are preferred; debris must not be higher than the sides before emptying. Water must not be collected in watertight roll-offs or dumpsters. Any water collected in roll-offs, dumpsters, or secondary containment could become contaminated with oil or other contaminants and may require waste characterization by the Contractor prior to release and/or removal from Portsmouth Naval Shipyard.

3.5 WASTE DETERMINATION DOCUMENTATION

Complete a Waste Determination form (provided by the Contracting Officer at the pre-construction conference) for derived wastes to be generated, as requested by Code 106.3. Base the waste determination upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, and/or laboratory analysis (Safety Data Sheets (SDS) by themselves are not adequate). Attach all support documentation to the Waste Determination form. A Waste Determination form may be requested for the following types of wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

3.6 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log" (found at: <http://www.wbdg.org/ccb/NAVGRAPH/graphtoc.pdf>), which provides information required by EPCRA Sections 312 and 313 along with corresponding Safety Data Sheets (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. Documentation for any spills/releases, environmental reports, or off-site

transfers must be submitted to the Contracting Officer.

3.7 POLLUTION PREVENTION/HAZARDOUS WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of hazardous waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the Environmental Management Plan.

3.8 WHM/HW MATERIALS PROHIBITION

Do not improperly dispose of hazardous materials/hazardous waste on Government property. No hazardous material will be brought onto Government property that does not directly relate to requirements for the performance of this Contract.

Incidental materials used to support the contract including, but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, empty containers, etc. may be considered hazardous wastes and must be turned in to Building 357 for disposal by the Government as described in the paragraph entitled HAZARDOUS MATERIAL MANAGEMENT of this Section. The list is illustrative rather than inclusive. Universal wastes must be managed with controls similar to those for hazardous waste.

Do not discharge any materials to sanitary sewer, storm drain, or to the Piscataqua River or conduct waste treatment or disposal on Government property without written approval by the Contracting Officer and Code 106.3.

3.9 HAZARDOUS MATERIAL MANAGEMENT

No hazardous material will be brought onto Government property that does not directly relate to requirements for the performance of this Contract. Hazardous materials for disposal may be considered hazardous wastes and must be turned in to Building 357 for hazardous waste determination by the end of the shift generated.

Include hazardous material control procedures in the Environmental Management Plan as described in Paragraph 3.1 herein entitled ENVIRONMENTAL MANAGEMENT PLAN (EMP) and the Safety Plan in accordance with Section 01 35 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME). Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. All hazardous material must be in active use or properly stored. Hazardous materials must not be left unattended or uncontrolled while on Portsmouth Naval Shipyard.

Submit a SDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on the Portsmouth Naval Shipyard. 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. At the end of the project, provide the Contracting Officer with 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. Ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. Ensure that all containers of hazardous materials have NFPA labels or their equivalent. Keep copies

of the SDS for hazardous materials on site at all times and provide them to the Contracting Officer at the end of the project. Certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

3.10 PETROLEUM PRODUCTS AND REFUELING

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation, away from storm drains and surface waters. Manage all used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. All used oil will be turned in to Building 357 and disposed of by the Government.

3.10.1 Oily and Hazardous Substances

Provide secondary containment and overfill protection for oil and hazardous substance storage tanks. Prevent oil or hazardous substances from entering the ground, drainage areas, storm drains, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm must be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Provide procedures and equipment to prevent overfilling of tanks. Monitor and remove any rainwater that accumulates in open containment dikes, berms, or spill pallets. Inspect the accumulated rainwater prior to draining from a containment dike, berm or spill pallet to the environment, to determine there is no oil sheen present.

3.10.2 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 FUEL TANKS

Petroleum products and lubricants required to sustain up to 30 days of construction activity may be kept on site. Storage and refilling practices must comply with 40 CFR Part 112. Secondary containment must be provided and be no less than 110 percent of the tank volume plus five inches of free-board. If a secondary berm is used for containment then the berm must be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Drip pans are required. Cover tanks and drip pans during inclement weather to prevent spills, as necessary.

3.12 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

Exercise due diligence to prevent, contain, and respond to **ALL** spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300. 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 Portsmouth Naval Shipyard Fire Department 207-438-2333, the Portsmouth Naval Shipyard's Command Duty Officer, Code 106.3: 207-438-4477, Contracting Officer's Representative, and the Contracting Officer. If the response is inadequate, the Navy may respond. If this should occur, reimbursement to the Government for spill response assistance and analysis will be required.

The Contractor is responsible for verbal and written notifications as required by the Federal 40 CFR 300.125 and 40 CFR 355, State, and local regulations and Navy Instructions. These notifications will be done in coordination with Code 106.3. 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. If Government assistance is requested or required, reimburse the Government for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

Maintain spill cleanup equipment and materials at the work site. Clean up all hazardous and non-hazardous (WHM) waste spills. Reimburse the Government for all material, equipment, and clothing generated during any spill cleanup. Reimburse the Government for all costs incurred including sample analysis materials, equipment, and labor if the Government must initiate its own spill cleanup procedures, for spills, when:

- a. Spill cleanup procedure has not begun within one hour of spill discovery/occurrence, or
- b. If, in the Government's judgment, the spill cleanup is not adequately abating a life-threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

3.13 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

At the time of the pre-construction conference, the Contractor will be briefed and provided written information regarding hazardous waste management. The Government will provide technical and oversight guidance in all aspects of hazardous waste management.

3.13.1 General

All hazardous wastes generated within the confines of the Portsmouth Naval Shipyard must be disposed of by the Government. Accordingly, all hazardous wastes generated to accomplish the requirements of this Contract must be considered Government-generated, and must be disposed of by the Government. Do not bring hazardous wastes onto Government property. Hazardous wastes must be handled in compliance with 40 CFR 260-268, 273, 279 and State of Maine MEDEP Regulations Chapter 850 to 860. For hazardous waste spills, immediately notify the Portsmouth Naval Shipyard Fire Department 207-438-2333, the Portsmouth Naval Shipyard's Command Duty Officer, Code 106.3: 207-438-4477, Contracting Officer's Representative and the Contracting Officer.

3.13.2 Containers

Use only Government-furnished, Government-labeled containers for the packaging of hazardous soils and hazardous wastes. Containers are requested and picked up at Building 357 following approval of the Management Plan required above.

- a. Segregate hazardous and non-hazardous soils/wastes. Hazardous soils/wastes must be placed into containers provided by the Government. All containers of hazardous waste must have a Code 106.3 tracking number affixed to the container, as applicable.
- b. Hazardous soils must be turned over to the Government, at Building 357, as coordinated with Code 106.3. All other containers of waste hazardous materials and hazardous waste, full or partially full, must be turned in to Building 357 by the end of the shift generated.

While in control of hazardous soils and hazardous wastes, the soils/wastes must be handled in accordance with Portsmouth Naval Shipyard requirements.

- c. Prior to Government acceptance of the containers, provide the certification required by the "Submittals" paragraph of this Section, and such additional information regarding contents of the containers. Submittal of a Waste Determination form may be required for proper waste characterization as requested by Code 106.3.

3.13.3 Facility Hazardous Waste Generator Status

Portsmouth Naval Shipyard is designated as a Large Quantity Generator. All work conducted within the boundaries of the Portsmouth Naval Shipyard must meet the regulatory requirements of this generator designation. Comply with all provisions of Federal, State, and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of all construction derived wastes.

3.13.4 Hazardous Waste/Debris Management

Identify all construction activities which will generate hazardous waste/debris and universal wastes. Provide a documented waste determination for all resultant waste streams as requested by Code 106.3 or other Government personnel. Hazardous waste/debris must be identified, labeled, handled, stored, and disposed of in accordance with all Federal, State, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, Maine Department of Environmental Protection (MEDEP) MAINE 38 MSRA 850-860, and NAVSHIPY PTSMH INST 5090.30, latest edition.

Hazardous wastes and universal wastes must also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Management Plan. Daily worksite accumulation of hazardous wastes and universal wastes must be in Government-provided containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities must be identified as being generated by the Government.

Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by Portsmouth Naval Shipyard personnel from the Portsmouth Naval Shipyard Environmental Office. No hazardous waste will be brought onto Government property. Provide to the Contracting Officer a copy of all waste determination documentation that was requested by the Government for hazardous waste or solid wastes with chemical constituents listed in 40 CFR 372-SUBPART D. For hazardous wastes spills, notify the Portsmouth Naval Shipyard Fire Department 207-438-2333, the Portsmouth Naval Shipyard's Command Duty Officer, Code 106.3: 207-438-4477, Contracting Officer's Representative and the

Contracting Officer.

3.13.4.1 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of regulated or hazardous wastes, request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90 Day Storage Area at the point of generation. Regulated waste and Hazardous Waste Accumulation Areas (HWAAs) are approved by Code 106.3.

Submit a request in writing to the Contracting Officer providing the following information:

<u>Contract Number</u>	_____	<u>Contractor</u>	_____
<u>Haz/Waste or Regulated Waste POC</u>	_____	<u>Phone Number</u>	_____
<u>Type of Waste</u>	_____	<u>Source of Waste</u>	_____
<u>Emergency POC</u>	_____	<u>Phone Number</u>	_____
<u>Location of the Site:</u> _____ (Attach Site Plan to the Request)			

Attach a waste determination form. Allow ten (10) working days for processing this request. The designated area where waste is being stored must be barricaded and a sign identifying as follows:

"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

3.13.4.2 Sampling and Analysis of Hazardous Waste

a. Waste Sampling

Sample waste in accordance with EPA SW-846 and NAVSHIPY PTSMH INST 5090.8, latest revision. Each sampled drum or container must be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed. All sampling events will require a Code 106.3 reviewed and approved sampling plan and availability for Code 106.3 oversight.

b. Laboratory Analysis

Follow the analytical procedure and methods in accordance with 40 CFR 261. Provide all analytical results and reports performed to the Contracting Officer and Code 106.3 Environmental Sampling Project Manager for review and approval.

All laboratory analysis for hazardous waste identification must be performed by a laboratory compliant with OPNAVINST 5090.1 Chapter 7-3.3. Proof of compliance must be made available upon request. All analyses provided by laboratories that are not compliant with the stated requirements will be rejected.

c. Analysis Type

Identify waste material/hazardous waste by analyzing for

properties that are reasonably suspected of the waste. Soil and other materials may require specific analysis for acceptance to a disposal facility - contact Code 106.3 personnel at the Hazardous Waste Storage Facility, Building 357, before choosing parameters.

3.13.4.3 Asbestos Certification

Items, components, or materials disturbed by or included in work under this Contract may involve asbestos. Other materials in the general area around where work will be performed may contain asbestos. All thermal insulation, in all work areas, should be considered to be asbestos unless positively identified by conspicuous tags or previous laboratory analysis certifying them as asbestos free.

Inadvertent discovery of non-disclosed asbestos that will result in an abatement action requires a change in scope before proceeding. Upon discovery of asbestos containing material not identified in the Contract documents, immediately stop all work that would generate further damage to the material, evacuate the asbestos exposed area, and notify the Contracting Officer for resolution of the situation prior to resuming normal work activities in the affected area. Do not remove or perform work on any asbestos containing materials without the prior approval of the Contracting Officer. Do not engage in any activity, which would remove or damage such materials or cause the generation of fibers from such materials.

Asbestos containing waste must be managed and disposed of in accordance with applicable environmental law. Asbestos containing waste must be manifested and the manifest provided to the Contracting Officer. Disposal of asbestos-containing waste must be coordinated with PWD-ME EV and Code 106.3.

Provide the attached Asbestos Free Certification Form (Attachment A) prior to the Government taking beneficial occupancy certifying that all materials, including those supplied by third parties, are asbestos free.

3.13.4.4 Hazardous Waste Disposal

Control of stored waste, packaging, sampling, analysis, and disposal will be determined by the details in the Contract. The requirements for jobs in the following paragraphs will be used as the guidelines for disposal of any hazardous waste generated and disposed of by the Contractor. All hazardous waste disposed of by the Contractor must be approved by and coordinated with Code 106.3 prior to transporting wastes off PNS property.

a. Responsibilities for Disposal

Responsibilities include any generation of WHM/HW requiring disposal of solid waste or liquid.

- (1) Agree to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, State, and Federal laws and regulations, and the terms and conditions of the Contract within sixty (60) days after the materials have been generated. These services must include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is

required).

- (2) Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761.
- (3) Obtaining a representative sample of the material generated for each job done to provide waste stream determination.
- (4) Analyzing for each sample taken and providing analytical results to the Contracting Officer. Provide two copies of the results.
- (5) Determine the DOT proper shipping names for all waste (each container requiring disposal) and will demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the Contracting Officer.

Disposal Turn-In Requirements

For any waste hazardous materials or hazardous waste generated which requires disposal, the following conditions must be met in order to be acceptable for disposal:

- a. Drums compatible with waste contents and drums meet DOT requirements for 49 CFR 173 for transportation of materials.
- b. Drums banded to wooden pallets. No more than three (3) 55-gallon drums to a pallet, or two (2) 85-gallon over packs.
- c. Band using 1-1/4 inch minimum band on upper third of drum.
- d. Contents of drum identified on the outside of the drum, as well as the volume of material, name of material manufacturer, and other vendor information as available.
- e. Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.
- f. Provide disposal documentation for hazardous and regulated waste.

3.13.5 Class I ODS Prohibition

Class I ODS must not be used in the performance of this Contract, nor be provided as part of the equipment. This prohibition will be considered to prevail over any other provision, specification, drawing, or referenced documents. Class I and II ODSs are Government property and must be returned to the Government for appropriate management. Coordinate with the Installation Environmental Office to determine the appropriate location for turn in of all reclaimed refrigerant. Regulations related to the protection of stratosphere ozone may be found in 40 CFR 82.

Class I ODS is defined in Section 602(a) of The Clean Air Act. A list of Class I ODS can be found on the EPA website at the following weblink.
<https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances>.

Class II ODS is defined in Section 602(s) of The Clean Air Act. A list of Class II ODS can be found on the EPA website at the following weblink.
<https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances>.

Heating and air conditioning technicians must be certified through an EPA-approved program. Copies of certifications must be maintained at the employees' place of business and be carried as a wallet card by the technician, as provided by environmental law. Accidental venting of a refrigerant is a release and must be reported to the Contracting Officer.

3.13.6 Universal Waste/e-Waste Management

Universal waste including, but not limited to, some mercury containing building products such as florescent lamps, mercury vapor lamps, high pressure sodium lamps, CRTs, batteries, aerosol paint containers, electrical equipment containing PCBs, and consumed electronic devices, must be managed in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 273, MAINE DEP 38 MSRA 858, and applicable environmental law.

3.14 DUST CONTROL

Dust control must meet the requirements of the BMPs in the Maine Erosion and Sediment Control Practices Field Guide for Contractors, latest edition. Keep dust down at all times, including during nonworking periods. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates that would exceed 40 CFR 50, state, and local air pollution standards or that would cause a hazard or a nuisance. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming or sweeping. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Runoff from cutting water is prohibited from entering storm drains or leaving the work site. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

When temporary dust control measures are employed, repetitive treatment must be applied as needed to accomplish control.

Visible emissions from a fugitive emission source (including stockpiles and roadways) must not exceed an opacity of 20 percent, except for no more than five (5) minutes in any 1-hour period.

Dust suppression during demolition work may include using a manned water hose. Runoff from the site is prohibited.

3.14.1 Dirt and Dust Control Plan

Submit truck and material haul routes along with a plan for controlling dirt, debris, and dust on Portsmouth Naval Shipyard roadways. As a minimum, identify in the plan the Subcontractor and equipment for cleaning along the haul route and measures to reduce the dirt, dust, and debris from roadways.

3.15 ABRASIVE AND/OR WET BLASTING AND WATER CUTTING

3.15.1 Blasting Operations

a. Abrasive Blasting

The use of silica sand is prohibited in sandblasting.

Provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive, agent, paint chips, and other debris.

Abrasive blasting must take place in containments with emissions vented through bag house filters and emissions must be limited to 10% opacity on a six minute block average. The bag houses must be used to control PM emission and operated properly at all times abrasive blasting is being performed.

b. Wet Blasting and Water Cutting

The use of wet blasting requires the capture and proper disposal of all wastes, including the blasting water, associated with the process. Provide enclosed containments to confine and collect wastewater and debris.

3.15.2 Disposal Requirements

Submit analytical results of the wastes and/or debris generated from blasting operations per paragraph entitled LABORATORY ANALYSIS of this Section. Hazardous waste generated from blasting operations must be managed in accordance with paragraph entitled HAZARDOUS WASTE/DEBRIS MANAGEMENT of this Section and the approved EMP. Concrete wash water and oily waste generated from blasting operations must be disposed of in accordance with the policy outlined in these specifications.

3.16 SPRAY PAINTING OPERATIONS

Spray painting operations must take place in containment. Emissions from spray painting must vent through air filters and are limited to 10% opacity on a six-minute block average. The air filters are used to control particulate emissions.

3.17 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA and/or sound deadening enclosures to limit noise within the limits of work. Blasting or the use of explosives will not be permitted. Confine any operations that may generate excessive noise to the period between 7 a.m. and 5 p.m., Monday through Friday, exclusive of holidays, unless otherwise specified or approved by the Contracting Officer.

The maximum permissible sound pressure levels, as measured at the limits of the Navy Property boundary, must not exceed the maximum noise levels as specified in the Town of Kittery's Ordinance and all applicable OSHA Regulations. The Kittery Ordinance specifies the maximum permissible sound level limit at the Navy Property Boundary to be 65 dBA from 0700 to 2100 and 60 dBA from 2100 to 0700.

For any construction or demolition operations that may generate noise levels in excess of 80 dBA in adjacent facility work areas outside the limits of work, use low-noise emission equipment, sound deadening enclosures or schedule work outside the normal work hours (with approval by the Contracting Officer and if the noise levels will not exceed the Kittery Noise Ordinance levels stated above) to ensure the adjacent work areas are not impacted.

Provide all noise monitoring equipment necessary to record and document noise levels associated with any operations generating excessive noise to ensure these noise levels specified are not exceeded.

3.18 MERCURY MATERIALS

Mercury is prohibited in the construction of this facility, unless specified otherwise, and with the exception of mercury vapor lamps and fluorescent lamps. Dumping of mercury-containing materials and devices such as mercury vapor lamps, fluorescent lamps, and mercury switches, in rubbish containers is prohibited. Remove without breaking, pack to prevent breakage, and transport out of the activity in an unbroken condition for disposal as directed. Immediately (within 15 minutes) notify instances of breakage or mercury spillage to the Portsmouth Naval Shipyard Fire Department 207-438-2333, the Portsmouth Naval Shipyard's Command Duty Officer, Code 106.3: 207-438-4477, Contracting Officer's Representative and the Contracting Officer. Clean the mercury spill area(s) to the satisfaction of the Contracting Officer. Cleanup of a mercury spill must not be recycled and must be managed as a hazardous waste for disposal.

3.19 CONCRETE WASH WATER

Concrete wash water is water, pressure washing water, or storm water that has come into contact with cement, uncured concrete, concrete dust, or other material of a similar nature generated during construction activities including, but not limited to, washing down ready-mix trucks, mixers, wheelbarrows, pre casting equipment, forms, manufactured cast concrete sections, tools, concrete areas; masonry cutting operations; cleaning up of split mortar or block fill; and hosing away excess materials.

Water or stormwater that has come into contact with pre casting equipment, forms, tools, etc. which have been subjected to oil based form release agents will be considered an oily waste if a visual inspection indicates any signs of oily residue. Oily wastes must be collected and disposed of in accordance with Portsmouth Naval Shipyard policy.

Concrete wash water must be collected and either placed in a concrete wash out structure for settling solids and evaporating liquid or turned-in as wastewater to Building 357 by the end of the shift generated. As approved by Code 106.3, large volumes of concrete wastewater may be disposed of at a facility designed and approved for the disposal or recycling of concrete wastewater. Under no circumstances will clean water be added to concrete wash water/wastewater for dilution purposes or any other reason. Containment wash out structures must be watertight, designed to promote evaporation, and provide adequate freeboard to contain the wash water, solids, and rainfall to prevent overflow. Washout must only occur in designated areas that have been approved by the Contracting Officer's Representative.

Inspect all concrete wash out structures daily to determine filled capacity. Remove all materials from containment wash out structures when 75% fill capacity has been reached. Concrete wash out structure operations must be conducted to reduce the amount of concrete wastewater generated for disposal. Remove liquids or cover structures before predicted rainstorms to prevent overflows and infiltration of rainwater. Inspect structures for holes and tears daily and repair to maintain

watertight conditions.

Hardened solids can be removed from containment structures and recycled, reused, or disposed of per regulatory requirements. Liquids remaining in the containment structure must be vacuumed and turned-in to Building 357 or, as approved by Code 106.3, disposed of at a facility designated for disposal/recycling of concrete wastewater.

3.19.1 Pollution Prevention

Store dry and wet concrete supplies under cover away from drainage areas. Concrete wash water must not be released to the storm drain system, sewer system, roadways, other uncontained impervious surfaces, or to natural waterways including the Piscataqua River and its tributaries. Take all precautions necessary to prevent rainwater or stormwater runoff from coming into contact with concrete wash water. Divert clean stormwater and roof runoff from contact with concrete wash water. Take all measures necessary to minimize the volume of concrete wash water generated. Protect all waterways, catch basins, and storm drain structures from potential discharges of concrete wash water. Collect and control concrete wash water separately from wastewater determined to be oily waste.

3.19.2 On-Shipyard Disposal

ALL CONCRETE WASTEWATER MUST BE COLLECTED AND TURNED-IN TO BUILDING 357 BY THE END OF THE SHIFT GENERATED. CONCRETE WASH WATER THAT IS COLLECTED AND DEPOSITED IN WASH OUT STRUCTURES MUST BE TURNED IN TO BUILDING 357 AT OR BEFORE THE CONCRETE WASH OUT STRUCTURE REACHES 75% CAPACITY.

3.19.3 Off-Shipyard Disposal

Concrete wastewater may be disposed of off-site as approved by Code 106.3. The Contractor must submit for approval the disposal facility designated for concrete wash water/wastewater and provide careful oversight to prevent improper dumping of concrete wash water. Any clean up resulting from improper control of concrete wash water will be at no expense to the Government.

3.20 DISPOSAL OF CHLORINATED WATER AND DECHLORINATION REQUIREMENTS

Chlorinated water created during disinfection procedures must not be directly discharged to storm drains or sanitary sewers without prior dechlorination and approval by Code 106.3. Chlorinated water must be neutralized by the controlled addition of a reducing chemical such as sodium thiosulfate, sodium bisulfate, sodium sulfite, sulfur dioxide, or ascorbic acid (commonly known as Vitamin C), as approved by Code 106.3. Dechlorination must be sufficiently effective to reduce total residual chlorine concentration to 1 mg/L or below.

3.21 SNOW STORAGE AND DISPOSAL

Site and operate snow storage and disposal areas to prevent the discharge of snow directly into surface waters and minimize discharges of pollutants from snow maintenance activities. As necessary, the Contractor must employ applicable snow dump BMPs from CMR 06-096 Chapter 573 Snow Dumps: Best Management Practices for Pollution Prevention for snow storage areas.

-- End of Section --



Public Works Department, Maine

ATTACHMENT A

ASBESTOS FREE CERTIFICATION FORM

References:

1. NAVFAC P-502 Asbestos Program Management

A. Asbestos Certification

The Contractor shall not use any asbestos containing material (ACM) at any time during the Work. Contractor shall certify that all material/equipment installed in any portion of the Work is asbestos free. The Government may request that the Contractor provide Safety Data Sheets, manufacturer certifications, laboratory analytical results, and/or other documentation to support the Contractor's certification that all suspect material/equipment is asbestos free. If any material/equipment is found to contain asbestos, the Contractor shall pay for the lawful and proper removal and disposal of product(s), and re-install acceptable material/equipment all at its sole expense.

By signing below, the Contractor certifies that all material/equipment installed in any portion of the Work is asbestos free:

Project Title:

Contract No.:

Company:

Date:

Print Name:

Contractor Signature:



Public Works Department, Maine

ATTACHMENT B

**Rev. 0
12/17/2021**

***STANDARD OPERATING PROCEDURE FOR
SITE WASTE REMOVAL (SWR) PROCESS***

Applicability: This SOP applies to any special waste and excavated soil removed from Portsmouth Naval Shipyard (PNSY) including dredged materials. Herein the term “waste” represents both landside and dredged excavated materials, and bulk special waste that exceeds the storage capacity of the Hazardous Waste Facility.

Overview: Soils removed from PNSY shall be characterized and disposed in accordance with the regulatory requirements applicable to the waste. NAVFAC PWD-Maine, as the Contracting Officer Representative (COR), owns the overall responsibility for ensuring this removal and disposal process is followed and shall ensure Contractor compliance. The NAVFAC PWD-Maine COR (e.g. CM or ET) shall also ensure required documentation is complete and stored in the project file.

A critical step in this process is the scheduling and execution of a Site Waste Removal (SWR) meeting held at the project site. Wastes cannot be removed from a project site before this meeting is held and documented by a signed Site Waste Removal Form [Enclosure (1)]. Three parties must sign the form to complete the process – the NAVFAC COR, the C106 representative, and the contractor.

NOTE: Waste characterization must be completed in accordance with C106 requirements before the SWR meeting can be scheduled. The Contractor shall prepare and submit a Sampling and Analysis Plan (SAP) to C106.3 for approval prior to implementation in accordance with the Contract Documents. The SAP must demonstrate compliance with the sampling requirements of the proposed disposal facility. Following C106 approval of the SAP, waste sampling can be performed by C106 or by the contractor with direct oversight by C106. Next, the analytical results (complete laboratory report) are submitted to C106 for review. C106 will provide direction on the disposal requirements for the waste (e.g. non-hazardous or hazardous). The sampling plan must include a site diagram clearly showing the source location of the waste and the stored waste stockpile location. This diagram must be reviewed at the SWR meeting.

SWR Process:

1. Contractor requests SWR meeting via Microsoft Outlook sent to project CM or ET and the C106 representative a minimum of three (3) business days for non-hazardous wastes and ten (10) business days for hazardous wastes prior to the desired SWR meeting date. The invite shall include a proposed hauling schedule. The meeting must be held at the removal site or area where the waste is stored and will be hauled from.
2. Prior to the meeting, the Contractor shall inspect the site and confirm the field conditions (e.g. source of excavated soils, location and characterization of stockpiled wastes designated for disposal, etc.) match the information presented on the site diagram previously provided to C106 in the waste sampling plan. Wastes shall not be removed from PNSY if the sampling plan documentation does not match the field conditions found at the removal site.
3. Hold on-site SWR meeting. Contractor, NAVFAC CM/ET, and C106 representative shall be present for discussion and signing of the Initial SWR Form [Enclosure (1)]. If one of these three parties is not in attendance at the SWR it must be rescheduled.

**STANDARD OPERATING PROCEDURE FOR
SITE WASTE REMOVAL (SWR) PROCESS**

SWR Process-Continued:

4. The SWR meeting discussion shall *review* the following:
 - a. Source of the waste.
 - b. Location of removal/stock pile areas designated for removal.
 - c. Analytical characterization results of the samples taken for the waste designated for disposal demonstrating non-hazardous or hazardous nature of the waste.
 - d. Estimated tonnage of waste to be removed.
 - e. Anticipated calendar time frame and duration of waste removal activities.
 - f. Phases of waste removal that will require additional C106 review and SWR signoff. 'Phases' of waste removal will be established for each specific project. The SWR meeting group will establish how phases are defined for that particular project. Phase examples include:
 - i. One stockpile of soil on site or in one bin from excavation activity.
 - ii. One barge load of dredge spoils from dredge material excavation.
 - iii. One single area or multiple areas for excavation/demolition within one project site as illustrated on a site diagram for live loading projects. **LIVE LOADING REQUIRES A DAILY SWR MEETING.**
5. SWR group will complete a site walk to identify the waste source area(s) to ensure in-field conditions match the site diagram.
6. NAVFAC will sign one DRR Form for each day of removal activity. A copy of the DRR form will be given to the first truck hauling waste for the activity, and the DRR form will be delivered with the truck load to B-357 as proof of DRR form approval for the day. The DRR forms will include the hauler name and truck numbers as well as the information provided in the Initial SWR Form signed by C106.
7. If suspected contaminated wastes (identified by odor or visual examination) are discovered during removal, removal activities shall immediately cease *and* contact C106 to evaluate the situation.
8. The contractor will fill out the descriptive fields of the Initial SWR form. C106 representative and NAVFAC CM/ET will review the information and provide signatures if the information is complete and everyone is in concurrence with the waste removal requirements.
9. The contractor will scan both the Initial SWR Form and corresponding site diagram and send to the NAVFAC CM/ET via email.
10. NAVFAC CM/ET will send the Initial SWR form and corresponding site diagram to the C106 SWR group email **PORT_PTNH_PNS_SWR.**
11. The Contractor will email subsequent DRR forms for daily waste removal activities to Code 106 at **PORT_PTNH_PNS_SWR.**
12. On the day of hauling, the NAVFAC CM/ET shall double check that the correct stockpile was loaded for disposal, sign the DRR form, and submit to the Contractor to file.
13. The NAVFAC CM/ET will continue daily surveillance, site condition reviews, and execution of DRR forms for each shipping day. The NAVFAC CM/ET will also review the Contractor Daily Production Reports to ensure all loads are recorded so they can be traced back to disposal manifests.

**STANDARD OPERATING PROCEDURE FOR
SITE WASTE REMOVAL (SWR) PROCESS**

ENCLOSURE 1

☐ INITIAL SITE WASTE REMOVAL (SWR) ☐ DAILY REMOVAL RECORD (DRR)

WASTE ACTIVITY DESCRIPTION		
1. Contract No:		
2. Contract title:		
3. Prime contractor company name:		
4. Hauling contractor company name:		
5. Anticipated hauling date range: Click or tap to enter a date. through Click or tap to enter a date.		
6. Waste type: <input type="checkbox"/> Non-hazardous soils <input type="checkbox"/> Hazardous soils <input type="checkbox"/> Special waste _____ <input type="checkbox"/> Other _____		
7a. Waste source:		
7b. Current waste location:		
8. Anticipated total hauling amount (tons):		
9. PNSY approved waste disposal facility:		
WASTE REMOVAL APPROVALS – The signatures below verify that an onsite visual inspection of the material has been performed, and that this form is a record of the facts agreed upon.		
10. Prime contractor signature:		
11. NAVFAC CM/ET signature:		
12. Code 106.3 signature:		
DAILY REMOVAL RECORD - to be filled each morning of waste removal		
13. Hauling date:		
14. Anticipated hauling amount:	tons	truckloads
15. Hauling contractor Name & truck ID number(s):		
16. Prime contractor signature:		
17. NAVFAC CM/ET signature:		

**STANDARD OPERATING PROCEDURE FOR
SITE WASTE REMOVAL (SWR) PROCESS**

WASTE REMOVAL PASS ATTRIBUTE DESCRIPTIONS

1. *Contract No.* The unique NAVFAC contract identification number applied to the project requesting waste removal.
2. *Contract title.* The unique contract title/description applied to the project requesting waste removal.
3. *Prime contractor company name.* The project's prime contractor company name.
4. *Hauling contractor company name.* The subcontractor hired to haul waste from the project site to the PNSY approved waste disposal company.
5. *Anticipated hauling date(s).* Hauling date range agreed upon at SWR meeting for duration of waste removal in the approved phase of removal.
6. *Waste description.* Description of waste in terms of hazardous/non-hazardous designation and any other characteristic determined at the SWR meeting.
- 7a. *Waste source.* Detailed written description of the source of the waste to be removed. Include removal areas, buildings, streets, land marks, coordinates, and other information as available.
- 7b. *Current waste location.* Detailed written description of the waste location if displaced from the original source during removal. Include removal areas, bin designations, stockpile locations, buildings, streets, land marks, coordinates and other information as available.
8. *Anticipated total hauling amount (tons).* Total amount of waste anticipated for removal in the approved phase of removal.
9. *PNSY approved waste disposal facility.* Name of the PNSY approved waste disposal facility.
10. *Prime contractor signature.* Written signature of project's prime contractor.
11. *NAVFAC CM/ET signature.* Written signature of NAVFAC CM or ET in attendance at the SWR meeting.
12. *Code 106.3 signature.* Written signature of Code 106.3 representative in attendance at the SWR meeting.
13. *Hauling date.* Date of the waste removal.
14. *Anticipated hauling amount.* Entire hauling amount (total tons) anticipated for said hauling date.
15. *Hauling contractor truck ID number(s).* The identification number of the contractor's truck.
16. *Prime contractor signature.* Written signature of prime contractor.
17. *NAVFAC CM/ET signature.* Written signature of project's NAVFAC CM or ET overseeing daily removal of waste from the site.

SECTION 01 58 00

PROJECT IDENTIFICATION
08/19, CHG 2: 11/20

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 WOOD PROTECTION ASSOCIATION (AWPA)

AWPA C1	(2003) All Timber Products - Preservative Treatment by Pressure Processes
AWPA C2	(2003) Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes

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-02 Shop Drawings

Preliminary Drawing Indicating Layout And Text Content; G

1.3 PROJECT IDENTIFICATION SIGN

Prior to initiating any work on site, provide one project identification sign at the location designated. Construct the sign in accordance with project sign detail, which can be downloaded at: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables>. Maintain sign throughout the life of the project. Upon completion of the project, remove the sign from the site.

1.3.1 Project Identification Signboard

Provide a project identification signboard in accordance with attached Plates 1USN, 3, and 4. Provide a preliminary drawing indicating layout and text content. Erect a signboard at a conspicuous location on the job site where directed by the Contracting Officer.

- a. The field of the sign consists of a 4 by 8 foot sheet of grade B-B medium density overlaid exterior plywood.
- b. Lumber is B or better Southern pine, pressure-preservative treated in accordance with AWPA C1 and AWPA C2. Nails are aluminum or galvanized steel.
- c. Give one coat of exterior alkyd primer and two coats of exterior alkyd enamel paint to the entire signboard and supports. Perform the

lettering and sign work by a skilled sign painter using paint known in the trade as bulletin colors. The colors, lettering sizes, and lettering styles are as indicated. Where preservative-treated lumber is required, utilize only cured pressure-treated wood which has had the chemicals leached from the surface of the wood prior to painting.

- d. Use spray applied automotive quality high gloss acrylic white enamel paint as background for the NAVFAC logo. NAVFAC logo is an applied 2 mil film sticker/decal with either transparent or white background or paint the logo by stencil onto the sign. The weather resistant sticker/decal film is rated for a minimum of 2-year exterior vertical exposure. Mount the self-adhering sticker to the sign with pressure sensitive, permanent acrylic adhesive. Shop cut sticker/decal to rectangular shape and provide pull-off backing sheet on adhesive side of design sticker for shipping.
- e. Sign paint colors (manufacturer's numbers/types listed below for color identification only)
 - (1) Blue = To match dark blue color in the NAVFAC logo.
 - (2) White = To match Brilliant White color in the NAVFAC logo.
- f. NAVFAC logo must retain proportions and design integrity. NAVFAC logos in electronic format may be obtained from the NAVFAC web portal via the following link: https://www.navfac.navy.mil/about_us/logos_and_seals.html. Use the following to choose color values for the paint to be used:
 - (1) Dark Blue = equivalent to CMYK values 100, 72, 0, 8.
 - (2) Light Blue = equivalent to CMYK values 69, 34, 0, 0.
 - (3) Cyan = equivalent to CMYK values 100, 9, 0, 6.
 - (4) Yellow = equivalent to CMYK values 0.9, 94, 0.

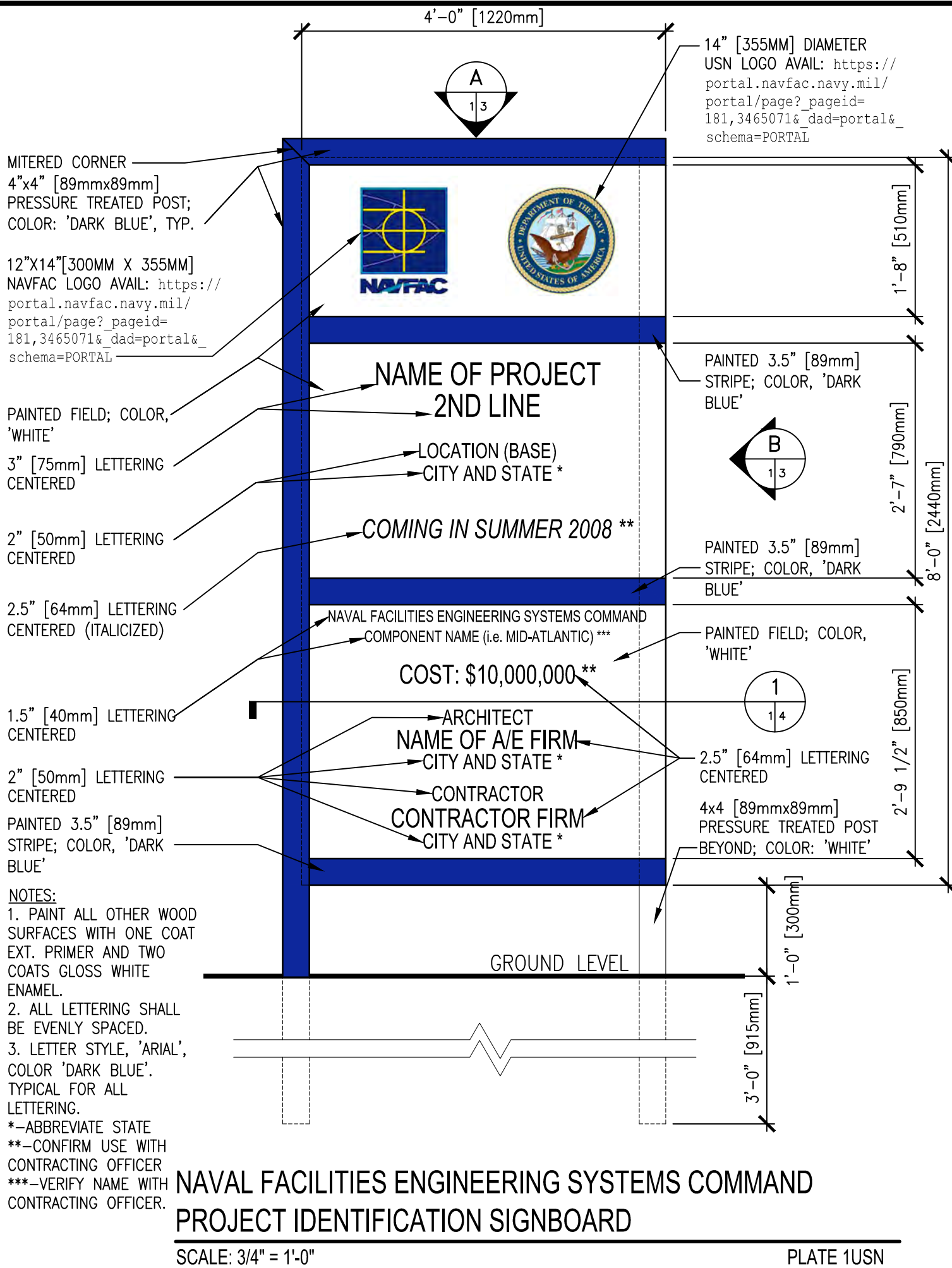
PART 2 PRODUCTS

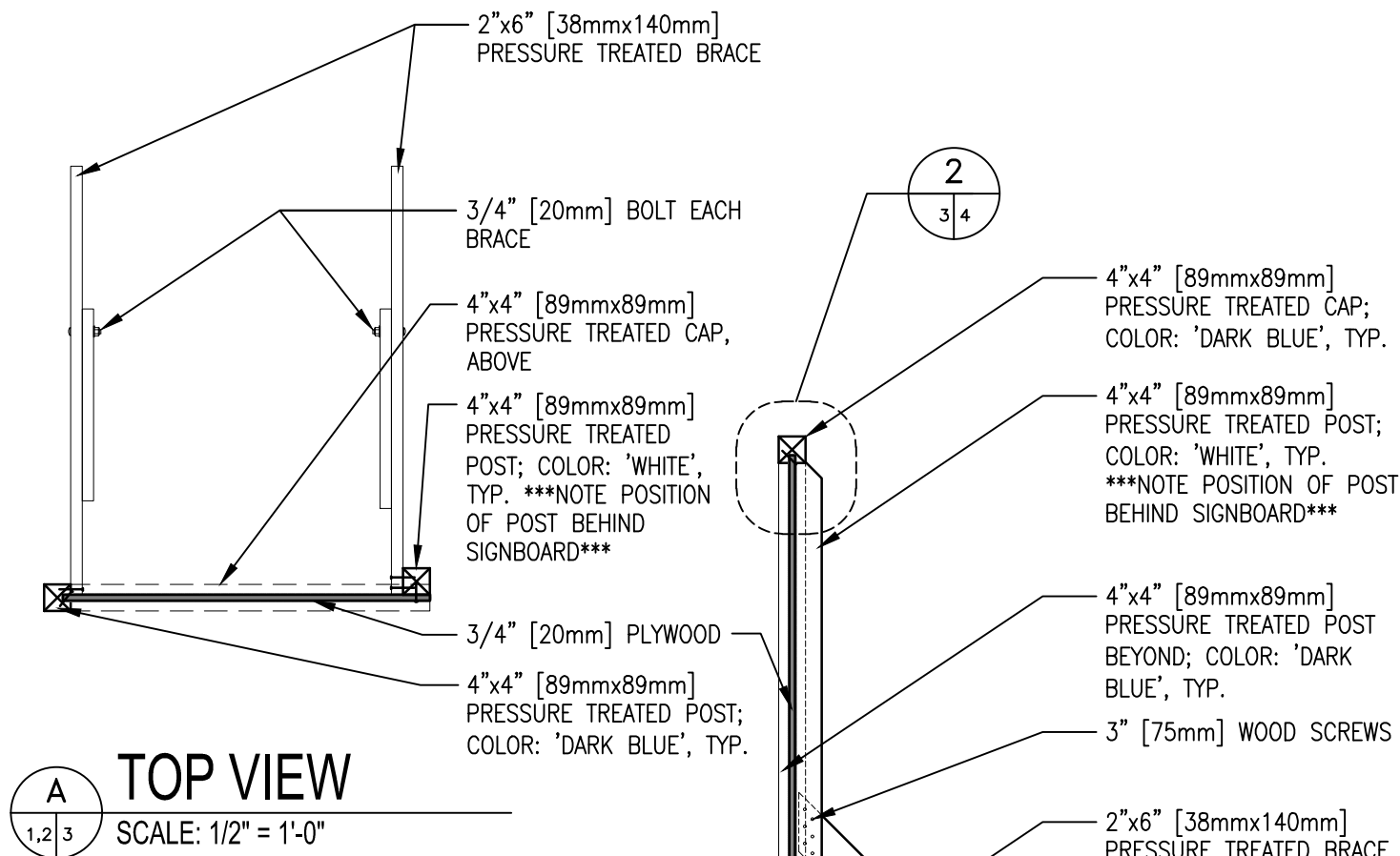
Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

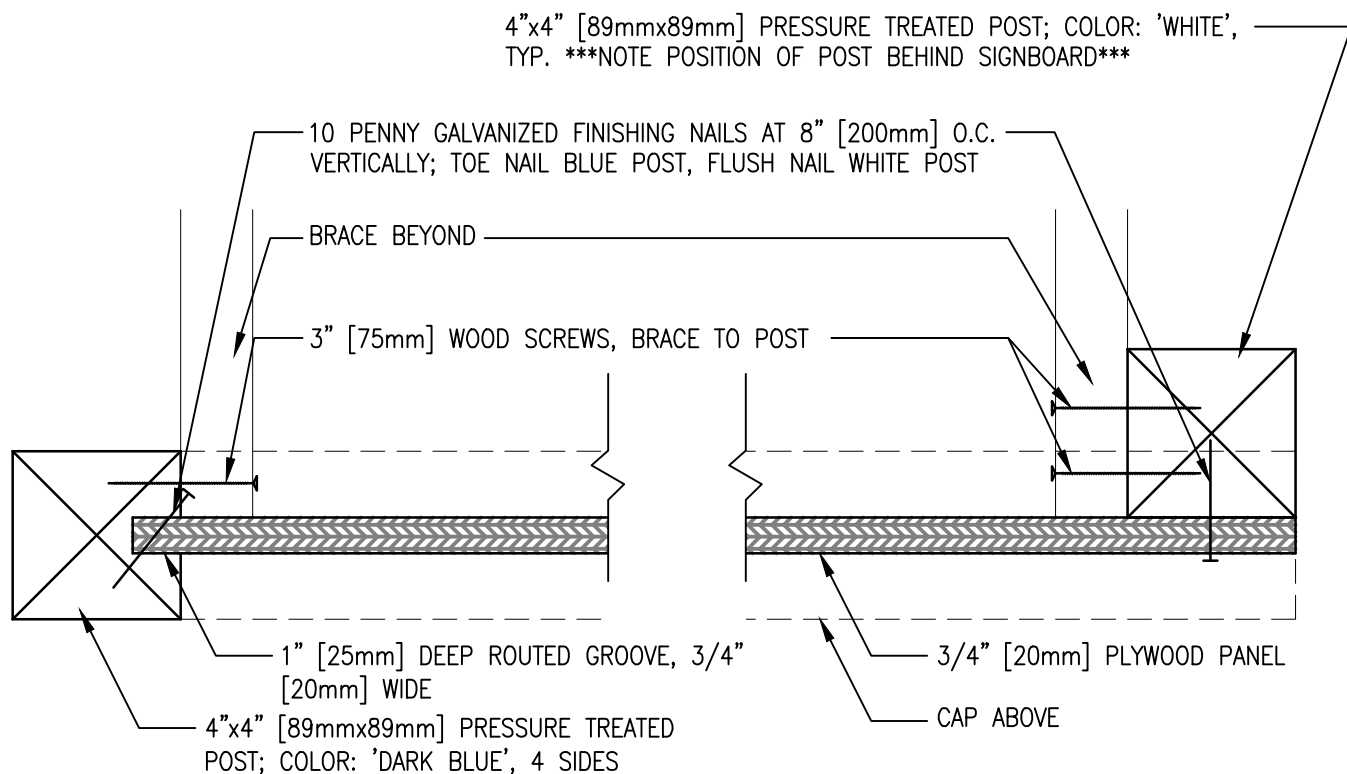




NOTES:

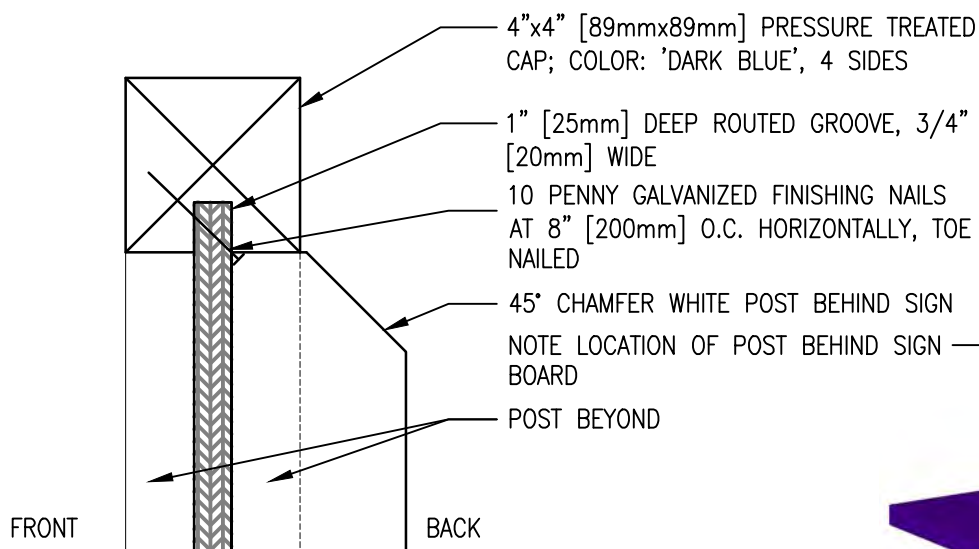
1. POSTS AND BRACES SHALL BE PRESSURE TREATED.
2. ALL FASTENERS SHALL BE ZINC COATED.
3. BRACING IS REQUIRED IN ALL SOIL CONDITIONS AND HIGH WIND ENVIRONMENTS.

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
PROJECT IDENTIFICATION SIGNBOARD
SUPPORT DETAILS



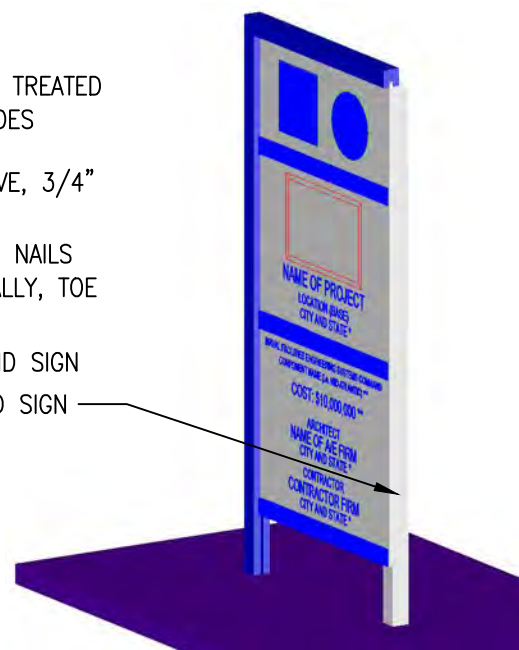
1 PLAN SECTION

SCALE: 3" = 1'-0"



2 SECTION AT TOP

SCALE: 3" = 1'-0"



3 ISO VIEW

SCALE: NONE

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
PROJECT IDENTIFICATION SIGNBOARD SECTIONS

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
02/19, CHG 1: 08/20

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)

40 CFR 273	Standards for Universal Waste Management
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

1.2 DEFINITIONS

1.2.1 Co-mingle

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

1.2.2 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.

1.2.3 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.

1.2.4 Disposal

Depositing waste in a solid waste disposal facility, usually a managed landfill, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.2.5 Diversion

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

1.2.6 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.

1.2.7 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.

1.2.8 Reuse

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

1.2.9 Salvage

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

1.2.10 Source Separation

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

1.3 CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)

Divert a minimum of 60 percent by weight of the project construction waste and demolition debris/waste from the landfill. 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.

1.4 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.

1.4.1 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.

1.4.2 Oversight

The Environmental Manager, as specified in Section 01 57 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME), is responsible for overseeing and documenting results from executing the construction waste management plan for the project and is responsible for all waste being disposed of in accordance with the Contract Documents and state and Federal regulations. If any waste materials are removed from the Portsmouth Naval Shipyard or Facility not in compliance with the requirements stated in the Contract Documents, the person assigned as the Environmental Manager is subject to removal by the Contracting Officer for non-compliance with requirements specified in the Contract. 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. The Contractor will be responsible to take all required actions to address and correct any non-compliance as well as paying any fines as a result of improper handling or disposal. This will reflect poorly on the Prime Contractor's performance rating (CPARS) and noted in their final performance evaluation.

1.4.3 Special Programs

Implement any 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.

1.4.4 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.

1.4.5 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 streams not listed:

- a. Land Clearing Debris
- b. Asphalt
- c. Masonry and CMU
- d. Concrete
- e. Metals (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum,

copper, zinc, bronze, etc.)

- 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

1.5 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

Construction Waste Management Plan; G

SD-11 Closeout Submittals

Final Construction Waste Diversion Report; G

1.6 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 00.00 22 QUALITY CONTROL (PWD ME). At a minimum, discuss and document waste management goals at following meetings:

- a. Preconstruction and Pre-demolition meeting.
- b. Regular Quality Control meetings.
- c. Work safety meeting (if applicable).

1.7 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 15 calendar days after Contract Award. Revise and resubmit Construction Waste Management Plan until it receives final approval from the Contracting Officer, in order for construction to begin. Execute demolition or deconstruction activities in accordance with Section 02 41 00 DEMOLITION AND DECONSTRUCTION. 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/or 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 any 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. Facilities or Subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bill of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packagings, and 49 CFR 178 Specifications for Packaging. Individuals signing manifests or other shipping documents should meet the minimum training requirements.
- m. List each supplier who deliver construction materials, in bulk, or package products in returnable containers or returnable packaging, or have take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.

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

1.8 RECORDS (DOCUMENTATION)

1.8.1 General

Maintain records to document the types and quantities of waste generated and diverted through re-use, recycling and/or sale to third parties; through disposal to a landfill or incinerator facility. Provide explanations for any 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.

1.8.2 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.

1.9 FINAL CONSTRUCTION WASTE DIVERSION REPORT

A Final Construction Waste Diversion Report is required at the end of the project. Provide the Contracting Officer the 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 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME). 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 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 Portsmouth Naval Shipyard.

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.

1.12 ADDITIONAL REPORTING AND RECORDING REQUIREMENTS

Provide monthly cost and revenue data to the NAVFAC Midlant Integrated Solid Waste Management office. Submit report by e-mail to: IntegratedSolidWasteManagement@navy.mil no later than the 3rd of each month. Data must be reported on an excel document provided by the Contracting Officer. Comply with the requirements specified in Appendix 01 74 19-1, CONSTRUCTION AND DEMOLITION SOLID WASTE REPORT.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

CONSTRUCTION AND DEMOLITION SOLID WASTE REPORT				
SITE: _____		Month: _____		
Contractor's Company Name: _____		Contract # _____		
Contractor's POC and Telephone or Email Address: _____				
Project Description: _____				
SECTION 1	Tons	Cost	Revenue	Remarks
Recycled (tons)				
Concrete(incl: brick & block)				
Wood				
Metal				
Asphalt				
Green waste(clearing debris)				
Dirt				
Sand				
Gravel/Rock				
Mixed				
Misc				
Subtotal - Recycled	0.00	\$ -	\$ -	
SECTION 2				
Landfilled (tons)				
Concrete(incl: brick & block)				
Wood				
Metal				
Asphalt				
Green Waste(clearing debris)				
General C&D				
Dirt				
Sand				
Gravel/Rock				
Mixed				
Misc				
Subtotal - Landfilled	0.00	\$ -	\$ -	
Solid Waste (tons)				
Total Solid Waste	0.00	\$ -	\$ -	

REPORTING DEADLINE IS NO LATER THAN THE 3RD OF EACH MONTH
--

SECTION 01 78 00.00 22

CLOSEOUT SUBMITTALS (PWD ME)
05/21

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 (2005; R 2011) Standard Guide for
Stewardship for the Cleaning of Commercial
and Institutional Buildings

GREEN SEAL (GS)

GS-37 (2017) Cleaning Products for Industrial
and Institutional Use

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N (2014; with Change 4, 2018) Navy and
Marine Corps Design

UFC 1-300-08 (2009, with Change 2, 2011) Criteria for
Transfer and Acceptance of DoD Real
Property

1.2 DEFINITIONS

1.2.1 As-Built Drawings

As-built drawings are the marked-up drawings, maintained by the Contractor on-site, that depict actual conditions and deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: Contract modifications; official responses to submitted Requests for Information (RFI's); direction from the Contracting Officer; design that is the responsibility of the Contractor; and differing site conditions. Maintain the as-builts throughout construction as red-lined 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 prepared by the Contractor.

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.

1.4 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-03 Product Data

Warranty Management Plan

One (1) paper and one (1) pdf set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags

Two (2) paper record copies and one pdf copy of the warranty tags showing the layout and design.

Final Cleaning

Two (2) copies of the listing of completed final clean-up items.

Spare Parts Data

Two (2) paper copies and one pdf copy of the list that indicates manufacturer's name, part number, nomenclature, and stock level recommended for maintenance and repair. List those items that may be standard to the normal maintenance of the systems.

SD-08 Manufacturer's Instructions

Preventative Maintenance; G and Condition Monitoring (Predictive Testing); G and Inspection; G schedules with instructions that state when systems should be retested.

Define within the schedule the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements. On each test feature; e.g., gpm, rpm, psi, provide a signoff blank for the Contractor and Contracting Officer. Within a remarks column of the testing validation procedure include references to operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventative maintenance, condition monitoring (predictive testing) and inspection, adjustment, lubrication, and cleaning necessary to prevent failure.

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format. Refer to Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI) for additional requirements.

SD-11 Closeout Submittals

As-Built Drawings; G

Record Drawings; G

Drawings showing final as-built conditions of the project. The final CADD record drawings must consist of one (1) set of electronic CADD drawing files in the specified electronic format saved on a CD, one (1) set of mylar drawings, two (2) sets of blue-line prints of the mylars, and one (1) set of the approved working Record drawings.

As-Built Record of Equipment and Materials

Two (2) paper copies and one pdf copy of the record listing the as-built materials and equipment incorporated into the construction of the project.

Certification of EPA Designated Items; G

Certification Of USDA Designated Items; G

Interim DD FORM 1354; G

Checklist for DD FORM 1354; G

Red Zone Documents per Section 01 30 00.00 22; G

eOMSI, Final Submittal per Section 01 78 24.00 20; G

Post Installation Sanitary System Survey per Section 22 00 00; G

1.5 SPARE PARTS DATA

Submit two (2) 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.

Supply two (2) items of each part for spare parts inventory. Provision of spare parts does not relieve the responsibilities listed under the Contract warranty provisions.

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

The Performance Bond must remain effective throughout the construction and warranty period.

- a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.
- b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.
- c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.6.3 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 PROJECT CLOSEOUT DOCUMENTS

1.7.1 As-Built Record of Equipment and Materials

Furnish one (1) copy of preliminary record of equipment and materials used on the project 15 working days prior to final inspection. This preliminary submittal will be reviewed and returned 5 working days after final inspection with Government comments. Submit two (2) sets of final record of equipment and materials 10 working days after final inspection. Key the designations to the related area depicted on the Contract Drawings. List the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used
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1.7.2 Final Approved Shop Drawings

Furnish final approved project shop drawings 30 calendar days after transfer of the completed facility.

1.7.3 Construction Contract Specifications

Furnish final record (as-built) construction Contract Specifications, including modifications thereto, 30 calendar days after transfer of the completed facility.

1.7.4 Real Property Equipment

Furnish a list of installed equipment furnished under this Contract. Include all information usually listed on a manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. Furnish a draft list at time of transfer. Furnish the final list 30 calendar days after transfer of the completed facility.

1.7.5 Red Zone Documents

Submit Red Zone Documents in accordance with Section 01 30 00.00 22 ADMINISTRATIVE REQUIREMENTS (PWD ME). Failure to provide acceptable and timely Red Zone Documents as specified may reflect poorly on the Prime Contractor's performance evaluation.

1.7.6 eOMSI, Final Submittal

Submit eOMSI, Final Submittal in accordance with Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI). Failure to provide an acceptable and timely final eOMSI submittal as specified may reflect poorly on the Prime Contractor's performance evaluation.

1.7.7 Post Installation Sanitary System Survey

Submit Post Installation Sanitary System Survey CD in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

1.8 PREVENTATIVE MAINTENANCE

Submit Preventative Maintenance and Condition Monitoring (Predictive Testing) and Inspection schedules with instructions that state when systems should be retested.

Define the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a signoff blank for the Contractor and the Contracting Officer for each test feature; e.g., gpm, rpm, psi. Include 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 preventative maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize corrective maintenance and repair.

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.

1.9 COMMISSIONING

1.9.1 Building Commissioning

All Contract requirements for building commissioning must be completed prior to Contract completion. Failure to provide acceptable and timely commissioning services as specified may reflect poorly on the Prime Contractor's performance evaluation.

1.9.2 HVAC Commissioning

All Contract requirements of Commissioning of HVAC Systems must be fully completed, including all testing concurrent with Building Commissioning. All Contract requirements of Testing, Adjusting, and Balancing of HVAC Systems must be fully completed, including testing and inspection, prior to HVAC commissioning, except as noted otherwise in the Section for Testing, Adjusting, and Balancing for HVAC. All Contract requirements of Space Temperature Control Systems, Direct Digital Control for HVAC and Other Control Systems, or BACnet Direct Digital Control for HVAC and Other Building Control Systems must be fully completed, including all testing, prior to HVAC commissioning. The time required to complete all work and testing as prescribed in the specifications is included in the allotted calendar days for completion.

1.10 FINAL CLOSEOUT DOCUMENTS

Failure to provide acceptable closeout documents as specified above may reflect poorly on the Prime Contractor's performance and noted in their final performance evaluation.

PART 2 PRODUCTS

2.1 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9 Estimate of Percentage of Recovered Material Content for EPA Designated Items and FAR 52-223-17 Affirmative Procurement of EPA designated items in Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current EPA standards for recycled/recovered materials content. The following exemptions may apply to the non-procurement of recycled/recovered content materials:

- a. The product does not meet appropriate performance standards;
- b. The product is not available within a reasonable time frame;
- c. The product is not available competitively (from two or more sources);
- d. The product is only available at an unreasonable price (compared with a comparable non-recycled content product)."

Record each product used in the project that has a requirement or option of containing recycled content, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Recycled content values may be determined by weight or volume percent, but must be consistent throughout.

2.2 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the Certification of USDA Designated Items as required by FAR 52-223-1 Bio-based Product Certifications and FAR 52.223-2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current USDA standards for biobased materials content. The following exemptions may apply to the non-procurement of biobased content materials:

- a. The product does not meet appropriate performance standards;
- b. The product is not available within a reasonable time frame;
- c. The product is not available competitively (from two or more sources);
- d. The product is only available at an unreasonable price (compared with a comparable bio-based content product)."

Record each product used in the project that has a requirement or option of containing biobased content, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Biobased content values may be determined by weight or volume percent, but must be consistent throughout.

PART 3 EXECUTION

3.1 AS-BUILT DRAWINGS

Provide and maintain two black line print copies of the PDF Contract Drawings for As-Built Drawings. Maintain the as-builts throughout construction as red-lined hard copies on site and red-lined 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. 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, manholes, utility structures, 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 structures and pipes 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 FC 1-300-09N 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 FC 1-300-09N. Provide four copies of Record Drawings and Documents on separate CDs or DVDs 30 days after BOD.

3.3 PROJECT RECORD DOCUMENTS

3.3.1 Record Drawings

This paragraph covers Record Drawings complete, as a requirement of the Contract. The terms "drawings," "Contract Drawings," "drawing files," "working as-built record drawings," and "final record drawings" refer to Contract Drawings (hard copy and CADD) which are revised to be used for final record drawings reflecting current project as-built conditions.

3.3.1.1 Government Furnished Materials

One (1) set of electronic CADD files in the specified software and format of the Contract Drawings will be provided by the Government at the preconstruction conference for projects requiring Final Record Drawings in CADD format.

3.3.1.2 Working Record and Final Record Drawings

Revise two (2) sets of hard copy paper Contract Drawings by red-line process described herein to reflect the current as-built conditions during the prosecution of the project. Keep the working as-built drawings current and keep at least one set available on the jobsite for review at all times. Changes from the Contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. **After the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project) provide one (1) set of working as-built drawings (CADD) in the specified software and format, hard copy and electronic, to the Contracting Officer.** The working as-built drawings, hard copy and (CADD), will be jointly reviewed for accuracy, completeness, and format by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. Failure to maintain the working as-built drawings, hard copy and (CADD) as specified herein, will result in the Contracting Officer deducting from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. Items to be shown on the working as-built drawings, hard copy and (CADD) are, but are not limited to, the following information:

- a. The actual location (horizontal and vertical position based on the datum established for the Contract Documents, 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, as a back-up to the horizontal and vertical position, feature must also be shown by offset dimensions to two (2) permanently fixed surface features at the end of each run including each change in direction. Locate valves, manholes, utility structures, 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 of pipe, fittings, valves, manholes, utility structures, etc.
- b. The actual location (horizontal and vertical position based on the datum established for the Contract Documents, kind, and size of any sub-surface feature uncovered not accurately represented on the Contract Drawings.
- c. The location and dimensions of any changes within the building structure.
- d. Changes in grade, elevations, cross section, or alignment of roads, earthwork, structures, or utilities.
- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including, but not limited to, fabrication, erection, installation plans and placing details, pipe sizes, insulation

material, dimensions of equipment foundations, etc.

- f. The topography, invert elevations, and grades of drainage installed or affected as part of the project construction.
- g. Changes or modifications which result from the final inspection.
- h. Where Contract Drawings or specifications present options, identify the option selected for construction on the working as-built prints.
- 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. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures:
 - (1) Both sets of the hard copy paper Contract working as-built drawings must be neat, legible, and accurate. Any drawings damaged, lost or corrupted by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.
 - (2) For text deletions/revisions; strikeout existing drawing text with a single line as to not obscure or make the original text unreadable. Place the new text adjacent, clearly annotating the intent of the change.
 - (3) For line work; strikeout entities with parallel lines drawn at 45 degrees to the object, not to obscure or make the original object unreadable. Place the new object in its correct location and clearly annotate the intent of the change.
 - (4) Place a Revision Symbol at the location of each modification on the drawing sheet along with descriptive annotations of the revision.
 - (5) For details, sections, or schedules which are added to a drawing sheet, place a Revision Symbol by the detail, section, or schedule title.
 - (6) For major changes to a drawing, place a Revision Symbol by the title of the affected plan, section, or detail at each location.
 - (7) For changes within schedules, place a Revision Symbol by the change in the schedule.
 - (8) The Revision Symbol must be a Delta sized to allow for a capital letter to fit within. The letter must have a height of not less than 1/8-inch when plotted.
 - (9) The revision symbol letter must be consistent for all drawing modifications for each monthly billing cycle. Drawing modifications for the first monthly billing cycle must be designated as "A" for all modifications throughout the drawing

package. The next month's revisions must be designated as "B" throughout the drawing package, and so on.

3.3.1.3 Drawing Preparation

At project completion, provide two (2) sets of the approved hard copy paper Contract Drawings modified to reflect the final as-built conditions of the project to the Contracting Officer. Modify the Contract Drawings as necessary to correctly show the features of the project as it has been constructed by bringing the Contract Drawings into agreement with the second set of approved working as-built drawings. The second set of approved working as-built drawings are also part of the permanent records of this project and must be returned to the Contracting Officer after final approval of the Record Drawings by the Government. Any drawings or drawing files damaged, lost or corrupted must be satisfactorily replaced at no expense to the Government.

3.3.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings to modify the Contract Drawings or prepare any additional drawings sheets required. Modifications, to the Record Drawings must be equal in quality and detail to that of the original Contract Drawings and per PWD ME CADD Standards and As-Built CADD Standards. (For information on PWD Maine CADD standards, please e-mail Preston Gowen at preston.gowen@navy.mil.)

Line colors, line weights, lettering, layering conventions, and symbols must remain consistent throughout the record drawing set, regardless of either as-built or record drawing. Modify the original Contract Drawing files to reflect the Construction Contract as-built conditions reviewed and accepted by **the Contracting Officer**. Each as-built condition added to a drawing file must be encapsulated by a closed polygon or "revision cloud." A revision symbol must be placed outside the "revision cloud" with the appropriate letter designating the revision sequence. Annotate in the "revision block" of each drawing file modified as to the type of revisions made to the drawing file. The Contract Drawings are to be edited to reflect the as-built conditions only. No part of the original drawings must be deleted, erased or rendered illegible. Parts of the Contract Drawing found to be in error or modified during construction, must be over struck using methods described not to obscure the original drawing, and annotations must be added adjacent that clearly explain the modification, including accurate dimensions locating the feature. If additional drawings are required, the drawings must be prepared using the specified electronic file format applying, the same graphic standards specified for the original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used to create the Contract Drawings. Modifications, additions, and corrections to the Contract Drawings must be made to the electronic AutoCAD file(s). The original Contract Drawing files in the AutoCAD software format currently in use by PWD-ME will be furnished on a compact disc (CD). Provide all computer software and hardware necessary to prepare the final record drawing set. The Contracting Officer will review the final record drawing set for accuracy and return them for required corrections, changes, additions, and deletions.

a. Provide Record Drawings (CADD) in the following format:

- (1) As-built Layering; follow original drawing layer naming conventions followed by "-AB".

- (2) Deletions (Cyan) - Over-strike deleted graphic items (lines), lettering in notes and leaders.
 - (3) Additions (Cyan) - Added items, lettering in notes and leaders.
 - (4) Special (Cyan) - Items requiring special information, coordination, or special detailing or detailing notes.
 - (5) Furnish the Contract record drawing files in the AutoCAD software format currently in use by PWD-ME.
- b. Drawing files modified for as-built condition must be renamed by adding an underscore and the letters "AB" to the end of the existing file name. Drawing files where no modifications were required must be renamed by adding an underscore and the letters "RD" to the end of the existing file name.
 - c. When final revisions have been completed to the record drawing set, add the wording "RECORD DRAWINGS / AS-BUILT CONDITIONS" followed by the name of the Contractor in letters at least 3/16 inch high in the lower left hand corner of the cover sheet drawing. Mark all other Contract Drawings in the same location and manner as either "Record Drawing" denoting no revisions on the sheet or "As built Drawing" denoting modifications, additions, or corrections have been made to the drawing sheet. Modify the revision block to reflect either "record drawing", for no changes or "as built drawing", for changes and date for submittal.
 - d. Within 20 working days after Government approval of all of the working record drawings for a phase of work, prepare the CADD electronic files for that phase of work and submit for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 working days revise the CADD files accordingly at no additional cost to the Government and submit one set of final prints for the completed phase of work to the Government.
 - e. Within 20 working days of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one (1) set of electronic files on compact disc, read-only memory CD-ROM, one (1) set of mylars and one set of the approved working record drawings. They must be complete in all details and identical in form and function to the Contract Drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files, and storage media submitted will become the property of the Government upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due under this Contract. Approval and acceptance of final record drawings must be accomplished before final payment is made.

3.4 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA. Refer to Section 01 78 24.00 20

FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI)
for additional requirements.

3.5 CLEANUP

Provide final cleaning in accordance with ASTM E1971 and submit two copies of the listing of completed final clean-up items. Leave site and surrounding 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 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME) and 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

3.6 REAL PROPERTY RECORD

Refer to UFC 1-300-08 for instruction on completing the DD FORM 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD FORM 1354.

3.6.1 Interim DD FORM 1354

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete, update draft DD FORM 1354 attached to this Section, and submit an accounting of all installed property with Interim DD FORM 1354. Include any additional assets, improvements, and alterations from the Draft DD FORM 1354.

3.6.2 Completed DD FORM 1354

For convenience, a blank fillable PDF DD FORM 1354 may be obtained at the following link:
www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd1354.pdf

Submit the completed Checklist for DD FORM 1354 of Installed Building Equipment items. Attach this list to the updated DD FORM 1354.

-- End of Section --

TRANSFER AND ACCEPTANCE OF DoD REAL PROPERTY

Form Approved
OMB No. 0704-0188

PAGE 1 OF 2 PAGES

The public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Washington Headquarters Services, Executive Services Directorate, Information Management Division, 4800 Mark Center Drive, Alexandria, VA 22350-3100 (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

1. FROM (Organization Name) MIDLANT				2. DATE PREPARED (YYYYMMDD) 20211210		3. PROJECT/JOB NUMBER eProjects No. 1591147		4. SERIAL NUMBER		8. TRANSACTION DETAILS					
5. TO (Organization - Installation Code and Name) NSS Portsmouth Naval Shipyard Kittery, Maine UIC: N32446				6. RPSUID/SITENAME/ INSTCODE/INSTNAME Portsmouth Naval Shipyard		7. CONTRACT NUMBER(S) N40085-16-D-3006		7a. PLACED-IN-SERVICE DATE (YYYYMMDD)		a. METHOD (X all that apply)			b. WHEN/EVENT (X one)		
										<input type="checkbox"/> ACQUISITION BY CONSTRUCTION <input type="checkbox"/> TRANSFER BETWEEN SERVICES <input checked="" type="checkbox"/> CAPITAL IMPROVEMENT <input type="checkbox"/> INVENTORY ADJUSTMENT			<input checked="" type="checkbox"/> TOTAL ASSET PLACED-IN-SERVICE <input type="checkbox"/> PARTIAL ASSET PLACED-IN-SERVICE		
										c. TYPE (X one)					
										<input checked="" type="checkbox"/> DRAFT <input type="checkbox"/> FINAL <input type="checkbox"/> INTERIM					
9. ITEM NO.	10a. FACILITY NO.	10b. RPUID	11. CATEGORY CODE	12. CATCODE DESCRIPTION	13. TYPE CODE	14. SUST. CODE	AREA		OTHER		19. COST	20. FUND SOURCE	21. FUND ORG	22. INTER-EST CODE	23. ITEM REMARKS
15. PRIMARY UM	16. PRIMARY UM QUANTITY	17. SECONDARY UM	18. SECONDARY UM QUANTITY												
1.	B79		61010	Administrative / Nuclear Engineering Office	P	3	SF				\$	MIL	Navy		
24. STATEMENT OF COMPLETION. The facilities listed hereon are in accordance with maps, drawings, and specifications and change orders approved by the authorized representative of the using agency except for the deficiencies listed on the reverse side.										25a. ACCEPTED BY (Typed Name and Signature)				b. DATE SIGNED (YYYYMMDD)	
a. TRANSFERRED BY (Typed Name and Signature)						b. DATE SIGNED (YYYYMMDD)				c. TITLE (DPW/RPAO)				26. PROPERTY VOUCHER NUMBER	
c. TITLE (Area Engr./Base Engr./DPW/Construction Agent)															

27. CONSTRUCTION DEFICIENCIES (Attach blank sheet for continuations)

28. PROJECT REMARKS (Attach blank sheet for continuations)

INSTRUCTIONS

GENERAL. This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 290B (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of DD Form 1354 are applicable to this revised form to the extent that the various items and columns on the superseded forms have been retained. The military departments may promulgate additional instructions, as appropriate.

For detailed instructions on how to fill out this form, please refer to Unified Facilities Criteria (UFC) 1-300-08, dated 16 April 2009 or later.

SPECIFIC DATA ITEMS.

1. From. Name of the transferring agency.

2. Date Prepared. Date of actual preparation. Enter all dates in YYYYMMDD format (Example: March 31, 2010 = 20100331).

3. Project/Job Number. Project number on a DD Form 1391 or Individual Job Order Number.

4. Serial Number. Sequential serial number assigned by the preparing organization (e.g., 2010-0001).

5. To. Name and address of the receiving installation, activity, and Service of the Real Property Accountable Officer (RPAO).

6. RPSUID/SITENAME/INSTCODE/INSTNAME. Site Unique Identifier and name or installation code and name where the constructed facility is located.

7. Contract Number(s). Contract number(s) for this project.

7a. Placed-In-Service Date. RPA Placed In Service Date. This is the date the asset is actually placed-in-service.

8. Transaction Details.

- Method of Transaction. Mark (X) as many boxes as apply.
- When/Event. When or event causing preparation of DD Form 1354. X only one box.
- Type. Draft, interim, or final DD Form 1354. X only one box.

9. Item Number. Use a separate item number for each facility, no item number for additional usages.

10a. Facility Number. Assigned in accordance with the Installation/Base Master Numbering Plan.

10b. RPUID. Identified in Real Property Inventory.

11. Category Code. The category code describes the facility usage.

12. Catcode Description. The category code name which describes the facility usage.

13. Type. Type of construction: P for Permanent; S for Semi-permanent; T for Temporary.

14. Sustainability Code. Reports whether or not an asset meets the sustainability guidelines set forth in Section 2(g) of Executive Order 13514. Valid values are: 1 (asset meets the guidelines); 2 (asset does not meet the guidelines); 3 (asset not evaluated); 4 (asset not subject to guidelines).

15. Area: UM 1. Area unit of measure; use the unit of measure associated with the category code selected in 11.

16. Total Quantity UM 1. The total area for the measure identified in Item 15. Use negative numbers for demolition.

17. Other: UM 2. Unit of Measure 2 is the capacity or other measurement unit (e.g., LF, MB, EA, etc.).

18. Total Quantity UM 2. The total capacity/other for the measure identified in Item 17.

19. Cost. Cost for each facility; for capital improvements to existing facilities, show amount of increase only. If there is no increase for the capital improvement, enter N/A.

20. Fund Source. Enter the Fund Source Code for this item.

21. Funding Organization. Enter the code for the organization responsible for acquiring this facility.

22. Interest Code. Enter the code that reflects government interest or ownership in the facility.

23. Item Remarks. Remarks pertaining only to the item number identified in Item 9; show cost sharing.

24. Statement of Completion. Typed name, signature, title, and date of signature by the responsible transferring individual or agent.

25. Accepted By. Typed name, signature, title, and date of signature by the RPAO or accepting official.

26. Property Voucher Number. Next sequential number assigned by the RPAO in voucher register.

27. Construction Deficiencies. List construction deficiencies in project during contractor turnover inspection.

28. Project Remarks. Project level remarks and continuation of blocks.

NAVFAC MID-ATLANTIC

**Public Works Department
Maine**

PORTSMOUTH NAVAL SHIPYARD

AS-BUILT CADD STANDARDS

June 2014



NAVFAC Midlant PWD makes these documents available on an “as is” basis. This document including attached file(s) and contained information is (are) provided as guidance NAVFAC Midlant PWD. All warranties and representations of any kind with regard to said documents are disclaimed, including the implied warranties of merchantability and fitness for a particular use. NAVFAC Midlant PWD does not warrant the documents against deficiencies of any kind and makes no claims, promises or guaranties about the accuracy, completeness, or adequacy of the contents of the files, and expressly disclaims liability for error and omissions thereof.

STANDARDS FOR EDITING EXISTING CONTRACT DRAWINGS TO REFLECT AS-BUILT CONDITIONS

Following are the *Standards* for editing existing contract drawings to reflect the construction as-built conditions for **NAVFAC MID-ATLANTIC; Public Works Department Maine (PWD-ME)**. The purpose of these *Standards* is to provide a uniform system of drawing formats. This system will be used in retrieving information from the drawings in the future. Also, these *Standards* were established to eliminate various recurring problems encountered when transferring electronic files from non-government sources. All drawings modifications found to be generated outside of these standards will be returned to the drawing provider for correction at no additional cost to the **GOVERNMENT**.

As-built Drawings:

Drawing Sets:

The contractor shall maintain at the jobsite one set of full-size hard copy prints of the contract drawings, accurately marked in red with adequate dimensions, to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction. **Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the contract drawings.** Existing utility lines and features revealed during the course of construction shall also be accurately located and dimensioned, using permanent existing features and station coordinates as a reference. Acceptable features include; building corners, centers of utility manhole covers, fire hydrants, etc. Existing topographic features that differ from those shown on the contract drawings shall also be accurately located and recorded. Where a choice of materials or methods is permitted herein or where variations in scope or character of work from that of the original contract are authorized, the drawings shall be marked to define the construction provided. The representations of such changes shall conform to standard drafting practices and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction. These drawings shall be available for review by the Contracting Officer at all times. Upon completion of the work, the marked up prints shall be certified as correct, signed by the Contractor, and delivered to the Contracting Officer for review by **PWD-ME**. After acceptance of the as-builts, the contractor will add the as-built information to the original contract drawing files and plot new Mylar reflecting the as-built conditions.

Requests for partial payments will not be approved if the marked prints are not kept current. Request for final payment will not be approved until Contracting Officer receives delivery of the original electronic contract drawing CADD files, modified to reflect the as-built conditions and new Mylar plotted to reflect the as-built conditions.

Computer Aided Drafting Design (CADD) As-built Drawings:

File formats:

Although all methods of CADD drawing are permitted, the final product of all computer-aided drawings shall be made compatible with the **AutoCAD** currently in use by **PWD-ME** Drawings

created using non-AutoCAD programs that do not support AutoCAD's DWG file format, shall be transferred to the Drawing Interchange Format (DXF).

If the drawing provider's CADD software does not support the DXF format, it is the responsibility of the drawing provider to contact the Contracting Officer who will in turn contact the **PWD-ME** to make special arrangements for file transfer.

Each drawing file must not depend on any other drawing file to completely represent the finished product (*Mylar*). All drawings found to use dependent external reference drawings, **will be returned to the drawing provider for correction.**

Each drawing file must not depend on any "**THIRD PARTY**" utility or software to represent the finished Mylar. Before using any third party software to create a finished product, the drawing provider shall verify that no additional cost or effort is required by the **PWD-ME** to completely represent the finished product (*Mylar*).

Drawing Sheets:

Electronic files of the contract drawings shall be provided to the Contractor following award of the contract. The contractor will add the accepted as-built conditions to the original electronic file of the drawing sheet. If additional sheets need to be added to the contract drawing package because of insufficient sheet space, it is the responsibility of the Contractor to ensure the PWD-ME CADD Drawing Standards are obtained and followed. Additional drawing numbers will be assigned by **PWD-ME** personnel prior to submittal of as-built drawings.

Basic Drawing Standards:

Electronic As-builts:

The contractor shall modify the original contract drawing files to reflect the construction contract as-built conditions reviewed and accepted by **the Contracting Officer**. Each as-built condition added to a drawing file shall be encapsulated by a closed polygon or "revision cloud. A revision symbol shall be placed outside the "revision cloud" with the appropriate letter designating the revision sequence. The contractor shall annotate in the "revision block" of each drawing file modified as to the type of revisions made to the drawing file. The contract drawings are to be edited to reflect the as-built conditions only. No part of the original drawings shall be deleted, erased or rendered illegible. Parts of the contract drawing found to be in error or modified during construction, shall be over struck using methods described not to obscure the original drawing, and annotations will be added adjacent that clearly explain the modification, including accurate dimensions locating the feature.

Drawing Sheet Management:

Where construction projects encompass multiple facilities (buildings) or systems (utilities), all plans, details, legends, notes etc., for an individual facility or system must appear on the drawing sheets for each facility or system. Standardized details must appear on the drawing sheets for each facility or system where they apply. Cross-referencing details between facilities or systems is not permitted.

Drawing Units:

All drawings of buildings, structures, floor plans, etc. are to be drawn full size, with one drawing unit equal to one inch. All site plans, location plans, etc. are to be drawn full size, with one drawing unit equal to one foot. The original drawing's origin shall not be modified.

Entity Management:

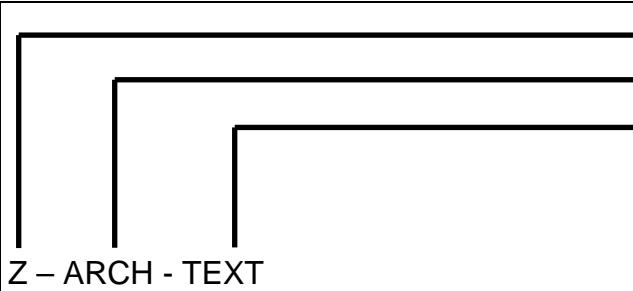
All additions to the original contract drawings will be made on additional layers as designated below. The minimum text height for the "D" size sheet is 1/8in plotted and 3/32in plotted for the "B" size sheet. All as-built modification layers are to be **CYAN** in, including all annotations, dimensions, leaders and callouts.

Entities discovered during construction but not represented on the original construction drawings shall be assigned to layers as described below. This information shall be added to the drawing in such a way not to obscure any original drawing entity when plotted.

Level/layer Management:

All drawing entities shall be grouped together by layer. Drawing entities shall be assigned to layers by discipline code for that entity, see table page D4. This includes non-text entities such as strikeouts, lines, circles, symbols, etc. See Table-1 for typical layer-naming.

Table-1

	As-built Code (Always "Z")
	Discipline Code (Non-text entities)
	Annotations (Text describing the As-built Condition)

Identify entities by discipline. For instance: the example below shows layering configuration for all architectural as-built entities **EXCLUDING TEXT** that deviate from the original design:

Z-ARCH.

Annotations, dimensions, leaders and callouts for those architectural entities shall be assigned to layer:

Z-ARCH-TEXT.

All annotations shall be assigned to layers by discipline and designated as **TEXT**.

Each layer name will follow the discipline code for that entity. See Table-2 for Discipline Descriptions:

Table-2

<i>Discipline Code:</i>	<i>Discipline:</i>	<i>Description:</i>
ARCH	Architectural	Architectural design, building's interior/exterior, walls, doors, windows etc.
CIVIL	Civil	Site work, external to buildings and structures. Typically surface work.
ELEC	Electrical	Electrical work pertaining to buildings/structures internal/external and distribution.
FP	Fire Protection	Fire Protection systems pertaining to buildings/structures internal/external
GEN	General	Typically drawing information, general notes, symbols, etc....
MECH	Mechanical	Mechanical work, HVAC components, compressed air, etc. pertaining to buildings/structures internal/external
PLUMB	Plumbing	Plumbing, piping and fixtures, etc.. pertaining to buildings/structures internal/external
UTIL	Utilities	Utility distribution systems, duct work, manholes and piping/cabling underground/direct buried
STRUC	Structural	All structural work, building framing, conc. duct reinforcement, misc. steel work, etc.
TELE	Telecommunications	Phone lines, cable TV, computer data lines, etc. pertaining to buildings/structures internal/external

Electronic Deliverables:

Submit all as-built documentation and drawing files to the Contracting Officer via recordable CD in the file formats discussed in this and other sections. Electronic transfer of files via E-mail or other methods is not permitted.

Standards Deviation:

Contact the Contracting Officer if questions arise about these standards or these drawing standards cannot be followed. Otherwise, all drawing files will be returned to the drawing provider for correction at no additional cost to the **PWD-ME**.

Last updated June 18, 2014

NAVFAC MID-ATLANTIC

**Public Works Department
Maine**

PORTSMOUTH NAVAL SHIPYARD

CADD STANDARDS

June 2014



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1. CADD STANDARDS

All design documents and deliverables prepared by In-House forces and/or contracted A/E firms including IDIQ, Design Bid-Build and Design-Build process shall conform to the following NAVFAC MIDLANT and PWD-ME CADD standards areas not addressed on this standard shall follow:

- UFC 1-300-09N

U.S. DEPARTMENT OF DEFENSE (DOD) [UFCs available on <http://dod.wbdg.org/>]

These are NAVFAC MIDLANT PWD-MAINE specific guidelines that supersede all others for contract documents utilized for execution. Refer to the U.S. National CAD Standard Version 3.0 for any items not covered in this or the referenced NAVFAC UFCs.

1. A. General: (for both Design-Build and Design-Bid-Build)

For drawing templates, pen tables, sample symbology, and instructions on sheet arrangement & procedures, see attached NAVFAC MIDLANT PWD-MAINE; Sheet Border Use and Procedures. Provide *.PDF format of all drawing sheets at each submittal phase. In addition, provide *.PDF and *.DWG format of all drawing sheets at the final design submission. CADD files shall be made available upon request, in addition to the full size, stamped Mylar and half-size hard copies or as directed by the specific contract specifications.

1. B. Design Drawings

Prepare, organize, and present design drawings in accordance with the requirements of UFC 1-300-09N.

All drawings and their associated PDFs will maintain a “PRELIMINARY Not for Construction” stamp across the signature areas of the title block, until the actual final design submittal. The stamp shall be in translucent lettering across the Project Title area of the drawing title block and shall be displayed on layer “G-ANNO-TTLB-PRLM”. The “G-ANNO-TTLB-PRLM” shall be off for final submittal.

Design revisions shall be tracked by number and date in the revision block of each drawing sheet during the design process. Design revisions shall be assigned to layer “G-ANNO-TTLB-PRLM” and shall be frozen for final submittal.

1. C. Drafting Conventions

1. C.1. Fonts

The standard text height for a plotted D-size drawing shall be **1/8”** for typical text, and **1/4”** for titles, and **1”** maximum for project titles on cover sheets. The standard text height for a plotted B-size drawing shall be **3/32”** for typical text, and **1/8”** for titles, and **1/2”** maximum for project titles on cover sheets. For typical text, use the “**RomanS**” font. For titles, use the “**Swis 721**”

BT” font. Both fonts shall have a width ratio of no less than **0.8**.

ROMANS – 1/8” TALL

Swis 721 BT – 1/4” TALL (up to 1”)

These are the only fonts that should be used within the drawing area, with one exception: on civil site plans, the Design Manager (EIC/AIC) may use text (“RomanS” font, 1/8” height {Leroy 100}, 0.8 width factor, with an oblique angle of 12 degrees) to annotate existing site features only. Typical (or Normal) text as defined above must be used for all other annotations.

1. C. 2. Symbols

Approved symbology in use by PWD-ME is provided on the PWD-ME title sheet. On the PWD-ME title and standard sheet, borders and plot styles shall delivered at each project design kickoff MTG.

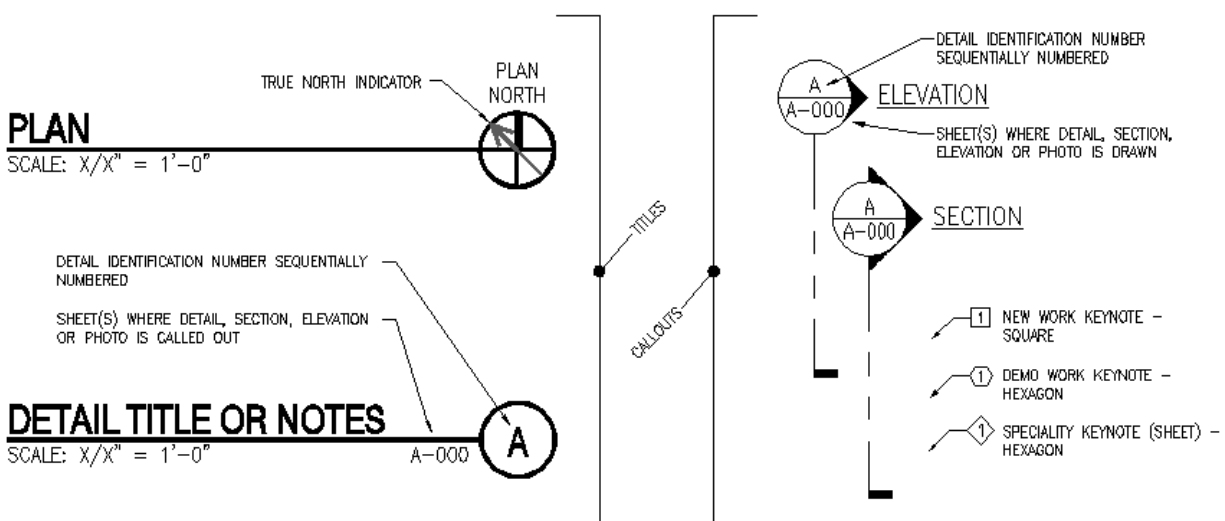


Figure 3-1 PWD-ME Approved Symbols

Note that detail, section, elevation and photograph callouts utilize two-part bubbles which indicate a detail identification number and identify sheet where the detail, section, elevation or photo is shown. Additional sheet(s) on which the detail is called out is (are) displayed to the bottom left of the bubble.

1. C. 3. Line Weights / Pen Tables

NAVFAC’s Electronic Documents and Deliverables Working Group (EDDWG) developed a comprehensive pen table that utilized the National Cad Standard 255-pen table as a basis, but added much needed thinner lines and additional grayscales (shaded or screened pens) that had not made the transition from the original US Coast Guard standard. The NAVFAC-specific pen

table is provided as filename **NavFacStd.ctb**.

The pen tables can be thought of in groups of 20. After pen 19, pens 20 thru 39 are in the “Rust” range when displayed on screen. The first 10 (pens 20 – 29) look “Rust” and print shades of “Rust”; while the second 10 (pens 30 – 39) look “Rust” but print Black. Typically, design drawings for contract documents utilize the pens that print Black (currently colored pens are used for renderings and some other instances, but not normally on contract drawings).

Since these pen tables are established to be legible when printed at full-size (22”x34”), the corresponding text height is 1/8”. To be consistent, the related B-size (11”x17”) & A-size sheet (8-1/2”x11”)—normally used for sketches, uses fonts and line weights that are ½ the size of the large format (D-size) documents—otherwise the fonts are too big and the line weights are too bold. The associated pen table for B-size & A-size documents is **NavFacStd-Sketch.ctb**

1. D. NAVFAC Logo

A NAVFAC Publications/Logo Guide will be published at a later date, but in the interim, all deliverables shall have the NAVFAC Brand Logo on the title block area of the drawing border (as displayed in the Templates). The logo should not be removed, deleted, or turned off and should appear on all PDFs to be utilized for the electronic bid solicitations. If contract drawings are produced by an A/E firm and that firm desires to have their logo on the drawings then the A/E must apply that logo to all sheets consistently in the same location. Typically that is in the lower- or upper-right hand corner of the drawform, adjacent to the title block.

1. E. Units of Measure

Unless otherwise directed, for all projects the default shall be English units of measurement (U.S. Customary System of units). All drawings, specifications, cost estimates, and design calculations shall reference this system of units.

1. F. Datums and Coordinate Systems

VERTICAL DATUM: All elevations, grades, or profiles shall be represented in U.S. feet and referenced to NAVD88 vertical datum and will be provided as required.

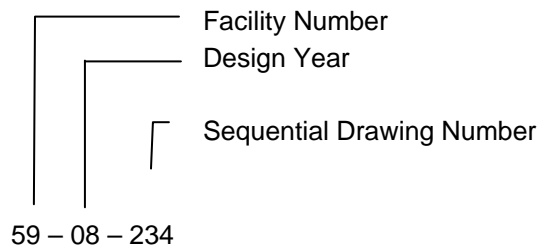
HORIZONTAL DATUM: All Portsmouth Naval Shipyard mapping, utility information, site drawings and surveys are represented in U.S. feet and referenced to the state plane coordinate system, NAD83 Maine west, zone 1802. All electronic mapping and utility information shall be maintained to this system.

1. G. Drawing Numbers/File Naming

In addition to NAVFAC drawings numbers discussed in UFC 1-300-09N, Chapter 4-3, “Drawing Numbers” the Government Project Manager will provide PWD (Public Works Department) Drawing Numbers for each drawing sheet, similar to NAVFAC drawing numbers. The PWD Drawing Number to be requested by the drawing provider at the 100% design stage. The CADD

files shall be named by the PWD drawing number in accordance with the following guidance: The CADD file for each ANSI D (22" x 34") size drawing sheet shall be named by the corresponding PWD Number, minus the design year designator. Where the assigned PWD Number is: 59-08-501 the corresponding CADD file shall be named 059-501.DWG. Where a single drawing file is used to create multiple drawing sheets via layout tabs, the drawing file shall be named by the PWD Number of the first drawing sheet of the drawing set. Drawing sets shall be arranged by discipline.

PW Number



CADD File Name

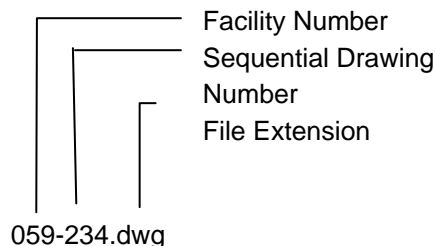


Figure 7-1 DRAWING NUMBERS/FILE NAMING

Files for sketches, drawings other than ANSI D (22" x 34") size shall be named by construction contract number and sheet number of the first sheet of the sheet set.

1. G. 1. File Naming Convention for PDF Files:

ADOBE PDF file naming shall follow CADD file naming methods.

1. H. Electronic Submittals

Submit all CADD files for the final drawings in Autodesk Drawing (*.DWG) compatible with current PWD-ME CADD format. Drawing files shall be full files, uncompressed and unzipped. All submitted CADD files shall maintain their original and complete data structure as produced in their native Autodesk application (i.e. Architectural Desktop, Land Development Desktop, Civil 3D, Building Systems...). All files utilizing AutoCAD's "Xref" feature shall be delivered with all external files "bound" to the drawing file. There shall be no external references in the final drawing file.

Multiple layout tabs are allowed, the tabs shall be annotated by PWD number for each sheet as described in section PWD-ME 7.0 Drawing Numbers/File Naming. The electronic file(s) shall be named by the PWD number of the first sheet of the sheet set. When required, the drawing file shall be split by sheet discipline. Corresponding PDF files shall be grouped into one file and named by the project title.

1. I. Record Documents ...1.10.1 Record Drawings (As-Built drawings, G)

The Quality Control Manager shall deliver the marked-up As-Built drawings to the [Contractor's](#) Designer of Record who shall incorporate all as-built modifications.

The as-built modifications shall be accomplished by electronic drafting methods on the original CADD (*.DWG) design drawing files to create a complete set of record drawings. For each Record drawing, provide a CADD drawing identical to signed [A/E- or] Contractor-originated *.PDF drawings, that incorporates modifications to the as-built conditions. In addition, copy initials and dates from the Contracting Officer approved *.PDF documents to the title block of the Record CADD (*.DWG) drawings. The Record electronic files shall use the file name of the original signed CADD drawing file name with the suffix “-RD” before the file extension, “.DWG” (example; 059-501-RD.dwg – see Drawing File Naming). The original design, RFP, reference, or definitive drawings are not required for inclusion in the Record set of drawings.

After all as-built conditions are recorded on the CADD (*.DWG) files, produce a PDF file of each individual record drawing in conformance with UFC 1-300-09N. Generate PDF drawing files using a PDF page size that corresponds to the original document sheet size (NAVFAC utilizes an ANSI D-size, 22”x34” frame and a 0” border all around) and a PDF print resolution that results in clear detail of all drawing features.

Provide one set of signed and stamped record drawings, plotted on Mylar that fully represent the PDF file. Provide all project final submittals including as-builts in accordance with UFC 1-300-09N Chapter 7-5.2. Each CD-ROM shall be marked with Project Name, Construction Contract Number, Project Number, Specification Number, and Record Drawing date.

1. I. 1. Source Documents

In addition to the drawings provide the specifications, design analysis, reports, survey data, calculations, and any other contract documents utilized in creating the design package (drawings, specifications, and cost estimate) on the CD-ROM disk(s) as specified in preceding paragraph.

1. J. Forwarding Submittals

The [A/E- or] Contractor shall provide all submittals, that lend themselves to paper format (i.e. 8-1/2”x11” documents, 11”x17” or tabloid sheets, or 22”x34” drawings), in electronic *.PDF (Portable Document Format) to the Contracting Officer. The appropriate forwarding e-mail address(es) will be provided at the Pre-Construction meeting. Provision of electronic submittals with appropriate electronic transmittal may alleviate some of the paper copies required herein but must be verified at Pre-Construction meeting. In such instances a minimum of one hard copy shall be forwarded to the Contracting Officer.

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA
08/15, CHG 1: 11/20

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 (2005; R 2011) Standard Guide for
Stewardship for the Cleaning of Commercial
and Institutional Buildings

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-10 Operation and Maintenance Data

Training Plan; G

Training Outline; G

Training Content; G

SD-11 Closeout Submittals

Training Video Recording; G

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.

Coordinate the work of this Section with Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI).

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 4 for commissioned items without a specified data package requirement in the individual technical Sections. Provide a Data Package 4 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.

1.3.4 Commissioning Provider (CxC) Review and Approval

Submit the commissioned systems and equipment submittals to the Commissioning Provider (CxC) to review for completeness and applicability. Obtain validation from the CxC that the systems and equipment provided meet the requirements of the Contract Documents and design intent, particularly as they relate to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. The CxC must communicate deficiencies to the Contracting Officer. Submit the O&M manuals to the Contracting Officer upon a successful review of the corrections, and with the CxC recommendation for approval and acceptance of these O&M manuals. This work is in addition to the normal review procedures for O&M data.

1.4 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.

1.4.1 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.

1.4.2 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/eProjects 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

1.5 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.

1.5.1 Operating Instructions

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.5.1.1 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 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME). Provide recommended safeguards for each identified hazard.

1.5.1.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.5.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown, and Post-shutdown operating procedures including the control sequence for each procedure.

1.5.1.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.5.1.5 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.

1.5.1.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.5.1.7 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.

1.5.1.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.5.1.9 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.

1.5.2 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.

1.5.2.1 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.

1.5.2.2 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 trade/craft requirements by type of trade/craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

- a. Define the anticipated time required to perform 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.

1.5.2.3 Cleaning Recommendations

Provide environmentally preferable cleaning recommendations in accordance with ASTM E1971.

1.5.3 Repairs

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.

1.5.3.1 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.

1.5.3.2 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.

1.5.3.3 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.5.3.4 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.

1.5.3.5 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.

1.5.3.6 Repair Work-Hours

Provide manufacturer's projection of repair work-hours including requirements by type of trade/craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.5.4 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:

1.5.4.1 Product Submittal Data

Provide a copy of SD-03 Product Data submittals documented with the required approval.

1.5.4.2 Manufacturer's Instructions

Provide a copy of SD-08 Manufacturer's Instructions submittals documented with the required approval.

1.5.4.3 O&M Submittal Data

Provide a copy of SD-10 Operation and Maintenance Data submittals documented with the required approval.

1.5.4.4 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.

1.5.4.5 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 00.00 22 CLOSEOUT SUBMITTALS (PWD ME).

1.5.4.6 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 00.00 22 CLOSEOUT SUBMITTALS (PWD ME).

1.5.4.7 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.

1.5.4.8 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.

1.5.4.9 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.

1.5.4.10 Field Test Reports

Provide a copy of Field Test Reports (SD-06) submittals documented with the required approval.

1.5.4.11 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.

1.6 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 is as follows:

1.6.1 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

1.6.2 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

1.6.3 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

1.6.4 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. Maintenance and repair procedures
- o. Removal and replacement instructions
- p. Spare parts and supply list
- q. Maintenance and 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

1.6.5 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
- v. Additional requirements for HVAC control systems

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 (FMS), 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 00.00 22 CLOSEOUT SUBMITTALS (PWD ME). Address aspects of the eOMSI Manual, as submitted in Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI). 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) and Commissioning Provider (CxC) prior to forwarding to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer and QC Manager and CxC. 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 CxC is responsible for overseeing and approving the content and adequacy of the training. Provide a brief summary of the FACILITY INFORMATION manual, and a more detailed presentation of the PRODUCT AND DRAWING MANUAL, specified in Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI). 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 eOMSI Manual files as specified in Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI), 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 (2) 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 (2) 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 CxC and QC Manager in accordance with Section 01 45 00.00 22 QUALITY CONTROL (PWD ME).

-- End of Section --

SECTION 01 78 24.00 20

FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI)
02/15, CHG 2: 11/20

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. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N (2014; with Change 4, 2018) Navy and
Marine Corps Design Procedures

1.2 DEFINITIONS AND ABBREVIATIONS

1.2.1 eOMSI Manual

Manual (PDF file) provided by the Contractor that includes, but is not limited to, product information, a facility description with photos, and a list of primary facility systems.

1.2.2 eOMSI Facility Data Workbook (FDW)

A Microsoft Excel file containing required facility information populated by the Contractor.

1.2.3 Systems

The words "system", "systems", and "equipment", when used in this document refer to as-built systems and equipment.

1.2.4 Computer Assisted Design and Drafting (CADD)

Electronic Computer Assisted Design and Drafting graphic software program that is used to create facility design Contract Documents and Record Drawings.

1.2.5 KTR

An abbreviation for "Contractor."

1.3 eOMSI MEETINGS

1.3.1 Pre-eOMSI Development Meeting

Be prepared to discuss the following during this meeting:

- a. eOMSI Manual and eOMSI Facility Data Workbook Development Meetings
- b. Processes and methods of gathering eOMSI Manual and eOMSI Facility Data Workbook information during construction.
- c. The eOMSI Submittals schedule. Include the eOMSI submittal schedule

on the Baseline Construction Schedule.

- d. Electronic eOMSI Facility Data Workbook file for Contractor's use and completion.

1.3.2 eOMSI Manual and Facility Data Workbook Coordination Meeting

Facilitate a meeting after the Pre-OMSI Development Meeting prior to the submission of the eOMSI Progress Submittal. Meeting attendance must include the Contractor's eOMSI Manual and Facility Data Workbook Preparer, and Quality Control Manager, CxC, and the Government's Design Manager (DM), Contracting Officer's Representative, and NAVFAC Public Works (PW) Facilities Management Division (FMD). Include any Mechanical, Electrical, and Fire Protection Sub-Contractors.

The purpose of this meeting is to reach a mutual understanding of the scope of work concerning the Contract requirements for eOMSI and coordinate the efforts necessary by both the Government and Contractor to ensure an accurate collection, preparation and timely Government review of eOMSI.

1.3.3 Facility Turnover Meeting

Include eOMSI in NAVFAC Red Zone (RZ) facility turnover meetings as specified in Section 01 30 00.00 22 ADMINISTRATIVE REQUIREMENTS (PWD ME).

1.4 SUBMITTAL SCHEDULING

1.4.1 eOMSI, Progress Submittal

Submit the Progress submittal when construction is approximately 50 percent complete to the Contracting Officer for approval. Provide eOMSI Manual Files (Bookmarked PDF) and eOMSI Facility Data Workbook (Excel). Include the elements and portions of system construction completed up to this point.

The purpose of this submittal is to verify progress is in accordance with Contract requirements as discussed during the eOMSI Coordination Meeting. Field verify a portion of the eOMSI information in accordance with paragraph FIELD VERIFICATION.

1.4.2 eOMSI, Prefinal Submittal

Submit the 100 percent submittal of the eOMSI Prefinal Submittal to the Contracting Officer for approval within 90 calendar days of the Beneficial Occupancy Date (BOD). This submittal must provide a complete, working document that can be used to operate and maintain the facility. Any portion of the submittal that is incomplete or inaccurate requires the entire submittal to be returned for correction. Any discrepancies discovered during the Government's review of the eOMSI Progress submittal must be corrected prior to the Prefinal submission.

The eOMSI Prefinal Submittal must include eOMSI Manual Files (Bookmarked PDF) and eOMSI Facility Data Workbook (Excel).

1.4.3 eOMSI, Final Submittal

Submit completed eOMSI Manual Files (Bookmarked PDF) and eOMSI Facility Data Workbook (Excel). The Final submittal is due at the BOD. Any

discrepancies discovered during the Government's review of the Prefinal eOMSI submittal, including the Field Verification, must be corrected prior to the Final eOMSI submission.

1.5 UNITS OF MEASURE

Provide eOMSI utilizing the units of measure used in the Government generated Contract Documents.

1.6 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-11 Closeout Submittals

eOMSI, Progress Submittal; G

eOMSI, Prefinal Submittal; G

eOMSI, Final Submittal; G

PART 2 PRODUCTS

2.1 eOMSI FILES FORMAT

Format eOMSI manuals and files in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA. Include a complete electronically linked operation and maintenance directory. Provide four (4) electronic copies of the eOMSI Manuals to the Contracting Officer for approval.

Provide eOMSI Facility Data Workbook on compact disks (CD) or data digital versatile disk (DVD) disks in (EXCEL) format. Scan eOMSI Manual Files and eOMSI Facility Data Workbook for viruses, malware, and spyware using a commercially available scanning program that is routinely updated to identify and remove current virus threats.

2.1.1 eOMSI Manual Organization

Organize the eOMSI Manuals into two parts: 1) Product and Drawing Information, and 2) Facility Information. Bookmark the PDF files for easy access to the information.

- a. Bookmark Product and Drawing Information documents in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.
- b. Bookmark Facility Information to at least one level lower than the major system.

2.1.2 eOMSI Manual CD or DVD Disk Label and Disk Holder or Case

Provide disks in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

2.2 eOMSI MANUAL

2.2.1 Product and Drawing Information

Provide an organized record of the facility products, materials, equipment, and minimum information necessary to operate the facility. Provide Product and Drawing Information for the systems in the final constructed facility.

2.2.1.1 O&M Data

As a minimum, provide the approved O&M Data, submitted in the technical specification Sections, in accordance with paragraph TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES in Section 01 78 23 OPERATION AND MAINTENANCE DATA.

2.2.1.2 Record Drawings

Provide an electronic, PDF copy of the Record Drawings, prepared in accordance with FC 1-300-09N and 01 78 00.00 22 CLOSEOUT SUBMITTALS (PWD ME). Bookmark drawings using the sheet title and sheet number.

Include Record Drawings as part of the Red-Zone specified in Section 01 30 00.00 22 ADMINISTRATIVE REQUIREMENTS (PWD ME).

2.2.1.3 Utility Record Drawings

Using Record Source Drawings, show and document details of the actual installation of the utility systems; annotate and highlight the eOMSI information. Provide Utility Record Drawings in PDF format. Provide the following drawings at a large enough scale to differentiate designated isolation units from surrounding valves and switches.

- a. Utility Schematic Diagrams - Provide a one line schematic diagram for each utility system such as power, water, wastewater, and gas/fuel. Schematic diagram must show from the point where the utility line is connected to the mainline up to the five-foot connection point to the facility. Indicate location or area designation for route of transmission or distribution lines; locations of duct banks, manholes/ handholes or poles; isolation units such as valves and switches; and utility facilities such as pump stations, lift stations, and substations.
- b. Enlarged Connection and Cutoff Plans - Provide enlarged floor plans that provide information between the five foot utility connection point and where utilities connect to facility distribution. Enlarge floor plans / elevations of the rooms where the utility enters the building and indicate on these plans locations of the main interior and exterior connection and cutoff points for the utilities. Also enlarge floor plans / elevations of the rooms where equipment is located. Include enough information to enable someone unfamiliar with the facility to locate the connection and cutoff points. Indicate designations such as room number, panel number, circuit breaker, or valve number, of each utility and equipment connection and cutoff point, and what that connection and cutoff point controls.

2.2.2 Facility Information

Provide the following in Facility Information:

2.2.2.1 General Facility and System Description

Detail the overall dimensions of the facility, number of floors, foundation type, expected number of occupants, and facility Category Code. List and generally describe all the facility systems and any special building features (for example, HVAC Controls, Sprinkler Systems, Cranes, Elevators, and Generators). Include photographs marked up and labeled to show key operating components and the overall facility appearance.

2.2.2.2 Floor Plans

Provide uncluttered, legible 11 by 17 inches floor plans. Include room numbers, type or function of spaces, and overall facility dimensions on the floor plans. Do not include items such as construction instructions, references, or frame numbers.

2.2.2.3 Floor Coverings, Wall Surfaces, and Ceiling Surfaces

Provide a table that lists by room number (including hallways and common spaces), the type, and area of finish, manufacturer's product name, identifying number, and color. Include a facility summary of the total area for each type of space and floor, wall, or ceiling finish in the table.

2.2.2.4 Windows

Provide a table that lists by room number (including hallways and common spaces), the type of window, window size, number of each size and type, special features, manufacturer's product name, identifying number, and color. The table must include a facility summary of the total number for each type and size of window.

2.2.2.5 Roofing

Provide the total area of each type of roof surface and system. Provide the name of the roofing product and system; manufacturer's, supplier's, and installer's names, addresses, and phone numbers; manufacturer's product name, identifying number, and color. For each type of roof, provide a recommended inspection, maintenance, and repair schedule that details checkpoints, frequencies, and prohibited practices. List roof structural load limits.

2.2.2.6 HVAC Filters

Provide a table that lists the quantity, type, size, and location of each HVAC filter, manufacturer's product name, and identifying number.

2.2.2.7 Plumbing Fixtures

Provide a table that lists by room number, the number and type of plumbing and bathroom plumbing fixtures (for example, sinks, water closets, urinals, showers, and drinking fountains).

2.2.2.8 Lighting Fixtures

Provide a table that lists by room number (including hallways and common spaces), the type of lighting fixture, ballast, number of lighting

fixtures, type of lamps and number of lamps, and the manufacturer's product name and the identifying number. The table must include a facility summary of the total number of fixtures of each type and number of lamps of each type.

2.2.2.9 Equipment Listing

Provide a table that lists the major equipment shown on the design equipment schedules. Show the item descriptions, locations, model numbers; and the names, addresses, and telephone numbers of the manufacturers, suppliers, Contractors, and Subcontractors.

2.2.2.10 System Flow Diagrams

Provide a flow diagram indicating system liquid, air, or gas flow during normal operations. Integrate the system components into the diagram. A compilation of non-integrated, flow diagrams for the individual system components are not acceptable.

2.2.2.11 Valve List

Provide a list of all valves associated with the system. Show valve type, identification number, function, location, and normal operating position.

2.2.2.12 Riser Diagrams

Provide riser diagrams and settings of equipment.

2.3 eOMSI FACILITY DATA WORKBOOK

An initial, pre-edited draft of the Model & Facility Data Matrix tab within the eOMSI Facility Data Workbook is included in Appendix A attached at the end of this Section. The Government will provide this eOMSI Facility Data Workbook electronically to the Contractor upon Award. Add, delete, and update Mastersystems, Systems, and Subsystems that may have changed during construction, or any items that may have been omitted or missed during design, at no additional cost to the Government. Complete the KTR Facility Data File tab based on the selection of Mastersystems, Systems, and Subsystems installed. The following tabs are included in the eOMSI Facility Data File Workbook and serve the purpose stated:

- a. Instructions Tab: Instructions for completing Model & Facility Data Matrix Tab and KTR Facility Data File Tab. If a discrepancy exists between what is required in this section and the Workbook, the instructions within the workbook take precedence.
- b. Model & Facility Data Matrix Tab: - The Matrix lists Required Facility Asset Fields for each SYSTEM and SUBSYSTEM. The Designer of Record selects SYSTEMS and SUBSYSTEMS that are within the project scope, which the Contractor needs to include and populate in KTR Facility Data File tab. The "Required Facility Asset Field Position Numbers," one through seventeen, are pre-populated, and are not editable.
- c. Required Facility Asset Fields Tab: Defines the 17 Required Facility Asset Field Position Numbers used in Model and Facility Data Matrix and KTR Facility Data File tabs.
- d. KTR Sample Facility Data File Tab: Sample KTR eOMSI facility data file. This tab provides an example of the mandatory fields of

equipment installed by the Contractor, and populated in the KTR eOMSI Facility Data File Tab, along with their descriptions.

- e. KTR Facility Data File Tab: Required eOMSI facility data file deliverable provided to the Government. Provide a separate and unique new row for each facility component or piece of equipment installed.

PART 3 EXECUTION

3.1 FIELD VERIFICATION

Field verify eOMSI Facility Data Workbook information with Contractor and Government personnel. Include the following personnel in this meeting: Contractor's eOMSI Manual and Facility Data Workbook Preparer and Quality Control Manager, and the Government's Contracting Officer's Representative and NAVFAC PW FMD. Request, and provide, an eOMSI Field Verification Meeting no sooner than 14 calendar days after submission of the Progress eOMSI submittal, and another, no sooner than 14 calendar days after submission of the Prefinal eOMSI submittal. During this meeting, the Government and Contractor will verify that the eOMSI Facility Data Workbook is complete and accurate.

Field verify that at least 5 Subsystems under each of the Mastersystems are accurate, for a total of 25 Subsystems. For each of these items, verify that the required facility asset field, as defined in the "Model & Facility Data Matrix" tab, contains the specified data and it is accurate (i.e. item description, manufacturer, model no., serial no.). 100 percent accuracy of eOMSI information is required for successful field verification. If data discrepancies are discovered amongst the 25 Subsystems verified, resubmit an updated eOMSI FDW, and request a make-up field verification meeting. At the make-up field verification meeting 25 new Subsystems and their associated required facility asset fields will be field verified; the 25 new Subsystems must be 100% accurate. Any discrepancies discovered must be corrected prior to the next eOMSI Facility Data Workbook Submittal.

- (1) D10 - CONVEYING
- (2) D20 - PLUMBING
- (3) D30 - HVAC
- (4) D40 - FIRE PROTECTION
- (5) D50 - ELECTRICAL

3.2 eOMSI TRAINING

Provide training on eOMSI Manuals and Facility Data Workbook in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

-- End of Section --

STEP 1: Is This a BIM Project?				No	Required Facility Asset Fields																
STEP 2: Select Yes or No in Column E for each MASTERSYSTEM, SYSTEM and SUBSYSTEM that is In the Project Scope				In Scope (Yes or No)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CLASSIFICATION ID	MASTERSYSTEM / SYSTEM / SUBSYSTEM Name	System Type	UOM		AssetNum	Description	Long Description	MASTERSYSTEM	SYSTEM	SUBSYSTEM	Building Number	Asset Quantity	Replacement Cost	Contract Number	Task/Delivery Order Number	Warranty Expiration Date	Installation Date	Room Number	Manufacturer	Model	Serial #
B10	B10 - SUPERSTRUCTURE	MASTERSYSTEM	•	Yes																	
B1010998	B1010998 - EXTERIOR STAIRS	SUBSYSTEM	FLIGHT	Yes																	
B1020	B1020 - ROOF CONSTRUCTION	SYSTEM	•	Yes																	
B1020108	B1020108 - STEEL DECK, BEAMS AND BAR JOIST	SUBSYSTEM	SF	Yes																	
B20	B20 - EXTERIOR ENCLOSURE	MASTERSYSTEM	•	Yes																	
B2010	B2010 - EXTERIOR WALLS	SYSTEM	•	Yes																	
B2010130	B2010130 - BRICK VENEER W/STUD BACKUP	SUBSYSTEM	SF	Yes																	
B2030	B2030 - EXTERIOR DOORS	SYSTEM	•	Yes																	
B2030220	B2030220 - STEEL DOORS	SUBSYSTEM	EA	Yes																	
B30	B30 - ROOFING	MASTERSYSTEM	•	Yes																	
B3010	B3010 - ROOF COVERING	SYSTEM	•	Yes																	
B3010105	B3010105 - BUILT-UP	SUBSYSTEM	SF	Yes																	
B3010320	B3010320 - ROOF DECK INSULATION	SUBSYSTEM	SF	Yes																	
B3010620	B3010620 - DOWNSPOUTS	SUBSYSTEM	LF	Yes																	
C10	C10 - INTERIOR CONSTRUCTION	MASTERSYSTEM	•	Yes																	
C1010126	C1010126 - DRYWALL W/STUD FRAMING	SUBSYSTEM	SF	Yes																	
C1010999	C1010999 - OTHER	SUBSYSTEM	EA	Yes																	
C1020	C1020 - INTERIOR DOORS	SYSTEM	•	Yes																	
C1020114	C1020114 - METAL DOOR	SUBSYSTEM	EA	Yes																	
C1020122	C1020122 - WOOD DOOR/METAL FRAME	SUBSYSTEM	EA	Yes																	
C1020124	C1020124 - WOOD FIRE DOORS/METAL FRAMES	SUBSYSTEM	EA	Yes																	
C1030	C1030 - FITTINGS	SYSTEM	•	Yes																	
C1030110	C1030110 - TOILET PARTITIONS	SUBSYSTEM	EA	Yes																	
C1030830	C1030830 - CABINETS	SUBSYSTEM	LF	Yes																	
C1030831	C1030831 - COUNTERTOP	SUBSYSTEM	LF	Yes																	
C20	C20 - STAIRS	MASTERSYSTEM	•	Yes																	
C2010	C2010 - STAIR CONSTRUCTION	SYSTEM	•	Yes																	
C2010110	C2010110 - STAIRS	SUBSYSTEM	FLIGHT	Yes																	
C30	C30 - INTERIOR FINISHES	MASTERSYSTEM	•	Yes																	
C3010	C3010 - WALL FINISHES	SYSTEM	•	Yes																	
C3010380	C3010380 - WALL TILE	SUBSYSTEM	SF	Yes																	
C3010999	C3010999 - OTHER	SUBSYSTEM	SF	Yes																	
C3020	C3020 - FLOORING	SYSTEM	•	Yes																	
C3020902	C3020902 - CARPET TILE	SUBSYSTEM	SF	Yes																	
C3020907	C3020907 - VINYL TILE	SUBSYSTEM	SF	Yes																	
C3020914	C3020914 - CERAMIC TILE	SUBSYSTEM	SF	Yes																	
C3030	C3030 - CEILING FINISHES	SYSTEM	•	Yes																	
C3030110	C3030110 - DRYWALL	SUBSYSTEM	SF	Yes																	
C3030210	C3030210 - ACOUSTICAL	SUBSYSTEM	SF	Yes																	
D20	D20 - PLUMBING	MASTERSYSTEM	•	Yes																	
D2010	D2010 - PLUMBING FIXTURES	SYSTEM	•	Yes																	
D2010110	D2010110 - TOILET	SUBSYSTEM	EA	Yes																	
D2010210	D2010210 - URINAL	SUBSYSTEM	EA	Yes																	
D2010310	D2010310 - LAVATORY	SUBSYSTEM	EA	Yes																	
D2010410	D2010410 - SINK	SUBSYSTEM	EA	Yes																	
D2010820	D2010820 - WATER COOLER	SUBSYSTEM	EA	Yes																	
D2020	D2020 - DOMESTIC WATER DISTRIBUTION	SYSTEM	•	Yes																	
D2020240	D2020240 - WATER HEATERS, COMMERCIAL, ELEC	SUBSYSTEM	EA	Yes																	
D2020905	D2020905 - PIPING/FITTINGS	SUBSYSTEM	LF	Yes																	
D2020906	D2020906 - CIRCULATING PUMP	SUBSYSTEM	EA	Yes																	
D2030	D2030 - SANITARY WASTE	SYSTEM	•	Yes																	
D2030902	D2030902 - WASTE/VENT PIPING	SUBSYSTEM	LF	Yes																	
D30	D30 - HVAC	MASTERSYSTEM	•	Yes																	
D3010	D3010 - ENERGY SUPPLY	SYSTEM	•	Yes																	
D3010999	D3010999 - OTHER	SUBSYSTEM	EA	Yes																	
D3020	D3020 - HEAT GENERATING SYSTEMS	SYSTEM	•	Yes																	
D3020906	D3020906 - EXPANSION TANK	SUBSYSTEM	EA	Yes																	
D3030	D3030 - COOLING GENERATING SYSTEMS	SYSTEM	•	Yes																	
D3030223	D3030223 - SPLIT DUCTLESS HEAT PUMP , OUTDOOR UNIT	SUBSYSTEM	EA	Yes																	
D3040	D3040 - DISTRIBUTION SYSTEMS	SYSTEM	•	Yes																	
D3040132	D3040132 - VAV TERMINAL	SUBSYSTEM	EA	Yes																	
D3040330	D3040330 - CIRCULATING PUMP, END SUCTION	SUBSYSTEM	EA	Yes																	
D3040610	D3040610 - HEAT EXCHANGER, PLATE TYPE	SUBSYSTEM	EA	Yes																	
D3040620	D3040620 - HEAT EXCHANGER, SHELL TUBE	SUBSYSTEM	EA	Yes																	

[illegible]

[illegible]

SECTION 01 91 00.15 20

TOTAL BUILDING COMMISSIONING
02/21, CHG 1: 05/21

PART 1 GENERAL

Total Building Commissioning (TBCx) is a systematic, quality-focused process for enhancing the delivery of a project that focuses on verifying and documenting that all of the commissioned systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the project requirements. The purpose is to reduce the cost and performance risks associated with delivering facilities projects, and to increase value to owners, occupants, and users.

1.1 SUMMARY

Commission the building systems listed herein. Employ the services of an independent Commissioning Firm. The Commissioning Firm must be a first tier subcontractor of the General or Prime Contractor and must be financially and corporately independent of other subcontractors. The Commissioning Firm must employ a Lead Commissioning Specialist that coordinates aspects of the commissioning process. Conform to the commissioning procedures outlined in this specification Section.

Project commissioning work is to be performed at the end of each phase of the project, for the work installed under the phase. This includes Phase 1 - Second Floor, Phase 2 - Third Floor, and Heating Plant Replacement Phase which could occur during either Phase 1 or Phase 2, or overlap the two phases depending on actual project schedule with regard to heating season.

1.2 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 HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)

ASHRAE 202 (2018) Commissioning Process for Buildings
and Systems

ASSOCIATED AIR BALANCE COUNCIL (AABC)

ACG Commissioning Guideline (2005) Commissioning Guideline

NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)

NEBB Commissioning Standard (2009) Procedural Standards for Whole
Building Systems Commissioning of New
Construction; 3rd Edition

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)

ANSI/SMACNA 014 (2013) HVAC Systems Commissioning Manual,

2nd Edition

1.3 DEFINITIONS

Commissioning Process (Cx) - a quality-focused process for enhancing the delivery of a project. Refer to ASHRAE 202 for a comprehensive description of the commissioning process.

Commissioning Provider (CxC) - The entity who leads, plans, and coordinates the Commissioning Team. The terms Commissioning Provider, Commissioning Firm, Lead Commissioning Specialist, Commissioning Specialist, and Commissioning Authority (CA or CxA) when used by sustainable Third Party Certification (TPC) programs, are interchangeable.

Commissioning Authority - The Government retains the authority for oversight and assurance of the entire commissioning process, and final approval of commissioning deliverables.

Government Acceptance Testing Representatives - Government Acceptance Testing Representatives perform the inherently Governmental function of technical oversight and quality assurance for critical systems, and is distinctly separate from the commissioning process. Government Acceptance Testing Representatives witness final testing of critical systems and report systems' acceptance to the COR. Submittals to be surveilled and approved by Government Acceptance Testing Representatives are identified in Section 01 33 00 SUBMITTAL PROCEDURES. Testing required to be witnessed by Government Acceptance Testing Representatives are identified in the associated system level specification Sections.

1.4 COMMUNICATION WITH THE GOVERNMENT

The Lead Commissioning Specialist (CxC) must submit plans, schedules, reports, and documentation directly to the Contracting Officer's Representative (COR) concurrent with submission to the QC Manager.

The Lead Commissioning Specialist must have direct communication with the Contracting Officer's Representative regarding elements of the commissioning process; however, the Government has no direct Contract Authority with the Lead Commissioning Specialist.

1.5 COMMUNICATION WITH GOVERNMENT ACCEPTANCE TESTING REPRESENTATIVES

The QC Manager must communicate directly with the Government Acceptance Testing Representatives and Contracting Officer's Representative regarding Government acceptance testing activities. Inform the Contracting Officer's Representative when systems are ready for testing to be witnessed by Government Acceptance Testing Representatives, and allow access to the construction site and system(s) to be tested.

1.6 SYSTEMS TO BE COMMISSIONED

Coordinate commissioning and quality control activities for the following systems, equipment, and associated controls. System-specific requirements are located in the associated specification Sections. Commission the following systems, equipment, and associated controls in accordance with this Section and the inspection, testing, and quality control requirements of their respective specification Sections:

- a. Heating, Ventilating, Air Conditioning, and Refrigeration Systems

(mechanical and passive) and associated controls

- b. Lighting Systems: automatic and manual daylighting controls, occupancy sensing devices, automatic shut-off controls, time switching, and other lighting control devices, and dimming systems
- c. Energy and building management and demand-control systems
- d. Plumbing Systems including Service Water Heating Systems and Fixtures with Automatic Controls
- e. Utility Metering Systems
- f. Integrated systems tests must include:
 - (1) Lighting controls override under fire alarm condition via lighting bypass relays.
 - (2) Restoration of normal lighting controls operation once the fire alarm system is reset.
 - (3) Power system monitoring of shunt trip switch circuit by the fire alarm system.
 - (4) Operation of the shunt trip switch and disconnection of power to selected loads in server room, including power down stream of uninterruptible power supplies (UPS).
 - (5) Restoration of electrical power once fire alarm system is reset.

1.7 COMMISSIONING TEAM

The Commissioning team must include, but is not limited to, the following team members.

Ensure all Construction Activities for systems to be commissioned are coordinated with the appropriate commissioning team members.

- a. Lead Commissioning Specialist (Cx/C)
- b. Quality Control Manager (QCM)
- c. Sub-Contractor Representatives for each trade responsible for construction/installation of systems to be commissioned
- d. Construction Manager (CM)
- e. Designer of Record (DOR)
- f. Technical Commissioning Specialists for each system to be commissioned
- g. TAB Representative
- h. Equipment manufacturer representatives
- i. Government Contracting Officer
- j. Government Representatives

- k. Government Acceptance Testing Representatives
- l. Installation Maintenance Representative
- m. Facility End User

1.8 PROJECT SCHEDULE

Include the following tasks in the project schedule. Ensure sufficient time is scheduled to complete each item. The order of items listed below is not intended to imply a specified sequence:

- a. Submission and approval of the Commissioning Firm Qualifications
- b. Submission and approval of the Design Review Report
- c. Submission and approval of the Interim and Final Construction Phase Commissioning Plans
- d. Commissioning Kickoff Coordination Meeting
- e. Regular Commissioning Coordination Meetings
- f. Installation of permanent utilities (gas, water, electric, steam and condensate, compressed air)
- g. Manufacturer's Equipment Start-Up for each of the systems to be commissioned
- h. Submission and approval of the Completed Pre-Functional Checklists
- i. Submission and approval of Certificate of Readiness for each system to be commissioned
- j. Functional Performance Testing for each system to be commissioned
- k. Integrated Systems Tests
- l. Post-test deficiency correction for each system to be commissioned
- m. Re-Testing
- n. Training for each of the systems to be commissioned
- o. Submission and approval of the Initial and Final Commissioning Reports
- p. Seasonal Testing
- q. Final testing required to be witnessed by Government Acceptance Testing Representatives, as identified in the associated system level specification Sections.
- r. Warranty Phase Site Visit
- s. Updated Commissioning report

1.9 PHASING

Commissioning activities for each project phase and building must be

scheduled separately and must correspond to each completion milestone in the master schedule.

1.10 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-06 Test Reports

Design Review Report; G

Interim Construction Phase Commissioning Plan; G

Final Construction Phase Commissioning Plan; G

Initial Commissioning Report; G

Issues Log; G

Completed Pre-Functional Checklists; G

SD-07 Certificates

Commissioning Firm; G

Certificate Of Readiness; G

SD-11 Closeout Submittals

Final Commissioning Report; G

Updated Final Commissioning Report; G

1.11 COMMISSIONING FIRM

Employ the services of a Commissioning Firm and all Commissioning Specialists required to perform work for this project. The Commissioning Firm must be a first-tier subcontractor that is financially and corporately independent from Contractor and all other subcontractors and the Designer of Record.

- a. Submit the Commissioning Firm's and Commissioning Specialists' qualifications, including the name of the firm and each CxC and each certification, no later than 30 calendar days after Notice to Proceed.
- b. If, for any reason, a specialist loses a certification during this period, immediately notify the Contracting Officer and submit another Commissioning Specialist for approval. Validate all work performed for this project by the CxC who lost a certification by an approved successor.

1.11.1 Commissioning Specialists (CxC)

Assign Lead Commissioning Specialist and other appropriate Commissioning Specialists for the systems to be commissioned.

1.11.1.1 Lead Commissioning Specialist (CxC)

Lead Commissioning Specialist (CxC) coordinates aspects of the commissioning process. Duties include leading and overseeing the commissioning work, and acting as the primary point of contact for the commissioning work. CxC may serve as a systems Specialist if all requirements for both designations are met. CxC must have a minimum of five (5) years of commissioning experience, including two (2) projects of similar size and complexity to this project.

CxC must be certified in one of the following:

NEBB qualified Systems Commissioning Administrator (SCA)

ACG Certified Commissioning Authority (CxA)

ICB/TABB Certified Commissioning Supervisor

BCA Certified Commissioning Professional (CCP)

AEE Certified Building Commissioning Professional (CBCP)

University of Wisconsin-Madison Qualified Commissioning Process Provider (QCxP)

ASHRAE Building Commissioning Professional (BCxP).

1.11.1.2 Commissioning Specialists

Commissioning Specialists with the following qualifications must perform the technical work associated with each system to be commissioned:

- a. Mechanical Commissioning Specialist: The technical work associated with mechanical systems to be commissioned must be performed by a Commissioning Specialist certified by NEBB, ACG, ICB/TABB, AEE, University of Wisconsin-Madison, ASHRAE, or BCA in the commissioning of HVAC systems with five (5) years of experience in the commissioning of HVAC systems.
- b. Electrical Commissioning Specialist: The technical work associated with electrical systems to be commissioned must be performed by an engineering technician with a minimum of five (5) years of experience inspecting, testing, and calibrating electrical distribution and generation equipment, systems, and devices.

1.11.2 Commissioning Standard

Comply with the requirements of the commissioning standard under which the Commissioning Firm and Specialists qualifications are approved. When the firm and specialists are certified by BCA, AEE, ASHRAE, or the University of Wisconsin-Madison, comply with the requirements of one of these acceptable standards: ACG Commissioning Guideline, NEBB Commissioning Standard, ANSI/SMACNA 014, or ASHRAE 202. Comply with applicable NETA testing standards for electrical systems.

- a. Implement recommendations and suggested practices contained in the Commissioning Standard and electrical test standards.
- b. Use the Commissioning Standard for aspects of Commissioning, including

calibration of instruments.

- c. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the Commissioning Standard, adhere to the manufacturer calibration recommendations.
- d. All quality assurance provisions of the Commissioning Standard such as performance guarantees are part of this Contract.
- e. The Commissioning Specialists must develop commissioning procedures for systems or system components not covered in the Commissioning Standard.
- f. Use new requirements, recommendations, and procedures published or adopted by the body responsible for the Commissioning Standard at the time of project Award.
- g. If there is a conflict between the requirements of the Contract Documents and the commissioning standard used, the Contract Documents take precedent.

1.12 ISSUES LOG

The Commissioning Specialist develops and maintain an Issues Log for the systems to be commissioned. The issues log documents and tracks resolution of deficiencies identified during submittal reviews, inspection, and testing. At any point during construction, any commissioning team member finding deficiencies may communicate those deficiencies in writing to the Commissioning Specialist for inclusion into the Issues Log. For each issue, the Issues Log includes, but is not limited to, a unique reference number, description of the issue with Contract requirement referenced, location of or equipment name/tags exhibiting the issue, the initials of the individual's name whom reported the issue, the date of first observation, the proposed resolution of the issue and date proposed, the date of subsequent observations with applicable additional information, and the date of implementation of the final resolution of the issue as confirmed by the Commissioning Specialist and Contracting Officer. Issues must not be deleted from the issues log.

CxC must submit the Issues Log monthly and within three (3) working days from changes to the Issue Log. The CxC is responsible for distributing the Issues Log to the Commissioning Team. The QC Manager is responsible for notifying the CxC and the Contracting Officer of outstanding deficiencies and tracking them to resolution in accordance with Section 01 45 00.00 22 QUALITY CONTROL (PWD ME), "Quality Control Plan".

1.13 CERTIFICATE OF READINESS

Prior to scheduling Functional Performance Tests, the Quality Control Manager must issue a Certificate of Readiness for each system, certifying that pre-functional checks have been completed, open issues have been resolved, and the system is ready for Functional Performance Testing. The Certificate of Readiness must include, for each system to be commissioned, equipment and system start-up reports; completed Pre-Functional Checklists; Testing, Adjusting, and Balancing (TAB) Report; Issues Log; and HVAC Controls Start-Up Reports to the extent applicable to the system. Sign and date the Certificate of Readiness, and include signatures and dates from the CxC; the Quality Control Representative; the Mechanical, Electrical, Controls, and TAB subcontractor representatives.

Submit the Certificate of Readiness for each system 14 calendar days prior to Functional Performance Tests of that system. Do not schedule Functional Performance Tests for a system until the Certificate of Readiness is approved by the Government.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 DESIGN REVIEW

The CxC and other Commissioning Specialists must review design documents. The design review must include verifying the Design Plans and Specifications for the systems to be commissioned are prepared in accordance with the Contract Documents.

Provide a Design Review Report identifying discrepancies or deficiencies that would prevent the systems to be commissioned from operating or performing in accordance with the design requirements or being safely maintained. Report must include individual list of each deficiency and corresponding corrective action necessary for proper system performance. The Contracting Officer, the CxC, and the Designers of Record for the associated systems must meet, discuss, and resolve outstanding items contained in the report no later than 14 calendar days after submission of the report. The CxC must verify that their review comments have been adequately addressed in subsequent design submittals.

3.2 CONSTRUCTION SUBMITTAL REVIEWS

Coordinate construction submittal document reviews for commissioned systems and assemblies with the CxC. The commissioning submittal review does not replace the Designer of Record (DoR) or Government submittal review, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

The CxC must identify construction submittals to be provided by the Contractor for the commissioned systems. The CxC must evaluate construction submittals for compliance with the Contract Documents. The DoR must consider the CxC's comments and provide direction to the Contractor as necessary. Provide a copy of final DoR submittal reviews with comment responses to the CxC. Include a copy of the submittal document review transmittal and response in the Commissioning Report.

3.3 COMMISSIONING KICKOFF MEETING

Conduct a Commissioning Kickoff Meeting, led by the CxC, after approval of the Commissioning Firm and Commissioning Specialists, and no later than 60 days following construction notice to proceed. Discuss the commissioning process including Contract requirements, lines of communication, roles and responsibilities, schedules, documentation requirements, inspection and test procedures, and logistics as specified in this Section.

The Quality Control team, Designer of Record, and the Government Acceptance Testing Representatives and other Government team members must attend this meeting. Invite the Facility End User to attend this meeting.

3.4 REGULAR COMMISSIONING COORDINATION MEETINGS

The Quality Control team, Designer of Record, and the Government Acceptance Testing Representatives and other Government team members must attend this meeting. Invite the Facility End User to attend this meeting.

CxC must conduct monthly commissioning coordination meetings when installation of commissioned systems begins. Provide status of commissioned systems, open issues log items, outstanding submittals, and upcoming commissioning activities. Conduct bi-weekly commissioning coordination meetings within 30 days of the scheduled date for functional performance testing.

3.5 CONSTRUCTION PHASE COMMISSIONING PLANS

The Interim Construction Phase Commissioning Plan identifies the commissioning and testing standards and outline the overall commissioning process, the commissioning schedule, the commissioning team members and responsibilities, lines of communication, and documentation requirements for the construction phase of the project. Submit the Interim Construction Phase Commissioning Plan 14 calendar days after the Construction Commissioning Coordination Meeting.

The Final Construction Phase Commissioning Plan includes the information provided in the Interim Construction Phase Commissioning Plan as well as the Pre-Functional Checklists, Integrated Systems Test Checklists, and Functional Performance Test Checklists for each building, for each system required to be commissioned, and for each component for inclusion in the Final Construction Phase Commissioning Plan. Submit the Final Construction Phase Commissioning Plan no later than 90 calendar days prior to the start of Pre-Functional Checks.

3.5.1 Pre-Functional Checklists

The Pre-Functional Checklists must include items for physical inspection or testing that demonstrate that installation and start-up of equipment and systems is complete. Refer to paragraph PRE-FUNCTIONAL CHECKS. Pre-functional checklists must be tailored to verify the specific installation requirements and details of the construction documents and manufacturer's instructions.

3.5.2 Functional Performance Test Checklists

Functional Performance Test Checklists must include procedures that explain, step-by-step, the actions and expected results that will demonstrate that the system performs in accordance with the Contract. Refer to paragraph FUNCTIONAL PERFORMANCE AND INTEGRATED SYSTEMS TESTS. Include the following sections and details appropriate to the systems being tested in the Functional Performance Test Checklists:

- a. Notable system features including information about controls to facilitate understanding of system operation
- b. Conclusions and recommendations. Conclusions must clearly indicate if system does or does not perform in accordance with Contract requirements. Recommendation must clearly indicate that the system should or should not be approved by the Government.
- c. Test conditions including date, beginning and ending time, and

beginning and ending outdoor air conditions

- d. Attendees
- e. Identification of the equipment involved in the test
- f. Control system feature identification
- g. Point-to-point observations including demonstrating system flow meters and sensors have been calibrated and are correctly displayed on the Operator work station
- h. Actuator operation observations demonstrating actuator responses to commands from the control system
- i. As-found condition of the system operation
- j. List of test items with step numbers along with the corresponding feature or control operation, intended test procedure, expected system response, and pass/fail indication.
- k. Space for comments for each test item.

3.5.3 Integrated Systems Test Checklists

Integrated Systems Test Checklists must include test procedures that explain, step-by-step, the actions and expected results that will demonstrate that the interactive operations between systems performs in accordance with the Contract. Refer to paragraph FUNCTIONAL PERFORMANCE AND INTEGRATED SYSTEMS TESTS. Include the following sections in the Integrated Systems Test Checklists:

- a. Notable features of the interconnected systems organized by discipline including information to facilitate understanding of system operation
- b. Conclusions and recommendations. Conclusions must clearly indicate if the systems do or do not perform in accordance with Contract requirements. Recommendation must clearly indicate that the systems should or should not be approved by the Government
- c. Test conditions including date and beginning and ending time
- d. Identification of the equipment and systems involved in the test
- e. List of test items with step numbers along with the corresponding feature or control operation, intended test procedure, expected system response, and pass/fail indication.
- f. Space for comments for each test item.

3.6 PRE-FUNCTIONAL CHECKS

Complete one Pre-Functional Checklist for each individual item of equipment or system for each system required to be commissioned including, but not limited to, ductwork, piping, equipment, fixtures (lighting and plumbing), and controls. Indicate commissioning team member inspection and validation of each Pre-Functional Checklist item by initials. Validation of each Pre-Functional Checklist item by each team member indicates that item conforms to the Contract Documents and validated

design in their area of responsibility. Commissioning Specialist validation of each Pre-Functional Checklist item indicates that each item has been installed correctly and in accordance with Contract Documents. Submit the initialed and Completed Pre-Functional Checklists no later than 7 calendar days after completion of inspection of checklists items for each system. Include manufacturer start-up checklists associated with equipment with the submission of the Pre-Functional Checklists.

3.7 FUNCTIONAL PERFORMANCE AND INTEGRATED SYSTEMS TESTS

Demonstrate that all system components have been installed, that each control device and item of equipment operates, and that the systems operate and perform, including interactive operation between systems, in accordance with Contract Documents. Provide all materials, services, and labor required to perform the Pre-Functional Checks, Integrated Systems Tests, and Functional Performance Tests.

Commissioning Specialist's duties include leading and documenting all tests for the systems to be commissioned with appropriate sub-contractors performing the Tests. The representatives listed in the paragraph Commissioning Team must attend the tests.

Perform Integrated Systems Tests only after the Functional Performance Tests for each associated system are completed with all deficiencies resolved and after the related Functional Performance Test Checklists have been signed by each commissioning team member.

Coordinate outages associated with testing with the Contracting Officer a minimum of 15 days in advance of testing date.

3.7.1 Test Scheduling and Coordination

Conduct Initial Functional Performance Tests as soon as all Contract work is completed, regardless of the season. Develop and implement means of artificial loading to demonstrate, to a reasonable level of confidence, the ability of the HVAC systems to handle peak seasonal loads. Schedule Functional Performance Tests for each system only after the Certificate of Readiness has been approved by the Government for the system. Correct all deficiencies identified through prior review, inspection, or test activity before the start of Functional Performance Tests.

Functional Performance Tests and Integrated Systems Tests must be performed with the CxC present. Government reserves the right to witness all tests. Coordinate test schedule with Government representatives.

3.7.2 Testing Procedures

Functional performance testing is conducted by simulating conditions at control devices to initiate a control system response. Over-writing control input values through the control system is not allowed unless approved by the Contracting Officer. Do not simulate conditions when damage to the system or building may result.

Follow the Functional Performance Test from the approved Final Construction Phase Commissioning Plan. Perform Functional Performance Tests for each item of equipment and each system required to be commissioned. Verify all sensor calibrations, control responses, safeties, interlocks, operating modes, sequences of operation, capacities, lighting levels, and all other performance requirements comply with

Contract requirements, regardless of the specific items listed within the checklists provided. In general, testing must progress from equipment or components to subsystems to systems to interlocks and connections between systems. Commissioning Specialists are responsible for determining the order of components and systems to be tested. Indicate validation of each item of equipment and systems tested by signature of each commissioning team member for each test. The Quality Control Representative, Commissioning Specialists, and Contracting Officer's Representative, if present, must indicate validation after the equipment and systems are free of deficiencies.

3.7.3 Integrated Systems Tests

Follow the Integrated Systems Test Checklists from the approved Final Construction Phase Commissioning Plan. Integrated Systems Tests must be performed for the interactive operation between systems such as HVAC systems, fire protection systems, electrical supply shut down, lighting controls, and other systems, and verify correct interactive operation, acceptable speed of response, and other Contract requirements for both normal and failure modes. Examples of Integrated Systems Tests include, but are not limited to, lighting system operation during power outage or emergency system activation and lighting controls override under fire alarm system operation.

3.7.4 Sample Strategy

Perform Functional Performance Tests and Integrated Systems Tests for all systems and equipment to be commissioned using the sample strategy identified herein. Complete a Functional Performance Test Checklist for each item of equipment or system to be tested. For sample sizes less than 100 percent for similar equipment, the Contracting Officer's Representative reserves the right to select the specific equipment or system to be tested during testing. Perform Integrated Systems Tests for systems and equipment having interactive operation. Complete an Integrated Systems Test Checklist for each item of equipment or system.

Test central plant equipment, primary air handling units, and process cooling or heating equipment. Test all system-level equipment serving multiple zones. Twenty percent sample testing is allowed for large groups of identical equipment with identical controllers serving single zones such as air terminal units, fan coil units, unitary equipment, lighting zones, and plumbing fixtures.

3.7.4.1 100 Percent Sample Procedures

Systems or equipment for which 100 percent sample size are tested fail if one or more of the test procedures results in discovery of a deficiency and the deficiency cannot be resolved within 5 minutes during the test.

Re-test to the extent necessary to confirm that the deficiencies have been corrected without negatively impacting the performance of the rest of the system.

3.7.4.2 Less than 100 Percent Sample Procedures

Randomly test each sample group of identical equipment. Sample size must be at least three units. If 10 percent of the units in the first sample fail the functional performance tests, test a second sample group, the same size as the first sample group. The second sample must not include

any units from the first sample group. If 10 percent of the units in the second sample fail, test all remaining units. If at any point frequent failures occur, and testing becomes more troubleshooting than verification, the CxC may stop the testing and require the Contractor to perform and document a checkout of the remaining units prior to continuing functional testing.

3.7.5 Aborted Tests and Re-Testing

Abort any test if deficiency prevents successful completion of the test or if any required commissioning team member is not present for the test. Re-test after all deficiencies identified during the original test have been corrected. Contracting Officer may withhold payment equivalent to lost time, re-testing, and aborted tests. These costs may include salary, travel costs, and per diem for Government team members.

3.8 TRAINING PLAN

CxC must review the training plan for training associated with the equipment and systems to be commissioned, checking that each plan has the trainer name, trainer contact information, training schedule and location. Submit review at least 30 days prior to the first training event. Incorporate CxC review comments prior to submitting training plan in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA and 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI). Update and resubmit the training plan based on corrective action taken.

Document training attendance using training attendance rosters and submit completed attendance rosters no later than 7 calendar days following the completion of training for each system to be commissioned.

3.8.1 Systems Manual

The Systems Manual includes the Basis of Design, system single line diagrams, as-built sequences of operation and controls drawings, as-built control setpoints, recommended schedule for sensor and actuator calibration, recommended schedule of maintenance when not in the O&M manuals, recommended re-testing schedule with proposed testing forms, and full equipment warranty information for all commissioned systems. Incorporate CxC review comments prior to submitting Systems Manual in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA and 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI). Update and resubmit the system manual information based on corrective action taken during the warranty period.

3.9 COMMISSIONING REPORT

Submit an Initial Commissioning Report no later than 14 calendar days following commissioning team validates all Functional Performance Tests and Integrated Systems Tests, with the exception of Seasonal Tests. Submit a Final Commissioning Report upon completion of training and trend log reviews. **The Final Commissioning Report must be submitted to the Contracting Officer prior to BOD. BOD will not be accepted if there are outstanding deficiencies.** Include the following information in the Final Commissioning Report:

- a. An executive summary describing the overall commissioning process, the results of the commissioning process, outstanding deficiencies and

recommended resolutions, and seasonal testing that must be scheduled for a later date. Indicate, in the executive summary, whether the systems meet the requirements of the Contract Documents.

- b. A list of deficiencies discovered during the commissioning process and the corrective actions taken in the report.
- c. Completed Pre-Functional Checklists, Functional Performance Test Checklists, Integrated Systems Test Checklists, the Final Construction Phase Commissioning Plan, the Issues Log, Training Attendance Rosters, the Design Review Reports, Submittal Review Report, and the approved TAB Report.

3.10 WARRANTY PHASE SITE VISIT

The Lead Commissioning Specialist must visit the building site concurrent with the 9 month warranty inspection to inspect building system equipment and review building operation with the building operating/maintenance staff, and identify deficiency of the building systems to operate in accordance with the Contract Documents. The Commissioning Specialist must notify the Contracting Officer of any identified deficiencies and the proposed corrective action. Submit Updated Final Commissioning Report and Systems Manuals, documenting the results of the warranty phase inspection. Include other warranty phase activities, such as Seasonal testing results.

-- End of Section --

SECTION 02 41 00

DEMOLITION AND DECONSTRUCTION
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.

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

AHRI Guideline K (2009) Guideline for Containers for Recovered Non-Flammable Fluorocarbon Refrigerants

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.6 (2006) Safety Requirements for Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements Manual

U.S. DEFENSE LOGISTICS AGENCY (DLA)

DLA 4145.25 (Jun 2000; Reaffirmed Oct 2010) Storage and Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders
<http://www.aviation.dla.mil/UserWeb/aviationengineerir>

U.S. DEPARTMENT OF DEFENSE (DOD)

DOD 4000.25-1-M (2006) MILSTRIP - Military Standard Requisitioning and Issue Procedures

MIL-STD-129 (2014; Rev R) Military Marking for Shipment and Storage

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

40 CFR 61 National Emission Standards for Hazardous Air Pollutants

40 CFR 82 Protection of Stratospheric Ozone

49 CFR 173.301 Shipment of Compressed Gases in Cylinders and Spherical Pressure Vessels

1.2 PROJECT DESCRIPTION

1.2.1 Demolition/Deconstruction Plan

Prepare a Demolition Plan and Deconstruction Plan including Phasing, temporary dust partitions, and Hazardous Materials Abatement Sequence, and submit proposed salvage, demolition, deconstruction, 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. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan must 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 and any hazardous materials abatement and disposal has been performed as described and required. 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. The work includes demolition, deconstruction, salvage of identified items and materials, and removal of resulting rubbish and debris. 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 or pavements to remain. 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, especially network

equipment. Remove snow, 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 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.5 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be available in accordance with sequencing requirements as indicated in Section 01 11 00.00 22 SUMMARY OF WORK and as directed and approved by the Contracting Officer.

1.6 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/Deconstruction Plan; G
Existing Conditions
Temporary Protection Plan; G
Temporary Egress Plan; G

SD-07 Certificates

Notification; G

SD-11 Closeout Submittals

Receipts; G

1.7 QUALITY ASSURANCE

Submit timely notification of demolition, deconstruction, and renovation projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the State's environmental protection agency 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 ASSE/SAFE A10.6. Comply with the Environmental Protection Agency requirements specified. Use of explosives will not be permitted.

1.7.1 Dust and Debris Control

Prevent the spread of dust and debris 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. Vacuum and dust the work area daily. Sweep pavements as often as necessary to control the spread of debris.

Temporary dust partitions (full height) must be erected to protect building occupants and sensitive electronic equipment throughout the duration of construction. 24/7 access to the equipment must be maintained. Dust partitions must not impair or negatively affect the electronic equipment.

1.7.2 Cleaning

When the work area(s) is an occupied space such as an office, cover and protect all furniture and equipment from dust, dirt, and debris. Incorporate housekeeping for field demolition, deconstruction, removals, and construction work which leaves furniture and equipment in the affected area(s) free of generated dust, dirt, and debris. Dust and vacuum clean furniture, equipment, and floor surfaces after each days work and as directed by the Contracting Officer.

1.8 PROTECTION

1.8.1 Traffic Control Signs

a. Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind. Notify the Contracting Officer prior to beginning such work.

1.8.2 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.

1.8.3 Weather, Debris and Dust, and Security Protection

Protect building interior and materials and equipment from the weather and debris and dust at all times. Provide security measures as directed by the Contracting Officer. Protect work and materials stored that may be adversely affected by moisture, wind, heat and cold by covering. Store materials off the ground. Submit proposed temporary protection plan to the Contracting Officer for approval prior to the start of any work. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas so as to ensure effectiveness and to prevent displacement.

1.9 RELOCATIONS

Perform the removal and reinstallation of 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.

1.10 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 elevation of the top of foundation walls, 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.

1.11 TEMPORARY EGRESS

Submit a Temporary Egress Plan to the Contracting Officer for approval indicating OSHA compliant egress from the building during work that will restrict the existing egress path(s).

PART 2 PRODUCTS

2.1 MATERIALS

Materials for patching, filling-in, repairing, and extending work must be new, and, as a minimum, must be similar in appearance and equal in quality to the material used in the adjoining construction or the removed materials when they were new.

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 must 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 must be designated for reuse onsite whenever possible. Coordinate with Hazardous Materials Removals, Abatement and Disposal operations.

3.1.1 Structures

- a. Demolish, deconstruct, and remove existing structures indicated to be removed. Interior walls, other than retaining walls and partitions, must be removed as indicated.
- b. Demolish, deconstruct, and remove structures in a systematic manner from the top of the structure to the ground. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed. Demolish and deconstruct concrete and masonry walls in small sections. Remove structural framing members and lower to ground by means of derricks, platforms hoists, or other suitable methods as approved by the Contracting Officer.
- c. Locate demolition and deconstruction equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

3.1.2 Utilities and Related Equipment

3.1.2.1 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.

3.1.2.2 Disconnecting Existing Utilities

Remove existing utilities as indicated and uncovered by work 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. Remove meters and related equipment and deliver to a location in accordance with instructions of the Contracting Officer.

3.1.3 Chain Link Fencing

Remove chain link fencing, gates and other related salvaged items scheduled for removal and transport to designated areas. Remove gates as whole units. Cut chain link fabric to 25 foot lengths and store in rolls off the ground.

3.1.4 Paving and Slabs

Remove sawcut concrete and asphaltic concrete paving and slabs as indicated. Pavement and slabs designated to be recycled and utilized in this project must be moved, ground and stored as directed by the Contracting Officer. Pavement and slabs not to be used in this project must be removed from the Installation at Contractor's expense.

3.1.5 Roofing

Remove existing roof system and associated components in their entirety down to existing roof deck. Remove corrugated roofing to effect the connections with new flashing or roofing. Sequence work to minimize building exposure between demolition or deconstruction and new roof materials installation.

3.1.5.1 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. Make provisions for worker safety during demolition, deconstruction, and installation of new materials as described in paragraphs entitled "Statements" and "Regulatory and Safety Requirements."

3.1.5.2 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.

3.1.6 Concrete

Saw concrete along straight lines to a depth of a minimum 3 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.

3.1.7 Structural Steel

Dismantle structural steel at field connections and in a manner that will prevent bending or damage. Salvage for recycle structural steel, girders, angles, plates, columns and shapes. Do not use flame-cutting torches. 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.

3.1.8 Miscellaneous Metal

Salvage shop-fabricated items such as access doors and frames, 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, roofing and siding, metal toilet partitions, toilet accessories and

similar items. 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.

3.1.9 Acoustic Ceiling Tile

Remove, neatly stack, and recycle acoustic ceiling tiles. Recycling may be available with manufacturer. Otherwise, priority must 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 must be flush with the adjacent existing surface and must match the existing adjacent surface as closely as possible as to texture and finish. Patching must be as specified and indicated, and must include:

- a. Concrete and Masonry: Completely fill holes and depressions left as a result of removals in existing concrete slabs and walls to remain, with an approved patching material, applied in accordance with the manufacturer's printed instructions.
- b. Where existing partitions have been removed leaving damaged or missing resilient tile flooring, patch to match the existing floor tile.
- c. Patch acoustic lay-in ceiling where partitions have been removed. The transition between the different ceiling heights must be effected by continuing the higher ceiling level over to the first runner on the lower ceiling and closing the vertical opening with a painted sheet metal strip.

3.1.11 Air Conditioning Equipment

Remove air conditioning, refrigeration, and other equipment containing refrigerants without releasing chlorofluorocarbon refrigerants to the atmosphere in accordance with the Clean Air Act Amendment of 1990. Recover all refrigerants prior to removing air conditioning, refrigeration, and other equipment containing refrigerants and dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)." Turn in salvaged Class I ODS refrigerants as specified in paragraph, "Salvaged Materials and Equipment."

3.1.12 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)."

3.1.13 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.

3.1.14 Mechanical Equipment and Fixtures

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; provide to recycling service for disassembly and recycling of parts.

3.1.14.1 Preparation for Storage

Remove water, dirt, dust, and foreign matter from units; tanks, piping and fixtures must be drained; interiors, if previously used to store flammable, explosive, or other dangerous liquids, must 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.

3.1.14.2 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 must 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. Wrap sprinkler heads individually in plastic bags before boxing. Classify piping not designated for salvage, or not reusable, as scrap metal.

3.1.14.3 Ducts

Classify removed duct work as scrap metal.

3.1.14.4 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 non-porcelain 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.

3.1.15 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.

3.1.15.1 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.

3.1.15.2 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.

3.1.15.3 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.

3.1.15.4 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.

3.1.16 Environmental Growth Compromised Building Areas

Assessment and Remediation of Fungi in Indoor Environments outlines work practices and equipment to be utilized during the remediation procedure and recommendations outlined in US EPA: Mold Remediation in Schools and Commercial Buildings, Publication EPA 402-K-01-001.

The cleaning/sanitizing of materials in which biocides or sanitizing agents are utilized to kill, clean, or otherwise control mold growth **must be performed** properly by a licensed **Master Applicator** certified by the Maine Pesticides Bureau.

Demolition of mold compromised areas must be performed utilizing general dust controls, with disposable clothing, and respiratory protection. Materials must be removed from the site in a manner that will not create dust emissions.

3.1.17 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, must become the property of the Contractor and must 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 and specified 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.
- d. Remove historical items in a manner to prevent damage. Deliver the following historical items to the Government for disposition: Corner stones, contents of corner stones, and document boxes wherever located on the site.
- e. Remove and capture all Class I ODS refrigerants in accordance with the Clean Air Act Amendment of 1990, and turn in to the Navy by shipping the refrigerant container to the Defense Logistics Agency at the following address:

Defense Depot Richmond VA (DDRV)
SW0400
Cylinder Operations
8000 Jefferson Davis Highway
Richmond, VA 23297-5900

3.2.4 Disposal of Ozone Depleting Substance (ODS)

Class I and Class II ODS are defined in Section, 602(a) and (b), of The Clean Air Act. Prevent discharge of Class I and Class II ODS to the atmosphere. Place recovered ODS in cylinders meeting AHRI Guideline K suitable for the type ODS (filled to no more than 80 percent capacity) and provide appropriate labeling. Recovered ODS must be removed from Government property and disposed of in accordance with 40 CFR 82. Products, equipment and appliances containing ODS in a sealed, self-contained system (e.g. residential refrigerators and window air conditioners) must be disposed of in accordance with 40 CFR 82. Submit Receipts or bills of lading, as specified. Submit a shipping receipt or bill of lading for all containers of ozone depleting substance (ODS) shipped to the Defense Depot, Richmond, Virginia.

3.2.4.1 Special Instructions

No more than one type of ODS is permitted in each container. A warning/hazardous label must be applied to the containers in accordance with Department of Transportation regulations. All cylinders including but not limited to fire extinguishers, spheres, or canisters containing an ODS must have a tag with the following information:

- a. Activity name and unit identification code
- b. Activity point of contact and phone number
- c. Type of ODS and pounds of ODS contained
- d. Date of shipment
- e. National stock number (for information, call (804) 279-4525).

3.2.4.2 Fire Suppression Containers

Deactivate fire suppression system cylinders and canisters with electrical charges or initiators prior to shipment. Also, safety caps must be used to cover exposed actuation mechanisms and discharge ports on these special cylinders.

3.2.5 Transportation Guidance

Ship all ODS containers in accordance with MIL-STD-129, DLA 4145.25 (also referenced one of the following: Army Regulation 700-68, Naval Supply Instruction 4440.128C, Marine Corps Order 10330.2C, and Air Force Regulation 67-12), 49 CFR 173.301, and DOD 4000.25-1-M.

3.3 CLEANUP

Remove debris and rubbish from basement and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.3.1 Debris and Rubbish

- a. Supply adequate chutes, disposal facilities, transportation, labor and covered receptacles for waste, debris and rubbish. One receptacle will be allowed unless additional receptacles are approved by the Contracting Officer, and must be immediately removed from the site

when full. Under no circumstances must debris be permitted to free fall to the ground.

- b. The grounds in the area of the receptacles must be cleaned prior to moving the receptacle to another location on the project. Disposal must be offsite in a legal dump intended for that use.
- c. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets, or adjacent areas. Transport removed debris to chute or scaling buckets. Clean up spillage from pavements, streets and adjacent areas.

3.3.2 Site Clean-Up

- a. Site clean-up must be complete and to the satisfaction of the Contracting Officer. Site cleanup must be performed daily.
- b. Roof, building (interior and exterior), landscape and pavement areas must be cleaned of all trash, debris and dirt caused by or associated with the work.
- c. Areas and/or existing equipment or materials to remain which are stained, dirtied, discolored or otherwise damaged due to the work must be cleaned, restored or replaced at no additional cost to the Government.
- d. Upon acceptance of demolition, deconstruction, and removals, shoring, reinstallation and rebuilding work, the Contractor must completely remove all temporary shoring, partitions and other protective items to the satisfaction of the Contracting Officer.
- e. Clean up spillage from streets and adjacent areas. Conform to other applicable requirements under Section 01 57 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME).

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 in the Waste Management Plan. Storage of removed materials on the project site is prohibited.

3.4.2 Burning on Government Property

Burning of materials removed from demolished and deconstructed structures will not be permitted 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 02 82 00.00 22

ASBESTOS REMEDIATION
(PNS PROJECTS)
09/21

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 SAFETY PROFESSIONALS (ASSP)

ASSP Z9.2 (2018) Fundamentals Governing the Design
and Operation of Local Exhaust Ventilation
Systems

ASTM INTERNATIONAL (ASTM)

ASTM C732 (2006; R 2012) Aging Effects of Artificial
Weathering on Latex Sealants

ASTM D2794 (1993; R 2010) Resistance of Organic
Coatings to the Effects of Rapid
Deformation (Impact)

ASTM D4397 (2016) Standard Specification for
Polyethylene Sheeting for Construction,
Industrial, and Agricultural Applications

ASTM D522/D522M (2014) Mandrel Bend Test of Attached
Organic Coatings

ASTM E119 (2018) Standard Test Methods for Fire
Tests of Building Construction and
Materials

ASTM E1368 (2014) Visual Inspection of Asbestos
Abatement Projects

ASTM E736/E736M (2017) Standard Test Method for
Cohesion/Adhesion of Sprayed
Fire-Resistive Materials Applied to
Structural Members

ASTM E84 (2018) Standard Test Method for Surface
Burning Characteristics of Building
Materials

ASTM E96/E96M (2016) Standard Test Methods for Water
Vapor Transmission of Materials

COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7 (2014) Compressed Air for Human

Respiration; 6th Edition

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z87.1 (2015) Occupational and Educational
Personal Eye and Face Protection Devices

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (2019) Standard Methods of Fire Tests for
Flame Propagation of Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH NMAM (2016; 5th Ed) NIOSH Manual of Analytical
Methods

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements
Manual

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90/018 (1990) Asbestos/NESHAP Regulated Asbestos
Containing Materials Guidance

EPA 560/5-85-024 (1985) Guidance for Controlling
Asbestos-Containing Materials in Buildings
(Purple Book)

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

29 CFR 1910.147 Control of Hazardous Energy (Lock Out/Tag
Out)

29 CFR 1926.103 Respiratory Protection

29 CFR 1926.1101 Asbestos

29 CFR 1926.200 Accident Prevention Signs and Tags

29 CFR 1926.51 Sanitation

29 CFR 1926.59 Hazard Communication

40 CFR 61-SUBPART A General Provisions

40 CFR 61-SUBPART M National Emission Standard for Asbestos

40 CFR 763 Asbestos

42 CFR 84 Approval of Respiratory Protective Devices

49 CFR 107 Hazardous Materials Program Procedures

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

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC P-502 (2017) Asbestos Program Management

ND OPNAVINST 5100.23 (2005; Rev G) Navy Occupational Safety and Health (NAVOSH) Program Manual

UNDERWRITERS LABORATORIES (UL)

UL 586 (2009; Reprint Dec 2017) UL Standard for Safety High-Efficiency Particulate, Air Filter Units

STATE OF MAINE, DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

ME L&C PROGRAM State of Maine Licensing and Certification Program
<http://www.mainelegislature.org/legis/statutes/38/titl3>

06 096 CMR 425 Asbestos Management Regulations
<http://www.maine.gov/sos/cec/rules/06/096/096c425.doc>

1.2 DEFINITIONS

1.2.1 ACM

Asbestos Containing Materials.

1.2.2 Amended Water

Water containing a wetting agent or surfactant with a maximum surface tension of 0.00042 psi.

1.2.3 Area Sampling

Sampling of asbestos fiber concentrations which approximates the concentrations of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

1.2.4 Asbestos

The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered. Materials are considered to contain asbestos if the asbestos content of the material is determined to be equal to or greater than one percent.

1.2.5 Asbestos Control Area

That area where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris.

1.2.6 Asbestos Fibers

Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by National Institute for Occupational Safety and Health (NIOSH) Method 7400.

1.2.7 Asbestos Permissible Exposure Limit

0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

1.2.8 Authorized Person

Any person authorized by the Contractor and required by work duties to be present in the regulated areas.

1.2.9 Background

The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

1.2.10 Competent Person (CP)

A person meeting the requirements for competent person as specified in 29 CFR 1926.1101 including a person capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, and is specifically trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent. The competent person must have a current State of Maine asbestos contractor's or supervisor's license.

1.2.11 Contractor

The Contractor is that individual, or entity under contract to perform the herein listed work.

1.2.12 Disposal Bag

A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926.1101, used for transporting asbestos waste from containment to disposal site.

1.2.13 Disturbance

Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in one standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.

1.2.14 Encapsulation

The abatement of an asbestos hazard through the appropriate use of

chemical encapsulants.

1.2.15 Encapsulants

Specific materials in various forms used to chemically or physically entrap asbestos fibers in various configurations to prevent these fibers from becoming airborne. There are four types of encapsulants as follows which must comply with performance requirements as specified herein.

- a. Removal Encapsulant (can be used as a wetting agent)
- b. Bridging Encapsulant (used to provide a tough, durable surface coating to asbestos containing material)
- c. Penetrating Encapsulant (used to penetrate the asbestos containing material encapsulating all asbestos fibers and preventing fiber release due to routine mechanical damage)
- d. Lock-Down Encapsulant (used to seal off or "lock-down" minute asbestos fibers left on surfaces from which asbestos containing material has been removed).

1.2.16 Friable Asbestos Material

A term defined in 40 CFR 61-SUBPART M and EPA 340/1-90/018 meaning any material which contains equal to or greater than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

1.2.17 Glovebag Technique

Those asbestos removal and control techniques put forth in 29 CFR 1926.1101.

1.2.18 Government Consultant (GC)

That qualified person employed directly by the Government to monitor, sample, inspect the work or in some other way advise the Contracting Officer. The GC is normally a private consultant, but can be an employee of the Government.

1.2.19 HEPA Filter Equipment

High efficiency particulate air (HEPA) filtered vacuum and exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters must retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

1.2.20 Model Accreditation Plan (MAP)

USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763.

1.2.21 Negative Pressure Enclosure (NPE)

That engineering control technique described as a negative pressure enclosure in 29 CFR 1926.1101.

1.2.22 NESHAP

National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61-SUBPART M.

1.2.23 Nonfriable Asbestos Material

Material that contains asbestos in which the fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not normally release asbestos fibers during any appropriate use, handling, storage or transportation. It is understood that asbestos fibers may be released under other conditions such as demolition, removal, or mishap.

1.2.24 Permissible Exposure Limits (PELs)

1.2.24.1 PEL-Time Weighted Average (TWA)

Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8-hour time weighted average (TWA).

1.2.24.2 PEL-Excursion Limit

An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes.

1.2.25 Personal Sampling

Air sampling which is performed to determine asbestos fiber concentrations within the breathing zone of a specific employee, as performed in accordance with 29 CFR 1926.1101.

1.2.26 Private Qualified Person (PQP)

That qualified person hired by the Contractor to perform the herein listed tasks.

1.2.27 Qualified Person (QP)

A Registered Architect, Professional Engineer, Certified Industrial Hygienist, consultant or other qualified person who has successfully completed training and is therefore accredited under a legitimate State Model Accreditation Plan as described in 40 CFR 763 as a Building Inspector, Contractor/Supervisor Abatement Worker, and Asbestos Project Designer; and has successfully completed the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent. The QP must be qualified to perform visual inspections as indicated in ASTM E1368. The QP must be appropriately licensed in the State of Maine.

1.2.28 TEM

Refers to Transmission Electron Microscopy.

1.2.29 Time Weighted Average (TWA)

The TWA is an 8-hour time weighted average airborne concentration of asbestos fibers.

1.2.30 Transite

A generic name for asbestos cement wallboard and pipe.

1.2.31 Wetting Agent

A chemical added to water to reduce the water's surface tension thereby increasing the water's ability to soak into the material to which it is applied. An equivalent wetting agent must have a surface tension of at most 0.00042 psi.

1.2.32 Worker

Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926.1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation, if required by the OSHA Class of work to be performed or by the state where the work is to be performed. The worker must be appropriately licensed in the State of Maine.

1.3 REQUIREMENTS

1.3.1 Description of Work

The work covered by this Section includes the handling and control of asbestos containing materials and describes some of the resultant procedures and equipment required to protect workers, the environment and occupants of the building or area, or both, from contact with airborne asbestos fibers. The work also includes the disposal of any asbestos containing materials generated by the work. More specific operational procedures must be outlined in the Asbestos Hazard Abatement Plan called for elsewhere in this specification. The asbestos work includes the demolition and removal of joint compound, black residue on window opening bricks, pipe insulation, and 'mudded' pipe fittings located as indicated on the Drawings, which is governed by MEDEP Chapter 425: Asbestos Management Regulations, 40 CFR 763, NAVFAC P-502, and other applicable Federal, State, and local requirements. Refer to the report located at the end of this Section. Under normal conditions non-friable or chemically bound materials containing asbestos would not be considered hazardous; however, this material may release airborne asbestos fibers during disturbance, demolition, and/or removal and therefore must be handled in accordance with the removal and disposal procedures as specified herein. Provide negative pressure enclosure and glovebag techniques as outlined in this specification. The work area(s) will be evacuated during the asbestos abatement work. A competent person must supervise asbestos removal work as specified herein.

1.3.1.1 Wallboard/Joint Compound

Both composite samples of the wallboard and discrete samples of the components (wallboard and joint compound) have been tested and results are attached.

1.3.2 Unexpected Discovery of Asbestos

Notify the Contracting Officer if any previously untested building components suspected to contain asbestos are impacted by the work.

1.3.3 Medical Requirements

Provide medical requirements including but not limited to medical surveillance and medical record keeping as listed in 29 CFR 1926.1101.

1.3.3.1 Medical Examinations

Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1926.1101 or other pertinent State or local directives. This requirement must have been satisfied within the 12 months prior to the start of work on this Contract. The same medical examination must be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. Specifically identify x-ray films of asbestos workers to the consulting radiologist and mark medical record jackets with the word "ASBESTOS."

1.3.3.2 Medical Records

Maintain complete and accurate records of employees' medical examinations, medical records, and exposure data for a period of indefinite time after termination of employment and make records of the required medical examinations and exposure data available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health (OSHA), or authorized representatives of them, and an employee's physician upon the request of the employee or former employee.

1.3.4 Employee Training

Submit certificates, prior to the start of work but after the main abatement submittal, signed by each employee indicating that the employee has received training in the proper handling of materials and wastes that contain asbestos in accordance with 40 CFR 763 and 49 CFR 172; understands the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of the respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on an initial and annual basis. Organize certificates by individual worker, not grouped by type of certification. Post appropriate evidence of compliance with the training requirements of 40 CFR 763. Train personnel involved in the asbestos control work in accordance with United States Environmental Protection Agency (USEPA) Asbestos Hazard Emergency Response Act (AHERA) training criteria or State training criteria whichever is more stringent. Document the training by providing: dates of training, training entity, course outline, names of instructors, and qualifications of instructors upon request by the Contracting Officer. Furnish each employee with respirator training and fit testing administered by the PQP as required by 29 CFR 1926.1101 and 29 CFR 1926.103. Fully cover engineering and other hazard control techniques and procedures. Asbestos workers must have a current State of Maine asbestos worker's license. Comply with the ME L&C PROGRAM.

1.3.5 Permits, Licenses and Notifications

Prior to the start of work, obtain necessary permits and licenses in conjunction with asbestos removal, encapsulation, hauling, and disposition, and furnish notification of such actions required by Federal,

State, regional, and local authorities. Notify the Maine Department of Environmental Protection, the NAVFAC Asbestos Program Manager, and the Contracting Officer in writing 20 working days prior to commencement of work in accordance with MEDEP Chapter 425: Asbestos Management Regulations and 40 CFR 61-SUBPART M and for approval by NAVFAC NPT. Notify the Contracting Officer and other appropriate Government agencies in writing 20 working days prior to the start of asbestos work as indicated in applicable laws, ordinances, criteria, rules, and regulations. Submit copies of all Notifications to the Contracting Officer. Notify the Shipyard fire department 3 days prior to removing fire-proofing material from the building including notice that the material contains asbestos.

1.3.6 Environment, Safety and Health Compliance

In addition to detailed requirements of this specification, comply with those applicable laws, ordinances, criteria, rules, and regulations of Federal, State, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. Comply with the applicable requirements of the current issue of EM 385-1-1, 29 CFR 1926.1101, 40 CFR 61-SUBPART A, 40 CFR 61-SUBPART M, 40 CFR 763, 49 CFR 171, and ND OPNAVINST 5100.23. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the Government apply. The following laws, ordinances, criteria, rules and regulations regarding removal, handling, storing, transporting and disposing of asbestos materials apply:

- a. U.S. EPA, Title 40, CFR Part 61, National Standards for Hazardous Air Pollutants (NESHAP), Subparts A and M.
- b. OSHA, 29 CFR, Part 1926.1101, Asbestos in Construction.
- c. State of Maine, Department of Environmental Protection (ME DEP), 06 096 CMR Asbestos Management Regulations, Chapter 425, effective date 4-3-2011.

1.3.7 Respiratory Protection Program

Establish and implement a respirator program as required by 29 CFR 1926.1101, and 29 CFR 1926.103. Submit a written description of the program to the Contracting Officer. Submit a written program manual or operating procedure including methods of compliance with regulatory statutes.

1.3.7.1 Respirator Program Records

Submit records of the respirator program as required by 29 CFR 1926.103, and 29 CFR 1926.1101.

1.3.7.2 Respirator Fit Testing

The Contractor's PQP must conduct a qualitative or quantitative fit test conforming to 29 CFR 1926.103 for each worker required to wear a respirator, and any authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test must be performed prior to initially wearing a respirator and every 12 months

thereafter. If physical changes develop that will affect the fit, a new fit test must be performed. Functional fit checks must be performed each time a respirator is put on and in accordance with the manufacturer's recommendation.

1.3.7.3 Respirator Selection and Use Requirements

Provide respirators, and ensure that they are used as required by 29 CFR 1926.1101 and in accordance with CGA G-7 and the manufacturer's recommendations. Respirators must be approved by the National Institute for Occupational Safety and Health NIOSH, under the provisions of 42 CFR 84, for use in environments containing airborne asbestos fibers. For air-purifying respirators, the particulate filter must be high-efficiency particulate air (HEPA)/(N-,R-,P-100). The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type must be made by the Contractor's Designated IH based on the measured or anticipated airborne asbestos fiber concentrations to be encountered.

1.3.8 Asbestos Hazard Control Supervisor

The Contractor must be represented on site by a supervisor, trained using the model Contractor accreditation plan as indicated in the Federal statutes for all portions of the herein listed work.

1.3.9 Hazard Communication

Adhere to all parts of 29 CFR 1926.59 and provide the Contracting Officer with a copy of the Safety Data Sheets (SDS) for all materials brought to the site.

1.3.10 Asbestos Hazard Abatement Plan

Submit a detailed plan of the safety precautions such as lockout, tagout, tryout, fall protection, and confined space entry procedures and equipment and work procedures to be used in the removal and demolition of materials containing asbestos. The plan, not to be combined with other hazard abatement plans, must be prepared, signed, and sealed by the PQP. Provide a Table of Contents for each abatement submittal, which follows the sequence of requirements in the Contract. The plan must include but not be limited to the precise personal protective equipment to be used including, but not limited to, respiratory protection, type of whole-body protection and if reusable coveralls are to be employed decontamination methods (operations and quality control plan), the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, removal method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, locations of local exhaust equipment, planned air monitoring strategies, and a detailed description of the method to be employed in order to control environmental pollution. The plan must also include (both fire and medical emergency) response plans and an Activity Hazard Analyses (AHAs) in accordance with EM 385-1-1. The Asbestos Hazard Abatement Plan must be approved in writing prior to starting any asbestos work. The Contractor, Asbestos Hazard Control Supervisor, CP, and PQP must meet with the Contracting Officer prior to beginning work, to discuss in detail the Asbestos Hazard Abatement Plan, including work procedures and safety precautions. Once approved by the Contracting Officer, the plan will be enforced as if an addition to the specification. Any changes required in the specification as a result of the plan must be identified specifically in the plan to

allow for free discussion and approval by the Contracting Officer prior to starting work.

The Plan must be accompanied by a completed Asbestos Hazard Abatement Plan Checklist included as Attachment A at the end of this specification and referenced in Paragraph entitled SUBMITTALS herein. The Checklist must be prepared and signed by the PQP.

1.3.11 Testing Laboratory

Submit the name, address, and telephone number of each testing laboratory selected for the sampling, analysis, and reporting of airborne concentrations of asbestos fibers along with evidence that each laboratory selected holds the appropriate State license and permits and certification that each laboratory is American Industrial Hygiene Association (AIHA) accredited and that persons counting the samples have been judged proficient by current inclusion on the AIHA Asbestos Analysis Registry (AAR) and successful participation of the laboratory in the Proficiency Analytical Testing (PAT) Program. Where analysis to determine asbestos content in bulk materials or transmission electron microscopy is required, submit evidence that the laboratory is accredited by the National Institute of Science and Technology (NIST) under National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis. The testing laboratory firm must be independent of the asbestos contractor and must have no employee or employer relationship which could constitute a conflict of interest.

1.3.12 Landfill Approval

Landfill approval is not required as Portsmouth Naval Shipyard takes responsibility for disposal of all asbestos waste generated on the Shipyard.

1.3.13 Transporter Certification

Transporter certification is not required as Portsmouth Naval Shipyard takes responsibility for transport and disposal of all asbestos waste generated on the Shipyard.

1.3.14 Medical Certification

Provide a written certification for each worker and supervisor, signed by a licensed physician indicating that the worker and supervisor has met or exceeded all of the medical prerequisites listed herein and in 29 CFR 1926.1101 and 29 CFR 1926.103 as prescribed by law. Submit certificates prior to the start of work but after the main abatement submittal.

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-03 Product Data

Amended Water; G

Safety Data Sheets (SDS) for All Materials; G

Encapsulants; G

Respirators; G

Local Exhaust Equipment; G

Pressure Differential Automatic Recording Instrument; G

Vacuums; G

Glovebags; G

SD-06 Test Reports

Air Sampling Results; G

Pressure Differential Recordings for Local Exhaust System; G

Clearance Sampling; G

Asbestos Disposal Quantity Report; G

SD-07 Certificates

Employee Training; G

Notifications; G

Respiratory Protection Program; G

Asbestos Hazard Abatement Plan; G

Asbestos Hazard Abatement Plan Checklist; G

Testing Laboratory; G

Medical Certification; G

Private Qualified Person Documentation; G

Competent Person; G

Worker's License; G

Contractor's License; G

Federal, State or Local Citations on Previous Projects; G

Encapsulants; G

Equipment Used to Contain Airborne Asbestos Fibers; G

Water Filtration Equipment; G

Vacuums; G

Ventilation Systems; G

SD-11 Closeout Submittals

Permits and Licenses; G

Notifications; G

Respirator Program Records; G

Rental Equipment; G

1.5 QUALITY ASSURANCE

1.5.1 Private Qualified Person Documentation

Submit the name, address, and telephone number of the Private Qualified Person (PQP) selected to prepare the Asbestos Hazard Abatement Plan, direct monitoring and training, and documented evidence that the PQP has successfully completed training in and is accredited and where required is certified as, a Building Inspector, Contractor/Supervisor Abatement Worker, and Asbestos Project Designer as described by 40 CFR 763 and has successfully completed the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent. The PQP must be appropriately licensed in the State of Maine as a Project Monitor. The PQP and the asbestos contractor must not have an employee/employer relationship or financial relationship which could constitute a conflict of interest. The PQP must be a first tier subcontractor.

1.5.2 Competent Person Documentation

The Competent Person must be experienced in the administration and supervision of asbestos abatement projects including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, and notification of other employees onsite. The Competent Person must be on-site at all times when asbestos abatement activities are underway. Submit training certification and a current State of Maine Asbestos Contractor's and Supervisor's License. Submit evidence that the Competent Person has a minimum of 2 years of on-the-job asbestos abatement experience relevant to OSHA competent person requirements.

1.5.3 Worker's License

Submit documentation that workers meet the requirements of 29 CFR 1926.1101, 40 CFR 61-SUBPART M and have a current State of Maine Asbestos Workers License.

1.5.4 Contractor's License

Submit a copy of the asbestos contractor's license issued by the State of Maine. Submit the following certification along with the license: "I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926.1101, 40 CFR 61-SUBPART M, EM 385-1-1, and the Federal, State and local

requirements for those asbestos abatement activities that they will be involved in." This certification statement must be signed by the Company's President or Chief Executive.

1.5.5 Air Sampling Results

Complete fiber counting and provide results to the PQP and GC for review within 16 hours of the "time off" of the sample pump. Notify the Contracting Officer immediately of any airborne levels of asbestos fibers in excess of the acceptable limits. Submit sampling results to the Contracting Officer and the affected Contractor employees where required by law within three working days, signed by the testing laboratory employee performing air sampling, the employee that analyzed the sample, and the PQP and GC. Notify the Contractor and the Contracting Officer immediately of any variance in the pressure differential which could cause adjacent unsealed areas to have asbestos fiber concentrations in excess of 0.010 fibers per cubic centimeter or background whichever is higher. In no circumstance must levels exceed 0.10 fibers per cubic centimeter.

1.5.6 Pressure Differential Recordings for Local Exhaust System

Provide a local exhaust system that creates a negative pressure of at least 0.02 inches of water relative to the pressure external to the enclosure and operate it continuously, 24-hours a day, until the temporary enclosure of the asbestos control area is removed. Submit pressure differential recordings for each work day to the PQP and GC for review and to the Contracting Officer within 24-hours from the end of each work day.

1.5.7 Federal, State or Local Citations on Previous Projects

Submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities within the last 5 years (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company must be provided.

1.5.8 Preconstruction Conference

Conduct a safety preconstruction conference to discuss the details of the Asbestos Hazard Abatement Plan, Accident Prevention Plan (APP) including the AHAs required in specification Section 01 35 26.00 22 GOVERNMENTAL SAFETY REQUIREMENTS (PWD ME). The safety preconstruction conference must include the Contractor and their Designated Competent Person, NAVFAC Asbestos Program Manager, Designated IH and Project Supervisor and the Contracting Officer. Deficiencies in the APP will be discussed. Onsite work must not begin until the APP has been accepted.

1.6 SECURITY

A log book must be kept documenting entry into and out of the regulated area. Entry into regulated areas must only be by personnel authorized by the Contractor and the Contracting Officer. Personnel authorized to enter regulated areas must be trained, medically evaluated, and wear the required personal protective equipment.

1.7 EQUIPMENT

1.7.1 Rental Equipment

Provide a copy of the written notification to the rental company concerning the intended use of the equipment and the possibility of asbestos contamination of the equipment.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants must conform to current USEPA requirements, contain no toxic or hazardous substances as defined in 29 CFR 1926.59, and conform to the following performance requirements.

2.1.1 Removal Encapsulants

<u>Requirement</u>	<u>Test Standard</u>
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M
Fire Resistance - Negligible affect on fire resistance rating over 3 hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.2 Bridging Encapsulant

<u>Requirement</u>	<u>Test Standard</u>
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M

<u>Requirement</u>	<u>Test Standard</u>
Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.3 Penetrating Encapsulant

<u>Requirement</u>	<u>Test Standard</u>
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M
Cohesion/Adhesion Test - 50 pounds of force/foot	ASTM E119
Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.4 Lock-down Encapsulant

<u>Requirement</u>	<u>Test Standard</u>
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test

<u>Requirement</u>	<u>Test Standard</u>
Permeability - Minimum 0.4 perms	ASTM E96/E96M
Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Tested with fireproofing over encapsulant applied directly to steel member)	ASTM E119
Bond Strength: 100 pounds of force/foot	ASTM E736/E736M
(Tests compatibility with cementitious and fibrous fireproofing)	

2.2 DUCT TAPE

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container.

2.3 DISPOSAL CONTAINERS

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers must be provided for ACM wastes as required by 29 CFR 1926.1101. Disposal containers can be in the form of:

- a. Disposal Bags

2.4 SHEET PLASTIC

Sheet plastic must be polyethylene of 6 mil minimum thickness and must be provided in the largest sheet size necessary to minimize seams. Film must be clear and conform to ASTM D4397, except as specified below.

2.4.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets must be provided. Film must be frosted and must conform to the requirements of NFPA 701.

2.4.2 Reinforced

Reinforced sheets must be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock must consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film must meet flame resistant standards of NFPA 701.

2.5 MASTIC REMOVING SOLVENT

Mastic removing solvent must be nonflammable and must not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite must have a flash point greater than 140 degrees F.

2.6 LEAK-TIGHT WRAPPING

At least two layers of 6 mil minimum thick polyethylene sheet stock must be used for the containment of removed asbestos-containing components or materials such as large tanks, boilers, insulated pipe segments and other materials. Upon placement of the ACM component or material, each layer must be individually leak-tight sealed with duct tape.

2.7 VIEWING INSPECTION WINDOW

Where feasible, a minimum of one clear, 1/8 inch thick, acrylic sheet, 18 by 24 inches, must be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows must be sealed leak-tight with industrial grade duct tape.

2.8 WETTING AGENTS

Removal encapsulant (a penetrating encapsulant) must be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant must be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS above.

PART 3 EXECUTION

3.1 EQUIPMENT

Provide the Contracting Officer or the Contracting Officer's Representative, with at least two complete sets of personal protective equipment as required for entry to and inspection of the asbestos control area. Provide equivalent training to the Contracting Officer or a designated representative as provided to Contractor employees in the use of the required personal protective equipment. Provide manufacturer's certificate of compliance for all equipment used to contain airborne asbestos fibers.

3.1.1 Air Monitoring Equipment

The Contractor's PQP must approve air monitoring equipment. The equipment must include, but must not be limited to:

- a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute.
- b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps must also be equipped with an automatic flow control unit which must maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.
- c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands for personal air sampling.

3.1.2 Respirators

Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

3.1.2.1 Respirators for Handling Asbestos

Provide personnel engaged in pre-cleaning, cleanup, handling, removal and demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101 and 29 CFR 1926.103. Breathing air must comply with CGA G-7.

3.1.3 Exterior Whole Body Protection

3.1.3.1 Outer Protective Clothing

Provide personnel exposed to asbestos with disposable "non-breathable," or reusable "non-breathable" whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but must not be used alone. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by the use of tape.

3.1.3.2 Work Clothing

Provide cloth work clothes for wear under the outer protective clothing and foot coverings and either dispose of or properly decontaminate them as recommended by the PQP after each use.

3.1.3.3 Personal Decontamination Unit

Provide a temporary, negative pressure unit with a separate decontamination locker room and clean locker room with a shower that complies with 29 CFR 1926.51(f)(4)(ii) through (V) in between for personnel required to wear whole body protective clothing. Provide two separate lockers for each asbestos worker, one in each locker room. Keep street clothing and street shoes in the clean locker. HEPA vacuum and remove asbestos contaminated disposable protective clothing while still wearing respirators at the boundary of the asbestos work area and seal in impermeable bags or containers for disposal. HEPA vacuum and remove asbestos contaminated reusable protective clothing while still wearing respirators at the boundary of the asbestos work area, seal in two impermeable bags, label outer bag as asbestos contaminated waste, and transport for decontamination. Do not wear work clothing between home and work. Locate showers between the decontamination locker room and the clean locker room and require that all employees shower before changing into street clothes. Collect used shower water and filter with approved water filtration equipment to remove asbestos contamination. Wastewater filters must be installed in series with the first stage pore size 20 microns and the second stage pore size of 5 microns. Dispose of filters and residue as asbestos waste. Discharge clean water to the sanitary system. Dispose of asbestos contaminated work clothing as asbestos contaminated waste or properly decontaminate as specified in the Contractor's Asbestos Hazard Abatement Plan. Keep the floor of the decontamination unit's clean room dry and clean at all times. Proper housekeeping and hygiene requirements must be maintained. Provide soap

and towels for showering, washing and drying. Cloth towels provided must be disposed of as ACM waste or must be laundered in accordance with 29 CFR 1926.1101. Physically attach the decontamination units to the asbestos control area. Construct both a personnel decontamination unit and an equipment decontamination unit onto and integral with each asbestos control area.

3.1.3.4 Eye Protection

Provide eye protection that complies with ANSI/ISEA Z87.1 when operations present a potential eye injury hazard. Provide goggles to personnel engaged in asbestos abatement operations when the use of a full face respirator is not required.

3.1.4 Regulated Areas

All Class I, II, and III asbestos work must be conducted within regulated areas. The regulated area must be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

3.1.5 Load-out Unit

Provide a temporary load-out unit that is adjacent and connected to the regulated area and access tunnel. Attach the load-out unit in a leak-tight manner to each regulated area.

3.1.6 Warning Signs and Labels

Provide warning signs printed in English and at all approaches to asbestos control areas. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to the requirements are acceptable.

3.1.6.1 Warning Sign

Provide vertical format conforming to 29 CFR 1926.200, and 29 CFR 1926.1101 minimum 20 by 14 inches displaying the following legend in the lower panel:

<u>Legend</u>	<u>Notation</u>
DANGER	one inch Sans Serif Gothic or Block
ASBESTOS	one inch Sans Serif Gothic or Block
MAY CAUSE CANCER	one inch Sans Serif Gothic or Block
CAUSES DAMAGE TO LUNGS	1/4 inch Sans Serif Gothic or Block

<u>Legend</u>	<u>Notation</u>
AUTHORIZED PERSONNEL ONLY	1/4 inch Sans Serif Gothic or Block
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA	1/4 inch Sans Serif Gothic or Block

Spacing between lines must be at least equal to the height of the upper of any two lines.

3.1.6.2 Warning Labels

Provide labels conforming to 29 CFR 1926.1101 of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST AVOID CREATING DUST

3.1.7 Local Exhaust System

Provide a local exhaust system in the asbestos control area in accordance with ASSP Z9.2 and 29 CFR 1926.1101 that will provide at least four air changes per hour inside of the negative pressure enclosure. Local exhaust equipment must be operated 24-hours per day, until the asbestos control area is removed and must be leak proof to the filter and equipped with HEPA filters. Maintain a minimum pressure differential in the control area of minus 0.02 inch of water column relative to adjacent, unsealed areas. Provide continuous 24-hour per day monitoring of the pressure differential with a pressure differential automatic recording instrument. The building ventilation system must not be used as the local exhaust system for the asbestos control area. Filters on exhaust equipment must conform to ASSP Z9.2 and UL 586. Terminate the local exhaust system out of doors and remote from any public access or ventilation system intakes.

3.1.8 Tools

Vacuums must be leak proof to the filter and equipped with HEPA filters. Filters on vacuums must conform to ASSP Z9.2 and UL 586. Do not use power tools to remove asbestos containing materials unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation systems. Remove all residual asbestos from reusable tools prior to storage or reuse. Reusable tools must be thoroughly decontaminated prior to being removed from the regulated areas.

3.1.9 Rental Equipment

If rental equipment is to be used, furnish written notification to the rental agency concerning the intended use of the equipment and the possibility of asbestos contamination of the equipment.

3.1.10 Glovebags

Glovebag operations must be performed in accordance with the requirements of the State of Maine Department of Environmental Protection. Submit written manufacturers proof that glovebags will not break down under expected temperatures and conditions.

3.1.11 Decontamination Area Exit Procedures

Note: Whenever possible, decontamination area must be contiguous with, and connected to, the negative pressure enclosure.

Ensure that the following procedures are followed:

- a. Before leaving the regulated area, remove all gross contamination and debris from work clothing using a HEPA vacuum.
- b. Employees must remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers for disposal or laundering.
- c. Employees must not remove their respirators until showering.
- d. Employees must shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, ensure that employees engaged in Class I asbestos jobs: a) Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or b) Remove their contaminated work suits in the equipment room, without cleaning worksuits, and proceed to a shower that is not adjacent to the work area.

3.2 WORK PROCEDURE

Perform asbestos related work in accordance with MEDEP Chapter 425: Asbestos Management Regulations, 29 CFR 1926.1101, 40 CFR 61-SUBPART M, 49 CFR 107, 49 CFR 172, NAVFAC P-502 and as specified herein. Use wet removal procedures and negative pressure enclosure techniques. Wear and utilize protective clothing and equipment as specified herein. No eating, smoking, drinking, chewing gum, tobacco, or applying cosmetics is permitted in the asbestos work or control areas. Personnel of other trades not engaged in the removal and demolition of asbestos containing material must not be exposed at any time to airborne concentrations of asbestos unless all the personnel protection and training provisions of this specification are complied with by the trade personnel. Shut down the building heating, ventilating, and air conditioning system, cap the openings to the system, and provide temporary heating and ventilation, prior to the commencement of asbestos work. Power to the regulated area must be locked-out and tagged in accordance with 29 CFR 1910.147. Disconnect electrical service when wet removal is performed and provide temporary electrical service with verifiable ground fault circuit interrupter (GFCI) protection prior to the use of any water. All electrical work must be performed by a licensed electrician. Stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.010 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. Correct the condition to the satisfaction of the Contracting Officer,

including visual inspection and air sampling. Work must resume only upon notification by the Contracting Officer. Corrective actions must be documented. If an asbestos fiber release or spill occurs, stop work immediately, correct the condition to the satisfaction of the Contracting Officer including clearance sampling, prior to resumption of work.

3.2.1 Building Ventilation System and Critical Barriers

Building ventilation system supply and return air ducts in a regulated area must be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910.147. The airtight seals must consist of air-tight rigid covers for building ventilation supply and exhaust grills where the ventilation system is required to remain in service during abatement. Edges to wall, ceiling and floor surfaces must be sealed with industrial grade duct tape.

- a. A Competent Person must supervise the work.
- b. For indoor work, critical barriers must be placed over all openings to the regulated area.
- c. Impermeable dropcloths must be placed on surfaces beneath all removal activity.

3.2.2 Protection of Existing Work to Remain

Perform work without damage or contamination of adjacent work. Where such work is damaged or contaminated as verified by the Contracting Officer using visual inspection or sample analysis, it must be restored to its original condition or decontaminated by the Contractor at no expense to the Government as deemed appropriate by the Contracting Officer. This includes inadvertent spill of dirt, dust, or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, stop work immediately. Then clean up the spill. When satisfactory visual inspection and air sampling results are obtained from the PQP work may proceed at the discretion of the Contracting Officer.

3.2.3 Furnishings

Furniture and equipment will be removed from the area of work by the Government before asbestos work begins.

3.2.4 Precleaning

Wet wipe and HEPA vacuum all surfaces potentially contaminated with asbestos prior to establishment of an enclosure.

3.2.5 Asbestos Control Area Requirements

3.2.5.1 Negative Pressure Enclosure

Removal of asbestos contaminated acoustical ceiling tiles and thermal system insulation require the use of a negative pressure enclosure. Block and seal openings in areas where the release of airborne asbestos fibers can be expected. Establish an asbestos negative pressure enclosure with the use of curtains, portable partitions, or other enclosures in order to prevent the escape of asbestos fibers from the contaminated asbestos work area. Negative pressure enclosure development must include protective covering of uncontaminated walls, and ceilings with a continuous membrane

of two layers of minimum 6-mil plastic sheet sealed with tape to prevent water or other damage. Provide two layers of 6-mil plastic sheet over floors and extend a minimum of 12 inches up walls. Seal all joints with tape. Provide local exhaust system in the asbestos control area. Openings will be allowed in enclosures of asbestos control areas for personnel and equipment entry and exit, the supply and exhaust of air for the local exhaust system and the removal of properly containerized asbestos containing materials. Replace local exhaust system filters as required to maintain the efficiency of the system.

3.2.5.2 Glovebag

If the construction of a negative pressure enclosure is infeasible for the removal of thermal system insulation, use alternate techniques as indicated in MEDEP Chapter 425: Asbestos Management Regulations and 29 CFR 1926.1101. Establish designated limits for the asbestos regulated area with the use of rope or other continuous barriers, and maintain all other requirements for asbestos control areas. The PQP must conduct personal samples of each worker engaged in asbestos handling (removal, disposal, transport and other associated work) throughout the duration of the project. If the quantity of airborne asbestos fibers monitored at the breathing zone of the workers at any time exceeds background or 0.010 fibers per cubic centimeter whichever is greater, stop work, evacuate personnel in adjacent areas or provide personnel with approved protective equipment at the discretion of the Contracting Officer. This sampling may be duplicated by the Government at the discretion of the Contracting Officer. If the air sampling results obtained by the Government differ from those obtained by the Contractor, the Government will determine which results predominate. If adjacent areas are contaminated as determined by the Contracting Officer, clean the contaminated areas, monitor, and visually inspect the area as specified herein.

3.2.6 Removal Procedures

Wet asbestos material with a fine spray of amended water during removal, cutting, or other handling so as to reduce the emission of airborne fibers. Remove material and immediately place in 6 mil plastic disposal bags. Remove asbestos containing material in a gradual manner, with continuous application of the amended water or wetting agent in such a manner that no asbestos material is disturbed prior to being adequately wetted. Where unusual circumstances prohibit the use of 6 mil plastic bags, submit an alternate proposal for containment of asbestos fibers to the Contracting Officer for approval. For example, in the case where both piping and insulation are to be removed, the Contractor may elect to wet the insulation, wrap the pipes and insulation in plastic and remove the pipe by sections. Containerize asbestos containing material while wet. Do not allow asbestos material to accumulate or become dry. Lower and otherwise handle asbestos containing material as indicated in MEDEP Chapter 425: Asbestos Management Regulations and 40 CFR 61-SUBPART M.

3.2.6.1 Sealing Contaminated Items Designated for Disposal

Remove contaminated architectural, mechanical, and electrical appurtenances such as venetian blinds, full-height partitions, carpeting, duct work, pipes and fittings, radiators, light fixtures, conduit, panels, and other contaminated items designated for removal by completely coating the items with an asbestos lock-down encapsulant at the demolition site before removing the items from the asbestos control area. These items need not be vacuumed. The asbestos lock-down encapsulant must be tinted a

contrasting color and spray-applied by airless method. Thoroughness of sealing operation must be visually gauged by the extent of colored coating on exposed surfaces. Lock-down encapsulants must comply with the performance requirements specified herein.

3.2.6.2 Exposed Pipe Insulation Edges

Contain edges of asbestos insulation to remain that are exposed by a removal operation. Wet and cut the rough ends true and square with sharp tools and then encapsulate the edges with a 1/4 inch thick layer of non-asbestos containing insulating cement troweled to a smooth hard finish. When cement is dry, lag the end with a layer of non-asbestos lagging cloth, overlapping the existing ends by at least 4 inches. When insulating cement and cloth is an impractical method of sealing a raw edge of asbestos, take appropriate steps to seal the raw edges as approved by the Contracting Officer.

3.2.7 Methods of Compliance

3.2.7.1 Mandated Practices

The specific abatement techniques and items identified must be detailed in the Contractor's AHAP. Use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

- a. Vacuum cleaners equipped with HEPA filters.
- b. Wet methods or wetting agents except where it can be demonstrated that the use of wet methods is unfeasible due to the creation of electrical hazards, equipment malfunction, and in roofing.
- c. Prompt clean-up and disposal.
- d. Inspection and repair of polyethylene.
- e. Cleaning of equipment and surfaces of containers prior to removing them from the equipment room or area.

3.2.7.2 Control Methods

Use the following control methods:

- a. Local exhaust ventilation equipped with HEPA filter;
- b. Enclosure or isolation of processes producing asbestos dust;
- c. Where the feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PELs, use them to reduce employee exposure to the lowest levels attainable and must supplement them by the use of respiratory protection.

3.2.7.3 Unacceptable Practices

The following work practices must not be used:

- a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- b. Compressed air used to remove asbestos containing materials, unless

the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

- c. Dry sweeping, shoveling, or other dry clean up.
- d. Employee rotation as a means of reducing employee exposure to asbestos.

3.2.8 Class I Work Procedures

In addition to requirements of paragraphs MANDATED PRACTICES and CONTROL METHODS, the following engineering controls and work practices must be used:

- a. A Competent Person must supervise the installation and operation of the control methods.
- b. Place critical barriers over all openings to the regulated area.
- c. HVAC systems must be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.
- d. Impermeable dropcloths (6 mil or greater thickness) must be placed on surfaces beneath all removal activity.
- e. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area must be ventilated with a HEPA unit and employees must use PPE.

3.2.9 Specific Control Methods for Class I Work

Use Class I work procedures, control methods and removal methods for the following ACM:

- a. Thermal System Insulation and Mudded Pipe Fittings

3.2.9.1 Negative Pressure Enclosure (NPE) System

The system must provide at least four air changes per hour inside the containment. The local exhaust unit equipment must be operated 24-hours per day until the containment is removed. The NPE must be smoke tested for leaks at the beginning of each shift and be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential must be monitored continuously, 24-hours per day, with an automatic manometric recording instrument and Records must be provided daily on the same day collected to the Contracting Officer. The Contracting Officer must be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system must not be used as the local exhaust system for the regulated area. The NPE must terminate outdoors unless an alternate arrangement is allowed by the Contracting Officer. All filters used must be new at the beginning of the project and must be periodically changed as necessary and disposed of as ACM waste.

3.2.9.2 Glovebag Systems

Glovebags must be used without modification, smoke-tested for leaks, and completely cover the circumference of pipe or other structures where the work is to be done. Glovebags must be used only once and must not be

moved. Glovebags must not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, glovebags must be collapsed using a HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation must be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least two persons must perform glovebag removal. Asbestos regulated work areas must be established for glovebag abatement. Designated boundary limits for the asbestos work must be established with rope or other continuous barriers and all other requirements for asbestos control areas must be maintained, including area signage and boundary warning tape.

- a. Attach HEPA vacuum systems to the bag to prevent collapse during removal of ACM.
- b. The negative pressure glove boxes must be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure must be created in the system using a HEPA filtration system. The box must be smoke tested for leaks prior to each use.

3.2.9.3 Mini-Enclosure

Single bulkhead containment, double bulkhead containment, or mini-containment (small walk-in enclosure) to accommodate no more than two persons, may be used if the disturbance or removal can be completely contained by the enclosure. The mini-enclosure must be inspected for leaks and smoke tested before each use. Air movement must be directed away from the employee's breathing zone within the mini-enclosure.

3.2.9.4 Wrap and Cut Operation

Prior to cutting pipe, the asbestos-containing insulation must be wrapped with polyethylene and securely sealed with duct tape to prevent asbestos becoming airborne as a result of the cutting process. The following steps must be taken: install glovebag, strip back sections to be cut 6 inches from point of cut, and cut pipe into manageable sections.

3.2.9.5 Class I Removal Method

Class I ACM must be removed using a control method described above. Prepare work area as previously specified. Establish designated limits for the asbestos regulated work area with the use of red barrier tape, critical barriers, signs, and maintain all other requirements for asbestos control area. Spread one layer of 6-mil seamless plastic sheeting on the floor below the work area. Remove ACM thermal system insulation and mudded pipe fittings using mechanical means and wet methods and immediately place into 6-mil thickness disposal bag. Continue wet cleaning until surfaces are free of visible debris. Bag all asbestos debris which has fallen to the floor as asbestos-containing debris. Place all debris in plastic disposal bags of 6-mil minimum thickness. Once the material is in the disposal bag, apply additional water as needed to achieve "adequately wet" conditions for NESHAP compliance. Place bagged asbestos waste under negative pressure with the use of a HEPA vacuum, goose neck and duck tape to seal the bag, wash to remove any visible contamination and place into a second 6-mil minimum thickness disposal bag. Containerize asbestos containing waste while wet. Lower and otherwise handle asbestos containing materials as indicated in 40 CFR 61-SUBPART M. Conduct area monitoring of airborne fibers during

the work shift at the designated limits of the asbestos work area and conduct personal samples of each worker engaged in the work. If the quantity of airborne asbestos fibers monitored at the breathing zone of the workers or the designated limits at any time exceeds background or 0.010 fibers per cubic centimeter, whichever is greater, stop work, and immediately correct the situation.

3.2.10 Class II Work Procedures

In addition to the requirements of paragraphs MANDATED PRACTICES and CONTROL METHODS, the following engineering controls and work practices must be used:

- a. A Competent Person must supervise the work.
- b. For indoor work, critical barriers must be placed over all openings to the regulated area.
- c. Impermeable dropcloths must be placed on surfaces beneath all removal activity.

3.2.11 Air Sampling

Perform sampling of airborne concentrations of asbestos fibers in accordance with 29 CFR 1926.1101, the Contractor's air monitoring plan and as specified herein. Sampling performed in accordance with 29 CFR 1926.1101 must be performed by the PQP. Sampling performed for environmental and quality control reasons must be performed by the PQP. Unless otherwise specified, use NIOSH Method 7400 for sampling and analysis. Monitoring may be duplicated by the Government at the discretion of the Contracting Officer. If the air sampling results obtained by the Government differ from those results obtained by the Contractor, the Government will determine which results predominate. Results of breathing zone samples must be posted at the job site and made available to the Contracting Officer. Submit all documentation regarding initial exposure assessments, negative exposure assessments, and air-monitoring results.

3.2.11.1 Sampling Prior to Asbestos Work

Provide area air sampling and establish the baseline one day prior to the masking and sealing operations for each demolition or removal site. Establish the background by performing area sampling in similar but uncontaminated sites in the building.

3.2.11.2 Sampling During Asbestos Work

The PQP must provide personal sampling as indicated in 29 CFR 1926.1101. Breathing zone samples must be taken for at least 25 percent of the workers in each shift, or a minimum of two, whichever is greater. Air sample fiber counting must be completed and results provided within 24-hours (breathing zone samples), and 8 hours (environmental/clearance monitoring) after completion of a sampling period. At the same time, the GC will provide area sampling close to the work inside the enclosure, outside the clean room entrance to the enclosure, at the waste load-out, and at the exhaust opening of the local exhaust system. If sampling outside the enclosure shows airborne levels have exceeded background or 0.010 fibers per cubic centimeter, whichever is greater, stop all work, correct the condition(s) causing the increase, and notify the Contracting

Officer immediately. Where alternate methods are used, perform personal and area air sampling at locations and frequencies that will accurately characterize the evolving airborne asbestos levels. The written results must be signed by testing laboratory analyst, testing laboratory principal and the Contractor's PQP. The air sampling results must be documented on a Contractor's daily air monitoring log. Copies of the air monitoring results must also be submitted directly to the Asbestos Program Manager.

3.2.11.3 Final Clearance Requirements, NIOSH PCM Method

For PCM sampling and analysis using NIOSH NMAM Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, must be less than 0.010 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any sample result is greater than 0.010 total f/cc, the asbestos fiber concentration (asbestos f/cc) must be confirmed from that same filter using NIOSH NMAM Method 7402 (TEM) at Contractor's expense. If any confirmation sample result is greater than 0.010 asbestos f/cc, abatement is incomplete and cleaning must be repeated at the Contractor's expense. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria must be done at the Contractor's expense.

3.2.11.4 Final Clearance Requirements, EPA TEM Method

For EPA TEM sampling and analysis, using the EPA Method specified in 40 CFR 763, abatement inside the regulated area is considered complete when the arithmetic mean asbestos concentration of the five inside samples is less than or equal to 70 structures per square millimeter (70 S/mm). When the arithmetic mean is greater than 70 S/mm, the three blank samples must be analyzed. If the three blank samples are greater than 70 S/mm, resampling must be done. If less than 70 S/mm, the five outside samples must be analyzed and a Z-test analysis performed. When the Z-test results are less than 1.65, the decontamination must be considered complete. If the Z-test results are more than 1.65, the abatement is incomplete and cleaning must be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria must be done at the Contractor's expense.

3.2.11.5 Sampling After Final Clean-Up (Clearance Sampling)

Provide area sampling of asbestos fibers using aggressive air sampling techniques as defined in the EPA 560/5-85-024 and establish an airborne asbestos concentration of less than 0.010 fibers per cubic centimeter after final clean-up but before removal of the enclosure or the asbestos work control area. After final cleanup and the asbestos control area is dry but prior to clearance sampling, the PQP and GC must perform a visual inspection in accordance with ASTM E1368 to ensure that the asbestos control and work area is free of any accumulations of dirt, dust, or debris. Prepare a written report signed and dated by the PQP documenting that the asbestos control area is free of dust, dirt, and debris and all waste has been removed. Collect the appropriate number of samples in accordance with Maine DEP regulations. Use transmission electron microscopy (TEM) to analyze clearance samples and report the results in accordance with current NIOSH criteria. The asbestos fiber counts from these samples must be less than 0.010 fibers per cubic centimeter or be not greater than the background, whichever is greater. Should any of the final samples indicate a higher value take appropriate actions to re-clean the area and repeat the sampling and TEM analysis at the Contractor's

expense.

3.2.11.6 Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, pay all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

3.2.12 Lock-Down

Prior to removal of plastic barriers and after pre-clearance clean up of gross contamination, the PQP must conduct a visual inspection of all areas affected by the removal in accordance with ASTM E1368. Inspect for any visible fibers. Spray apply a post removal (lock-down) encapsulant to ceiling, walls, floors and other areas exposed in the removal area. The exposed area includes but is not limited to plastic barriers, furnishings and articles to be discarded as well as dirty change room, air locks for bag removal and decontamination chambers.

3.2.13 Site Inspection

While performing asbestos engineering control work, the Contractor must be subject to on-site inspection by the Contracting Officer who may be assisted by or represented by safety or industrial hygiene personnel. If the work is found to be in violation of this specification, the Contracting Officer or his representative will issue a stop work order to be in effect immediately and until the violation is resolved. All related costs including standby time required to resolve the violation must be at the Contractor's expense.

3.3 CLEAN-UP AND DISPOSAL

3.3.1 Housekeeping

Essential parts of asbestos dust control are housekeeping and clean-up procedures. Maintain surfaces of the asbestos control area free of accumulations of asbestos fibers. Give meticulous attention to restricting the spread of dust and debris; keep waste from being distributed over the general area. Use HEPA filtered vacuum cleaners. DO NOT BLOW DOWN THE SPACE WITH COMPRESSED AIR. When asbestos removal is complete, all asbestos waste is removed from the work-site, and final clean-up is completed, the Contracting Officer will attest that the area is safe before the signs can be removed. After final clean-up and acceptable airborne concentrations are attained but before the HEPA unit is turned off and the enclosure removed, remove all pre-filters on the building HVAC system and provide new pre-filters. Dispose of filters as asbestos contaminated materials. Reestablish HVAC mechanical, and electrical systems in proper working order. The PQP and CP will visually inspect all surfaces within the enclosure for residual material or accumulated dust or debris. The Contractor must re-clean all areas showing dust or residual materials. If re-cleaning is required, air sample and establish an acceptable asbestos airborne concentration after re-cleaning. The Contracting Officer must agree that the area is safe in writing before unrestricted entry will be permitted. The Government must have the option to perform monitoring to determine if the areas are safe before entry is permitted.

3.3.2 Title to Materials

All waste materials, except as specified otherwise, become the property of the Contractor and must be disposed of as specified in applicable local, State, and Federal regulations and herein.

The Portsmouth Naval Shipyard Hazardous Waste Facility takes title and is responsible for all asbestos waste disposal.

3.3.3 Disposal of Asbestos

3.3.3.1 Procedure for Disposal

Coordinate all waste disposal with the Contracting Officer and the Portsmouth Naval Shipyard Hazardous Waste Facility (Code 106, Building 357). Collect asbestos waste, contaminated waste water filters, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place in sealed fiber-proof, waterproof, non-returnable containers (e.g. double plastic bags 6 mils thick, cartons, drums or cans). Wastes within the containers must be adequately wet in accordance with MEDEP Chapter 425: Asbestos Management Regulations and 40 CFR 61-SUBPART M. All waste materials, including, but not limited to, piping, must be less than 5 feet in length. Affix a warning and Department of Transportation (DOT) label to each container including the bags or use at least 6 mils thick bags with the approved warnings and DOT labeling preprinted on the bag. Clearly indicate on the outside of each container the name of the waste generator and the location at which the waste was generated. Prevent contamination of the transport vehicle (especially if the transport vehicle is a rented truck likely to be used in the future for non-asbestos purposes). These precautions include lining the vehicle cargo area with plastic sheeting (similar to work area enclosure) and thorough cleaning of the cargo area after transport and unloading of asbestos debris is complete.

The Contractor must carefully remove material and immediately place it in approved asbestos disposal bags/containers. If the bags/containers are not pre-marked, a Contractor furnished caution label must be permanently attached to the bags/containers. The Contractor must also furnish and affix a label permanently attached to the bags which provides the following information:

- * Abatement Contractor Name
- * Construction Contract Number
- * Building Number
- * Portsmouth Naval Shipyard, Kittery, Maine
- * Date

Contractor must ensure all asbestos materials are properly packaged prior to placement into government-furnished dumpsters.

3.3.3.2 Asbestos Disposal Quantity Report

Direct the PQP to record and report, to the Contracting Officer and Asbestos Program Manager, the amount of asbestos containing material removed and released for disposal. Deliver the report for the previous day at the beginning of each day shift with amounts of material removed during the previous day reported in linear feet or square feet as described initially in this specification and in cubic feet for the amount

of asbestos containing material released for disposal.

Allow the GC to inspect, record and report the amount of asbestos containing material removed and released for disposal on a daily basis.

-- End of Section --



NORTHEAST TEST CONSULTANTS

HAZARDOUS MATERIALS ASSESSMENT FOR ASBESTOS, LEAD-BASED PAINT, PCB CAULKING & UNIVERSAL WASTE

at

BUILDING #79 SECOND & THIRD FLOOR AREAS PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

NTC JOB #16885-2018

Prepared for:

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Biddeford, ME 04005*

**March 26, 2019
(Amended November 5, 2020)
(Amended January 7, 2021)**

Industrial Hygiene Consultants
Indoor Air Quality • Operations & Maintenance • Mold • Asbestos • Lead Based Paint Testing



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(Amended November 5, 2020)
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RE: Hazardous Materials Assessment for Asbestos;
Lead-Based Paint; PCB Caulking; and Universal Waste
Portsmouth Naval Shipyard
Building #79 - 2nd & 3rd Floors
NTC Job #16885-2018

Mr. Dunn:

Northeast Test Consultants has completed a Hazardous Materials Assessment comprised of an **Asbestos Materials Survey, Lead-Based Paint Assessment, PCB Assessment and Universal Waste Assessment** as part of Contract No.: N40085-16-D-3006; TO No.: TBD for the **2nd Floor & 3rd Floor Areas** of Building #79 [REDACTED] [REDACTED] **Office & Training Project** at the Portsmouth Naval Shipyard in Kittery, Maine.

PURPOSE

The purpose of this assessment was to characterize current environmental conditions at the requested areas for the presence of Asbestos Containing Materials, Lead-Based Paint, Polychlorinated Biphenyls (PCBs) in caulking and glazing and Universal Waste items.

PROCEDURES

On February 26 & 27, 2019, representatives of *Northeast Test Consultants* were on-site at the property to perform survey and inspection work. An additional site visit was made to field verify asbestos-containing pipe insulation amounts on the Third Floor.

No formal analytical testing for any other specific items or chemicals was requested nor part of the scope of services provided for these operations other than those parameters presented in this report.

Any conclusions contained herein are limited by the scope of work performed; no warranty, expressed or implied, is indicated as to any subsurface conditions not specifically noted within this report.

Asbestos in Building Materials

The asbestos materials assessment consisted of visual evaluation and sample collection of suspect asbestos materials as encountered by accredited and certified ME DEP asbestos inspectors.

The collection of suspect asbestos containing building materials was performed in accordance with the *State of Maine Department of Environmental Protection's Asbestos Management Regulations*, Chapter 425, Section 6, Inspection Requirements.

State of Maine Department of Environmental Protection's Asbestos Management Regulations, Chapter 425, effective date 4-3-2011, requires analysis of collected samples as follows:

- A. Surfacing materials, thermal system insulation and cementitious materials shall be analyzed using the PLM–EPA 600/R-93/116 Visual Estimation Method (1993).
- B. Non-friable Organically Bound materials (NOB's), including but not limited to floor tiles, asphalt shingles, caulking, glazing, mastics, coatings, sealants, adhesives and glues shall be analyzed using PLM NOB–EPA 600/R-93/116 with Gravimetric Preparation Method.

Point counting of any samples with asbestos content less than 10% was automatically performed.

Bulk sample groups were analyzed until a positive result was obtained or all samples in the group had been analyzed. The *State of Maine* DEP does not require any re-analysis of materials if the sample result is less than 1% by the above PLM Visual and/or PLM NOB methods.

For this activity, further analysis verification of materials was performed when the PLM-NOB method indicated a negative result. As requested by the client/facility, one sample from each homogeneous group was further assessed via Transmission Electron Microscopy (TEM) analysis protocol to definitively determine whether asbestos is present in the suspect materials.

Sampling was comprised of the collection of homogenous materials as follows:

Surfacing Materials –

- A.) At least 3 bulk samples from each homogenous area and/or material that is 1000 square feet or less;
- B.) At least 5 bulk samples from each homogenous area that is greater than 1000 square feet but less than or equal to 5000 square feet; or
- C.) At least 7 bulk samples from each homogenous area that is greater than 5000 square feet.

Thermal System Insulation –

- A.) 3 bulk samples from each homogenous area;
- B.) 1 bulk sample from each homogenous area of patched thermal system insulation if the patched section is less than 6 linear or square feet;
- C.) Samples sufficient to determine whether the material is ACM from each insulated mechanical system where cement is utilized on tees, elbows, or valves.

Miscellaneous Materials –

- A.) 3 samples from each miscellaneous material;
- B.) 1 sample if the amount of miscellaneous material is less than 6 square or linear feet.

Lead-Based Paint

The Paint assessment was comprised of the collection of representative bulk samples followed by analysis at accredited laboratories. Painted building components on the interior of the structure were assessed.

Lead content in paint was analyzed in accordance with NIOSH Method 7082M/7300M utilizing Flame Atomic Absorption Spectrometry (AAS) and Inductively Coupled Plasma (ICP) Methods.

The information compiled during this testing is not intended to be substituted for a comprehensive lead-based paint survey, or to be used to express potential exposure to airborne lead for OSHA compliance nor classify waste streams not yet generated. The testing provides the client with information on the lead-based paint content in the materials tested.

Polychlorinated Bi-phenyls (PCBs)

The collection of suspect glazing and caulking materials for determination of polychlorinated bi-phenyls (PCBs) was performed in accordance with *US Environmental Protection Agency's* Method EPA 608 / SW-846 3550B (PCB) Preparation Method with Soxhlet Extraction and SW-846 8082 Analytical Method by Gas Chromatography.

Universal Waste

This assessment was performed to identify components and materials containing mercury such as light bulbs and thermostats, and containing PCBs/DEHP as in lighting system ballast components as well as other general universal waste materials. Items such as refrigerators and portable air conditioners, etc., were not quantified as they are considered items to be re-used at other facility locations.

This assessment was to provide information to contractors who may generate waste relating to renovation activities for compliance with the requirements of ME DEP Chapter 850, Universal Waste Rules.

ASBESTOS INSPECTION AND SAMPLING

A walkthrough was performed in all accessible interior areas on the 2nd & 3rd Floors of the structure and sampling was performed for all suspect asbestos containing materials encountered.

This inspection was performed in accordance with all reasonable and customary assessment procedures and explorations in an occupied structure for the determination of the potential for multiple floor layering and possible hidden materials during the course of this assessment activity, short of performing minor demolition to dismantle/deconstruct building components/systems.

Bulk samples of suspect materials that were collected during this sampling event consisted of the following:

Ceiling Tiles (2' x 2' - 2 types)
Plaster
Drywall
Joint Compound
Floor Tile (12" x 12" - 4 types)
Rubber Floor Tile Glue (White)
Cove Base (Blue/Gray, Tan, & White)
Pipe Insulations (2" & 3" Lines)
"Mudded" Pipe Fittings (2" & 3" Lines)

Sample groups of similar materials were analyzed until positive and distinctly dissimilar materials layered together within samples were analyzed separately, where applicable.

A total of 78 samples of suspect asbestos containing building materials (ACBMs) were collected. 49 samples were analyzed by PLM Visual Method with 5 samples not analyzed due to positive stops by homogeneous sample groups and 24 samples were analyzed by PLM-NOB Method. Additionally, 8 TEM samples were further analyzed to verify negative results for eight (8) homogeneous PLM NOB sample groups.

Refer to the attached analytical results data, asbestos materials listing, and marked drawing for sampling locations and asbestos containing materials identified as part of this inspection.

Limitations

Any conclusions contained herein are limited by the scope of work performed; no warranty, expressed or implied, is indicated as to any subsurface conditions not specifically noted within this report.

Explanation of Analysis Methods

The collected samples were analyzed utilizing Polarized Light Microscopy (PLM) as PLM-EPA 600/R-93/116 Visual Estimation Method (1993) and PLM NOB-EPA 600/R-93/116 with Gravimetric Preparation Method.

PLM is a US EPA accepted screening method for asbestos in bulks. This analytical method readily identifies asbestos content quantitatively. However, it can fail in samples where asbestos fibers are very fine or obscured by a tightly binding matrix system.

PLM methods are compiled from standard techniques used in mineralogy and standard laboratory procedures used for asbestos bulk sample analysis. These techniques have been successfully applied to the analysis of US EPA Bulk Sample Analysis Quality Assurance Program since 1982.

Recommendations (Asbestos in Building Materials)

The asbestos containing materials found at the site consist of *friable materials* in their present states.

Friable materials can be crumbled by hand pressure and readily release asbestos fibers when impacted. Comparatively, *non-friable* materials do not crumble under hand pressure and do not readily release asbestos fibers to the surrounding atmosphere.

Materials containing equal to or greater than 1% of asbestos are a regulated material under the requirements of OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101, US EPA, and ME DEP.

All work operations which would impact asbestos containing materials would need to be in compliance with the asbestos regulations as set forth in OSHA 29 CFR Part 1926.1101; US EPA Title 40 - CFR, Part 61 NESHAP, Subparts A and M (General Provisions and Asbestos Standards, respectively); & State of Maine DEP Regulations, Chapter 425, effective 4-3-2011.

Any removal and/or cleanup of the identified asbestos containing materials would need to be performed by properly trained and/or licensed companies and workers.

The asbestos containing **Pipe Insulation** and **“Muddled” Pipe Fittings** are classified as US EPA RACM and will need to be removed **before** any renovation/demolition impact by properly trained and accredited individuals and ME DEP Permitting and ME DEP Design Plan for abatement will be required for these materials.

Due to the potential for hidden suspect and/or asbestos containing materials (already representatively sampled) to be present in enclosed cavity spaces, under divider wall systems, or otherwise covered and not specifically identified within this report that could be uncovered during active demolition/renovation activities, a qualified person should be available and/or present onsite during the project. It is for this reason that NESHAP requires a competent person onsite during all demolition actions.

LEAD-BASED PAINT INSPECTION

Lead-based paint testing was performed by the collection of limited paint scrape samples assessed for Total Lead content.

The information compiled during this testing is not intended to be substituted for a comprehensive EPA/HUD-type lead-based paint survey or to be used to express potential exposure to airborne lead or classify waste streams not yet generated. The testing provides information on the lead-based paint content for the surfaces tested during this inspection as they currently exist.

A total of nine (9) bulk paint scrape samples were collected from the 2nd & 3rd Floors that were representative of paint colors present as follows:

<i>Blue</i>	<i>Green/White</i>	<i>Gray</i>
<i>Blue/Gray</i>	<i>White</i>	
<i>Light Blue</i>	<i>Tan</i>	

Review of the Total Lead results indicates lead levels as follows:

4 samples below the Consumer Products Safety Commission (CPSC) established paint limit of 0.009% (formerly 0.06%) making them non-lead containing paints (16 CFR 1303).

3 samples above the Consumer Products Safety Commission (CPSC) established paint limit of 0.009% (formerly 0.06%) making them lead containing paints (16 CFR 1303).

1 sample above the EPA value of $\geq 0.5\%$ which indicates that this paint, particularly when loose paint debris is generated, in all probability will be in excess of the 5.0 mg/L TCLP value classifying the paint debris as an EPA regulated special hazardous waste for disposal.

Of note is that 1 sample could not be analyzed as <50 mg of materials was in the collected sample.

01/07/2021 Amendment: Additional lead-based paint information is attached to this report as Addendum 1. This information, comprised of additional drawings with results of paint analysis and quantification, was provided by others.

Refer to the attached analytical data sheets for reference of quantities of Lead detected in individual samples and marked drawings for sampling locations.

RECOMMENDATIONS (Lead in Paints)

The objective of this inspection/determination was to determine the presence of lead content in paints for overall renovation impact and not for each and every surface of the area inspected.

The information compiled as part of this testing is not intended to be substituted for a comprehensive Lead-Based Paint survey, or to be used to express potential exposure to airborne lead for the purposes of regulation compliance. All scraping, sanding, cutting, welding, grinding, or demolition of any painted surface should not be performed under dry conditions in which airborne dust can be generated.

Similarly, renovation/demolition activities that may impact metal-containing painted components are a concern with respect to the generation of airborne dusts; therefore, safety measures such as the use of engineering controls are essential in order to protect human health and the environment.

Contractors performing renovation/demolition activities in which excessive amounts of lead dusts may potentially be generated shall be trained in the hazards of exposure to such materials and the subsequent control of the impacted environment, removal, cleaning, packaging, and handling of these materials as well as the wearing of NIOSH approved respirators, use of disposable clothing, and any other requirements of the OSHA Lead Standard for Construction, 29 CFR 1926.62.

Workers should not be exposed to airborne LEAD levels greater than 50 $\mu\text{g}/\text{m}^3$ as an eight-hour time weighted average (TWA) as outlined in OSHA 29 CFR Part 1926.62, Lead Standard. The OSHA Action Level for Lead Exposure is 35 $\mu\text{g}/\text{m}^3$.

The painted components analyzed for Total Lead with results greater than 0.009 percent ($>0.009\%$) but less than 0.5 percent ($<0.5\%$) do not require any special waste handling or disposal as long as the demolition debris is not recycled or brought to a facility for burning.

The lead content in paint adhered to building materials will likely not result in a TCLP Lead Value equal to or greater than 5.0 milligrams per Liter ($\geq 5.0 \text{ mg/L}$).

If free paint chips are produced and collected separately from any demolition debris where lead paint testing indicates $> 0.5\%$ Total Lead by Weight, then these paint chips should be packaged and disposed of as lead containing waste as the loose paint debris material itself without the dilution effect of the substrate materials will in all probability result in TCLP values $\geq 5.0 \text{ mg/L}$, classifying it as an EPA hazardous waste stream material.

PCB INSPECTION

Polychlorinated biphenyls (PCBs) are a class of organic compounds with 1 to 10 chlorine atoms attached to biphenyl, which is a molecule composed of two benzene rings.

There are no known natural sources of PCBs. PCBs are either oily liquids or solids that are colorless to light yellow. Some PCBs can exist as a vapor in air. PCBs have no known smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

Aroclor PCB mixtures were produced from approximately 1930 to 1979.

The specific Aroclor products screened for were Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268.

The first two digits generally refer to the number of carbon atoms in the phenyl rings and the last two digits in the name indicate the percentage of chlorine present in the material, for example, Aroclor 1016 means the product contains 10 carbon atoms and approximately 16% chlorine by weight.

US EPA regulatory guidelines classify materials with levels equal to or greater than 50 ppm (≥ 50 ppm) of PCB content to be a controlled hazardous waste material under the Toxic Substance Control Act (TSCA).

No suspect caulking materials were observed at the site areas assessed; hence no samples were collected for analysis.

Recommendations (PCBs)

No recommendations required at this time.

UNIVERSAL WASTE ASSESSMENT

The interior and exterior areas of the structure were assessed for the presence of Universal Waste Items that would need to be addressed prior to demolition/renovation activities.

Universal Waste assessment was performed for compliance with the requirements of ME DEP Chapter 850, Universal Waste Rules.

General comments regarding Universal Waste items:

Mercury:

Effective as of July 15, 2002, businesses and agencies can no longer dispose of mercury-added products in solid waste facilities (landfills or incinerators).

Thermostats

Mercury Thermostats may be recycled under the Thermostat Recycling Program. This program utilizes the existing wholesaler network by providing a collection container at participating locations. Return any out-of-service mercury thermostats to any participating HVAC wholesaler. Any name-brand mercury switch thermostat will be accepted.

Fluorescent Lamps

No fluorescent lamps are mercury-free.

This includes the new compact type light bulbs (CFL's) and lamps marketed as "low mercury" containing (green ends).

US EPA recommends that any mercury containing light bulb be recycled or properly handled and disposed properly, whether it is an older type bulb or a newer "low" mercury type bulb.

State of Maine law requires businesses and consumers to recycle all mercury added lamps, including "low" mercury type bulbs (green ends) under the ME DEP Chapter 850, Universal Waste Rules.

PCB Ballasts

Non-leaking PCB ballasts are classified as a special hazardous waste and may be managed under the reduced requirements.

Waste from leaking ballasts is regulated by the Toxic Substances Control Act (TSCA).

Regulations require the use of DOT-approved 55-gallon drums for disposal of PCB capacitors once they are removed. Drums should contain absorbent material (speedi-dry or kitty litter) at the bottom in case some of the capacitors are damaged or leaking. There should be a PCB M_L label placed on each drum that contains PCB capacitors. Drums should be sealed and stored in a secure area that would minimize inadvertent damage or vandalism. Two drums are recommended, one to contain intact capacitors and one to contain any capacitors found to be leaking. This is beneficial because leaking capacitors must be disposed of within 30 days, however, intact capacitors can be stored until the drum is full.

NOTE: If one pound or more of PCBs (the amount in 12-16 ballasts) is released within 24 hours, notify the National Response Center.

Leaking Ballasts

TSCA Hotline (202) 554-1404

Releases of one pound or more

National Response Center (800) 424-8802

NON-PCB Ballasts:

Cannot be disposed of in conventional waste streams. Beginning in 1979 manufacturers began using **di (2-ethylhexyl) phthalate (DEHP)** as a replacement to polychlorinated biphenyl's (PCBs). DEHP is listed as a hazardous substance under the EPA's Superfund regulations. Generators discarding light ballasts should take the same precautions with their DEHP ballasts as they do with their PCB ballasts to avoid any future liabilities.

Miscellaneous Waste Items

Other miscellaneous universal waste items consisting of *Special and Hazardous Wastes* were evaluated at the structure and were comprised of potential lead-acid batteries or rechargeable batteries associated with emergency lighting units.

Items such as any portable air conditioners and refrigerators (*Freon containing*), if present, are not included in any listing as they are assumed for re-use.

Refer to the attached Universal Waste Listing and marked drawing for locations, quantities, and types of items identified during this assessment.

Please review the attached analytical results for the collected bulk samples of asbestos, asbestos materials listing, inspection sheets for lead content in paint determination, and universal waste listing, and marked drawings for all sampling parameters.

Amendment 01/07/2021: Addendum 1 contains additional information, as drawings with paint analytical results and quantification, supplied by others.

Should you have any questions please feel free to give me a call.

Sincerely,



Stephen R. Broadhead, CIH
ME DEP DC, AS, AI, AM
President

Attachments

cc: William Van Benthuisen, Oak Point Associates
wvanbenthuisen@oakpoint.com

ASBESTOS BULK RESULTS

Sample Date: 2/26-27/2019
NTC Job # 16885-2018


Client: Oak Point Associates
231 Main Street
Biddeford, Maine 04005

Location: Portsmouth Naval Ship Yard
Building #79
2nd & 3rd Floors

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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-1	B- 9058015	2nd Floor; Hall near Elevator; 2' X 2' Ceiling Tile ; Fissure & Pinhole Pattern; White	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-2	B- 9058016	2nd Floor; Reactor Engineering Division Head; 2' X 2' Ceiling Tile ; Fissure & Pinhole Pattern; White	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-3	B- 9058017	2nd Floor; Small Hall Connecting Two Sides of The Building; 2' X 2' Ceiling Tile ; Fissure & Pinhole Pattern; White	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-4	B- 9058018	2nd Floor; Hall near Elevator; Wallboard ; Light Gray	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-5	B- 9058019	2nd Floor; Reactor Engineering Division Head; Wallboard ; Light Gray	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-6	B- 9058020	2nd Floor; Small Hall Connecting Two Sides of the Building; Wallboard ; Light Gray	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-7	B- 9058021	2nd Floor; Hall near Elevator; Joint Compound ; White	None Detected	None Detected	100%
B-8	B- 9058022	2nd Floor; Small Hall Connecting Two Sides of the Building; Joint Compound ; White	None Detected	None Detected	100%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
and/or TEM ELAP 198.4

Sampled by: B.Lannigan
Approved by: Stephen R. Broadhead
Initial 

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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-9	B- 9058023	3rd Floor; Hallway near Elevator; Joint Compound ; White	None Detected	None Detected	100%
B-10	B- 9058024	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Gray with Specks	None Detected	None Detected	51.7%
			None Detected	None Detected	51.7% Other
B-11	B- 9058025	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Gray with Specks	None Detected	None Detected	34.7%
B-12	B- 9058026	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Gray with Specks	None Detected	None Detected	46.7%
B-13	B- 9058027	2nd Floor; Hall near Elevator; Cove Base ; Gray/Blue	None Detected	None Detected	4.9%
			None Detected	None Detected	4.9% Other
B-14	B- 9058028	2nd Floor; Hall near Elevator; Cove Base ; Gray/Blue	None Detected	None Detected	3.7%
B-15	B- 9058029	2nd Floor; Hall near Elevator; Cove Base ; Gray/Blue	None Detected	None Detected	3.7%
B-16	B- 9058030	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Blue with Specks	None Detected	None Detected	33.8%
			None Detected	None Detected	33.8% Other

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Sampled by: B.Lannigan
Approved by: Stephen R. Broadhead
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
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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-17	B- 9058031	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Blue with Specks	None Detected	None Detected	57.3%
B-18	B- 9058032	2nd Floor; Hall near Elevator; 12" X 12" Floor Tile ; Blue with Specks	None Detected	None Detected	53.2%
B-19	B- 9058033	2nd Floor; Hall by Women's Restroom; Rubber Mat Glue ; Under 2' X 2' Rubber Floor Tiles	None Detected	None Detected	6.5%
			None Detected	Trace Other	6.5% Other
B-20	B- 9058034	2nd Floor; Hall by Women's Restroom; Rubber Mat Glue ; Under 2' X 2' Rubber Floor Tiles	None Detected	None Detected	1.1%
B-21	B- 9058035	2nd Floor; Hall by Women's Restroom; Rubber Mat Glue ; Under 2' X 2' Rubber Floor Tiles	None Detected	None Detected	3.5%
B-22	B- 9058036	2nd Floor; Reactor Engineering Division Head; Base Coat Plaster ; Gray	None Detected	5% Fibrous Glass	95%
B-23	B- 9058037	2nd Floor; Reactor Engineering Division Head; Base Coat Plaster ; Gray	None Detected	None Detected	100%
B-24	B- 9058038	2nd Floor; Reactor Engineering Division Head; Base Coat Plaster ; Gray	None Detected	1% Hair	99%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
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
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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-25	B- 9058039	2nd Floor; Reactor Engineering Division Head; Skim Coat Plaster ; White	None Detected	None Detected	100%
B-26	B- 9058040	2nd Floor; Reactor Engineering Division Head; Skim Coat Plaster ; White	None Detected	None Detected	100%
B-27	B- 9058041	2nd Floor; Reactor Engineering Division Head; Skim Coat Plaster ; White	None Detected	None Detected	100%
B-28	B- 9058042	2nd Floor; Reactor Engineering Division Head; Cove Base ; Gray	None Detected	None Detected	14.4%
			None Detected	None Detected	14.4% Other
B-29	B- 9058043	2nd Floor; Conference Room; Cove Base ; Gray	None Detected	None Detected	8.9%
B-30	B- 9058044	2nd Floor; Reactor Engineering Division Head; Cove Base ; Gray	None Detected	None Detected	10.2%
B-31	B- 9058045	2nd Floor; Kitchenette off Small Hall; 12" X 12" Floor Tile ; Gray	None Detected	None Detected	66.1%
			None Detected	None Detected	66.1% Other
B-32	B- 9058046	2nd Floor; Kitchenette off Small Hall; 12" X 12" Floor Tile ; Gray	None Detected	None Detected	57.7%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
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
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B-33	B- 9058047	2nd Floor; Kitchenette off Small Hall; 12" X 12" Floor Tile ; Gray	None Detected	None Detected	56%
B-34	B- 9058048	2nd Floor; Kitchenette off Amall Hall; Cove Base ; Tan	None Detected	None Detected	12.1%
			None Detected	None Detected	12.1% Other
B-35	B- 9058049	2nd Floor; Hall; Cove Base ; Tan	None Detected	None Detected	8.9%
B-36	B- 9058050	2nd Floor; Hall; Cove Base ; Tan	None Detected	None Detected	15.8%
B-37	B- 9058051	2nd Floor; Small Connector Hall; 2' X 2' Ceiling Tile ; Large Fissure & Small Pit Pattern; Off-White with Brown Backing	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-38	B- 9058052	2nd Floor; Code 2380 Nuclear Facilites Division Head; 2' X 2' Ceiling Tile ; Large Fissure & Small Pit Pattern; Off-White with Brown Backing	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-39	B- 9058053	2nd Floor; Hallway; 2' X 2' Ceiling Tile ; Large Fissure & Small Pit Pattern; Off-White with Brown Backing	None Detected	40% Cellulose 40% Fibrous Glass	20%
B-40	B- 9058054	3rd Floor; Nuclear Quality Division Head; Above Ceiling; 3" Pipe Insulation ; White	40% Chrysotile 40% Amosite	None Detected	20%

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
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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-41	B- 9058055	3rd Floor; Nuclear Quality Division Head; Above Ceiling; Mudded Elbow on 3" Pipe; Gray	50% Chrysotile	40% Fibrous Glass	10%
B-42	B- 9058056	3rd Floor; Above Ceiling; 3" Pipe Insulation ; White	40% Chrysotile 40% Amosite	None Detected	20%
B-43	B- 9058057	3rd Floor; 2" Pipe Run; Insulation ; White	50% Chrysotile 10% Amosite	5% Cellulose	35%
B-44	B- 9058058	3rd Floor; 2" Pipe Run; Insulation ; White	<i>Sample Not Analyzed, Same As B-43</i>		
B-45	B- 9058059	3rd Floor; Code 2370 Conference Room; 2" Pipe Run; Insulation ; White	<i>Sample Not Analyzed, Same As B-43</i>		
B-46	B- 9058060	3rd Floor; Mudded Elbow on 2" Pipe Run	60% Chrysotile	20% Fibrous Glass	20%
B-47	B- 9058061	3rd Floor; Code 2370 Conference Room; Mudded Elbow on 2" Pipe Run	<i>Sample Not Analyzed, Same As B-46</i>		
B-48	B- 9058062	3rd Floor; Code 2370 Conference Room; Mudded Elbow on 2" Pipe Run	<i>Sample Not Analyzed, Same As B-46</i>		

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
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
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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-49	B- 9058063	2nd Floor; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-50	B- 9058064	2nd Floor; Fourth Column; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-51	B- 9058065	2nd Floor; by Freight Elevator; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-52	B- 9058066	2nd Floor; Outside of Conference Room; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-53	B- 9058067	2nd Floor; Outside Wall; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-54	B- 9058068	2nd Floor; By Exit; Sheetrock ; White	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-55	B- 9058069	2nd Floor; Joint Compound	None Detected	None Detected	100%
B-56	B- 9058070	2nd Floor; By Fourth Column; Joint Compound	None Detected	None Detected	100%

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
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Building #79
2nd & 3rd Floors

This report only refers to the sample analyzed and is not necessarily denotative of the quality or condition of overtly identical or similar products. This report is submitted and approved for the use of the client to whom it is addressed. It is not to be used, in part or in whole, in any advertising without prior written authorization from NTC. Sample types, locations and collection properties are based upon the information provided by the persons submitting them and, unless collected by NTC personnel, we explicitly disclaim any knowledge and liability for the accuracy of this data. All rights reserved by Northeast Test Consultants, Westbrook, Maine. This analytical report is provided by NTC and does not indicate endorsement by NVLAP or any agency of the U.S. Government.

Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-57	B- 9058071	2nd Floor; By Freight Elevator; Joint Compound	None Detected	None Detected	100%
B-58	B- 9058072	2nd Floor; Outside of Conference Room; Joint Compound	None Detected	None Detected	100%
B-59	B- 9058073	2nd Floor; Joint Compound	None Detected	None Detected	100%
B-60	B- 9058074	2nd Floor; By Exit; Joint Compound	None Detected	None Detected	100%
B-61	B- 9058075	3rd Floor; Hall; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-62	B- 9058076	3rd Floor; Small Kitchen Area Behind Women's Restroom; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-63	B- 9058077	3rd Floor; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-64	B- 9058078	3rd Floor; Nuclear Refueling Engineering Division Head; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
and/or TEM ELAP 198.4

Sampled by: B.Lannigan
Approved by: Stephen R. Broadhead
Initial 

ASBESTOS BULK RESULTS

Sample Date: 2/26-27/2019
NTC Job # 16885-2018


Client: Oak Point Associates
231 Main Street
Biddeford, Maine 04005

Location: Portsmouth Naval Ship Yard
Building #79
2nd & 3rd Floors

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Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-65	B- 9058079	3rd Floor; Outside Wall by Nuclear Testing Enigneering Division Head; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-66	B- 9058080	3rd Floor; Rodney Robinson Conference Room B; Wallboard	None Detected	5% Cellulose 5% Fibrous Glass	90%
B-67	B- 9058081	3rd Floor; Hall; Joint Compound	None Detected	None Detected	100%
B-68	B- 9058082	3rd Floor; Small Kitchen Area Behind Women's Restroom; Joint Compound	None Detected	None Detected	100%
B-69	B- 9058083	3rd Floor; Joint Compound	None Detected	None Detected	100%
B-70	B- 9058084	3rd Floor; Nuclear Refueling Engineering Division Head; Joint Compound	None Detected	None Detected	100%
B-71	B- 9058085	3rd Floor; Outside Wall by Nuclear Testing Enigneering Division Head; Joint Compound	None Detected	None Detected	100%
B-72	B- 9058086	3rd Floor; Rodney Robinson Conference Room B; Joint Compound	None Detected	None Detected	100%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
and/or TEM ELAP 198.4

Sampled by: B.Lannigan
Approved by: Stephen R. Broadhead
Initial 

ASBESTOS BULK RESULTS

Sample Date: 2/26-27/2019
NTC Job # 16885-2018


Client: Oak Point Associates
231 Main Street
Biddeford, Maine 04005

Location: Portsmouth Naval Ship Yard
Building #79
2nd & 3rd Floors

This report only refers to the sample analyzed and is not necessarily denotative of the quality or condition of overtly identical or similar products. This report is submitted and approved for the use of the client to whom it is addressed. It is not to be used, in part or in whole, in any advertising without prior written authorization from NTC. Sample types, locations and collection properties are based upon the information provided by the persons submitting them and, unless collected by NTC personnel, we explicitly disclaim any knowledge and liability for the accuracy of this data. All rights reserved by Northeast Test Consultants, Westbrook, Maine. This analytical report is provided by NTC and does not indicate endorsement by NVLAP or any agency of the U.S. Government.

Sample #	Lab #	Location / Description	% & Type of Asbestos	% & Type Fibrous Material	% Non-Fibrous Material
B-73	B- 9058087	3rd Floor; Hall near Window by Rodney Robinson Conference Room; 3" Pipe Insulation ; White	40% Chrysotile 40% Amosite	None Detected	20%
B-74	B- 9058088	3rd Floor; Above Ceiling; at Outside Wall; Rodney Robinson Conference Room; Mudded Elbow from 3" Pipe; Brown	50% Chrysotile	30% Fibrous Glass 5% Cellulose	15%
B-75	B- 9058089	3rd Floor; Above Ceiling Hatch; near Freight Elevator; Mudded Elbow from 3" Pipe; Brown	Sample Not Analyzed, Same As B-74		
B-76	B- 9058090	3rd Floor; near Code 2340 Conference Room; 12" X 12" Floor Tile ; Off-White with Beige Streaks	None Detected	None Detected	49.2%
			None Detected	None Detected	49.2% Other
B-77	B- 9058091	3rd Floor; near Code 2340 Conference Room; 12" X 12" Floor Tile ; Off-White with Beige Streaks	None Detected	None Detected	54.8%
B-78	B- 9058092	3rd Floor; near Code 2340 Conference Room; 12" X 12" Floor Tile ; Off-White with Beige Streaks	None Detected	None Detected	58.2%

Lab: IATL (NVLAP#101165-0) Analysis Method: PLM EPA 600/R-93/116
and/or TEM ELAP 198.4

Sampled by: B.Lannigan
Approved by: Stephen R. Broadhead
Initial 



ASBESTOS MATERIALS LISTING

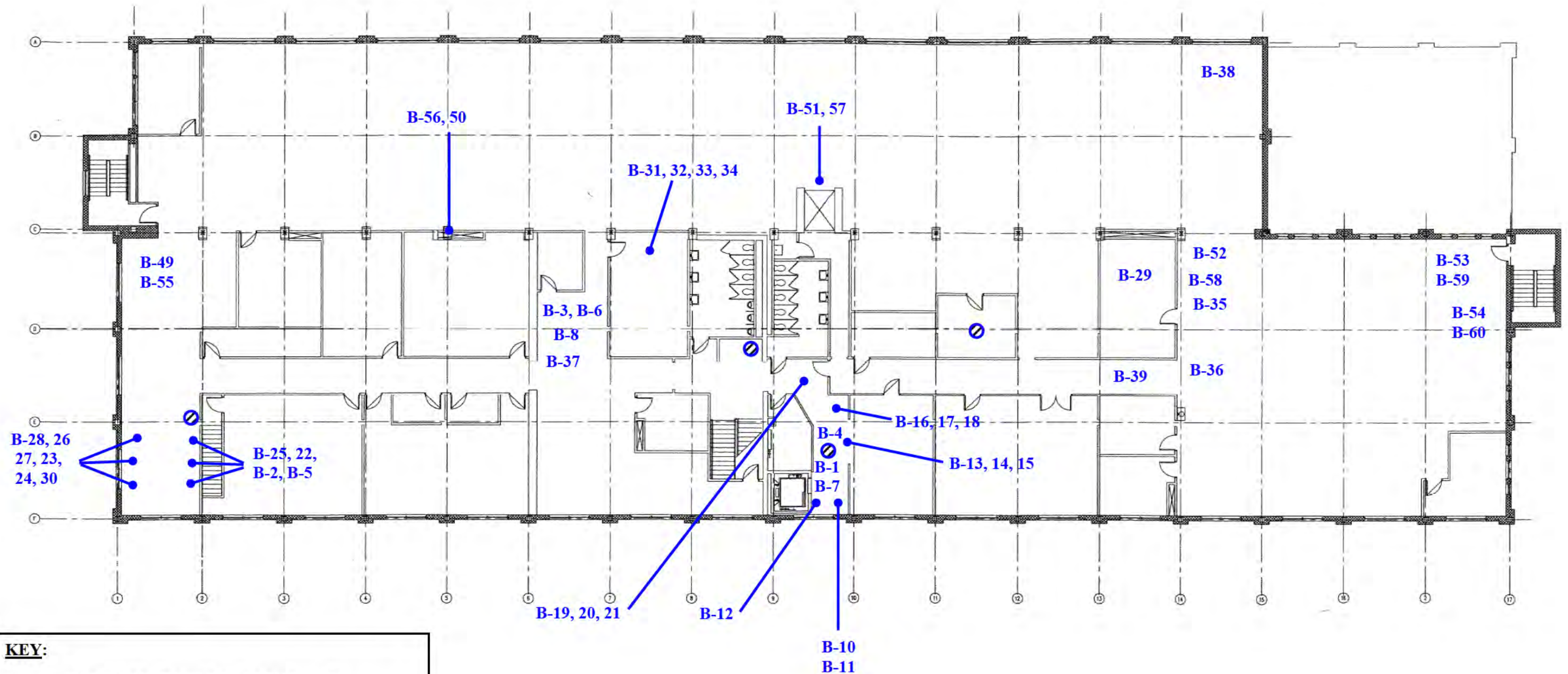
CLIENT: Oak Point Associates
NTC Job #: 16885-2018 (Amended 11/5/2020)
PROJECT: **Building #79**
Portsmouth Naval Shipyard; Kittery, Maine

LINEAR AND SQUARE FOOTAGE OF ASBESTOS CONTAINING MATERIAL

Homogeneous Material Type	Functional Space	Associated Field Sample	Linear Feet	Pipe Fittings	Remarks
Pipe Insulation	3 rd Floor	B-40 thru B-48 B-73 B-74 B-75	1,030 to 1,100	Approx. 38	Asbestos pipe insulation and “mudded” fittings above suspended ceilings. Quantities are best estimations based on some limited access above ceilings.

ASBESTOS MATERIALS SURVEY

Portsmouth Naval Shipyard; Kittery, Maine
BUILDING #79 – SECOND FLOOR



KEY:



HOLE SAW EXPLORATIONS – NO
SUSPECT FELT PAPERS BETWEEN WOOD
DECKING/SUBSTRATE

B-#

BULK SAMPLES POSITIVE for ASBESTOS

B-#

BULK SAMPLES NEGATIVE for ASBESTOS



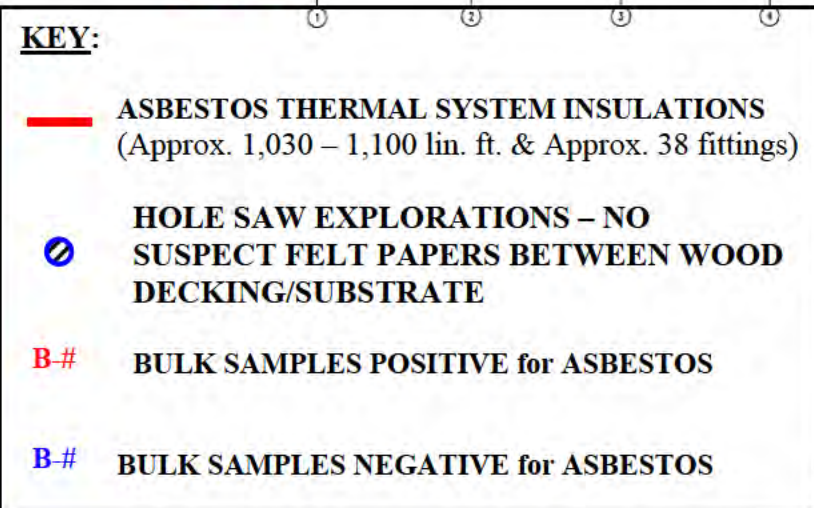
NORTHEAST TEST CONSULTANTS

NTC JOB # 16885-2018R

DRAWING DATE: 4-9-2019
JMB

DRAWING NOT TO SCALE

Portsmouth Naval Shipyard; Kittery, Maine BUILDING #79 – THIRD FLOOR



**14 Visible
Mudded
Fittings and
2 Risers**

8 Visible Mudded Fittings

16' uninsulated
section



DRAWING DATE: 11-5-2020
SRB


DRAWING NOT TO SCALE


PAINT ANALYSIS for TOTAL LEAD


Portsmouth Naval Ship Yard Building #79

Date Sampled: February 26, 2019
Analytical Method: ASTM D3335-85a by AAS

Sample/Lab#	Sample Location Description	Color	TOTAL LEAD % By Weight
LB-1 IHB9058001	2 nd Floor; Window Sill by Elevator; Paint Chip	Blue/Gray	<0.0055
LB-2 IHB9058002	2 nd Floor; Wall by Elevator; Paint Chip	White	<0.0071
LB-3 IHB9058003	2 nd Floor; Door Jamb; Reactor Engineering Division Head; Paint Chip	Gray	<0.012*
LB-4 IHB9058004	2 nd Floor; Wall; End of Hall; Outside Engineering Division Head; Paint Chip	Light Blue	<0.0083
LB-5 IHB9058005	2 nd Floor; Window; Lintel Beam Above Ceiling in [REDACTED] Facilities; Paint Chip	Green & White	10***
LB-6 IHB9058006	2 nd Floor; Door by Stairwell; Paint Chip	Gray	<0.0068
LB-7 IHB9058007	3 rd Floor; Door by Computer Room; Paint Chip	Blue	VOID**
LB-8 IHB9058008	3 rd Floor; Frame from Freight Elevator; Paint Chip	Tan	0.010
LB-9 IHB9058009	3 rd Floor; Freight Elevator Door	Tan	0.038

 = Level Does Not Require Any Action

 = Exceeds Consumer Product Safety Commission Definition of Non-Lead Based Paint by AAS Analysis $\leq 0.009\%$ by Weight

 = Exceeds HUD/EPA Definition of Lead-Based Paint by AAS Analysis: $\geq 0.5\%$ by Weight

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

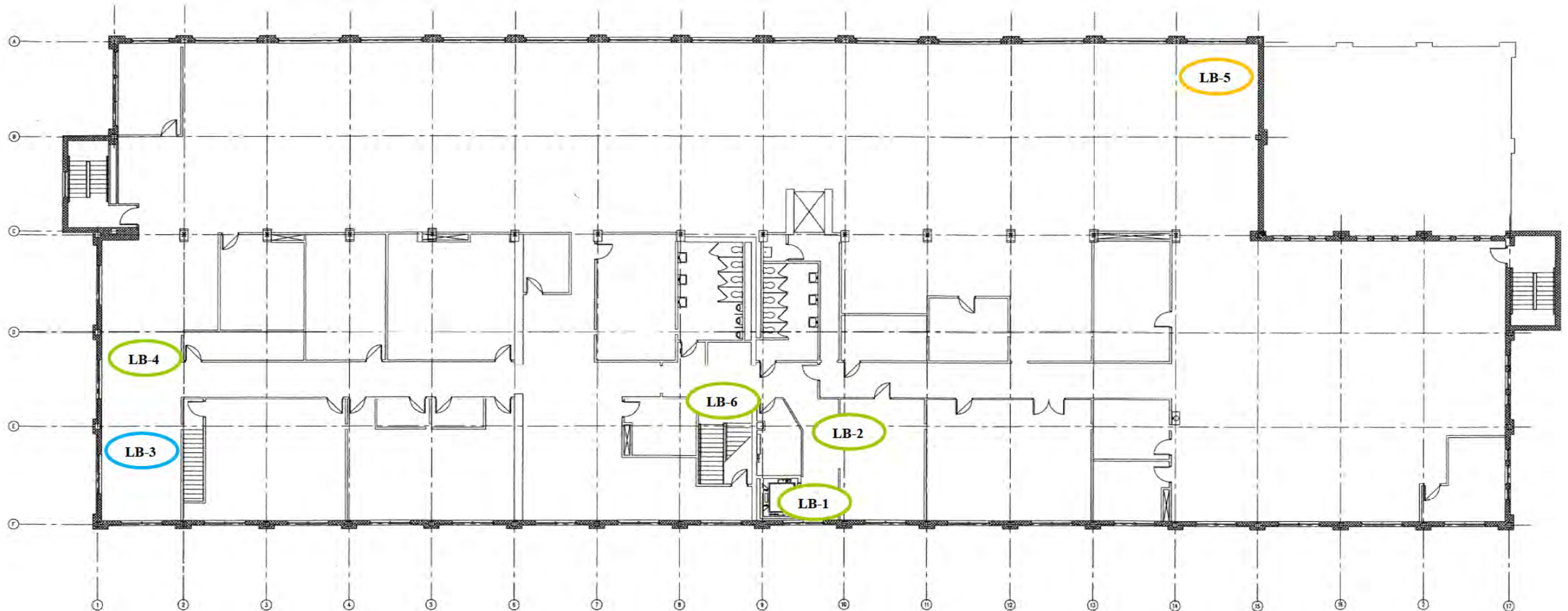
*** Matrix/substrate interference possible

Analytical Laboratory: IATL, IAHA-LAP, LLC No. 100188

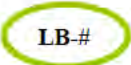
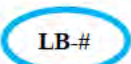

Sampled By: Wayne Collupy

PAINT SAMPLING for TOTAL LEAD ANALYSIS

Portsmouth Naval Shipyard; Kittery, Maine
BUILDING #79 – SECOND FLOOR



KEY:

-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT < 0.009% (CPSC Value)
-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT > 0.009% (CPSC Value)
-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT > 0.5% (US EPA Level)



NORTHEAST TEST CONSULTANTS

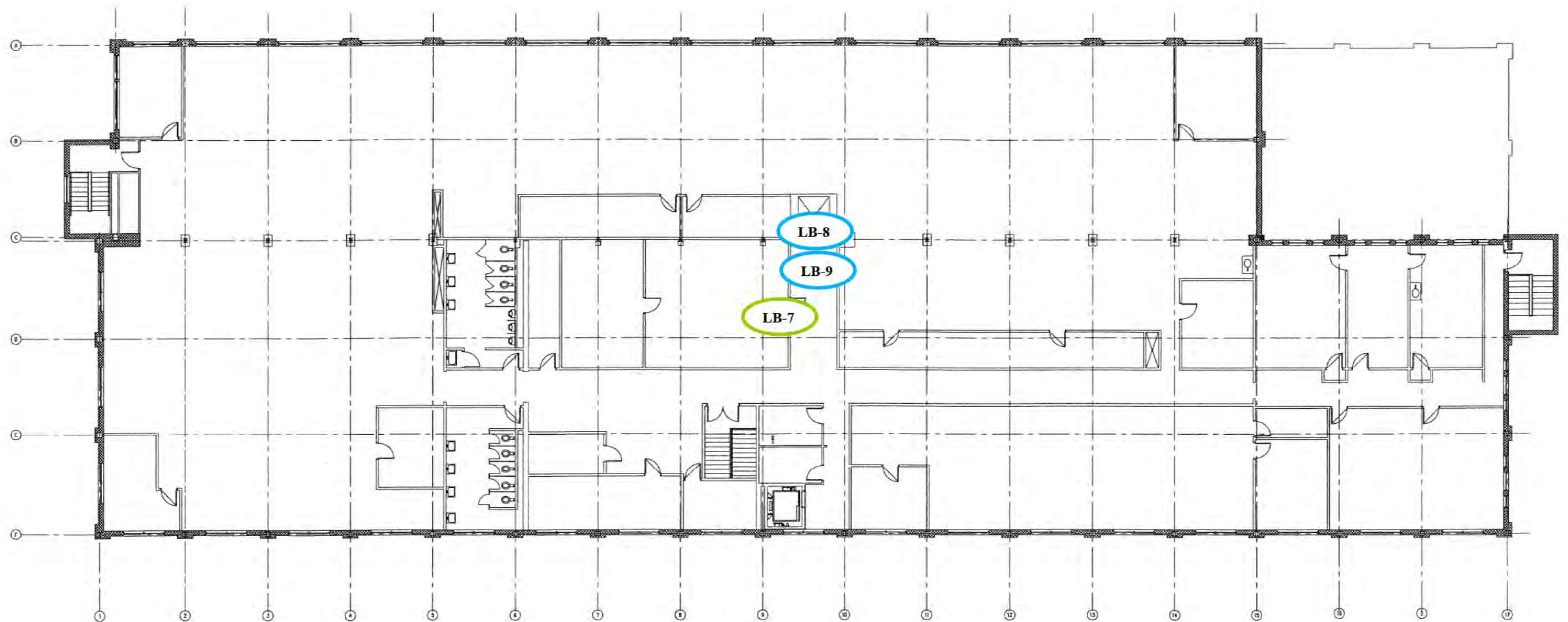
NTC JOB #16885-2018

DRAWING DATE: 3-26-2019
BKL

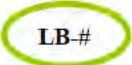
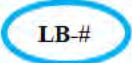

DRAWING NOT TO SCALE

PAINT SAMPLING for TOTAL LEAD ANALYSIS

Portsmouth Naval Shipyard; Kittery, Maine
BUILDING #79 – THIRD FLOOR



KEY:

-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT < 0.009% (CPSC Value)
-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT > 0.009% (CPSC Value)
-  LB-# BULK SAMPLE with TOTAL LEAD by WEIGHT > 0.5% (US EPA Level)



NORTHEAST TEST CONSULTANTS

NTC JOB #16885-2018

DRAWING DATE: 3-26-2019
BKL

DRAWING NOT TO SCALE



UNIVERSAL WASTE LISTING

CLIENT: Oak Point Associates
NTC Job #: 16885-2018
PROJECT: **Portsmouth Naval Shipyard
Building #79**

Second Floor

Lamps

828	4' Fluorescent Bulbs
4	2' Fluorescent Bulbs
19	Exit Lights
10	4" 4 Pin HID Bulb

PCB/DEHP Containing Items

323	Ballasts
-----	----------

Batteries

15	In Emergency Lighting
----	-----------------------

Third Floor

Lamps

680	4' Fluorescent Bulbs
32	2' Fluorescent Bulbs
12	Exit Lights

PCB/DEHP Containing Items

232	Ballasts
-----	----------

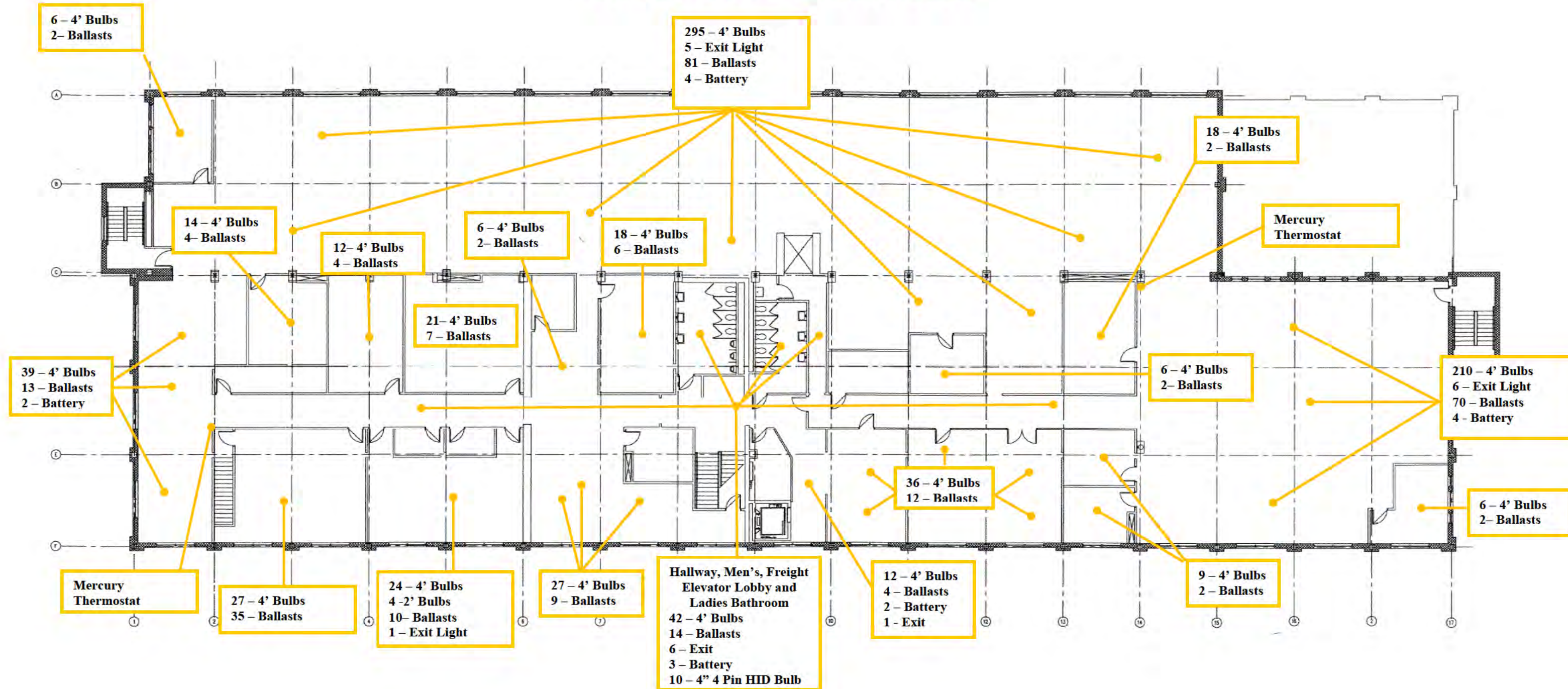
Batteries

16	In Emergency Lighting
----	-----------------------

UNIVERSAL WASTE SURVEY

Portsmouth Naval Shipyard; Kittery, Maine

BUILDING #79 – SECOND FLOOR



NORTHEAST TEST CONSULTANTS

NTC JOB #16885-2018

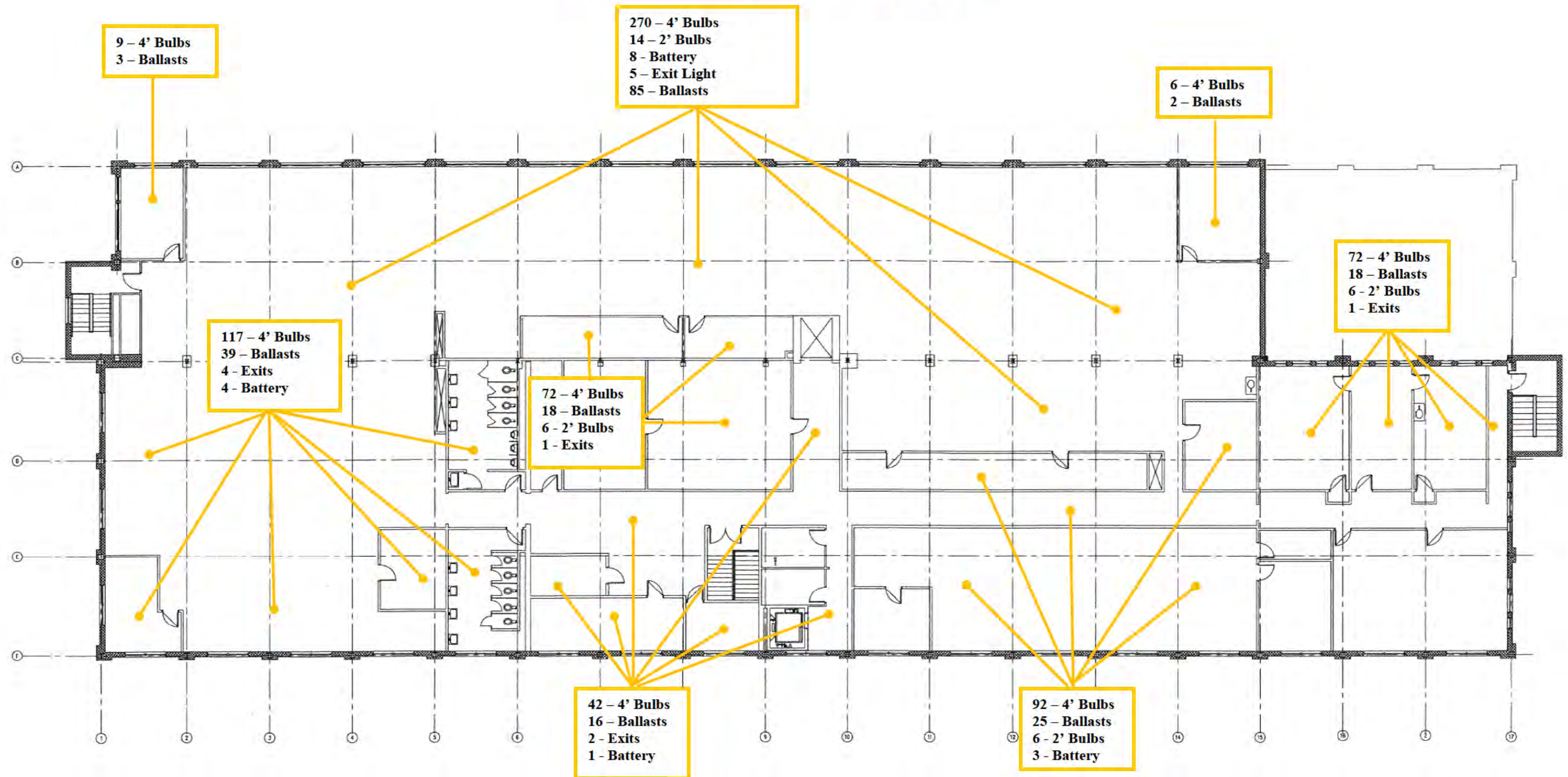
DRAWING DATE: 3-26-2019
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DRAWING NOT TO SCALE

UNIVERSAL WASTE SURVEY

Portsmouth Naval Shipyard; Kittery, Maine

BUILDING #79 – THIRD FLOOR



NORTHEAST TEST CONSULTANTS

NTC JOB #16885-2018

DRAWING DATE: 3-26-2019
BKL

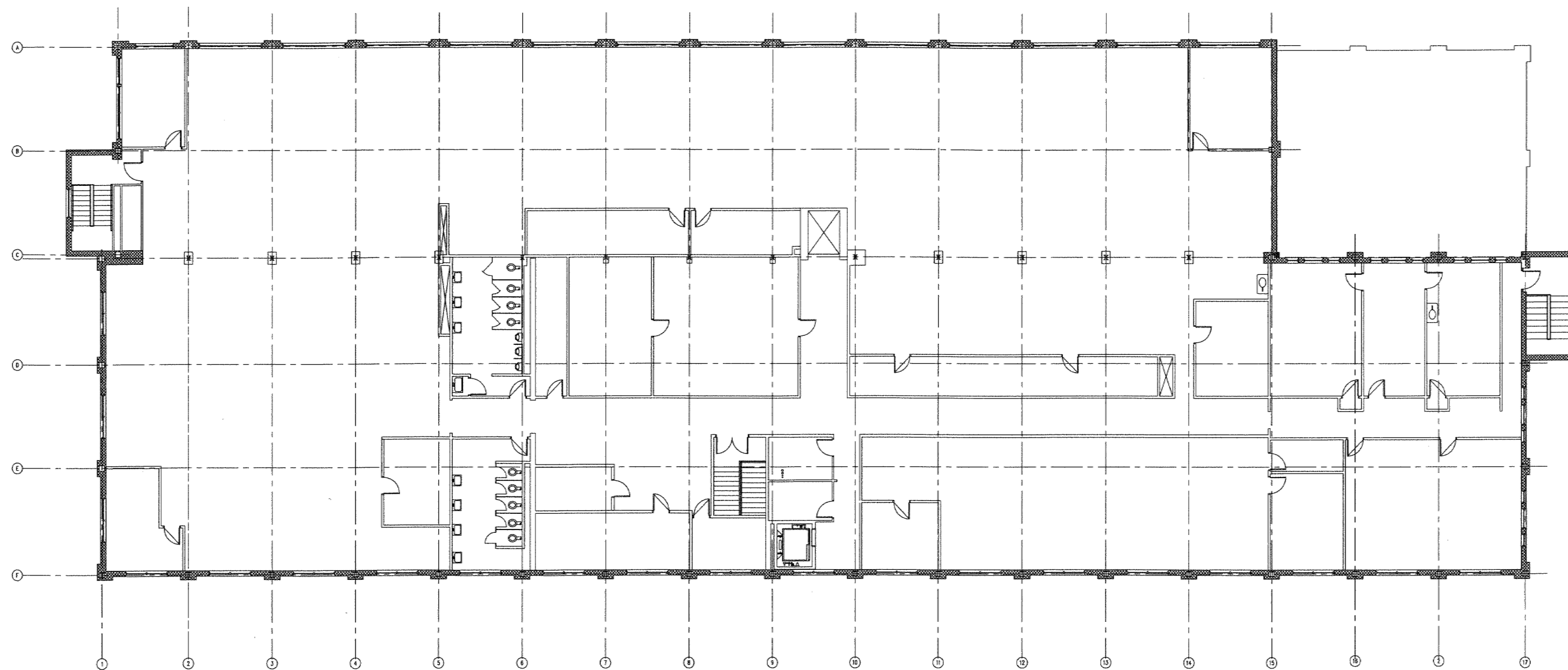
DRAWING NOT TO SCALE

Paint sampling and evaluation of paint conditions on walls and ceilings



- ### Code 106.13 Paint Sample Results

Location	Analysis Result (wt. %)		
	Lead	Cadmium	Chromium (total)
A (wall)	0.07	< 0.01	< 0.01
B (ceiling)	0.05	0.02	< 0.01
C (ceiling)	0.11	0.01	< 0.01



Specification Section 1.3.10 - Asbestos Hazard Abatement Plan Checklist - Building XX

Prepared by: _____ Date: _____

Spec Section(s)	Item Required	Included?	Section/ Page #	Notes
	Confirm that the Asbestos Hazard Abatement Plan contains the following:			
1.3.10	- Signature and seal to document that Plan was prepared by a PQP			
1.3.10	- Site sketch with all project details (control areas, critical barriers, physical boundaries, decon facilities, viewing ports, and mechanical ventilation system (negative air machines, etc.))			
1.3.10, 1.5.8	- Confirmation that meeting will be scheduled w/ ktr, supervisor, CP, PQP, CO, and APM to review Plan			
3.2.2, 3.2.3, 3.2.4	- Description of preparatory activities - protecting existing conditions, moving furniture, pre-cleaning			
1.3.10, 3.2	- Description of safety precautions including, but not limited to, LO/TO, CSE, fall protection			
1.3.10	- Description of work procedures for each activity			
1.3.10, 3.2.6	- Description of asbestos removal method(s) for each activity			
3.1.10, 3.2.5.2	- Description of glovebag equipment and process (as appropriate)			
1.3.10	- Description of controls for each activity			
1.3.11	- Description of job responsibilities for each activity			
1.3.10	- Description of respirators and personal protective equipment			
1.3.10, 1.4	- Description of equipment for each activity. Include all equipment spec sheets			
1.3.9, 1.3.10, 1.4	- Description of materials for each activity. Include all SDS			
1.3.10	- Description of hygiene facilities and sanitary procedures (including no eating, drinking, smoking)			
1.3.10	- Description of interface of trades			
1.3.10	- Description of work sequencing			
3.1.4	- Description of the method and construction of containment foreach activity			
3.1.6	- Description of required signage for each activity			
1.3.10, 3.1.3.3, 3.1.11	- Description of decontamination equipment and process			
1.3.10, 3.1.7, 3.2.1	- Description of local exhaust system and critical barrier equipment and process, including:			
	- Confirmation that Pressure Differential Recordings will be submitted w/in 24 hours			
	- Confirmation that negative pressure will be maintained continuously until work area cleared			
3.3	- Description of cleanup procedures during and at the end of work.			
3.2.15	- Description of method, material, etc. for application of lock-down encapsulant.			
3.2.14	- Description of personal sampling and analysis strategy and methodology, number of samples, and qualifications of sampling personnel, including:			
3.2.14	- Confirmation that all personal sampling results will be submitted to NAVFAC w/in 24 hours			
3.2.14	- Specific thresholds for work stoppage, PPE upgrade, etc.			
3.2.14	- Detailed description of area sampling and analysis strategy and methodology, frequency of sampling, sample locations, duration of sampling, and qualifications of sampling personnel, including:			
3.2.14	- Confirmation that all area sampling results will be submitted to NAVFAC w/in 16 hours			
3.2.14	- Listing of specific sampling locations. Include locations in Notes column (to the right)			
3.2.14	- Specific thresholds for work stoppage, PPE upgrade, etc.			
3.2.14	- Detailed description of clearance sampling and analysis strategy and methodology, number of samples, and qualifications of sampling personnel, including:			
3.2.14	- Confirmation that all clearance sampling results will be submitted to NAVFAC w/in 8 hours			
3.2.14	- Listing of specific sampling locations. Include locations in Notes column (to the right)			
1.3.10, 1.4	- Detailed plan for Asbestos Waste Management, including:			
1.3.10	- Asbestos Materials			
1.3.10	- Ancillary waste, including poly sheeting			
1.3.10	- Wastewater - washwater, decon water, etc. treated and/or disposal			
3.1.5	- Detailed description of waste load-out set-up and procedure			
1.3.8	- Name, qualifications, and certification of Asbestos Hazard Control Supervisor			
1.3.10	- Copies of Fire and Medical Emergency Response Plans and AHA			
1.3.4, 1.4	- Copies of Training Certificates for Workers and Supervisors			
1.3.4, 1.4, 1.5.3	- Copies of Licenses for Workers and Supervisors			
1.3.4, 1.3.7	- Copies of Respiratory Protection Program, Including Training and Fit Testing Records			
1.3.3, 1.3.14	- Copies of Medical Examinations, Surveillance and Records			
1.3.5	- Copies of Abatement Licenses, Permits and Notifications			
1.3.11, 1.4	- Documentation of Testing Laboratory Qualifications/Certificates, including documentation that the lab is:			
1.3.11	- Maine licensed/permitted/certified			
1.3.11	- AIHA accredited			
1.3.11	- NIST/NVLAP accredited			
1.3.11	- Independent of contractor			
1.4, 1.5.1	- Documentation of Private Qualified Person Qualifications			
1.4, 1.5.2	- Documentation of Competent Person Qualifications			
1.4, 1.5.4	- Copy of Contractor's License			
1.4, 1.5.7	- Details on Federal, State, Local Citations w/in 5 Years (if any)			
1.4	- Documentation of Third Party Consultant Qualifications			
1.4, 3.1.9	- Copy of Statement Regarding Use of Rental Equipment			
CHECKLIST COMPLETED BY: _____ DATE: _____				
NOTE: This checklist is not intended to list all of the Asbestos Hazard Abatement Plan components required per Specification Section 02 82 00.00 22, Asbestos Remediation. The Contractor is required to identify and meet all applicable Specification requirements.				

SECTION 02 83 00.00 22

MANAGEMENT OF LEAD, CADMIUM, AND CHROMIUM DURING RENOVATION, DEMOLITION,
REMOVAL, AND ABATEMENT
(PNS PROJECTS)
09/21

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 SAFETY PROFESSIONALS (ASSP)

ASSP/SAFE Z9.2 (2018) Fundamentals Governing the Design
and Operation of Local Exhaust Ventilation
Systems

ASTM INTERNATIONAL (ASTM)

ASTM E1613 (2012) Standard Test Method for
Determination of Lead by Inductively
Coupled Plasma Atomic Emission
Spectrometry (ICP-AES), Flame Atomic
Absorption Spectrometry (FAAS), or
Graphite Furnace Atomic Absorption
Spectrometry (GFAAS) Techniques

ASTM E1644 (2017) Standard Practice for Hot Plate
Digestion of Dust Wipe Samples for the
Determination of Lead

ASTM E1726 (2001; R 2009) Preparation of Soil Samples
by Hotplate Digestion for Subsequent Lead
Analysis

ASTM E1727 (2016) Standard Practice for Field
Collection of Soil Samples for Subsequent
Lead Determination

ASTM E1728 (2016) Collection of Settled Dust Samples
Using Wipe Sampling Methods for Subsequent
Lead Determination

ASTM E1792 (2003; R 2016) Standard Specification for
Wipe Sampling Materials for Lead in
Surface Dust

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (2019) Standard Methods of Fire Tests for
Flame Propagation of Textiles and Films

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements
Manual

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD 6780 (1995; Errata Aug 1996; Rev Ch. 7 - 1997)
Guidelines for the Evaluation and Control
of Lead-Based Paint Hazards in Housing

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

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.1126	Chromium
29 CFR 1926.1127	Cadmium
29 CFR 1926.21	Safety Training and Education
29 CFR 1926.33	Access to Employee Exposure and Medical Records
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
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 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

49 CFR 178

Specifications for Packagings

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

ND OPNAVINST 5100.23

(2005; Rev G) Navy Occupational Safety and
Health (NAVOSH) Program Manual

UNDERWRITERS LABORATORIES (UL)

UL 586

(2009; Reprint Dec 2017) UL Standard for
Safety High-Efficiency Particulate, Air
Filter Units

PORTSMOUTH NAVAL SHIPYARD (PNSY)

5090.6F

(4-21) Solid Waste Operations

5090.30

(4-05) Hazardous Waste Generator Standards

1.2 DEFINITIONS

1.2.1 Abatement

Measures defined in 40 CFR 745, Section 223, designed to permanently eliminate lead-based paint hazards.

1.2.2 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period; to an airborne concentration of cadmium of 2.5 micrograms per cubic meter of air averaged over an 8-hour period; to an airborne concentration of chromium (VI) of 2.5 micrograms per cubic meter of air averaged over an 8-hour period.

1.2.3 Area Sampling

Sampling of lead, cadmium, and chromium concentrations within the lead, cadmium, and chromium control area and inside the physical boundaries which is representative of the airborne lead, cadmium, and chromium concentrations but is not collected in the breathing zone of personnel (approximately 5 to 6 feet above the floor).

1.2.4 Cadmium Permissible Exposure Limit (PEL)

Five micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.1127. If an employee is exposed for more than 8-hours in a work day, determine the PEL by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 40/\text{No. hrs worked per day}$$

1.2.5 Certified Industrial Hygienist (CIH)

As used in this Section refers to a person retained by the Contractor who is certified as an industrial hygienist and who is trained in the recognition and control of lead, cadmium and chromium hazards in accordance with current Federal, State, and local regulations. CIH must be certified for comprehensive practice by the American Board of

Industrial Hygiene. The Certified Industrial Hygienist must be independent of the Contractor and must have no employee or employer relationship which could constitute a conflict of interest.

1.2.6 Child-Occupied Facility

Real property which is a building or portion of a building constructed prior to 1978 visited regularly by the same child, six-years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3-hours, and the combined annual visits last at least 60-hours. Child-occupied facilities include but are not limited to, day-care centers, preschools and kindergarten classrooms.

1.2.7 Chromium Permissible Exposure Limit (PEL)

Five micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.1126. If an employee is exposed for more than 8-hours in a work day, determine the PEL by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 40/\text{No. hrs worked per day}$$

1.2.8 Competent Person (CP)

As used in this Section, refers to a person employed by the Contractor who is trained in the recognition and control of lead, cadmium and chromium hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the lead, cadmium and chromium hazard. The Contractor may provide more than one CP as required to supervise and monitor the work. The CP must be a Certified Industrial Hygienist (CIH) certified by the American Board of Industrial Hygiene or a Certified Safety Professional (CSP) certified by the Board of Certified Safety Professionals or a licensed lead-based paint abatement Supervisor/Project Designer in the State of Maine.

1.2.9 Contaminated Room

Refers to a room for removal of contaminated personal protective equipment (PPE).

1.2.10 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.11 Deleading

Activities conducted by a person who offers to eliminate lead-based paint or lead-based paint hazards or paints containing cadmium/chromium or to plan such activities in commercial buildings, bridges or other structures.

1.2.12 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead, cadmium, and chromium to which an employee is exposed, averaged over an 8-hour workday as indicated in 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.

1.2.13 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead, cadmium, and chromium-contaminated particulate. A high efficiency particulate filter demonstrates at least 99.97 percent efficiency against 0.3 micron or larger size particles.

1.2.14 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps. Excludes other forms of organic lead compounds. The use of the term Lead in this Section also refers to paints which contain detectable concentrations of Cadmium and Chromium. For the purposes of the section lead-based paint (LBP) and paint with lead (PWL) also contains cadmium and chromium.

1.2.15 Lead-Based Paint (LBP)

Paint or other surface coating that contains lead in excess of 1.0 milligrams per centimeter squared or 0.5 percent by weight.

1.2.16 Lead-Based Paint Activities

In the case of target housing or child occupied facilities, lead-based paint activities include; a lead-based paint inspection, a risk assessment, or abatement of lead-based paint hazards.

1.2.17 Lead-Based Paint Hazards

Paint-lead hazard, dust-lead hazard or soil-lead hazard as identified in 40 CFR 745, Section 65. Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.18 Lead, Cadmium, and Chromium Control Area

A system of control methods to prevent the spread of lead, cadmium, and chromium dust, paint chips or debris to adjacent areas that may include temporary containment, floor or ground cover protection, physical boundaries, and warning signs to prevent unauthorized entry of personnel. HEPA filtered local exhaust equipment may be used as engineering controls to further reduce personnel exposures or building/outdoor environmental contamination.

1.2.19 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than 8-hours in a work day, determine the PEL by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hrs worked per day}$$

1.2.20 Material Containing Lead/Paint with Lead (MCL/PWL)

Any material, including paint, which contains lead as determined by the testing laboratory using a valid test method. The requirements of this Section do not apply if no detectable levels of lead are found using a quantitative method for analyzing paint or MCL using laboratory instruments with specified limits of detection (usually 0.01 percent). An

X-Ray Fluorescence (XRF) instrument is not considered a valid test method.

1.2.21 Personal Sampling

Sampling of airborne lead, cadmium, and chromium concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. Samples must be representative of the employees' work tasks. Breathing zone must be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.22 Physical Boundary

Area physically roped or partitioned off around lead, cadmium, and chromium control area to limit unauthorized entry of personnel.

1.2.23 Target Housing

Residential real property which is housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any one or more children age 6-years or under resides or is expected to reside in such housing for the elderly or persons with disabilities) or any zero bedroom dwelling.

1.3 DESCRIPTION

This specification covers all project-related activities, including, but not limited to, renovation, demolition, removal, and/or remediation, impacting PWL and/or material containing lead, cadmium, and chromium located on the interior and exterior of Building 79 and/or as indicated on the drawings. Refer to the report located at the end of Section 02 82 00.00 22 ASBESTOS REMEDIATION (PNS Projects). The work covered by this Section includes work tasks and the precautions specified in this Section for the protection of building occupants and the environment during and after the performance of the hazard abatement activities in accordance with State and Federal regulations and as specified herein.

1.3.1 Protection of Existing Areas To Remain

Project work including, but not limited to, lead, cadmium, and chromium hazard abatement work, storage, transportation, and disposal must be performed without damaging or contaminating adjacent work and areas. Where such work or areas are damaged or contaminated, restore work and areas to the original condition.

1.3.2 Coordination with Other Work

Coordinate with work being performed in adjacent areas to ensure there are no exposure issues. Explain coordination procedures in the Lead, Cadmium, and Chromium Compliance Plan and describe how the Contractor will prevent lead, cadmium and chromium exposure to other contractors and Government personnel performing work unrelated to lead, cadmium and chromium activities.

1.3.3 Sampling and Analysis

Submit a log of the analytical results from sampling conducted during the abatement. Keep the log of results current with project activities and

brief the results to the Contracting Officer as analytical results are reported.

1.3.3.1 Dust Wipe Materials, Sampling and Analysis

Sampling must conform to ASTM E1728 and ASTM E1792. Analysis must conform to ASTM E1613 and ASTM E1644.

1.3.3.2 Soil Sampling and Analysis

Sampling must conform to ASTM E1727. Analysis must conform to ASTM E1613 and ASTM E1726.

1.3.3.3 Clearance Monitoring

- a. Collect dust wipe samples inside, and, as appropriate, outside, the lead, cadmium and chromium hazard control area after the final visual inspection.
- b. Collect exterior bare soil samples inside the lead, cadmium and chromium hazard control area after the final visual inspection.

1.3.4 Clearance Requirements

Target clearance levels - Option 2

- (1) Lead - 40 ug/sq.ft. on floors; 250 ug/sq.ft. on interior window sills; 400 ug/sq.ft. on window troughs; or below concentrations detected in wipe samples collected before commencement of work - whichever is lower.
- (2) Chromium - Below concentrations detected in wipe samples collected before commencement of work.
- (3) Cadmium - Below concentrations detected in wipe samples collected before commencement of work.

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

Competent Person Qualifications; G

Training Certification; G

Occupational and Environmental Assessment Data Report; G

Medical Examinations; G

Lead, Cadmium, and Chromium Waste Management Plan; G

Licenses, Permits and Notifications; G

Lead, Cadmium, and Chromium Compliance Plan; G

Lead, Cadmium, and Chromium Compliance Plan Checklist; G

Waste Characterization Sampling Plan; G

Sample Results; G

SD-03 Product Data

Respirators; G

Vacuum Filters; G

Negative Air Pressure System; G

Materials and Equipment; G

Expendable Supplies; G

Local Exhaust Equipment; G

Pressure Differential Automatic Recording Instrument; G

Pressure Differential Log; G

SD-06 Test Reports

Sampling and Analysis; G

Occupational and Environmental Assessment Data Report; G

Sampling Results; G

Pressure Differential Recordings For Local Exhaust System; G

SD-07 Certificates

Testing Laboratory; G

Third Party Consultant Qualifications; G

Notification of the Commencement of Work Impacting Lead, Cadmium,
or Chromium; G

Clearance Certification; G

SD-11 Closeout Submittals

Turn-In Documents or Weight Tickets; G

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

1.5.1.1 Competent Person (CP)

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph COMPETENT PERSON (CP) RESPONSIBILITIES. Provide documented construction project-related

experience with implementation of OSHA's Lead in Construction standard (29 CFR 1926.62), Chromium standard (29 CFR 1926.1126), and Cadmium standard (29 CFR 1926.1127) which shows ability to assess occupational and environmental exposure to lead, cadmium, and chromium; experience with the use of respirators, personal protective equipment and other exposure reduction methods to protect employee health. Demonstrate a minimum of 5 years experience implementing OSHA's Lead in Construction standard (29 CFR 1926.62), Chromium standard (29 CFR 1926.1126), and Cadmium standard (29 CFR 1926.1127). Submit proper documentation that the CP is trained and licensed and certified in accordance with Federal, State and local laws. The competent person must possess the qualifications detailed in Paragraph COMPETENT PERSON herein.

1.5.1.2 Training Certification

Submit a current certificate for each worker and supervisor, signed and dated by the accredited training provider, stating that the employee has received the required lead, cadmium and chromium training specified in 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 and is certified to perform or supervise deleading, lead removal or demolition activities in the State of Maine.

1.5.1.3 Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected to perform the air, soil, and wipe analysis, testing, and reporting of airborne concentrations of lead, cadmium and chromium. Use a laboratory participating in the EPA National Lead Laboratory Accreditation Program (NLLAP) by being accredited by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis. Laboratories selected to perform blood lead analysis must be OSHA approved.

1.5.1.4 Third Party Consultant Qualifications

Submit the name, address and telephone number of the third party consultant selected to perform the wipe sampling for determining concentrations of lead, cadmium and chromium in dust. Submit proper documentation that the consultant is trained and certified as an inspector technician or inspector/risk assessor by the USEPA authorized State (or local) certification and accreditation program.

1.5.2 Requirements

1.5.2.1 Competent Person (CP) Responsibilities

- a. Verify training meets all Federal, State, and local requirements.
- b. Review and approve Lead, Cadmium, and Chromium Compliance Plan for conformance to the applicable referenced standards.
- c. Continuously inspect LBP/PWL or MCL work for conformance with the approved plan.
- d. Perform (or oversee performance of) air sampling. Recommend upgrades or downgrades (whichever is appropriate based on exposure) on the use of PPE (respirators included) and engineering controls.

- e. Ensure work is performed in strict accordance with specifications at all times.
- f. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- g. Supervise final cleaning of the lead, cadmium, and chromium control area, take clearance wipe samples if necessary; review clearance sample results and make recommendations for further cleaning.
- h. Certify the conditions of the work as called for elsewhere in this specification.

1.5.2.2 Lead, Cadmium, and Chromium Compliance Plan

Submit a detailed job-specific plan of the work procedures to be used in the disturbance of lead, cadmium and chromium, LBP/PWL or MCL. Include in the plan a sketch showing the location, size, and details of lead, cadmium, and chromium control areas, critical barriers, physical boundaries, location and details of decontamination facilities, viewing ports, and mechanical ventilation system. Include a description of equipment and materials, work practices, controls and job responsibilities for each activity from which lead, cadmium, and chromium is emitted. Include in the plan, eating, drinking, smoking, hygiene facilities and sanitary procedures, interface of trades, sequencing of lead, cadmium, and chromium related work, collected waste water and dust containing lead, cadmium, and chromium and debris, air sampling, respirators, personal protective equipment, and a detailed description of the method of containment of the operation to ensure that lead, cadmium, and chromium is not released outside of the lead, cadmium, and chromium control area. Include site preparation, cleanup and clearance procedures. Include occupational and environmental sampling, training and strategy, sampling and analysis strategy and methodology, frequency of sampling, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan. Include a description of arrangements made among contractors on multicontractor worksites to inform affected employees and to clarify responsibilities to control exposures. If work will occur on a historic building, then include in the plan a description of how the proposed activities will comply with other relevant specification Sections to avoid or minimize impacts to historic fabric (for example, but not limited to, specification Sections related to historic masonry).

The plan must be developed and signed by a certified Lead Project Designer in the State of Maine. The plan must include the name and certification number of the person signing the plan.

1.5.2.3 Lead, Cadmium, and Chromium Compliance Plan Checklist

The Contractor must complete the Lead, Cadmium, and Chromium Compliance Plan Checklist included as Attachment A at the end of this Section. The Checklist must be signed by the properly-certified person preparing the Plan and must be submitted to the Government for review and approval with the Lead, Cadmium, and Chromium Compliance Plan.

1.5.2.4 Occupational and Environmental Assessment Data Report

If initial monitoring is necessary, submit occupational and environmental sampling results to the Contracting Officer within three working days of

collection, signed by the testing laboratory employee performing the analysis, the employee that performed the sampling, and the CP.

In order to reduce the full implementation of 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 the Contractor must provide documentation. Submit a report that supports the determination to reduce full implementation of the requirements of 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127 and supporting the Lead, Cadmium, and Chromium Compliance Plan.

- a. The initial monitoring must represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures per 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. The data must represent the worker's regular daily exposure to lead, cadmium, and chromium for stated work. The initial monitoring must represent each task and/or type of activity. The initial monitoring must represent each/every PWL and/or material containing lead, cadmium, and chromium.
- b. Submit worker exposure data gathered during the task based trigger operations of 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 with a complete process description. This includes, but is not limited to, manual demolition, manual scraping, manual sanding, heat gun, power tool cleaning, rivet busting, cleanup of dry expendable abrasives, abrasive blast enclosure removal, abrasive blasting, welding, cutting and torch burning where lead, cadmium and chromium containing coatings are present.
- c. The initial assessment must determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the lead, cadmium, and chromium compliance plan per 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.

1.5.2.5 Medical Examinations

Submit pre-work blood lead levels and post-work blood lead levels for all workers performing lead, cadmium, and chromium activities during the execution of the work. Initial medical surveillance as required by 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 must be made available to all employees exposed to lead, cadmium, and chromium at any time (one day) above the action level. Full medical surveillance must be made available to all employees on an annual basis who are or may be exposed to lead, cadmium and chromium in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. Adequate records must show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127 and 29 CFR 1926.103. Provide medical surveillance to all personnel exposed to lead, cadmium, and chromium as indicated in 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. Maintain complete and accurate medical records of employees for the duration of employment plus 30 years.

1.5.2.6 Training

Train each employee performing work that disturbs lead, cadmium, and chromium, who performs LBP/MCL/PWL disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, 29 CFR 1926.1126,

29 CFR 1926.1127, 49 CFR 172, and State of Maine and local regulations where appropriate.

1.5.2.7 Respiratory Protection Program

- a. Provide each employee required to wear a respirator a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.
- b. Establish and implement a respiratory protection program as required by 29 CFR 1926.103, 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127, and 29 CFR 1926.55.

1.5.2.8 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.5.2.9 Lead, Cadmium, and Chromium Waste Management

The Lead, Cadmium, and Chromium Waste Management Plan must comply with applicable requirements of federal, State, and local hazardous waste regulations and address:

- a. Identification and classification of wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
- d. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- e. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.
- f. Work plan and schedule for waste containment and management. Proper containment of the waste includes using acceptable waste containers, as well as proper marking/labeling of the containers. Clean up and containerize wastes daily.
- g. Include any process that may alter or treat waste. Note that no process may be used that would render a hazardous waste non hazardous.
- h. All HW must be placed in a Shipyard-permitted HWAA or Contractors shall turn HW in to a HWAA not later than the end of the shift on which it is generated. Responsibility for compliance is upon the Contractor. All hazardous wastes generated within the confines of the Shipyard are disposed of by the Government. Accordingly, all hazardous wastes generated by the Contractor to accomplish requirements of this Contract will be considered Government-generated, and disposed of by the Government. Contractor shall not bring hazardous wastes onto Government property.

1.5.2.10 Waste Characterization Sampling Plan

A sampling plan must be developed that details practices to be followed

for the collection, management, and analysis of waste characterization samples to determine if waste materials generated by the referenced project will be classified as hazardous or non-hazardous to ensure proper disposal. The plan must propose sampling that meets the requirements of all applicable local, State, and Federal statutes and regulations, Navy and PNSY requirements, and project specifications. At a minimum, the sampling plan must include:

- a. Confirmation that the sampling plan will be reviewed and accepted by the Navy (Code 106.3) prior to conducting any sampling. The Contracting Officer's Representative and Code 106.3 must be notified seven calendar days in advance of sampling to allow Code 106.3 Representatives to witness sampling.
- b. The timing of waste characterization sampling and analysis. To the extent feasible, waste sampling and analysis must be completed prior to any project work to ensure waste is properly characterized and can be separated to ensure hazardous waste is not commingled with non-hazardous waste.
- c. The proposed date of sampling.
- d. Documentation that the Environmental Field Technician (EFT) conducting the waste sampling has training in proper collection and decontamination procedures.
- e. Confirmation that the samples will be submitted, under strict chain-of-custody (COC) requirements, to a Maine-certified laboratory. A copy of the laboratory's COC form must be attached to the plan.
- f. Confirmation that sample collection, management, and analysis must be performed in accordance with the requirements of all applicable local, State and Federal statutes and regulations, Navy and PNSY requirements, and the project specifications.
- g. A listing of the constituents to be analyzed for, and the laboratory analytical methods to be utilized. At a minimum, the waste characterization must include laboratory analysis for RCRA 8 Metals via the Toxicity Characteristic Leaching Procedure (TCLP). Depending on the methods used in project implementation, additional waste characterization analysis may be required (for example, waste characterization analysis for corrosivity may be required if high pH solutions are used for paint removal).
- h. Confirmation that results will be transmitted to the Contracting Officer and Code 106.3 for final waste characterization and determination of disposal requirements for each waste material.
- i. Confirmation that the sampling procedure includes, but is not limited to, the following:
 1. The Contractor must notify the Contracting Officer's Representative and PNSY Code 106.3 Sampling Program Manager seven (7) calendar days prior to each sampling event to ensure the area and materials to be sampled are witnessed by all parties.
 2. The EFT taking the samples must inspect the work area/waste with the Government Representative(s) to visually and tactilely assess the materials to be sampled.

3. Using a field log, the EFT must record the locations, types, quantities and other salient details related to materials to be sampled.
4. The EFT must collect sufficient samples of the materials that will be waste requiring disposal from the project work area. Samples must be representative of all materials that comprise the waste.
5. The EFT must place the sample in a clean jar or vial, secure the jar or vial closed and label it with a unique sample number.
6. The EFT must record the sample number on the COC and note the location of the sample in the field log and on the site drawing.
7. The EFT must verify that the sample number(s) on the jar/vial are accurate and consistent with the COC.
8. The EFT must place the secured and labeled jar/vial into a cooler and arrange for prompt delivery of bulk samples to the analytical laboratory.
9. The EFT must clean up any debris generated by the sampling process.
10. The EFT must decontaminate the collection tool using wet wipes, water and paper towels after each sample is collected. Razor blades must be replaced on a periodic basis as determined by the Inspector.
11. All samples must be collected in a manner to eliminate cross-contamination by the previous sample.
12. All materials used in the collection of the samples (gloves, wipes, trash, etc.) must be containerized in a bag for delivery to Building 357 for disposal.
13. The Inspector must obtain the following sampling equipment to perform the bulk sampling.
 - (a) Individual sample jars and vials;
 - (b) Field log;
 - (c) Site diagram;
 - (d) Chain-of-Custody (COC) forms;
 - (e) Nitrile gloves;
 - (f) Stainless steel or plastic soil scoops;
 - (g) Metal chisels of assorted sizes;
 - (h) Razor knives and replacement blades;
 - (i) Water and spray bottle;
 - (j) Trash bags;
 - (k) Disposable cleaning wipes;
 - (l) Paper towels;
 - (m) Duct tape; and
 - (n) Flashlight.

1.5.2.11 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding lead, cadmium, and chromium. Comply with the

applicable requirements of the current issue of 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127, EM 385-1-1, and ND OPNAVINST 5100.23. Submit matters regarding interpretation of standards to the Contracting Officer for resolution before starting work. Where specification requirements and the referenced documents vary, the most stringent requirements apply. The following local laws, ordinances, criteria, rules and regulations regarding removing, handling, storing, transporting, and disposing of lead, cadmium, and chromium-contaminated materials apply:

- a. Shipyard Instruction 5090.6F Solid Waste Operations (included as Attachment B at the end of this Section)
- b. Shipyard Instruction 5090.30 Hazardous Waste Generator Standards

Licensing and certification in the State of Maine is required.

1.5.3 Pressure Differential Recordings for Local Exhaust System

Provide a local exhaust system that creates a negative pressure of at least 0.02 inches of water relative to the pressure external to the enclosure and operate it continuously, 24-hours a day, until the temporary enclosure of the lead, cadmium, and chromium control area is removed. Submit pressure differential recordings for each work day to the PQP and GC for review and to the Contracting Officer within 24-hours from the end of each work day.

1.5.4 Licenses, Permits and Notifications

Certify and submit in writing to the Maine Department of Environmental Protection and the Contracting Officer at least 10 days prior to the commencement of work that licenses, permits, and notifications have been obtained. All associated fees or costs incurred in obtaining the licenses, permits and notifications are included in the Contract price.

1.5.5 Pre-Construction Conference

Along with the CP, meet with the Contracting Officer to discuss in detail the Lead, Cadmium, and Chromium Waste Management Plan and the Lead, Cadmium, and Chromium Compliance Plan, including procedures and precautions for the work.

1.6 EQUIPMENT

1.6.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead, cadmium and chromium dust, fume and mist. Respirators must comply with the requirements of 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.

1.6.2 Special Protective Clothing

Personnel exposed to lead, cadmium, and chromium contaminated dust must wear proper disposable protective whole body clothing, head covering, gloves, eye, and foot coverings as required by 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.6.3 Rental Equipment Notification

If rental equipment is to be used during PWL or MCL handling and disposal, notify the rental agency in writing concerning the intended use of the equipment.

1.6.4 Vacuum Filters

UL 586 labeled HEPA filters.

1.6.5 Equipment for Government Personnel

Furnish the Contracting Officer with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the lead, cadmium and chromium removal work within the lead, cadmium and chromium controlled area. Personal protective equipment must include disposable whole body covering, including appropriate foot, head, eye, and hand protection. PPE remains the property of the Contractor. The Government will provide respiratory protection for the Contracting Officer.

1.6.6 Abrasive Removal Equipment

The use of powered machine for vibrating, sanding, grinding, or abrasive blasting is prohibited unless equipped with local exhaust ventilation systems equipped with high efficiency particulate air (HEPA) filters. The use of abrasive removal equipment is prohibited unless expressly approved by the NAVFAC Cultural Resources (CR) Managers. Documentation of CR Manager approval must be included in the Lead, Cadmium, and Chromium Compliance Plan.

1.6.7 Negative Air Pressure System

1.6.7.1 Minimum Requirements

Do not proceed with work in the area until containment is set up and HEPA filtration systems are in place. The negative air pressure system must meet the requirements of ASSP/SAFE Z9.2 including approved HEPA filters in accordance with UL 586. Negative air pressure equipment must be equipped with new HEPA filters, and be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Negative air pressure system minimum requirements are listed as follows:

- a. The unit must be capable of delivering its rated volume of air with a clean first stage filter, an intermediate filter and a primary HEPA filter in place.
- b. The HEPA filter must be certified as being capable of trapping and retaining mono-disperse particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.
- c. The unit must be capable of continuing to deliver no less than 70 percent of rated capacity when the HEPA filter is 70 percent full or measures 2.5 inches of water static pressure differential on a magnehelic gauge.
- d. Equip the unit with a manometer-type negative pressure differential

monitor with minor scale division of 0.02 inch of water and accuracy within plus or minus 1.0 percent. The manometer must be calibrated daily as recommended by the manufacturer.

- e. Equip the unit with a means for the operator to easily interpret the readings in terms of the volumetric flow rate of air per minute moving through the machine at any given moment.
- f. Equip the unit with an electronic mechanism that automatically shuts the machine off in the event of a filter breach or absence of a filter.
- g. Equip the unit with an audible horn that sounds an alarm when the machine has shut itself off.
- h. Equip the unit with an automatic safety mechanism that prevents a worker from improperly inserting the main HEPA filter.

1.6.7.2 Auxiliary Generator

Provide an auxiliary generator with capacity to power a minimum of 50 percent of the negative air machines at any time during the work. When power fails, the generator controls must automatically start the generator and switch the negative air pressure system machines to generator power. The generator must not present a carbon monoxide hazard to workers.

1.6.8 Vacuum Systems

Vacuum systems must be suitably sized for the project, and filters must be capable of trapping and retaining all mono-disperse particles as small as 0.3 micrometers (mean aerodynamic diameter) at a minimum efficiency of 99.97 percent. Properly dispose of used filters that are being replaced.

1.6.9 Heat Blower Guns

Heat blower guns must be flameless, electrical, paint-softener type with controls to limit temperature to 1,100 degrees F. Heat blower must be (grounded) 120 volts ac, and must be equipped with cone, fan, glass protector and spoon reflector nozzles.

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

Perform work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better as determined by the Contracting Officer.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Keep materials and equipment needed to complete the project available and on the site. Submit a description of the materials and equipment required; including Safety Data Sheets (SDSs) for material brought onsite to perform the work.

2.1.1 Expendable Supplies

Submit a description of the expendable supplies required.

2.1.1.1 Polyethylene Bags

Disposable bags must be polyethylene plastic and be a minimum of 6 mils thick (4 mils thick if double bags are used) or any other thick plastic material shown to demonstrate at least equivalent performance; and capable of being made leak-tight. Leak-tight means that solids, liquids or dust cannot escape or spill out.

2.1.1.2 Polyethylene Leak-tight Wrapping

Wrapping used to wrap lead, cadmium, and chromium contaminated debris must be polyethylene plastic that is a minimum of 6 mils thick or any other thick plastic material shown to demonstrate at least equivalent performance.

2.1.1.3 Polyethylene Sheeting

Sheeting must be polyethylene plastic with a minimum thickness of 6 mil, or any other thick plastic material shown to demonstrate at least equivalent performance; and be provided in the largest sheet size reasonably accommodated by the project to minimize the number of seams. Where the project location constitutes an out of the ordinary potential for fire, or where unusual fire hazards cannot be eliminated, provide flame-resistant polyethylene sheets which conform to the requirements of NFPA 701.

2.1.1.4 Tape and Adhesive Spray

Tape and adhesive must be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive must retain adhesion when exposed to wet conditions, including amended water. Tape must be minimum 2 inches wide, industrial strength.

2.1.1.5 Containers

When used, containers must be leak-tight and be labeled in accordance with EPA, DOT and OSHA standards. For containerization of hazardous waste, the Contractor must use containers provided by Building 357.

2.1.1.6 Chemical Paint Strippers

SDS for all chemicals must be provided to the Government as part of the prework submittals.

Chemical paint strippers must not contain methylene chloride and be formulated to prevent stain, discoloration, or raising of the substrate materials.

2.1.1.7 Chemical Paint Stripper Neutralizer

SDS for all chemicals must be provided to the Government as part of the prework submittals.

Neutralizers for paint strippers must be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

2.1.1.8 Detergents and Cleaners

SDS for all chemicals must be provided to the Government as part of the prework submittals.

Detergents or cleaning agents must not contain trisodium phosphate and have demonstrated effectiveness in lead, cadmium and chromium control work using cleaning techniques specified by HUD 6780 guidelines.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Protection

3.1.1.1 Notification

- a. Notify the Contracting Officer 20 days prior to the start of any lead, cadmium and chromium work.

3.1.1.2 Lead, Cadmium, and Chromium Control Area

- a. Physical Boundary - Provide physical boundaries around the lead, cadmium, and chromium control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that lead, cadmium and chromium will not escape outside of the lead, cadmium and chromium control area. Prohibit the general public from accessing the lead, cadmium, and chromium control areas.
- b. Warning Signs - Provide warning signs at approaches to lead, cadmium, and chromium control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs must comply with the requirements of 29 CFR 1926.62.

3.1.1.3 Furnishings

The Government will remove furniture and equipment from the building before lead, cadmium and chromium work begins.

3.1.1.4 Heating, Ventilating and Air Conditioning (HVAC) Systems

Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead, cadmium, and chromium control areas. Seal intake and exhaust vents in the lead, cadmium, and chromium control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead, cadmium, and chromium control area. Provide temporary HVAC system for areas in which HVAC has been shut down outside the lead, cadmium, and chromium control area.

3.1.1.5 Local Exhaust System

Provide a local exhaust system in the lead, cadmium, and chromium control area in accordance with ASSP/SAFE Z9.2, 29 CFR 1926.62, 29 CFR 1926.1126 and 29 CFR 1926.1127 that will provide at least 4 air changes per hour inside of the negative pressure enclosure. Local exhaust equipment must be operated 24-hours per day, until the lead, cadmium, and chromium control area is removed and must be leak proof to the filter and equipped with

HEPA filters. Maintain a minimum pressure differential in the lead, cadmium, and chromium control area of minus 0.02 inch of water column relative to adjacent, unsealed areas. Provide continuous 24-hour per day monitoring of the pressure differential with a pressure differential automatic recording instrument. The building ventilation system must not be used as the local exhaust system for the lead, cadmium, and chromium control area. Filters on exhaust equipment must conform to ASSP/SAFE Z9.2 and UL 586. Terminate the local exhaust system out of doors and remote from any public access or ventilation system intakes.

3.1.1.6 Negative Air Pressure System Containment

- a. Operate the negative air pressure systems to provide at least 4 air changes per hour inside the containment. Operate the local exhaust unit equipment continuously until the containment is removed. Smoke test the negative air pressure system for leaks at the beginning of each shift. The certified supervisor is responsible to continuously monitor and keep a pressure differential log with an automatic manometric recording instrument. Notify the Contracting Officer immediately if the pressure differential falls below the prescribed minimum. Submit the continuously monitored pressure differential log, as specified. Do not use the building ventilation system as the local exhaust system. Terminate the local exhaust system out of doors unless the Contracting Officer allows an alternate arrangement. All filters must be new at the beginning of the project and be periodically changed as necessary to maintain specified pressure differential and disposed of as lead, cadmium and chromium contaminated waste.
- b. Discontinuing Negative Air Pressure System. Operate the negative air pressure system continuously during work activities unless otherwise authorized by the Contracting Officer. At the completion of the project, units must be run until full cleanup has been completed and final clearance testing requirements have been met. Dismantling of the negative air pressure systems must be as presented in the Lead, Cadmium, and Chromium Compliance Plan. Seal the HEPA filter machine intakes with polyethylene to prevent environmental contamination.

3.1.1.7 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.

3.1.1.8 Eye Wash Station

Provide suitable facilities within the work area for quick drenching or flushing of the eyes where eyes may be exposed to injurious corrosive materials.

3.1.1.9 Mechanical Ventilation System

- a. Use adequate ventilation to control personnel exposure to lead, cadmium and chromium in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127. To the extent feasible, use local exhaust ventilation or other collection systems, approved by the CP. Evaluate and maintain local exhaust ventilation systems in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127.
- b. Vent local exhaust outside the building and away from building

ventilation intakes or ensure system is connected to HEPA filters.

- c. Use locally exhausted, power actuated tools or manual hand tools.

3.1.1.10 Personnel Protection

Personnel must wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead, cadmium, and chromium control area. No one will be permitted in the lead, cadmium, and chromium control area unless they have been appropriately trained and provided with protective equipment.

3.2 ERECTION

3.2.1 Lead, Cadmium, and Chromium Control Area Requirements

Establish a lead, cadmium, and chromium control area by completely establishing barriers and physical boundaries around the area or structure where PWL or MCL removal operations will be performed that will not create airborne, dust containing lead, cadmium, chromium (such as carefully unfastening sheets containing lead, cadmium, chromium from walls).

Full containment - Contain removal operations by the use of critical barriers and HEPA filtered exhaust, or a negative pressure enclosure system with decontamination facilities and with HEPA filtered exhaust where removal practice will create airborne, dust containing lead, cadmium, chromium (such as sanding, sawing, grinding, thermal cutting, or digging or demolition activities) and as required by the CP. For containment areas larger than 1,000 square feet install a minimum of two 18 inch square viewing ports. Locate ports to provide a view of the required work from the exterior of the enclosed contaminated area. Glaze ports with laminated safety glass.

3.3 APPLICATION

3.3.1 Lead, Cadmium, and Chromium Work

Perform lead, cadmium, and chromium work in accordance with approved Lead, Cadmium, and Chromium Compliance Plan. Use procedures and equipment required to limit occupational exposure and environmental contamination with lead, cadmium, and chromium when the work is performed in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 and as specified herein. Dispose of all PWL or MCL and associated waste in compliance with Federal, State, and local requirements.

3.3.2 Paint with Lead, Cadmium, and Chromium or Material Containing Lead, Cadmium, and Chromium Removal

Manual or power sanding or grinding of lead, cadmium, and chromium surfaces or materials is not permitted unless tools are equipped with HEPA attachments or wet methods. The dry sanding or grinding of surfaces that contain lead, cadmium, and chromium is prohibited. The use of abrasive removal equipment is prohibited unless expressly approved by the NAVFAC Cultural Resources (CR) Managers. Documentation of CR Manager approval must be included in the Lead, Cadmium, and Chromium Compliance Plan. Provide methodology for removing lead, cadmium, and chromium in the Lead, Cadmium, and Chromium Compliance Plan. Select lead, cadmium, and chromium removal processes to prevent contamination of work areas outside the control area with lead, cadmium, and chromium contaminated dust or other

lead, cadmium, and chromium contaminated debris or waste and to ensure that unprotected personnel are not exposed to hazardous concentrations of lead, cadmium, and chromium. Describe this removal process in the Lead, Cadmium, and Chromium Compliance Plan.

Provide methodology for lead, cadmium and chromium, LBP/PWL removal, abatement/control and processes to prevent contamination of work areas outside the control area with lead, cadmium, and chromium contaminated dust or other lead, cadmium, and chromium contaminated debris/waste and to ensure that unprotected personnel are not exposed to hazardous concentrations of lead, cadmium, and chromium. Describe this lead, cadmium and chromium, LBP/PWL removal/control process in the Lead, Cadmium, and Chromium Compliance Plan.

3.3.2.1 Paint with Lead, Cadmium, and Chromium or Material Containing Lead, Cadmium, and Chromium - Indoor Removal

Perform manual or mechanical removal and thermal cutting in the lead, cadmium, and chromium control areas using enclosures, barriers or containments and powered locally exhausted tools equipped with HEPA filters. Collect residue and debris for disposal in accordance with Federal, State, and local requirements.

3.3.2.2 Paint with Lead, Cadmium, and Chromium or Material Containing Lead, Cadmium, and Chromium - Outdoor Removal

Perform outdoor removal as indicated in Federal, State, and local regulations and in the Lead, Cadmium, and Chromium Compliance Plan. The worksite preparation (barriers or containments) must be job dependent and presented in the Lead, Cadmium, and Chromium Compliance Plan.

3.3.3 Personnel Exiting Procedures

Whenever personnel exit the lead, cadmium, and chromium controlled area, they must perform the following procedures and must not leave the work place wearing any clothing or equipment worn in the control area:

- a. Vacuum all clothing before entering the contaminated change room.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- d. Change to clean clothes prior to leaving the clean clothes storage area.

3.4 FIELD QUALITY CONTROL

3.4.1 Tests

3.4.1.1 Air and Wipe Sampling

Conduct sampling for lead, cadmium, and chromium in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, and 29 CFR 1926.1127 and as specified herein. Air and wipe sampling must be directed or performed by the CP.

- a. The CP must be on the job site directing the air and wipe sampling and inspecting the project work to ensure that the requirements of the Contract, local, State and Federal statutes and regulations, Navy and

PNSY requirements, and project specifications have been satisfied during all work impacting lead, cadmium, and/or chromium.

- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least twenty-five percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit sample results of air samples, signed by the CP, within 72-hours after the air samples are taken.
- d. Conduct area air sampling daily, on each shift in which lead, cadmium and chromium and lead-based paint removal operations are performed, in areas immediately adjacent to the lead, cadmium and chromium control area at exhaust points for negative air machines, at entrances to the NPE, and at other locations determined appropriate for the project and site conditions. Conduct sufficient area monitoring to ensure unprotected personnel are not exposed at or above 30 micrograms of lead per cubic meter of air or 2.5 micrograms of cadmium/chromium per cubic meter of air. If 30 micrograms of lead per cubic meter of air or 2.5 micrograms of cadmium/chromium per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the Contracting Officer immediately. Determine if condition(s) require any further change in work methods. Resume removal work only after the CP and the Contracting Officer give approval.
- e. Before any work begins, a third party consultant must collect and analyze baseline wipe, air, and soil (if bare soil is present during exterior remediation operations) samples in accordance with methods defined by Federal, State, and local standards inside and outside of the physical boundary to assess the degree of dust contamination in the facility prior to lead, cadmium and chromium disturbance or removal. Provide Initial Sample Results to the Contracting Officer before work begins.
- f. Surface Wipe Samples - Collect surface wipe samples on floors at a location no greater than 10 feet outside the lead, cadmium, and chromium control area at a frequency of once per day while lead, cadmium, and chromium removal work is conducted in occupied buildings. Surface wipe samples or Micro Vacuum surface sample results must meet criteria in paragraph CLEARANCE CERTIFICATION.

3.4.1.2 Sampling After Removal

After the visual inspection, conduct soil sampling if bare soil is present during external removal operations and collect wipe and soil samples according to the HUD protocol contained in HUD 6780 to determine the lead, cadmium and chromium content of settled dust in micrograms per square meter foot of surface area and parts per million (ppm) for soil.

3.4.1.3 Testing of Material Containing Lead, Cadmium, and Chromium Residue

Test residue in accordance with 40 CFR 261 for hazardous waste.

3.5 CLEANING AND DISPOSAL

3.5.1 Cleanup

Maintain surfaces of the lead, cadmium, and chromium control area free of accumulations of dust and debris. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use pressurized air to clean up the area. At the end of each shift and when the lead, cadmium, and chromium operation has been completed, clean the controlled area of all visible contamination by vacuuming with a HEPA filtered vacuum cleaner, wet mopping the area and wet wiping the area as indicated by the Lead, Cadmium, and Chromium Compliance Plan. Reclean areas showing dust or debris. After visible dust and debris is removed, wet wipe and HEPA vacuum all surfaces in the controlled area. If adjacent areas become contaminated at any time during the work, clean, visually inspect, and then wipe sample all contaminated areas. The CP must then certify in writing that the area has been cleaned of lead, cadmium and chromium contamination before clearance testing.

3.5.1.1 Clearance Certification

The CP must certify in writing that air samples collected outside the lead, cadmium, and chromium control area during paint removal operations are less than 30 micrograms of lead per cubic meter of air and less than 2.5 micrograms of cadmium/chromium per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127; and that there were no visible accumulations of material and dust containing lead, cadmium, and chromium left in the work site. Do not remove the lead, cadmium, and chromium control area or roped off boundary and warning signs prior to the Contracting Officer's acknowledgement of receipt of the CP certification.

The third party consultant must perform surface wipe sampling for clearance certification pursuant to Paragraph entitled SAMPLING AND ANALYSIS herein. The third party consultant must certify surface wipe sample results collected inside and outside the work area are less than the thresholds detailed in Paragraph entitled CLEARANCE REQUIREMENTS herein.

For exterior work, soil samples taken at the exterior of the work site must be used to determine if soil lead, cadmium, and chromium levels have increased at a statistically significant level (significant at the 95 percent confidence limit) from the soil lead, cadmium, and chromium levels prior to the operation. If soil lead, cadmium, and chromium levels either show a statistically significant increase above soil lead, cadmium, and chromium levels prior to work or soil lead, cadmium, and chromium levels above any applicable federal or state standard for lead, cadmium, and chromium in soil, the soil must be remediated.

For lead, cadmium and chromium-based paint hazard abatement work, surface wipe and soil sampling must be conducted and clearance determinations made according to the requirements detailed in Paragraph entitled SAMPLING AND ANALYSIS herein and to the work practice standards presented in 40 CFR 745.227.

3.5.2 Disposal

- a. Dispose of material, whether hazardous or non-hazardous in accordance

with local, State, and Federal statutes and regulations, Navy and PNSY requirements, and project specifications. Ensure all waste is properly characterized in accordance with the Waste Characterization Sampling Plan developed under Paragraph entitled WASTE CHARACTERIZATION SAMPLING PLAN herein. The result of each waste characterization will dictate disposal requirements.

- b. Contractor is responsible for segregation of waste. Collect lead, cadmium, and chromium contaminated waste, scrap, debris, bags, containers, equipment, and lead, cadmium, and chromium-contaminated clothing that may produce airborne concentrations of lead, cadmium, and chromium particles. Label the containers in accordance with 29 CFR 1926.62, 29 CFR 1926.1126, 29 CFR 1926.1127 and 40 CFR 261, 40 CFR 262 and corresponding state regulations.
- c. Accumulate waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums or appropriately sized container for smaller volumes. Properly label each drum to identify the type of hazardous material (49 CFR 172). For hazardous waste, the collection container requires marking/labeling in accordance with 40 CFR 262 and corresponding state regulations.
- d. Manage lead, cadmium, and chromium or lead, cadmium, and chromium contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.
- e. All lead, cadmium, and chromium waste generation, management, and disposal will be coordinated with the Shipyard environmental function (Code 106, Building 357) and the Contracting Officer.

All HW must be turned in to Building 357 not later than the end of the shift on which it is generated. Responsibility for compliance is upon the Contractor. All hazardous wastes generated within the confines of the Shipyard are disposed of by the Government. Accordingly, all hazardous wastes generated by the Contractor to accomplish requirements of this Contract will be considered Government-generated, and disposed of by the Government. Contractor must not bring hazardous wastes onto Government property.

Containers positioned within the work area boundaries must have covers in place whenever containers are not in use.

3.5.2.1 Disposal Documentation

For non-hazardous waste, provide a certificate that the waste was accepted by the disposal facility. Provide turn-in documents or weight tickets for non-hazardous waste disposal.

3.5.2.2 Payment for Non-Hazardous Waste

Payment for disposal of non-hazardous waste will not be made until a signed copy of the manifest from the disposal facility is received and approved by the Contracting Officer. The manifest must detail and certify the amount of non-hazardous waste delivered to the disposal facility.

-- End of Section --

Specification Section 1.5.2.3 - Pb, Cr, Cd Compliance Plan Checklist - Building XX

Prepared by: _____ Date: _____

Spec Section(s)	Item Required	Included?	Section/ Page #	Notes
	Confirm that the Pb/Cr/Cd Compliance Plan contains the following:			
1.5.2.2	- Signature and seal to document plan prepared by Maine Lead Project Designer			
1.5.2.2	- Site sketch with all project details (control areas, critical barriers, physical boundaries, decon facilities, viewing ports, and mechanical ventilation system)			
	- Confirmation that meeting will be scheduled w/ ktr, supervisor, CP, PQP, CO, and APM to review Plan			
3.1	- Description of preparatory activities - protecting existing conditions, moving furniture, pre-cleaning			
1.5.2.2	- Description of safety precautions including, but not limited to, LO/TO, CSE, fall protection			
1.5.2.2	- Description of work practices for each activity, including:			
	- If abrasive removal is proposed, document approval by NAVFAC Cultural Resources MGR			
1.5.2.2	- Description of controls for each activity			
1.5.2.2	- Description of job responsibilities for each activity			
1.5.2.2	- Description of respirators and personal protective equipment			
1.5.2.2	- Description of equipment for each activity. Include all equipment spec sheets			
1.5.2.2	- Description of materials for each activity. Include all SDS			
1.5.2.2	- Description of hygiene facilities and sanitary procedures (including no eating, drinking, smoking)			
1.5.2.2	- Description of interface of trades			
1.5.2.2	- Description of work sequencing			
1.5.2.2	- Description of the method of containment of the operation to ensure that metals are not released outside of the control area. NPE or Regulated Area?			
3.1.1.2	- Description of required signage for each activity			
3.3.3, 3.1.1.7	- Description of decontamination equipment and process			
	- Rationale for not including shower (if applicable)			
1.5.3	- Description of local exhaust system and critical barrier equipment and process, including:			
	- Confirmation that Pressure Differential Recordings will be submitted w/in 24 hours			
	- Confirmation that negative pressure will be maintained continuously until work area cleared			
1.5.2.2, 3.5	- Description of cleanup procedures during and at the end of work.			
3.4.1	- Description of personal sampling and analysis strategy and methodology, number of samples, and qualifications of sampling personnel, including:			
	- Confirmation that all personal sampling results will be submitted to NAVFAC w/in XX hours			
	- Specific thresholds for work stoppage, PPE upgrade, etc.			
3.4.1	- Detailed description of area sampling and analysis strategy and methodology, frequency of sampling, sample locations, duration of sampling, and qualifications of sampling personnel, including:			
	- Confirmation that all area sampling results will be submitted to NAVFAC w/in XX hours			
	- Listing of specific sampling locations. Include locations in Notes column (to the right)			
	- Specific thresholds for work stoppage, PPE upgrade, etc.			
3.4.1	- Detailed description of clearance sampling and analysis strategy and methodology, number of samples, and qualifications of sampling personnel, including:			
	- Confirmation that all clearance sampling results will be submitted to NAVFAC w/in XX hours			
	- Listing of specific sampling locations. Include locations in Notes column (to the right)			
	- Listing of clearance thresholds. Include thresholds in Notes column (to the right)			
1.4, 1.5.2.8, 3.5	- Detailed plan for Pb, Cd, and Cr Waste Management, including:			
	- Painted Materials			
	- Paint chips, dust, debris			
	- Ancillary waste, including poly sheeting			
	- Wastewater			
1.4, 1.5.1.2	- Copies of Training Certificates for Workers and Supervisors			
1.4	- Copies of Licenses for Workers and Supervisors			
1.4, 1.5.2.7	- Copies of Respiratory Protection Program, Including Training and Fit Testing Records			
1.4, 1.5.2.4	- Copies of Medical Examinations, Surveillance and Records			
1.4, 1.5, 1.5.3	- Copies licenses, permits and notifications for demolition, abatement, remediation, etc.			
1.4, 1.5.1.3	- Documentation of Testing Laboratory Qualifications/Certificates			
1.4, 1.5	- Copy of Occupant Protection Plan			
1.4, 1.5.1.5	- Documentation of Certified Risk Assessor Qualifications			
1.4	- Sample Copy of Clearance Certification			
3.1.1.1	- Copy of Notification to Contracting Officer			
3.1.1.1	- Copy of Notification to Occupants			
1.4	- Name, qualifications, and certification of Supervisor			
1.4, 1.5.1.1	- Documentation of Competent Person Qualifications			
1.4, 1.5.1.1	- Certified Industrial Hygienist?			
1.4, 1.5.1.1	- Certified Safety Professional?			
1.4, 1.5.1.1	- Licensed Lead-Based Abatement Supervisor/Project Designer in the State of Maine?			
1.3.3	- Description of approach for maintaining and submitting log of analytical results			
1.4, 1.5	- Copy of Occupational and Environmental Assessment Data Report			
1.4, 1.5.1.4	- Documentation of Third Party Consultant Qualifications			

CHECKLIST COMPLETED BY: _____

DATE: _____

NOTE: This checklist is not intended to list all of the Pb, Cr, Cd Compliance Plan components required per Specification Section 02 83 00.00 22, Pb, Cr and Cd Remediation. The Contractor is required to identify and meet all applicable Specification requirements.

SECTION 02 84 16

HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY
04/06

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 1910.1000	Air Contaminants
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
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 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 273	Standards for Universal Waste Management
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 178	Specifications for Packagings

1.2 REQUIREMENTS

Removal and disposal of PCB containing lighting ballasts and associated mercury-containing lamps. Contractor may encounter leaking PCB ballasts. Refer to the report located at the end of Section 02 82 00 ASBESTOS REMEDIATION.

1.3 DEFINITIONS

1.3.1 Certified Industrial Hygienist (CIH)

A industrial hygienist hired by the contractor must be certified by the American Board of Industrial Hygiene.

1.3.2 Leak

Leak or leaking means any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

1.3.3 Lamps

Lamp, also referred to as "universal waste lamp", is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

1.3.4 Polychlorinated Biphenyls (PCBs)

PCBs as used in this specification must mean the same as PCBs, PCB containing lighting ballast, and PCB container, as defined in 40 CFR 761, Section 3, Definitions.

1.3.5 Spill

Spill means both intentional and unintentional spills, leaks, and other uncontrolled discharges when the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases.

1.3.6 Universal Waste

Universal Waste means any of the following hazardous wastes that are managed under the universal waste requirements 40 CFR 273:

- (1) Batteries as described in Sec. 273.2 of this chapter;
- (2) Pesticides as described in Sec. 273.3 of this chapter;
- (3) Thermostats as described in Sec. 273.4 of this chapter; and
- (4) Lamps as described in Sec. 273.5 of this chapter.

1.4 QUALITY ASSURANCE

1.4.1 Regulatory Requirements

Perform PCB related work in accordance with 40 CFR 761. Perform mercury-containing lamps storage and transport in accordance with 40 CFR 261, 40 CFR 264, 40 CFR 265, and 40 CFR 273.

1.4.2 Training

Certified industrial hygienist (CIH) must instruct and certify the training of all persons involved in the removal of PCB containing lighting ballasts and mercury-containing lamps. The instruction must include: The

dangers of PCB and mercury exposure, decontamination, safe work practices, and applicable OSHA and EPA regulations. The CIH must review and approve the PCB and Mercury-Containing Lamp Removal Work Plans.

1.4.3 Regulation Documents

Maintain at all times one copy each at the office and one copy each in view at the job site of 29 CFR 1910.1000, 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 265, 40 CFR 268, 40 CFR 270, and 40 CFR 273 and of the Contractor removal work plan and disposal plan for PCB and for associated mercury-containing lamps.

1.4.4 Field Measurements and Quantities

Provide a field verified measurement and quantity list of all hazardous materials to be removed for review and approval by the Government prior to the commencement of work.

1.5 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-07 Certificates

Qualifications of CIH; G

Training Certification; G

PCB and Lamp Removal Work Plan; G

PCB and Lamp Disposal Plan; G

PCB Quantity Report; G

SD-11 Closeout Submittals

Transporter certification of notification to EPA of their PCB waste activities and EPA ID numbers; G

Certification of Decontamination; G

Certificate of Disposal and/or recycling; G. Submit to the Government before application for payment within 30 days of the date that the disposal of the PCB and mercury-containing lamp waste identified on the manifest was completed.

DD Form 1348-1

1.6 ENVIRONMENTAL REQUIREMENTS

Use special clothing:

- a. Disposable gloves (polyethylene)
- b. Eye protection

- c. PPE as required by CIH

1.7 SCHEDULING

Notify the Contracting Officer 20 days prior to the start of PCB and mercury-containing lamp removal work.

1.8 QUALITY ASSURANCE

1.8.1 Qualifications of CIH

Submit the name, address, and telephone number of the Industrial Hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit training certification that the Industrial Hygienist is certified, including certification number and date of certification or re certification.

1.8.2 PCB and Lamp Removal Work Plan

Submit a job-specific plan within 20 calendar days after Award of Contract of the work procedures to be used in the removal, packaging, and storage of PCB-containing lighting ballasts and associated mercury-containing lamps. Include in the plan: Requirements for Personal Protective Equipment (PPE), spill cleanup procedures and equipment, eating, smoking and restroom procedures. The plan must be approved and signed by the Certified Industrial Hygienist. Obtain approval of the plan by the Contracting Officer prior to the start of PCB and/or lamp removal work.

1.8.3 PCB and Lamp Disposal Plan

Submit a PCB and lamp Disposal Plan with 45 calendar days after Award of Contract. The PCB and Lamp Disposal Plan must comply with applicable requirements of Federal, State, and local PCB and Universal waste regulations and address:

- a. Estimated quantities of wastes to be generated, disposed of, and recycled.
- b. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location. Furnish two copies of EPA and state PCB and mercury-containing lamp waste permit applications and EPA identification numbers, as required.
- c. Names and qualifications (experience and training) of personnel who will be working on-site with PCB and mercury-containing lamp wastes.
- d. Spill prevention, containment, and cleanup contingency measures to be implemented.
- e. Work plan and schedule for PCB and mercury-containing lamp waste removal, containment, storage, transportation, disposal and or recycling. Wastes must be cleaned up and containerize daily.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 WORK PROCEDURE

Furnish labor, materials, services, and equipment necessary for the removal of PCB containing lighting ballasts, associated mercury-containing fluorescent lamps, and high intensity discharge (HID) lamps in accordance with local, State, or Federal regulations. Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced. Do not break mercury containing fluorescent lamps or high intensity discharge lamps.

3.1.1 Work Operations

Ensure that work operations or processes involving PCB or PCB-contaminated materials are conducted in accordance with 40 CFR 761, 40 CFR 262 40 CFR 263, and the applicable requirements of this Section, including but not limited to:

- a. Obtaining suitable PCB and mercury-containing lamp storage sites.
- b. Notifying Contracting Officer prior to commencing the operation.
- c. Reporting leaks and spills to the Contracting Officer.
- d. Cleaning up spills.
- e. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the Contracting Officer.
- f. Maintaining inspection, inventory and spill records.

3.2 PCB SPILL CLEANUP REQUIREMENTS

3.2.1 PCB Spills

Immediately report to the Contracting Officer any PCB spills.

3.2.2 PCB Spill Control Area

Rope off an area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to a drip pan or other container.

3.2.3 PCB Spill Cleanup

40 CFR 761, subpart G. Initiate cleanup of spills as soon as possible, but no later than 24 hours of its discovery. Mop up the liquid with rags or other conventional absorbent. The spent absorbent must be properly contained and disposed of as solid PCB waste.

3.2.4 Records and Certification

Document the cleanup with records of decontamination in accordance with 40 CFR 761, Section 125, Requirements for PCB Spill Cleanup. Provide test results of cleanup and certification of decontamination.

3.3 REMOVAL

3.3.1 Ballasts

As ballast are removed from the lighting fixture, inspect label on ballast. Ballasts without a "No PCB" label must be assumed to contain PCBs and containerized and disposed of as required under paragraphs STORAGE FOR DISPOSAL and DISPOSAL. If there are less than 1600 "No PCB" labeled lighting ballasts dispose of them as normal demolition debris.

3.3.2 Lighting Lamps

Remove lighting tubes/lamps from the lighting fixture and carefully place (unbroken) into appropriate containers (original transport boxes or equivalent). In the event of a lighting tube/lamp breaking, sweep and place waste in double plastic taped bags and dispose of as universal waste as specified herein.

3.4 STORAGE FOR DISPOSAL

3.4.1 Storage Containers for PCBs

49 CFR 178. Store PCB in containers approved by DOT for PCB.

3.4.2 Storage Containers for lamps

Store mercury containing lamps in appropriate DOT containers. The boxes must be stored and labeled for transport in accordance with 40 CFR 273.

3.4.3 Labeling of Waste Containers

Label with the following:

- a. Date the item was placed in storage and the name of the cognizant activity/building.
- b. "Caution Contains PCB," conforming to 40 CFR 761, CFR Subpart C. Affix labels to PCB waste containers.
- c. Label mercury-containing lamp waste in accordance with 40 CFR 273. Affix labels to all lighting waste containers.

3.5 DISPOSAL

Dispose of off Government property in accordance with EPA, DOT, and local regulations at a permitted site.

3.5.1 Identification Number

Federal regulations 40 CFR 761, and 40 CFR 263 require that generators, transporters, commercial storers, and disposers of PCB waste possess U.S. EPA identification numbers. The Contractor must verify that the activity has a U.S. EPA generator identification number for use on the Uniform Hazardous Waste manifest. If not, the Contractor must advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work. For mercury containing lamp removal, Federal regulations 40 CFR 273 require that large quantity handlers of Universal waste (LQHUW) must provide notification of universal waste management to the appropriate EPA Region (or state director in authorized states), obtain an EPA

identification number, and retain for three years records of off-site shipments of universal waste. The Contractor must verify that the activity has a U.S. EPA generator identification number for use on the Universal Waste manifest. If not, the Contractor must advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work.

3.5.1.1 PCB Quantity Report

Direct the CIH to record and report, to the Contracting Officer, the amount of PCB containing material removed and released for disposal. Deliver the report for the previous day at the beginning of each day shift with amounts of materials removed during the previous day reported in quantity of PCB material and/or number of lamps and ballasts.

3.5.2 Transporter Certification

Comply with disposal and transportation requirements outlined in 40 CFR 761 and 40 CFR 263. Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB waste from the Government. Return a signed copy to the Government before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities (EPA Form 7710-53).

3.5.2.1 Certificate of Disposal and/or Recycling

40 CFR 761. Certificate for the PCBs and PCB items disposed must include:

- a. The identity of the disposal and or recycling facility, by name, address, and EPA identification number.
- b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.
- c. A statement certifying the fact of disposal and or recycling of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
- d. A certification as defined in 40 CFR 761.

3.5.3 Disposal by the Government

Comply with disposal and transportation requirements outlined in 40 CFR 761 and 40 CFR 263. Load into Government furnished containers and haul PCBs to Building 357 for Government disposal.

3.5.3.1 DD Form 1348-1

Prepare DD Form 1348-1 Turn-in Document (TID), which will accompany the PCB to the storage site. Ensure that a responsible person from the activity that owns the PCB signs the DD Form 1348-1.

-- End of Section --

SECTION 03 30 00

CAST-IN-PLACE CONCRETE
02/19

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 117	(2010; Errata 2011) Specifications for Tolerances for Concrete Construction and Materials and Commentary
ACI 301	(2016) Specifications for Structural Concrete
ACI 302.1R	(2015) Guide for Concrete Floor and Slab Construction
ACI 304.2R	(2017) Guide to Placing Concrete by Pumping Methods
ACI 304R	(2000; R 2009) Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI 305.1	(2014) Specification for Hot Weather Concreting
ACI 305R	(2010) Guide to Hot Weather Concreting
ACI 306.1	(1990; R 2002) Standard Specification for Cold Weather Concreting
ACI 306R	(2016) Guide to Cold Weather Concreting
ACI 308.1	(2011) Specification for Curing Concrete

ASTM INTERNATIONAL (ASTM)

ASTM A615/A615M	(2016) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A1064/A1064M	(2017) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31/C31M	(2019) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33/C33M	(2018) Standard Specification for Concrete

Aggregates

ASTM C39/C39M	(2018) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C42/C42M	(2018a) Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C94/C94M	(2018) Standard Specification for Ready-Mixed Concrete
ASTM C143/C143M	(2015) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150/C150M	(2018) Standard Specification for Portland Cement
ASTM C172/C172M	(2017) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173/C173M	(2016) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C231/C231M	(2017a) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C311/C311M	(2018) Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C387/C387M	(2017) Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar
ASTM C494/C494M	(2017) Standard Specification for Chemical Admixtures for Concrete
ASTM C618	(2019) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C928/C928M	(2013) Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
ASTM C989/C989M	(2018a) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017/C1017M	(2013; E 2015) Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1293	(2008; R 2015) Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction

ASTM C1602/C1602M	(2018) Standard Specification for Mixing Water Used in Production of Hydraulic Cement Concrete
ASTM D5759	(2012) Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

CRSI 10MSP	(2009; 28th Ed; Errata) Manual of Standard Practice
CRSI RB4.1	(2016) Supports for Reinforcement Used in Concrete

1.2 DEFINITIONS

- a. "Cementitious material" as used herein must include all portland cement, pozzolan, fly ash, and slag cement.
- b. "Exposed to public view" means situated so that it can be seen from eye level from a public location after completion of the building. A public location is accessible to persons not responsible for operation or maintenance of the building.
- c. "Chemical admixtures" are materials in the form of powder or fluids that are added to the concrete to give it certain characteristics not obtainable with plain concrete mixes.
- d. "Supplementary cementing materials" (SCM) include coal fly ash, slag cement, natural or calcined pozzolans, and ultra-fine coal ash when used in such proportions to replace the portland cement that result in improvement to sustainability and durability and reduced cost.
- e. "Design strength" (f'_c) is the specified compressive strength of concrete at time(s) specified in this section to meet structural design criteria.
- f. "Mixture proportioning" is the process of designing concrete mixture proportions to enable it to meet the strength, service life and constructability requirements of the project while minimizing the initial and life-cycle cost.
- g. "Mixture proportions" are the masses or volumes of individual ingredients used to make a unit measure (cubic meter or cubic yard) of concrete.
- h. "Pozzolan" is a siliceous or siliceous and aluminous material, which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.
- i. "Workability (or consistence)" is the ability of a fresh (plastic) concrete mix to fill the form/mould properly with the desired work (vibration) and without reducing the concrete's quality. Workability depends on water content, chemical admixtures, aggregate (shape and size distribution), cementitious content and age (level of hydration).

1.3 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-02 Shop Drawings

Reinforcing Steel; G

SD-03 Product Data

Cementitious Materials

Concrete Curing Materials

Reinforcement

Liquid Chemical Floor Hardeners and Sealers

Admixtures

Pumping Concrete

SD-05 Design Data

Concrete Mix Design; G

SD-06 Test Reports

Concrete Mix Design; G

Fly Ash

Pozzolan

Slag Cement

Aggregates

Compressive Strength Tests; G

Air Content

Slump Tests

Water

SD-07 Certificates

Reinforcing Bars

1.4 MODIFICATION OF REFERENCES

Accomplish work in accordance with ACI publications except as modified herein. Consider the advisory or recommended provisions to be mandatory. Interpret reference to the "Building Official," the "Structural Engineer,"

and the "Architect/Engineer" to mean the Contracting Officer.

1.5 DELIVERY, STORAGE, AND HANDLING

Follow ACI 301 and ACI 304R requirements and recommendations. Do not deliver concrete until reinforcement and embedded items are in place and ready for concrete placement. Do not store concrete curing compounds or sealers with materials that have a high capacity to adsorb volatile organic compound (VOC) emissions. Do not store concrete curing compounds or sealers in occupied spaces.

1.5.1 Reinforcement

Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground to avoid excessive rusting. Protect from contaminants such as grease, oil, and dirt. Ensure bar sizes can be accurately identified after bundles are broken and tags removed.

1.6 QUALITY ASSURANCE

1.6.1 Design Data

1.6.1.1 Concrete Mix Design

Sixty days minimum prior to concrete placement, submit a mix design for each strength and type of concrete. Submit a complete list of materials including type; brand; source and amount of cement, supplementary cementitious materials, fibers, and admixtures; and applicable reference specifications. Submit mill test and all other test for cement, supplementary cementitious materials, aggregates, and admixtures. Provide documentation of maximum nominal aggregate size, gradation analysis, percentage retained and passing sieve, and a graph of percentage retained versus sieve size. Provide mix proportion data using at least three different water-cementitious material ratios for each type of mixture, which produce a range of strength encompassing those required for each type of concrete required. If source material changes, resubmit mix proportion data using revised source material. Provide only materials that have been proven by trial mix studies to meet the requirements of this specification, unless otherwise approved in writing by the Contracting Officer. Indicate clearly in the submittal where each mix design is used when more than one mix design is submitted. Resubmit data on concrete components if the qualities or source of components changes. For previously approved concrete mix designs used within the past twelve months, the previous mix design may be re-submitted without further trial batch testing if accompanied by material test data conducted within the last six months. Obtain mix design approval from the contracting officer prior to concrete placement.

1.6.2 Shop Drawings

1.6.2.1 Reinforcing Steel

Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions, and details of bar reinforcing, accessories, and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing bars. Reproductions of contract drawings are unacceptable.

1.6.3 Control Submittals

1.6.3.1 Pumping Concrete

Submit proposed materials and methods for pumping concrete. Submittal must include mix designs, pumping equipment including type of pump and size and material for pipe, and maximum length and height concrete is to be pumped.

1.6.3.2 VOC Content for curing compounds and concrete penetrating sealers

Submit certification for the curing compounds and concrete penetrating sealers that indicate the VOC content of each product.

1.6.3.3 Safety Data Sheets

Submit Safety Data Sheets (SDS) for all materials that are regulated for hazardous health effects. SDS must be readily accessible during each work shift to employees when they are at the construction site.

1.6.4 Test Reports

1.6.4.1 Fly Ash and Pozzolan

Submit test results in accordance with ASTM C618 for fly ash and pozzolan. Submit test results performed within 6 months of submittal date.

1.6.4.2 Slag Cement

Submit test results in accordance with ASTM C989/C989M for slag cement. Submit test results performed within 6 months of submittal date.

1.6.4.3 Aggregates

Submit test results in accordance with ASTM C33/C33M.

1.7 ENVIRONMENTAL REQUIREMENTS

Provide space ventilation according to material manufacturer recommendations, at a minimum, during and following installation of concrete curing compound and sealer. Maintain one of the following ventilation conditions during the curing period or for 72 hours after installation:

- a. Supply 100 percent outside air 24 hours a day.
- b. Supply airflow at a rate of 6 air changes per hour, when outside temperatures are between 55 degrees F and 84 degrees F and humidity is between 30 percent and 60 percent.
- c. Supply airflow at a rate of 1.5 air changes per hour, when outside air conditions are not within the range stipulated above.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

2.1.1 Cementitious Materials

2.1.1.1 Portland Cement

- a. Unless otherwise specified, provide cement that conforms to ASTM C150/C150M Type II.
- b. Use one brand and type of cement for formed concrete having exposed-to-view finished surfaces.
- c. For portland cement manufactured in a kiln fueled by hazardous waste, maintain a record of source for each batch. Supplier must certify that no hazardous waste is used in the fuel mix or raw materials. Supplier must certify that the hazardous waste is neutralized by the manufacturing process and that no additional pollutants are discharged.
- d. Submit information along with evidence demonstrating compliance with referenced standards. Submittals must include types of cementitious materials, manufacturing locations, shipping locations, and certificates showing compliance.
- e. Cementitious materials must be stored and kept dry and free from contaminants.

2.1.1.2 Fly Ash

- a. ASTM C618, Class F, except that the maximum allowable loss on ignition must not exceed 6 percent.
- b. Fly ash content must be a minimum of 15 percent by weight of cementitious material, provided the fly ash does not reduce the amount of cement in the concrete mix below the minimum requirements of local building codes. Where the use of fly ash cannot meet the minimum level, provide the maximum amount of fly ash permittable that meets the code requirements for cement content. Report the chemical analysis of the fly ash in accordance with ASTM C311/C311M. Evaluate and classify fly ash in accordance with ASTM D5759.

2.1.1.3 Slag cement

ASTM C989/C989M, Grade 120. Slag content must be a minimum of 15 percent by weight of cementitious material.

2.1.1.4 Other Supplementary Cementitious Materials

Natural pozzolan must be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling ASR and must have an ignition loss not exceeding 3 percent. Class N pozzolan for use in mitigating ASR must have a Calcium Oxide (CaO) content of less than 13 percent and total equivalent alkali content less than 3 percent.

Ultra Fine Fly Ash (UFFA) and Ultra Fine Pozzolan (UFP) must conform to ASTM C618, Class F or N, and the following additional requirements:

- a. The strength activity index at 28 days of age must be at least 95 percent of the control specimens.
- b. The average particle size must not exceed 6 microns.
- c. The sum of $\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$ must be greater than 77 percent.

2.1.2 Water

- a. Water or ice must comply with the requirements of ASTM C1602/C1602M.
- b. Minimize the amount of water in the mix. Improve workability by adjusting the grading of the aggregate and using admixture rather than by adding water.
- c. Water must be potable; free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete.
- d. Protect mixing water and ice from contamination during storage and delivery.

2.1.3 Aggregate

2.1.3.1 Normal-Weight Aggregate

- a. Aggregates must conform to ASTM C33/C33M.
- b. Aggregates used in concrete must be obtained from the same sources and have the same size range as aggregates used in concrete represented by submitted field test records or used in trial mixtures.
- c. Provide sand that is at least 50 percent acid insoluble based on ASTM D3042. Provide sand that is at least 50 percent natural sand for pavement mixes.
- d. Store and handle aggregate in a manner that will avoid segregation and prevents contamination by other materials or other sizes of aggregates. Store aggregates in locations that will permit them to drain freely. Do not use aggregates that contain frozen lumps.
- e. Submit types, pit or quarry locations, producers' names, aggregate supplier statement of compliance with ASTM C33/C33M, and ASTM C1293 expansion data not more than 18 months old.

2.1.4 Admixtures

- a. Chemical admixtures must conform to ASTM C494/C494M.
- b. Chemical admixtures for use in producing flowing concrete must conform to ASTM C1017/C1017M.
- c. Do not use calcium chloride admixtures unless approved by the contracting officer.
- d. Admixtures used in concrete must be the same as those used in the concrete represented by submitted field test records or used in trial mixtures.

- e. Protect stored admixtures against contamination, evaporation, or damage.
- f. To ensure uniform distribution of constituents, provide agitating equipment for admixtures used in the form of suspensions or unstable solutions. Protect liquid admixtures from freezing and from temperature changes that would adversely affect their characteristics.
- g. Submit types, brand names, producers' names, manufacturer's technical data sheets, and certificates showing compliance with standards required herein.

2.2 MISCELLANEOUS MATERIALS

2.2.1 Concrete Curing Materials

Provide concrete curing material in accordance with ACI 301 Section 5 and ACI 308.1 Section 2. Submit product data for concrete curing compounds. Submit manufactures instructions for placement of curing compound.

2.2.2 Floor Finish Materials

2.2.2.1 Liquid Chemical Floor Hardeners and Sealers

- a. Hardener must be a colorless aqueous solution containing a blend of inorganic silicate or siliconate material and proprietary components combined with a wetting agent; that penetrates, hardens, and densifies concrete surfaces. Submit manufactures instructions for placement of liquid chemical floor hardener.
- b. Use concrete penetrating sealers with a low (maximum 100 grams/liter, less water and less exempt compounds) VOC content. Submit manufactures instructions for placement of sealers.

2.2.3 Patching Mortar

The required properties for the materials listed in this paragraph must meet the properties specified in the Contract Documents. Submit product data, certificates, and manufacturer's instructions.

- a. Packaged, rapid hardening concrete repair materials must conform to ASTM C928/C928M.
- b. Packaged mortar and concrete must conform to ASTM C387/C387M.

Water used with packaged and proprietary materials must meet ASTM C1602/C1602M requirements. Aggregates must meet the repair material manufacturer's requirements if available and ASTM C33/C33M if such requirements are not specified.

2.3 CONCRETE MIX DESIGN

2.3.1 Properties and Requirements

- a. Use materials and material combinations listed in this section and the contract documents.
- b. Cementitious material content must be adequate for concrete to satisfy the specified requirements for strength, w/cm, durability, and

finishability described in this section and the contract documents.

- c. Selected target slump must meet the requirements this section, the contract documents, and must not exceed 6 in. Concrete must not show visible signs of segregation.
- d. The target slump must be enforced for the duration of the project. Determine the slump by ASTM C143/C143M. Slump tolerances must meet the requirements of ACI 117.
- e. The nominal maximum size of coarse aggregate for a mixture must not exceed three-fourths of the minimum clear spacing between reinforcement, one-fifth of the narrowest dimension between sides of forms, or one-third of the thickness of slabs or toppings.
- f. Measure air content at the point of delivery in accordance with ASTM C173/C173M or ASTM C231/C231M.
- g. Concrete for slabs to receive a hard-troweled finish must not contain an air-entraining admixture or have a total air content greater than 3 percent.
- h. Concrete properties and requirements for each portion of the structure are specified in the table below. Refer to the paragraph titled DURABILITY for more details on exposure categories and their requirements.

	Minimum $f'c$ psi	Exposure Categories^	Miscellaneous Requirements
Stair Landing Infill, Metal Stair Pan Infill, Elevated Infill, and Housekeeping Pads	4000 at 28 days	C2; W1	Nominal maximum aggregate size must be 3/4 in. W/C Ratio = 0.45.

2.3.2 Durability

2.3.2.1 Concrete Temperature

The temperature of concrete as delivered must not exceed 95°F.

2.3.3 Trial Mixtures

Trial mixtures must be in accordance to ACI 301.

2.3.4 Ready-Mix Concrete

Provide concrete that meets the requirements of ASTM C94/C94M.

Ready-mixed concrete manufacturer must provide duplicate delivery tickets with each load of concrete delivered. Provide delivery tickets with the following information in addition to that required by ASTM C94/C94M:

- a. Type and brand cement
- b. Cement and supplementary cementitious materials content in 94-pound bags per cubic yard of concrete

- c. Maximum size of aggregate
- d. Amount and brand name of admixtures
- e. Total water content expressed by water cementitious material ratio

2.4 REINFORCEMENT

- a. Bend reinforcement cold. Fabricate reinforcement in accordance with fabricating tolerances of ACI 117.
- b. Submit manufacturer's certified test report for reinforcement.
- c. Submit placing drawings showing fabrication dimensions and placement locations of reinforcement and reinforcement supports. Placing drawings must indicate locations of splices, lengths of lap splices, and details of mechanical and welded splices.
- d. Submit request with locations and details of splices not indicated in Contract Documents.

2.4.1 Reinforcing Bars

- a. Reinforcing bars must be deformed, except spirals, load-transfer dowels, and welded wire reinforcement, which may be plain.
- b. ASTM A615/A615M with the bars marked A, Grade 60.
- c. Submit mill certificates for reinforcing bars.

2.4.2 Wire

- a. Plain steel wire must conform to ASTM A1064/A1064M.

2.4.3 Welded wire reinforcement

- a. Use welded wire reinforcement specified in Contract Documents and conforming to one or more of the specifications given herein.
- b. Plain welded wire reinforcement must conform to ASTM A1064/A1064M, with welded intersections spaced no greater than 12 in. apart in direction of principal reinforcement.

2.4.4 Reinforcing Bar Supports

- a. Provide reinforcement support types within structure as required by Contract Documents. Reinforcement supports must conform to CRSI RB4.1. Submit description of reinforcement supports and materials for fastening coated reinforcement if not in conformance with CRSI RB4.1.

PART 3 EXECUTION

3.1 EXAMINATION

- a. Do not begin installation until substrates have been properly constructed; verify that substrates are level.
- b. If substrate preparation is the responsibility of another installer,

notify Contracting Officer of unsatisfactory preparation before processing.

- c. Check field dimensions before beginning installation. If dimensions vary too much from design dimensions for proper installation, notify Contracting Officer and wait for instructions before beginning installation.

3.2 PREPARATION

Determine quantity of concrete needed and minimize the production of excess concrete. Designate locations or uses for potential excess concrete before the concrete is poured.

3.2.1 General

- a. Surfaces against which concrete is to be placed must be free of debris, loose material, standing water, snow, ice, and other deleterious substances before start of concrete placing.
- b. Remove standing water without washing over freshly deposited concrete. Divert flow of water through side drains provided for such purpose.

3.2.2 Reinforcement and Other Embedded Items

- a. Secure reinforcement, joint materials, and other embedded materials in position, inspected, and approved before start of concrete placing.
- b. When concrete is placed, reinforcement must be free of materials deleterious to bond. Reinforcement with rust, mill scale, or a combination of both will be considered satisfactory, provided minimum nominal dimensions, nominal weight, and minimum average height of deformations of a hand-wire-brushed test specimen are not less than applicable ASTM specification requirements.

3.3 PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

- a. Unless otherwise specified, placing reinforcement and miscellaneous materials must be in accordance to ACI 301. Provide bars, welded wire reinforcement, wire ties, supports, and other devices necessary to install and secure reinforcement.
- b. Reinforcement must not have rust, scale, oil, grease, clay, or foreign substances that would reduce the bond. Rusting of reinforcement is a basis of rejection if the effective cross-sectional area or the nominal weight per unit length has been reduced. Remove loose rust prior to placing steel. Tack welding is prohibited.
- c. Cast-in-place concrete must have concrete cover as indicated.

3.3.1 General

Provide details of reinforcement that are in accordance with the Contract Documents.

3.3.2 Reinforcement Supports

Provide reinforcement support in accordance with CRSI RB4.1 and ACI 301 Section 3 requirements. Supports for coated or galvanized bars must also

be coated with electrically compatible material for a distance of at least 2 inches beyond the point of contact with the bars.

3.3.3 Fabrication

Shop fabricate reinforcing bars to conform to shapes and dimensions indicated for reinforcement, and as follows:

- a. Provide fabrication tolerances that are in accordance with ACI 117.

Reinforcement must be bent cold to shapes as indicated. Bending must be done in the shop. Rebending of a reinforcing bar that has been bent incorrectly is not be permitted. Bending must be in accordance with standard approved practice and by approved machine methods.

Deliver reinforcing bars bundled, tagged, and marked. Tags must be metal with bar size, length, mark, and other information pressed in by machine. Marks must correspond with those used on the placing drawings.

Do not use reinforcement that has any of the following defects:

- a. Bar lengths, depths, and bends beyond specified fabrication tolerances
- b. Bends or kinks not indicated on drawings or approved shop drawings
- c. Bars with reduced cross-section due to rusting or other cause

Replace defective reinforcement with new reinforcement having required shape, form, and cross-section area.

3.3.4 Placing Reinforcement

Place reinforcement in accordance with ACI 301.

Provide reinforcement that is supported and secured together to prevent displacement by construction loads or by placing of wet concrete, and as follows:

- a. Provide supports for reinforcing bars that are sufficient in number and have sufficient strength to carry the reinforcement they support, and in accordance with ACI 301 and CRSI 10MSP. Do not use supports to support runways for concrete conveying equipment and similar construction loads.
- b. Support welded wire reinforcement as required for reinforcing bars.
- c. Secure reinforcements to supports by means of tie wire. Wire must be black, soft iron wire, not less than 16 gage.
- d. Reinforcement must be accurately placed, securely tied at intersections, and held in position during placing of concrete by spacers, chairs, or other approved supports. Point wire-tie ends away from the form. Unless otherwise indicated, numbers, type, and spacing of supports must conform to the Contract Documents.

3.3.5 Spacing of Reinforcing Bars

- a. Spacing must be as indicated in the Contract Documents.

- b. Reinforcing bars may be relocated to avoid interference with other reinforcement, or with conduit, pipe, or other embedded items. If any reinforcing bar is moved a distance exceeding one bar diameter or specified placing tolerance, resulting rearrangement of reinforcement is subject to preapproval by the Contracting Officer.

3.3.6 Concrete Protection for Reinforcement

Additional concrete protection must be in accordance with the Contract Documents.

3.4 BATCHING, MEASURING, MIXING, AND TRANSPORTING CONCRETE

In accordance with ASTM C94/C94M, ACI 301, ACI 302.1R and ACI 304R, except as modified herein. Batching equipment must be such that the concrete ingredients are consistently measured within the following tolerances: 1 percent for cement and water, 2 percent for aggregate, and 3 percent for admixtures. Furnish mandatory batch ticket information for each load of ready mix concrete.

3.4.1 Measuring

Make measurements at intervals as specified in paragraphs SAMPLING and TESTING.

3.4.2 Mixing

- a. Mix concrete in accordance with ASTM C94/C94M, ACI 301 and ACI 304R.
- b. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 84 degrees F.
- c. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 84 degrees F except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes. Additional water may be added, provided that both the specified maximum slump and submitted water-cementitious material ratio are not exceeded and the required concrete strength is still met. When additional water is added, an additional 30 revolutions of the mixer at mixing speed is required.

3.4.3 Transporting

Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete which has segregated in transporting and dispose of as directed.

3.5 PLACING CONCRETE

Place concrete in accordance with ACI 301 Section 5.

3.5.1 Pumping

ACI 304R and ACI 304.2R. Pumping must not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity

between successive increments. Loss of slump in pumping equipment must not exceed 2 inches at discharge/placement. Do not convey concrete through pipe made of aluminum or aluminum alloy. Avoid rapid changes in pipe sizes. Limit maximum size of coarse aggregate to 33 percent of the diameter of the pipe. Limit maximum size of well-rounded aggregate to 40 percent of the pipe diameter. Take samples for testing at both the point of delivery to the pump and at the discharge end.

3.5.2 Cold Weather

Cold weather concrete must meet the requirements of ACI 306.1 unless otherwise specified. Do not allow concrete temperature to decrease below 50 degrees F. Obtain approval prior to placing concrete when the ambient temperature is below 40 degrees F or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 50 degrees F minimum adjacent to both the formwork and the structure while curing. Limit the rate of cooling to 37 degrees F in any 1 hour and 50 degrees F per 24 hours after heat application.

3.5.3 Hot Weather

Hot weather concrete must meet the requirements of ACI 305.1 unless otherwise specified. Maintain required concrete temperature using Figure 4.2 in ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square foot of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source, to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable, permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.5.4 Bonding

Surfaces of set concrete at joints, must be roughened and cleaned of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, nor damaged concrete at the surface.

Obtain bonding of fresh concrete that has set as follows:

- a. At joints in exposed-to-view work; supported slabs, the roughened and cleaned surface of set concrete must be dampened but not saturated and covered with a cement grout coating.
- b. Provide cement grout that consists of equal parts of portland cement and fine aggregate by weight with not more than 6 gallons of water per sack of cement. Apply cement grout with a stiff broom or brush to a minimum thickness of 1/16 inch. Deposit fresh concrete before cement grout has attained its initial set.

3.6 WASTE MANAGEMENT

Provide as specified in the Waste Management Plan and as follows.

3.6.1 Mixing Equipment

Before concrete pours, designate on-site area for cleaning out concrete mixing trucks. Minimize water used to wash equipment.

3.6.2 Reinforcing Steel

Collect reinforcing steel and place in designated area for recycling.

3.7 SLAB FINISHES AND MISCELLANEOUS CONSTRUCTION

In accordance with ACI 301 and ACI 302.1R, unless otherwise specified. Slope floors uniformly to drains where drains are provided. Where straightedge measurements are specified, Contractor must provide straightedge.

3.7.1 Finish

Place, consolidate, and immediately strike off concrete to obtain proper contour, grade, and elevation before bleedwater appears. Permit concrete to attain a set sufficient for floating and supporting the weight of the finisher and equipment. If bleedwater is present prior to floating the surface, drag the excess water off or remove by absorption with porous materials. Do not use dry cement to absorb bleedwater.

3.7.1.1 Scratched

Use for surfaces intended to receive bonded applied cementitious applications. Finish concrete in accordance with ACI 301 Section 5 for a scratched finish.

3.7.1.2 Floated

Use for exterior slabs where not otherwise specified. Finish concrete in accordance with ACI 301 Section 5 for a floated finish.

3.7.1.3 Steel Troweled

Use for floors intended as walking surfaces for reception of floor coverings. Finish concrete in accordance with ACI 301 Section 5 for a steel troweled finish.

3.7.1.4 Chemical-Hardener Treatment

Apply liquid-chemical floor hardener where indicated after curing and drying concrete surface. Dilute liquid hardener with water and apply in three coats. First coat must be one-third strength, second coat one-half strength, and third coat two-thirds strength. Apply each coat evenly and allow to dry 24 hours between coats.

Approved proprietary chemical hardeners must be applied in accordance with manufacturer's printed directions.

3.8 CURING AND PROTECTION

Curing and protection in accordance with ACI 301 Section 5, unless otherwise specified. Begin curing immediately. Protect concrete from injurious action by sun, rain, flowing water, frost, mechanical injury, tire marks, and oil stains. Do not allow concrete to dry out from time of placement until the expiration of the specified curing period. Do not use membrane-forming compound on surfaces where appearance would be objectionable, on any surface to be painted, where coverings are to be bonded to the concrete, or on concrete to which other concrete is to be bonded. Provide moist curing for those areas receiving liquid chemical sealer, hardener, or epoxy coating. Allow curing compound/sealer installations to cure prior to the installation of materials that adsorb VOCs.

3.8.1 Curing Periods

ACI 301 Section 5. Begin curing immediately after placement. Protect concrete from premature drying, excessively hot temperatures, and mechanical injury; and maintain minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete. The materials and methods of curing are subject to approval by the Contracting Officer.

3.8.2 Curing Unformed Surfaces

- a. Accomplish initial curing of unformed surfaces, such as monolithic slabs and other flat surfaces, by membrane curing.
- b. Accomplish final curing of unformed surfaces by any of curing methods specified, as applicable.
- c. Accomplish final curing of concrete surfaces to receive liquid floor hardener or finish flooring by moisture-retaining cover curing.

3.8.3 Temperature of Concrete During Curing

When temperature of atmosphere is 41 degrees F and below, maintain temperature of concrete at not less than 55 degrees F throughout concrete curing period or 45 degrees F when the curing period is measured by maturity. When necessary, make arrangements before start of concrete placing for heating, covering, insulation, or housing as required to maintain specified temperature and moisture conditions for concrete during curing period.

When the temperature of atmosphere is 80 degrees F and above or during other climatic conditions which cause too rapid drying of concrete, make arrangements before start of concrete placing for installation of wind breaks, of shading, and for fog spraying, wet sprinkling, or moisture-retaining covering of light color as required to protect concrete during curing period.

Changes in temperature of concrete must be uniform and not exceed 37 degrees F in any 1 hour nor 80 degrees F in any 24-hour period.

3.8.4 Protection from Mechanical Injury

During curing period, protect concrete from damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive

vibration and from damage caused by rain or running water.

3.8.5 Protection After Curing

Protect finished concrete surfaces from damage by construction operations.

3.9 FIELD QUALITY CONTROL

3.9.1 Sampling

ASTM C172/C172M. Collect samples of fresh concrete to perform tests specified. ASTM C31/C31M for making test specimens.

3.9.2 Testing

3.9.2.1 Slump Tests

ASTM C143/C143M. Take concrete samples during concrete placement/discharge. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cementitious material ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 20 cubic yards (maximum) of concrete.

3.9.2.2 Temperature Tests

Test the concrete delivered and the concrete in the forms. Perform tests in hot or cold weather conditions (below 50 degrees F and above 80 degrees F) for each batch (minimum) or every 20 cubic yards (maximum) of concrete, until the specified temperature is obtained, and whenever test cylinders and slump tests are made.

3.9.2.3 Compressive Strength Tests

ASTM C39/C39M. Make six 6 inch by 12 inch test cylinders for each set of tests in accordance with ASTM C31/C31M, ASTM C172/C172M and applicable requirements of ACI 305R and ACI 306R. Take precautions to prevent evaporation and loss of water from the specimen. Test two cylinders at 7 days, two cylinders at 28 days, and hold two cylinder in reserve. Take samples for strength tests of each mix design of concrete placed each day. For the entire project, take no less than five sets of samples and perform strength tests for each mix design of concrete placed. Each strength test result must be the average of two cylinders from the same concrete sample tested at 28 days. Concrete compressive tests must meet the requirements of this section, the Contract Document, and ACI 301. Retest locations represented by erratic core strengths. Where retest does not meet concrete compressive strength requirements submit a mitigation or remediation plan for review and approval by the contracting officer. Repair core holes with nonshrink grout. Match color and finish of adjacent concrete.

3.9.2.4 Air Content

ASTM C173/C173M or ASTM C231/C231M for normal weight concrete. Test air-entrained concrete for air content at the same frequency as specified for slump tests.

3.9.2.5 Strength of Concrete Structure

The strength of the concrete structure will be considered to be deficient if any of the following conditions are identified:

- a. Failure to meet compressive strength tests as evaluated.
- b. Reinforcement not conforming to requirements specified.
- c. Concrete which differs from required dimensions or location in such a manner as to reduce strength.
- d. Concrete curing and protection of concrete against extremes of temperature during curing, not conforming to requirements specified.
- e. Concrete subjected to damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration.
- f. Poor workmanship likely to result in deficient strength.

Where the strength of the concrete structure is considered deficient submit a mitigation or remediation plan for review and approval by the contracting officer.

3.9.2.6 Non-Conforming Materials

Factors that indicate that there are non-conforming materials include (but not limited to) excessive compressive strength, inadequate compressive strength, excessive slump, excessive voids and honeycombing, concrete delivery records that indicate excessive time between mixing and placement, or excessive water was added to the mixture during delivery and placement. Any of these indicators alone are sufficient reason for the Contracting Officer to request additional sampling and testing.

Investigations into non-conforming materials must be conducted at the Contractor's expense. The Contractor must be responsible for the investigation and must make written recommendations to adequately mitigate or remediate the non-conforming material. The Contracting Officer may accept, accept with reduced payment, require mitigation, or require removal and replacement of non-conforming material at no additional cost to the Government.

3.9.2.7 Testing Concrete Structure for Strength

When there is evidence that strength of concrete structure in place does not meet specification requirements or there are non-conforming materials, make cores drilled from hardened concrete for compressive strength determination in accordance with ASTM C42/C42M, and as follows:

- a. Take at least three representative cores from each member or area of concrete-in-place that is considered potentially deficient. Location of cores will be determined by the Contracting Officer.
- b. Test cores after moisture conditioning in accordance with ASTM C42/C42M if concrete they represent is more than superficially wet under service.
- c. Air dry cores, (60 to 80 degrees F with relative humidity less than 60 percent) for 7 days before test and test dry if concrete they

represent is dry under service conditions.

- d. Strength of cores from each member or area are considered satisfactory if their average is equal to or greater than 85 percent of the 28-day design compressive strength of the class of concrete.

Fill core holes solid with patching mortar and finished to match adjacent concrete surfaces.

Correct concrete work that is found inadequate by core tests in a manner approved by the Contracting Officer.

3.10 REPAIR, REHABILITATION AND REMOVAL

Before the Contracting Officer accepts the structure the Contractor must inspect the structure for cracks, damage and substandard concrete placements that may adversely affect the service life of the structure. A report documenting these defects must be prepared which includes recommendations for repair, removal or remediation must be submitted to the Contracting Officer for approval before any corrective work is accomplished.

3.10.1 Repair of Weak Surfaces

Weak surfaces are defined as mortar-rich, rain-damaged, uncured, or containing exposed voids or deleterious materials. Concrete surfaces with weak surfaces less than 1/4 inch thick must be diamond ground to remove the weak surface. Surfaces containing weak surfaces greater than 1/4 inch thick must be removed and replaced or mitigated in a manner acceptable to the Contracting Officer.

3.10.2 Failure of Quality Assurance Test Results

Proposed mitigation efforts by the Contractor must be approved by the Contracting Officer prior to proceeding.

-- End of Section --

SECTION 04 20 00

UNIT MASONRY
11/15

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 A153/A153M	(2016) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A167	(2011) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A641/A641M	(2019) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM A951/A951M	(2011) Standard Specification for Steel Wire for Masonry Joint Reinforcement
ASTM A1064/A1064M	(2017) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM B370	(2012) Standard Specification for Copper Sheet and Strip for Building Construction
ASTM C67/C67M	(2018) Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
ASTM C207	(2018) Standard Specification for Hydrated Lime for Masonry Purposes
ASTM C270	(2019) Standard Specification for Mortar for Unit Masonry
ASTM C476	(2018) Standard Specification for Grout for Masonry
ASTM C652	(2017a) Standard Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)
ASTM C979/C979M	(2016) Standard Specification for Pigments for Integrally Colored Concrete

ASTM C1019 (2018) Standard Test Method for Sampling
and Testing Grout

ASTM C1384 (2012a) Standard Specification for
Admixtures for Masonry Mortars

THE MASONRY SOCIETY (TMS)

TMS MSJC (2016) Masonry Standard Joint Committee's
(MSJC) Book - Building Code Requirements
and Specification for Masonry Structures,
Containing TMS 402/ACI 530/ASCE 5, TMS
602/ACI 530.1/ASCE 6, and Companion
Commentaries

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-03 Product Data

Hot Weather Procedures

Cold Weather Procedures

Clay or Shale Brick; G

Adjustable Anchors; G

Cementitious Materials; G

SD-04 Samples

Mock-Up Panel; G

Clay or Shale Brick; G

SD-05 Design Data

Masonry Compressive Strength; G

SD-06 Test Reports

Efflorescence Test; G

SD-07 Certificates

Clay or Shale Brick

SD-08 Manufacturer's Instructions

Admixtures for Masonry Mortar

SD-10 Operation and Maintenance Data

Take-Back Program

1.3 QUALITY ASSURANCE

1.3.1 Masonry Mock-Up Panels

1.3.1.1 Mock-Up Panel Location

After material samples are approved and prior to starting masonry work, construct a mock-up panel for each type and color of masonry required. At least 48 hours prior to constructing the panel or panels, submit written notification to the Contracting Officer. Do not build-in mock-up panels as part of the structure; locate mock-up panels where directed. Construct portable mock-up panels or locate in an area where they will not be disrupted during construction.

1.3.1.2 Mock-Up Panel Configuration

Construct mock-up panels L-shaped or otherwise configured to represent all of the wall elements. Construct panels of the size necessary to demonstrate the acceptable level of workmanship for each type of masonry represented on the project. Provide a straight panel or a leg of an L-shaped panel of minimum size 4 feet long by 4 feet high.

1.3.1.3 Mock-Up Panel Composition

Show full color range, texture, and bond pattern of the masonry work. Demonstrate mortar joint tooling; load bearing metal studs, glass mat fiberglass reinforced sheathing, air barrier, and cavity wall insulation; and cleaning of masonry work during the construction of the panels. Also include installation or application procedures for anchors, wall ties, brick expansion joints, flashing, brick soldier courses and weeps.

1.3.1.4 Mock-Up Panel Construction Method

Where anchored veneer walls or cavity walls are required, demonstrate and receive approval for the method of construction; with the insulation and appropriate ties placed within the specified tolerances across the cavity. Demonstrate provisions to preclude mortar or grout droppings in the cavity and to provide a clear open air space of the dimensions shown on the drawings.

1.3.1.5 Mock-Up Panel Purpose

The completed panels is used as the standard of workmanship for the type of masonry represented. Do not commence masonry work until the mock-up panel for that type of masonry construction has been completed and approved. Protect panels from the weather and construction operations until the masonry work has been completed and approved. Perform cleaning procedures on the mockup and obtain approval of the Contracting Officer prior to cleaning the building. After completion of the work, completely remove the mock-up panels, including all foundation concrete, from the construction site.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver, store, handle, and protect material to avoid chipping, breakage, and contact with soil or contaminating material. Store and prepare materials in already disturbed areas to minimize project site disturbance and size of project site.

1.4.1 Masonry Units

Cover and protect masonry units from precipitation. Conform to handling and storage requirements of TMS MSJC.

1.4.2 Reinforcement, Anchors, and Ties

Store steel reinforcing bars, coated anchors, ties, and joint reinforcement above the ground. Maintain steel reinforcing bars and uncoated ties free of loose mill scale and loose rust.

1.4.3 Cementitious Materials, Sand and Aggregates

Deliver cementitious and other packaged materials in unopened containers, plainly marked and labeled with manufacturers' names and brands. Store cementitious material in dry, weathertight enclosures or completely cover. Handle cementitious materials in a manner that will prevent the inclusion of foreign materials and damage by water or dampness. Store sand and aggregates in a manner to prevent contamination and segregation.

1.5 PROJECT/SITE CONDITIONS

Conform to TMS MSJC for hot and cold weather masonry erection.

1.5.1 Hot Weather Procedures

When ambient air temperature exceeds 100 degrees F, or exceeds 90 degrees F and the wind velocity is greater than 8 mph, comply with TMS MSJC Article 1.8 D for: preparation prior to conducting masonry work; construction while masonry work is in progress; and protection for newly completed masonry.

1.5.2 Cold Weather Procedures

When ambient temperature is below 40 degrees F, comply with TMS MSJC Article 1.8 C for: preparation prior to conducting masonry work; construction while masonry work is in progress; and protection for newly completed masonry.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

2.1.1 Performance - Verify Masonry Compressive Strength

Verify specified compressive strength of masonry using the "Unit Strength Method" of TMS MSJC. Submit calculations and certifications of unit and mortar strength.

2.2 MANUFACTURED UNITS

2.2.1 General Requirements

Do not change the source of materials, which will affect the appearance of the finished work, after the work has started except with Contracting Officer's approval. Submit test reports from an approved independent laboratory. Certify test reports on a previously tested material as the same materials as that proposed for use in this project. Submit

certificates of compliance stating that the materials meet the specified requirements.

2.2.2 Clay or Shale Brick

2.2.2.1 General

2.2.2.1.1 Sample Submittal

Submit brick samples as specified, showing the color range and texture of clay or shale brick. Limit units used on the project to those that conform to the approved sample. Submit sample of colored mortar with applicable masonry unit and color samples of three stretcher units and one unit for each type of special shape.

2.2.2.1.2 Uniformity

Manufacture bricks at one time and from the same run. Deliver clay or shale brick units factory-blended to provide a uniform appearance and color range in the completed wall.

2.2.2.1.3 Efflorescence Test

Test clay brick that will be exposed to weathering for efflorescence in accordance with ASTM C67/C67M. Schedule tests far enough in advance of starting masonry work to permit retesting if necessary. Units meeting the definition of "effloresced" are subject to rejection.

2.2.2.2 Hollow Clay or Shale Brick

Provide hollow clay or shale brick that conforms to ASTM C652, Type HBS.

- a. Provide brick size of 3-5/8 inches thick, 2-1/4 inches high, and 7-5/8 inches long.
- b. Where vertical reinforcement is shown in hollow brick, provide hollow brick designed to provide precise vertical alignment of the cells, with minimum cell dimension of 2-1/2 inches.
- c. Provide hollow brick with minimum compressive strength of 3,350 psi.

2.3 MATERIALS

2.3.1 Mortar Materials

2.3.1.1 Cementitious Materials

Provide cementitious materials that conform to those permitted by ASTM C270.

2.3.1.2 Hydrated Lime and Alternates

Provide lime that conforms to one of the materials permitted by ASTM C207 for use in combination with portland cement, hydraulic cement, and blended hydraulic cement. Do not use lime in combination with masonry cement or mortar cement.

2.3.1.3 Colored Mortar

Use mortar pigment that conforms to ASTM C979/C979M. Add pigment to

mortar to produce a uniform color matching the existing adjacent. Furnish pigments in accurately pre-measured and packaged units that can be added to a measured amount of cementitious materials or supply pigments via preblended cementitious materials or dry mortar mix.

- a. In masonry cement or mortar cement, do not exceed 5 percent of cement weight for mineral oxide pigment; do not exceed 1 percent of cement weight for carbon black pigment.
- b. In cement-lime mortar mix, do not exceed 10 percent of cementitious materials' weight for mineral oxide pigment; do not exceed 2 percent of cementitious materials' weight for carbon black pigment.

2.3.1.4 Admixtures for Masonry Mortar

In cold weather, use a non-chloride based accelerating admixture that conforms to ASTM C1384, unless Type III portland cement is used in the mortar.

2.3.1.5 Aggregate and Water

Provide aggregate (sand) and water that conform to materials permitted by ASTM C270.

2.4 MORTAR AND GROUT MIXES

2.4.1 Mortar Mix

- a. Provide mortar Type N unless specified otherwise herein. Do not use masonry cement in the mortar. Do not use air-entrainment in the mortar.
- b. For field-batched mortar, measure component materials by volume. Use measuring boxes for materials that do not come in packages, such as sand, for consistent batching. Mix cementitious materials and aggregates between 3 and 5 minutes in a mechanical batch mixer with a sufficient amount of water to produce a workable consistency. Do not hand mix mortar unless approved by the Contracting Officer. Maintain workability of mortar by remixing or retempering. Discard mortar that has begun to stiffen or is not used within 2-1/2 hours after initial mixing.
- c. For preblended mortar, follow manufacturer's mixing instructions.

2.4.2 Grout and Ready Mix Grout Mix

Use grout that conforms to ASTM C476, fine. Use conventional grout with a slump between 8 and 11 inches. Use self-consolidating grout with slump flow of 24 to 30 inches and a visual stability index (VSI) not greater than 1. Provide minimum grout strength of 2000 psi in 28 days, as tested in accordance with ASTM C1019. Do not change proportions and do not use materials with different physical or chemical characteristics in grout for the work unless additional evidence is furnished that grout meets the specified requirements. Use ready-mixed grout that conforms to ASTM C476.

2.5 ACCESSORIES

2.5.1 Grout Barriers

Grout barriers for vertical cores that consist of fine mesh wire,

fiberglass, or expanded metal.

2.5.2 Anchors, Ties, and Bar Positioners

2.5.2.1 General

- a. Fabricate anchors and ties without drips or crimps. Size anchors and ties to provide a minimum of 5/8 inch mortar cover from each face of masonry.
- b. Fabricate steel wire anchors and ties must from wire conforming to ASTM A1064/A1064M and hot-dip galvanize in accordance with ASTM A153/A153M.
- c. Fabricate joint reinforcement in conformance with ASTM A951/A951M. Hot dip galvanize joint reinforcement in exterior walls and in interior walls exposed to moist environment in conformance with ASTM A153/A153M. Galvanize joint reinforcement in other interior walls in conformance with ASTM A641/A641M; coordinate with paragraph JOINT REINFORCEMENT below.
- d. Submit two anchors, ties and bar positioners of each type used, as samples.

2.5.2.2 Adjustable Anchors

2.5.2.2.1 Anchorage of Veneer to Light Gauge Steel

Use one of the following types of adjustable anchors to connect veneer to light gauge steel:

- a. Wire anchors of minimum size W1.7 with ends bent to form a minimum 2 inches extension and without drips; or
- b. Wire pintle anchors used in conjunction with joint reinforcement.

Do not exceed 1/16 inch clearance between connecting parts of the tie. Assemble adjustable anchors to prevent disengagement. Provide pintle anchors with one or more pintle legs of wire size W2.8 and an offset not exceeding 1-1/4 inch.

2.5.2.3 Veneer Anchor Screws

Provide screws for attachment of veneer anchors to cold-formed steel framing members of size as required by design to provide the needed pullout load capacity but not less than No. 12. Provide length of screws such that the screws penetrate the holding member by not less than 5/8 inch.

2.5.3 Joint Reinforcement

Factory fabricate joint reinforcement in conformance with ASTM A951/A951M, welded construction. Provide ladder type joint reinforcement, having one longitudinal wire in the mortar bed of each face shell for hollow units 9 gauge. Size joint reinforcement to provide a minimum of 5/8 inch cover from each face. Space crosswires not more than 16 inches. Provide joint reinforcement for straight runs in flat sections not less than 10 feet long. Provide joint reinforcement with factory formed corners and intersections. If approved for use, joint reinforcement may be furnished with adjustable wall tie features. Submit one piece of each type used,

including corner and wall intersection pieces, showing at least two cross wires.

2.5.4 Clay Masonry Expansion-Joint Materials

Provide backer rod and sealant, adequate to accommodate joint compression and extension equal to 50 percent of the width of the joint. Provide the backer rod of compressible rod stock of closed cell polyethylene foam, polyurethane foam, butyl rubber foam, or other flexible, nonabsorptive material as recommended by the sealant manufacturer. Provide sealant in conformance with Section 07 92 00 JOINT SEALANTS with a maximum volatile organic compound (VOC) content of 600 grams/liter.

2.5.5 Through Wall Flashing and Weeps

2.5.5.1 General

Provide coated copper, copper or stainless steel sheet.

2.5.5.2 Coated-Copper Flashing

Provide 7 ounce, electrolytic copper sheet, uniformly coated on both sides with acidproof, alkaliproof, asphalt impregnated kraft paper or polyethylene sheets.

2.5.5.3 Copper or Stainless Steel Flashing

Provide copper sheet, complying with ASTM B370, minimum 16 ounce weight; or stainless steel, ASTM A167, Type 304 or 316, 0.015 inch thick, No. 2D finish.

2.5.5.4 Weep Ventilators

Provide weep ventilators that are prefabricated from stainless steel or plastic. Provide inserts with grill or louver-type openings designed to allow the passage of moisture from cavities and to prevent the entrance of insects, and with a rectangular closure strip to prevent mortar droppings from clogging the opening. Provide ventilators with compressible flanges to fit in a standard 3/8 inch wide mortar joint and with height equal to the nominal height of the unit.

2.5.6 RIGID BOARD-TYPE INSULATION

Provide rigid board-type insulation as specified in Section 07 21 13 BOARD AND BLOCK INSULATION.

PART 3 EXECUTION

3.1 EXAMINATION

Prior to start of work, verify the applicable conditions as set forth in TMS MSJC, inspection.

3.2 PREPARATION

3.2.1 Stains

Protect exposed surfaces from mortar and other stains. When mortar joints are tooled, remove mortar from exposed surfaces with fiber brushes and

wooden paddles. Protect base of walls from splash stains by covering adjacent ground with sand, sawdust, or polyethylene.

3.2.2 Loads

Do not apply uniform loads for at least 12 hours or concentrated loads for at least 72 hours after masonry is constructed. Provide temporary bracing as required.

3.2.3 Concrete Surfaces

Where masonry is to be placed, clean concrete of laitance, dust, dirt, oil, organic matter, or other foreign materials and slightly roughen to provide a surface texture with a depth of at least 1/8 inch. Sandblast, if necessary, to remove laitance from pores and to expose the aggregate.

3.2.4 Bracing

Provide bracing and scaffolding necessary for masonry work. Design bracing to resist wind pressure as required by OSHA and local codes sealed by a registered professional engineer. Do not remove bracing in less than 10 days.

3.3 ERECTION

3.3.1 General

- a. Coordinate masonry work with the work of other trades to accommodate built-in items and to avoid cutting and patching. Lay masonry units in running bond pattern. Lay facing courses level with back-up courses, unless the use of adjustable ties has been approved in which case the tolerances is plus or minus 1/2 inch. Adjust each unit to its final position while mortar is still soft and has plastic consistency.
- b. Remove and clean units that have been disturbed after the mortar has stiffened, and relay with fresh mortar. Keep air spaces, cavities, chases, expansion joints, and spaces to be grouted free from mortar and other debris. Select units to be used in exposed masonry surfaces from those having the least amount of chipped edges or other imperfections detracting from the appearance of the finished work.
- c. When necessary to temporarily discontinue the work, step (rack) back the masonry for joining when work resumes. Toothing may be used only when specifically approved by the Contracting Officer. Before resuming work, remove loose mortar and thoroughly clean the exposed joint. Cover the top of walls subjected to rain or snow with nonstaining waterproof covering or membrane when work is not in process. Extend the covering a minimum of 610 mm 2 feet down on each side of the wall and hold securely in place.
- d. Ensure that units being laid and surfaces to receive units are free of water film and frost. Lay solid units in a nonfurrowed full bed of mortar. Bevel mortar for veneer wythes and slope down toward the cavity side. Shove units into place so that the vertical joints are tight. Completely fill vertical joints between solid units with mortar, except where indicated at control, expansion, and isolation joints. Place hollow units so that mortar extends to the depth of the face shell at heads and beds, unless otherwise indicated. Mortar will

be permitted to protrude up to 1/2 inch into the space or cells to be grouted. Provide means to prevent mortar from dropping into the space below or clean grout spaces prior to grouting.

3.3.1.1 Jointing

Tool mortar joints when the mortar is thumbprint hard. Tool horizontal joints after tooling vertical joints. Brush mortar joints to remove loose and excess mortar.

3.3.1.1.1 Tooled Joints

Tool mortar joints in exposed exterior masonry surfaces concave to match existing, using a jointer that is slightly larger than the joint width so that complete contact is made along the edges of the unit. Perform tooling so that the mortar is compressed and the joint surface is sealed. Use a jointer of sufficient length to obtain a straight and true mortar joint. No exterior joints are to be left un-tooled.

3.3.1.1.2 Door and Window Frame Joints

On the exposed interior side of exterior frames, joints between frames and abutting masonry walls must be raked to a depth of 3/8 inch. On the exterior side of exterior frames, joints between frames and abutting masonry walls must be raked to a depth of 3/8 inch.

3.3.1.1.3 Joint Widths

- a. Construct brick masonry with mortar joint to match existing joint widths and equal to the difference between the specified and nominal dimensions of the unit, within tolerances permitted by TMS MSJC.
- b. Maintain mortar joint widths within tolerances permitted by TMS MSJC.

3.3.1.2 Cutting and Fitting

Use full units of the proper size wherever possible, in lieu of cut units. Locate cut units where they would have the least impact on the architectural aesthetic goals of the facility. Perform cutting and fitting, including that required to accommodate the work of others, by masonry mechanics using power masonry saws. Concrete masonry units may be wet or dry cut. Before being placed in the work, dry wet-cut units to the same surface-dry appearance as uncut units being laid in the wall. Provide cut edges that are clean, true and sharp.

- a. Carefully make openings in the masonry so that wall plates, cover plates or escutcheons required by the installation will completely conceal the openings and will have bottoms parallel with the masonry bed joints. Provide reinforced masonry lintels above openings over 12 inches wide for pipes, ducts, cable trays, and other wall penetrations, unless steel sleeves are used.
- b. Do not reduce masonry units in size by more than one-third in height and one-half in length. Do not locate cut products at ends of walls, corners, and other openings.

3.3.1.3 Unfinished Work

Rack back unfinished work for joining with new work. Toothing may be

resorted to only when specifically approved by the Contracting Officer. Remove loose mortar and thoroughly clean the exposed joints before laying new work.

3.3.1.4 Clay Masonry Expansion Joints

Provide clay masonry expansion joints as indicated. Construct by filling with a compressible foam pad. Ensure that no mortar or other noncompressible materials are within the joint. Install backer rod and sealant in accordance with Section 07 92 00 JOINT SEALANTS.

3.3.2 Clay or Shale Brick Masonry

3.3.2.1 Brick Placement

Blend all brick at the jobsite from several cubes to produce a uniform appearance when installed. An observable "banding" or "layering" of colors or textures caused by improperly mixed brick is unacceptable. Lay brick facing with the better face exposed. Lay brick in running bond with each course bonded at corners, unless otherwise indicated. Lay molded brick with the frog side down. Do not lay brick that is cored, recessed, or has other deformations in a manner that allows those deformations to be exposed to view; lay 100 percent solid units in these areas. Completely fill head and bed joints of solid units with mortar. Lay hollow units with mortar joints as specified for concrete masonry units.

3.3.2.2 Wetting of Units

Wetting of clay, shale brick, or hollow brick units having an initial rate of absorption of more than 1 gram per minute per square inch of bed surface must be in conformance with ASTM C67/C67M. Ensure that each unit is nearly saturated when wetted but surface dry when laid.

Test clay or shale brick daily on the job, prior to laying, as follows: Using a wax pencil, draw a circle the size of a quarter on five randomly selected bricks. Apply 20 drops of water with a medicine dropper to the surface within the circle on each brick. If the average time that the water is completely absorbed in the five bricks is less than 1-1/2 minutes, wet bricks represented by the five bricks tested.

3.3.2.3 Brick Sills

Lay brick on edge, slope not less than 3/4 inch downward to the outside, and project not less than 1/2 inch beyond the face of the wall to form a wash and drip. Fill all joints solidly with mortar and tool.

3.3.3 Anchored Veneer Construction

- a. Construct exterior masonry wythes to the thickness indicated on the drawings. Provide a minimum 1 inch air space behind the masonry veneer. Provide means to ensure that the cavity space and flashings are kept clean of mortar droppings and other loose debris. Maintain chases and raked-out joints free from mortar and debris.
- b. Place masonry in running bond pattern.
- c. For veneer over stud framing, do not install veneer until the exterior sheathing, air barrier, cavity wall insulation, veneer anchors and flashing have been installed on the backing. Take extreme care to

avoid damage to the moisture barrier and flashing during construction of the masonry veneer. Repair or replace portions of the moisture barrier and flashing that are damaged prior to completion of the veneer. Provide a continuous cavity as indicated.

- d. Provide anchors (ties) to connect the veneer to its backing in sufficient quantity to comply with the following requirements: maximum wall area per anchor (tie) of 1.77 square feet, and maximum vertical spacing of 16 inches, and maximum horizontal spacing of 16 inches. Provide additional anchors around openings larger than 16 inch in either direction. Space anchors around perimeter of opening at a maximum of 24 inches on center. Place anchors within 12 inches of openings. Anchors with drips are not permitted.
- e. With hollow units, embed anchors in mortar or grout and extend into the veneer a minimum of 1-1/2 inch, with at least 5/8 inch mortar or grout cover to outside face.

3.3.4 Lintels

3.3.4.1 Steel Lintels

Provide steel lintels as shown on the Drawings. Set lintels in a full bed of mortar with faces plumb and true. Provide steel lintels with a minimum bearing length of 8 inches unless otherwise indicated.

3.4 INSTALLATION

3.4.1 Joint Reinforcement Installation

Install joint reinforcement at 16 inches on center unless otherwise indicated. Lap joint reinforcement not less than 6 inches. Install prefabricated sections at corners and wall intersections. Place the longitudinal wires of joint reinforcement in mortar beds to provide not less than 5/8 inch cover to either face of the unit.

3.4.2 Flashing and Weeps

- a. Install through-wall flashing at obstructions in the cavity and where indicated on Drawings. Ensure continuity of the flashing at laps and inside and outside corners by splicing in a manner approved by the flashing manufacturer. Ensure that the top edge of the flashing is sealed by lapping a minimum of 6 inches under the air barrier. Terminate the horizontal leg of the flashing by extending the sheet metal 1/2 inch beyond the outside face of masonry and turning downward with a hemmed drip. Provide sealant below the drip edge of through-wall flashing.
- b. Wherever through-wall flashing occurs, provide weep holes to drain flashing to exterior at acceptable locations as indicated. Provide weeps of weep ventilators. Locate weeps not more than 24 inches on centers in mortar joints of the exterior wythe directly on the horizontal leg of through-wall flashing over foundations, bond beams, and any other horizontal interruptions of the cavity. Place weep holes perfectly horizontal or slightly canted downward to encourage water drainage outward and not inward. Other methods may be used for providing weeps when spacing is reduced to 16 inches on center and approved by the Contracting Officer. Maintain weeps free of mortar and other obstructions.

3.5 APPLICATION

3.5.1 Insulation

Insulate cavity walls (veneer masonry walls), where shown, by installing board-type insulation on the cavity side of the inner wythe. Apply board type insulation directly to the air barrier or thru-wall flashing with adhesive. Neatly fit insulation between obstructions without impaling insulation on ties or anchors. Apply insulation in parallel courses with vertical joints breaking midway over the course below and in moderate contact with adjoining units without forcing. Cut to fit neatly against adjoining surfaces.

3.5.2 Interface with Other Products

3.5.2.1 Built-In Items

Fill spaces around built-in items with mortar. Point openings around flush-mount electrical outlet boxes in wet locations with mortar. Embed anchors, ties, wall plugs, accessories, flashing, pipe sleeves and other items required to be built-in as the masonry work progresses. Fully embed anchors, ties and joint reinforcement in the mortar. Fill cells receiving anchor bolts and cells of the first course below bearing plates with grout, unless otherwise indicated.

3.5.2.2 Door and Window Frame Joints

On the exposed interior and exterior sides of exterior frames, rake joints between frames and abutting masonry walls to a depth of 3/8 inch.

3.5.3 Tolerances

Lay masonry plumb, true to line, with courses level within the tolerances of TMS MSJC, Article 3.3 F.

3.6 FIELD QUALITY CONTROL

3.6.1 Tests

3.6.1.1 Clay Brick Efflorescence Test

Test clay brick that will be exposed to weathering for efflorescence in accordance with ASTM C67/C67M. Schedule tests far enough in advance of starting masonry work to permit retesting if necessary. Units meeting the definition of "effloresced" are subject to rejection.

3.7 POINTING AND CLEANING

After mortar joints have attained their initial set, but prior to hardening, completely remove mortar and grout daubs and splashings from masonry-unit surfaces that will be exposed or painted. Before completion of the work, rake out defects in joints of masonry to be exposed or painted, fill with mortar, and tool to match existing joints. Immediately after grout work is completed, remove scum and stains that have percolated through the masonry work using a low pressure stream of water and a stiff bristled brush. Do not clean masonry surfaces, other than removing excess surface mortar, until mortar in joints has hardened. Leave masonry surfaces clean, free of mortar daubs, dirt, stain, and discoloration,

including scum from cleaning operations, and with tight mortar joints throughout. Do not use metal tools and metal brushes for cleaning.

3.7.1 Clay Brick Surfaces

Clean exposed clay brick masonry surfaces to obtain surfaces free of stain, dirt, mortar and grout daubs, efflorescence, and discoloration or scum from cleaning operations. Perform cleaning in accordance with the approved cleaning procedure demonstrated on the mockup.

After cleaning, examine the sample panel of similar material for discoloration or stain as a result of cleaning. If the sample panel is discolored or stained, change the method of cleaning to ensure that the masonry surfaces in the structure will not be adversely affected. Water-soak exposed masonry surfaces and then clean with a proprietary masonry cleaning agent specifically recommended for the color and texture by the clay brick manufacturer and manufacturer of the cleaning product. Apply the solution with stiff fiber brushes, followed immediately by thorough rinsing with clean water. Use proprietary cleaning agents in conformance with the cleaning product manufacturer's printed recommendations. Remove efflorescence in conformance with the brick manufacturer's recommendations.

3.8 CLOSE-OUT TAKE-BACK PROGRAM

Collect information from manufacturer for take-back program options. Set aside masonry units, full and partial scrap and packaging to be returned to manufacturer for recycling into new product. When such a service is not available, seek local recyclers to reclaim the materials. Submit documentation that includes contact information, summary of procedures, and the limitations and conditions applicable to the project. Indicate manufacturer's commitment to reclaim materials for recycling and/or reuse.

3.9 PROTECTION

Protect facing materials against staining. Cover top of walls with nonstaining waterproof covering or membrane to protect from moisture intrusion when work is not in progress. Continue covering the top of the unfinished walls until the wall is waterproofed with a complete roof or parapet system. Extend covering a minimum of 2 feet down on each side of the wall and hold securely in place. Before starting or resuming work, clean top surface of masonry in place of loose mortar and foreign material.

-- End of Section --

SECTION 05 12 00

STRUCTURAL STEEL

08/18

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 INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 303	(2016) Code of Standard Practice for Steel Buildings and Bridges
AISC 325	(2017) Steel Construction Manual
AISC 326	(2009) Detailing for Steel Construction
AISC 360	(2016) Specification for Structural Steel Buildings
AISC 420	(2010) Certification Standard for Shop Application of Complex Protective Coating Systems

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

ANSI/ASNT CP-189	(2016) ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel (ANSI/ASNT CP-105-2006)
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AMERICAN WELDING SOCIETY (AWS)

AWS A2.4	(2012) Standard Symbols for Welding, Brazing and Nondestructive Examination
AWS D1.1/D1.1M	(2015; Errata 1 2015; Errata 2 2016) Structural Welding Code - Steel
AWS QC1	(2016) Specification for AWS Certification of Welding Inspectors

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M	(2014) Standard Specification for Carbon Structural Steel
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A307	(2014; E 2017) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A500/A500M	(2018) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A563	(2015) Standard Specification for Carbon and Alloy Steel Nuts
ASTM A780/A780M	(2009; R 2015) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A992/A992M	(2011; R 2015) Standard Specification for Structural Steel Shapes
ASTM B695	(2004; R 2016) Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
ASTM F436/F436M	(2016) Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
ASTM F1136/F1136M	(2011) Standard Specification for Zinc/Aluminum Corrosion Protective Coatings for Fasteners
ASTM F2329/F2329M	(2015) Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners
ASTM F2833	(2011; R 2017) Standard Specification for Corrosion Protective Fastener Coatings with Zinc Rich Base Coat and Aluminum Organic/Inorganic Type
ASTM F3125/F3125M	(2015a) Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions

SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC PA 1	(2016) Shop, Field, and Maintenance Coating of Metals
SSPC Paint 20	(2002; E 2004) Zinc-Rich Primers (Type I, Inorganic, and Type II, Organic)
SSPC Paint 29	(2002; E 2004) Zinc Dust Sacrificial Primer, Performance-Based

SSPC SP 3 (1982; E 2004) Power Tool Cleaning

SSPC SP 6/NACE No.3 (2007) Commercial Blast Cleaning

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01 (2013; with Change 4, 2018) Structural
Engineering

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

29 CFR Part 1926, Subpart R Steel Erection

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-02 Shop Drawings

Fabrication Drawings Including Details of Connections; G

SD-03 Product Data

Welding Electrodes and Rods

Fiberglass Thermal Break Material; G

SD-06 Test Reports

Bolts, Nuts, and Washers

Weld Inspection Reports

Bolt Testing Reports

SD-07 Certificates

Steel

Bolts, Nuts, and Washers

Galvanizing

Welding Procedures and Qualifications

Welding Electrodes and Rods

Certified Welding Inspector

NDT Technician

Welding Procedure Specifications (WPS)

1.3 QUALITY ASSURANCE

1.3.1 Preconstruction Submittals

1.3.2 Fabrication Drawing Requirements

Submit fabrication drawings for approval prior to fabrication. Prepare in accordance with AISC 303, AISC 326 and AISC 325. Fabrication drawings must not be reproductions of contract drawings. Include complete information for the fabrication and erection of the structure's components, including the location, type, and size of bolts, welds, member sizes and lengths, connection details, blocks, copes, and cuts. Use AWS A2.4 standard welding symbols. Clearly highlight any deviations from the details shown on the contract drawings highlighted on the fabrication drawings. Explain the reasons for any deviations from the contract drawings.

1.3.3 Certifications

1.3.3.1 Welding Procedures and Qualifications

Prior to welding, submit certification for each welder stating the type of welding and positions qualified for, the code and procedure qualified under, date qualified, and the firm and individual certifying the qualification tests. If the qualification date of the welder or welding operator is more than 6 months old, the welding operator's qualification certificate must be accompanied by a current certificate by the welder attesting to the fact that he has been engaged in welding since the date of certification, with no break in welding service greater than 6 months.

Conform to all requirements specified in AWS D1.1/D1.1M.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide the structural steel system, complete and ready for use. Provide structural steel systems including design, materials, installation, workmanship, fabrication, assembly, erection, inspection, quality control, and testing in accordance with AISC 303, AISC 360 and UFC 3-301-01 except as modified in this contract.

2.2 STEEL

2.2.1 Structural Steel

Wide flange and WT shapes, ASTM A992/A992M. Angles, Channels and Plates, ASTM A36/A36M.

2.2.2 Structural Steel Tubing

ASTM A500/A500M, Grade C, for rectangular and round sections.

2.3 BOLTS, NUTS, AND WASHERS

Submit the certified manufacturer's mill reports which clearly show the applicable ASTM mechanical and chemical requirements together with the actual test results for the supplied fasteners.

2.3.1 Bolts

ASTM F3125/F3125M, Grade ASTM A325, Type 1 Heavy Hex Head Style, galvanized finish.

2.3.1.1 Nuts

ASTM A563, Grade and Style as specified in the applicable ASTM bolt standard.

2.3.1.2 Washers

ASTM F436/F436M, galvanized carbon steel.

2.4 STRUCTURAL STEEL ACCESSORIES

2.4.1 Welding Electrodes and Rods

AWS D1.1/D1.1M. Submit product data for welding electrodes and rods.

2.5 GALVANIZING

ASTM F2329/F2329M, ASTM F1136/F1136M, ASTM F2833 or ASTM B695 for threaded parts or ASTM A123/A123M for structural steel members, as applicable, unless specified otherwise galvanize after fabrication where practicable.

2.6 FABRICATION

Fabrication must be in accordance with the applicable provisions of AISC 325. Fabrication and assembly must be done in the shop to the greatest extent possible. Punch, subpunch and ream, or drill bolt holes perpendicular to the surface of the member.

2.6.1 Markings

Prior to erection, identify members by a painted erection mark. Connecting parts assembled in the shop for reaming holes in field connections must be match marked with scratch and notch marks. Do not locate erection markings on areas to be welded. Do not locate match markings in areas that will decrease member strength or cause stress concentrations. Affix embossed tags to hot-dipped galvanized members.

2.6.2 Shop Primer

SSPC Paint 20 or SSPC Paint 29 (zinc rich primer). Shop prime structural steel, except as modified herein, in accordance with SSPC PA 1. Do not prime steel surfaces embedded in concrete, galvanized surfaces, or surfaces within 0.5 inch of the toe of the welds prior to welding. If flash rusting occurs, re-clean the surface prior to application of primer. Apply primer in accordance with endorsement "SPE-P1" of AISC 420 or approved equal NACE or SSPC certification to a minimum dry film thickness of 2.0 mil. Submit shop primer product data.

Prior to assembly, prime surfaces which will be concealed or inaccessible after assembly. Do not apply primer in foggy or rainy weather; when the ambient temperature is below 45 degrees F or over 95 degrees F; or when the primer may be exposed to temperatures below 40 degrees F within 48 hours after application, unless approved otherwise by the Contracting Officer. Repair damaged primed surfaces with an additional coat of primer.

2.6.2.1 Cleaning

SSPC SP 6/NACE No.3, except steel exposed in spaces above ceilings, attic spaces, furred spaces, and chases that will be hidden to view in finished construction may be cleaned to SSPC SP 3 when recommended by the shop primer manufacturer. Maintain steel surfaces free from rust, dirt, oil, grease, and other contaminants through final assembly.

2.7 DRAINAGE HOLES

Drill adequate drainage holes to eliminate water traps. Hole diameter must be 1/2 inch and location indicated on the detail drawings. Hole size and locations must not affect the structural integrity.

2.8 FIBERGLASS THERMAL BREAK, BUSHINGS, AND WASHERS

Fiberglass thermal break material must have the following properties:

- a. Tensile Strength: 11,000 psi per ASTM D638.
- b. Flexural Strength: 25,000 psi per ASTM D790.
- c. Compressive Strength: 38,000 psi per ASTM D695.
- d. Compressive Modulus: 291,194 psi.
- e. Shear Strength: 15,000 psi per ASTM D732.
- f. Oxygen Index: 21.8 percent per ASTM D2863.
- g. Coefficient of Thermal Expansion: 2.2 per ASTM D696.
- h. Thermal Conductivity: 1.8 Btu/Hr/In/Deg F per ASTM C177.
- i. Thickness: 3/4 inch.

PART 3 EXECUTION

3.1 ERECTION

- a. Erection of structural steel must be in accordance with the applicable provisions of AISC 325, AISC 303 and 29 CFR Part 1926, Subpart R.

3.1.1 STORAGE

Store the material out of contact with the ground in such manner and location as to minimize deterioration.

3.2 CONNECTIONS

Except as modified in this section, design connections indicated in accordance with AISC 360. Build connections into existing work. Holes must not be cut or enlarged by burning. Bolts, nuts, and washers must be clean of dirt and rust, and lubricated immediately prior to installation.

3.2.1 Common Grade Bolts

Tighten ASTM A307 bolts to a "snug tight" fit. "Snug tight" is the

tightness that exists when plies in a joint are in firm contact. If firm contact of joint plies cannot be obtained with a few impacts of an impact wrench, or the full effort of a man using a spud wrench, contact the Contracting Officer for further instructions.

3.2.2 High-Strength Bolts

Bolts must be installed in connection holes and initially brought to a snug tight fit. After the initial tightening procedure, fully tension bolts, progressing from the most rigid part of a connection to the free edges.

Fastener components must be protected from dirt and moisture in closed containers at the site of the installation. Fastener components that are not incorporated into the work must be returned to protected storage at the end of the work shift.

3.3 GAS CUTTING

Use of gas-cutting torch in the field for correcting fabrication errors is not permitted on any major member in the structural framing. Use of a gas cutting torch will be permitted on minor members not under stress only after approval has been obtained from the Contracting Officer.

3.4 WELDING

Welding must be in accordance with AWS D1.1/D1.1M. Grind exposed welds smooth as indicated. Provide AWS D1.1/D1.1M qualified welders, welding operators, and tackers.

Develop and submit the Welding Procedure Specifications (WPS) for all welding, including welding done using prequalified procedures. Submit for approval all WPS, whether prequalified or qualified by testing.

3.4.1 Removal of Temporary Welds, Run-Off Plates, and Backing Strips

Remove only from finished areas.

3.5 SHOP PRIMER REPAIR

Repair shop primer in accordance with the paint manufacturer's recommendation for surfaces damaged by handling, transporting, cutting, welding, or bolting.

3.5.1 Field Priming

Field prime steel exposed to the weather, or located in building areas without HVAC for control of relative humidity. After erection, the field bolt heads and nuts, field welds, and any abrasions in the shop coat must be cleaned and primed with paint of the same quality as that used for the shop coat.

3.6 GALVANIZING REPAIR

Repair damage to galvanized coatings using ASTM A780/A780M zinc rich paint for galvanizing damaged by handling, transporting, cutting, welding, or bolting. Do not heat surfaces to which repair paint has been applied.

3.7 FIELD QUALITY CONTROL

Perform field tests, and provide labor, equipment, and incidentals required for testing. Notify the Contracting Officer in writing of defective welds, bolts, nuts, and washers within 7 working days of the date of the inspection.

3.7.1 Welds

3.7.1.1 Visual Inspection

AWS D1.1/D1.1M. Furnish the services of AWS-certified welding inspectors for fabrication and erection inspection and testing and verification inspections. A Certified Welding Inspector must perform visual inspection on 100 percent of all welds. Document this inspection in the Visual Weld Inspection Log. Submit certificates indicating that certified welding inspectors meet the requirements of AWS QC1.

3.7.1.2 Nondestructive Testing

Nondestructive testing must be in accordance with AWS D1.1/D1.1M. Ultrasonic testing must be performed in accordance with Table 6.2 or 6.3 of AWS D1.1/D1.1M. Test locations must be selected by the Contracting Officer. All personnel performing NDT must be certified in accordance with ANSI/ASNT CP-189 in the method of testing being performed. Submit certificates showing compliance with ANSI/ASNT CP-189 for all NDT technicians. If more than 20 percent of welds made by a welder contain defects identified by testing, then all groove welds made by that welder must be tested by ultrasonic testing, and all fillet welds made by that welder must be inspected by magnetic particle testing (MT) or dye penetrant testing (PT) as approved by the Contracting Officer. When groove welds made by an individual welder are required to be tested, magnetic particle or dye penetrant testing may be used only in areas inaccessible to ultrasonic testing. Retest all repaired areas. Submit weld inspection reports.

3.7.2 High-Strength Bolts

3.7.2.1 Testing Bolt, Nut, and Washer Assemblies

Test a minimum of 3 bolt, nut, and washer assemblies from each mill certificate batch in a tension measuring device at the job site prior to the beginning of bolting start-up. Demonstrate that the bolts and nuts, when used together, can develop tension not less than the provisions specified in AISC 360, depending on bolt size and grade. The bolt tension must be developed by tightening the nut. A representative of the manufacturer or supplier must be present to ensure that the fasteners are properly used, and to demonstrate that the fastener assemblies supplied satisfy the specified requirements. Submit bolt testing reports.

3.7.2.2 Inspection

Inspection procedures must be in accordance with AISC 360. Confirm and report to the Contracting Officer that the materials meet the project specification and that they are properly stored. Confirm that the faying surfaces have been properly prepared before the connections are assembled. Observe the specified job site testing and calibration, and confirm that the procedure to be used provides the required tension. Monitor the work to ensure the testing procedures are routinely followed

on joints that are specified to be fully tensioned.

Inspect calibration of torque wrenches for high-strength bolts.

-- End of Section --

SECTION 05 30 00

STEEL DECKS
05/15

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 A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM A653/A653M	(2019) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A780/A780M	(2009; R 2015) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

STEEL DECK INSTITUTE (SDI)

ANSI/SDI NC	(2017) Standard for Non-Composite Steel Floor Deck
ANSI/SDI QA/QC	(2017) Standard for Quality Control and Quality Assurance for Installation of Steel Deck
ANSI/SDI RD	(2017) Standard for Steel Roof Deck
SDI DDM04	(2015; Errata 1-3 2016; Add 1 2015; Add 2 20162006) Diaphragm Design Manual; 4th Edition
SDI DDP	(1987; R 2000) Deck Damage and Penetrations
SDI MOC3	(2016) Manual of Construction with Steel Deck (3rd Edition)

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

29 CFR 1926	Safety and Health Regulations for Construction
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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 Section 01 33 00 SUBMITTAL
PROCEDURES:

SD-02 Shop Drawings

Fabrication Drawings; G

SD-03 Product Data

Accessories

Deck Units; G

Galvanizing Repair Paint

Mechanical Fasteners

SD-05 Design Data

Deck Units; G

SD-07 Certificates

Manufacturer's Certificate

1.3 QUALITY ASSURANCE

1.3.1 Deck Units

Furnish deck units and accessory products from a manufacturer regularly engaged in manufacture of steel decking. Provide manufacturer's certificates attesting that the decking material meets the specified requirements.

1.3.2 Fabrication Drawings

Show type and location of units, location and sequence of connections, bearing on supports, methods of anchoring, attachment of accessories, adjusting plate details, metal closure strips, size and location of holes to be cut and reinforcement to be provided, the manufacturer's erection instructions and other pertinent details.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver deck units to the site in a dry and undamaged condition. Store and handle steel deck in a manner to protect it from corrosion, deformation, and other types of damage. Do not use decking for storage or as working platform until units have been fastened into position. Exercise care not to damage material or overload decking during construction. The maximum uniform distributed storage load must not exceed the design live load. Stack decking on platforms or pallets and cover with weathertight ventilated covering. Elevate one end during storage to provide drainage. Maintain deck finish at all times to prevent formation of rust. Repair deck finish using touch-up paint. Replace damaged material.

PART 2 PRODUCTS

2.1 DECK UNITS

Submit manufacturer's design calculations, or applicable published literature for the structural properties of the proposed deck units.

2.1.1 Form Deck (Roof)

Conform to ASTM A653/A653M or ASTM A1008/A1008M for deck used in conjunction with insulation and built-up roofing. Fabricate form deck of the steel design thickness required by the design drawings. Zinc-coat in conformance with ASTM A653/A653M, G90 coating class.

Use panels of maximum possible lengths to minimize end laps. Fabricate deck units in lengths to span 3 or more supports with flush, telescoped, or nested 2 inch laps at ends, and interlocking, or nested side laps, unless otherwise indicated.

2.1.2 Length of Deck Units

Provide deck units of sufficient length to span three or more spacings where possible.

2.1.3 Galvanizing Repair Paint

Provide a high zinc-dust content paint for regalvanizing welds in galvanized steel conforming to ASTM A780/A780M.

Maintain finish of deck units and accessories by using galvanizing repair paint whenever necessary to prevent the formation of rust.

2.2 ACCESSORIES

Provide accessories of same material as deck, unless specified otherwise. Provide manufacturer's standard type accessories, as specified.

2.2.1 Adjusting Plates

Provide adjusting plates, or segments of deck units, of same thickness and configuration as deck units in locations too narrow to accommodate full size units. Provide factory cut plates of predetermined size where possible.

2.2.2 End Closures

Fabricated of sheet metal by the deck manufacturer. Provide end closures minimum 0.0295 inch thick to close open ends at exposed edges of floors, parapets, and openings through deck.

2.2.3 Partition Closures

Provide closures for closing voids above interior walls and partitions that are perpendicular to the direction of the configurations. Provide rubber, plastic, or sheet steel closures above typical partitions.

2.2.4 Sheet Metal Collar

Where deck is cut for passage of pipes, ducts, columns, etc., and deck is

to remain exposed, provide a neatly cut sheet metal collar to cover edges of deck. Do not cut deck until after installation of supplemental supports.

2.2.5 Cover Plates

Sheet metal to close panel edge and end conditions, and where panels change direction or butt. Polyethylene-coated, self-adhesive, 2 inch wide joint tape may be provided in lieu of cover plates on flat-surfaced decking butt joints.

2.2.6 Access Hole Covers

Sheet metal, minimum 0.0474 inch thick.

2.2.7 Mechanical Fasteners

Provide mechanical fasteners, such as self-drilling screws, for anchoring the deck to structural supports and adjoining units as indicated.

2.2.8 Miscellaneous Accessories

Furnish the manufacturer's standard accessories to complete the deck installation. Furnish metal accessories of the same material as the deck and with the minimum design thickness as follows: saddles, 0.0474 inch welding washers, 0.0598 inch other metal accessories, 0.0358 inch unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

Prior to installation of decking units and accessories, examine worksite to verify that as-built structure will permit installation of decking system without modification.

3.2 INSTALLATION

Install steel deck units in accordance with 29 CFR 1926, Subpart R - Steel Erection, ANSI/SDI QA/QC, ANSI/SDI NC, ANSI/SDI RD, SDI DDM04 and approved shop drawings. Place units on structural supports, properly adjusted, leveled, and aligned at right angles to supports before permanently securing in place. Damaged deck and accessories including material which is permanently stained or contaminated, deformed, or with burned holes must not be installed. Extend deck units over three or more supports unless absolutely impractical. Report inaccuracies in alignment or leveling to the Contracting Officer and make necessary corrections before permanently anchoring deck units. Locate deck ends over supports only. Lap 2 inch or butted deck ends. Do not use unanchored deck units as a work or storage platform. Permanently anchor units placed by the end of each working day. Do not support suspended ceilings, light fixtures, ducts, utilities, or other loads by steel deck unless indicated. Distribute loads by appropriate means to prevent damage.

3.2.1 Attachment

Immediately after placement and alignment, and after correcting inaccuracies, permanently fasten steel deck units to structural supports and to adjacent deck units as indicated on the design drawings and in

accordance with manufacturer's recommended procedure and ANSI/SDI NC or ANSI/SDI RD. Clamp or weight deck units to provide firm contact between deck units and structural supports while performing fastening. Attachment of adjacent deck units by button-punching is prohibited.

3.2.1.1 Mechanical Fastening

Anchor deck to structural supports and adjoining units with mechanical fasteners as indicated.

3.2.1.2 Sidelap Fastening

Lock sidelaps between adjacent roof deck units together by screws as indicated.

3.2.2 Openings

Cut or drill all holes and openings required and be coordinated with the drawings, specifications, and other trades. Frame and reinforce openings through the deck in conformance with SDI DDP. Reinforce holes and openings 6 to 12 inch across by 0.0474 inch thick steel sheet at least 12 inch wider and longer than the opening and be fastened to the steel deck at each corner of the sheet and at a maximum of 6 inch on center. Reinforce holes and openings larger than 12 inch by steel channels or angles installed perpendicular to the steel beams and supported by the adjacent steel beams. Install steel channels or angles perpendicular to the deck ribs and fasten to the channels or angles perpendicular to the steel beams.

3.2.3 Deck Damage

SDI MOC3, for repair of deck damage.

3.2.4 Galvanizing Repair Paint

3.2.4.1 Roof Deck

After roof decking installation, wire brush, clean, and touchup the scarred areas on top and bottom surfaces of metal roof decking. The scarred areas include welds, weld scars, bruises, and rust spots. Touchup galvanized surfaces with galvanizing repair paint.

3.2.5 Accessory Installation

3.2.5.1 Adjusting Plates

Provide in locations too narrow to accommodate full-size deck units and install as shown on shop drawings.

3.2.5.2 End Closures

Provide end closure to close open ends of cells at columns, walls, and openings in deck.

3.2.5.3 Closures Above Partitions

Provide for closing voids between cells over partitions that are perpendicular to direction of cells. Provide a one-piece closure strip for partitions 4 inch nominal or less in thickness and two-piece closure strips for wider partitions.

3.2.5.4 Cover Plates

Where concrete leakage would be a problem, provide metal cover plates, or joint tape, at joints between decking sheets, to be covered with concrete fill.

3.2.5.5 Access Hole Covers

Provide access whole covers to seal holes cut in decking to facilitate welding of the deck to structural supports.

3.3 CLOSURE STRIPS FOR ROOF DECKS

Provide closure strips at open, uncovered ends and edges of the roof decking and in voids between roof decking and top of walls and partitions where indicated. Install closure strips in position in a manner to provide a weathertight installation.

3.4 ROOF INSULATION SUPPORT FOR ROOF DECKS

Provide metal closure strips for support of roof insulation where rib openings in top surface of metal roof decking occur adjacent to edges and openings. Weld metal closure strips in position.

3.5 CLEANING AND PROTECTION FOR ROOF DECKS

Upon completion of the deck, sweep surfaces clean and prepare for installation of the roofing.

3.6 FIELD QUALITY CONTROL

3.6.1 Decks Not Receiving Concrete

Inspect the decking top surface for distortion after installation. For roof decks not receiving concrete, verify distortion by placing a straight edge across three adjacent top flanges. The maximum allowable gap between the straight edge and the top flanges should not exceed manufacturing and construction tolerances of supporting members. When gap is more than the allowable, provide corrective measures or replacement. Reinspect decking after performing corrective measures or replacement.

-- End of Section --

SECTION 05 40 00

COLD-FORMED METAL FRAMING

05/15

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 318 (2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318R-14)

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI S100 (2012) North American Specification for the Design of Cold-Formed Steel Structural Members

AISI S200 (2007) North American Standard for Cold-Formed Steel Framing - General Provision

AISI S201 (2007) North American Standard for Cold-Formed Steel Framing - Product Data

AISI S202 (2011) Code of Standard Practice for Cold-formed Steel Structural Framing

AISI S211 (2007) North American Standard for Cold-Formed Steel Framing - Wall Stud Design

AISI S212 (2007) North American Standard for Cold-Formed Steel Framing - Header Design

AISI S213 (2007; Suppl 1 2009) North American Standard for Cold-Formed Steel Framing - Lateral Design

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M (2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A153/A153M (2016) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A307 (2014; E 2017) Standard Specification for

	Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A370	(2018) Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM A653/A653M	(2019) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A1003/A1003M	(2015) Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members
ASTM C955	(2017) Standard Specification for Cold-Formed Steel Structural Framing Members
ASTM C1007	(2011a) Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories
ASTM C1513	(2018) Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections
ASTM E119	(2020) Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E329	(2018) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
ASTM E488/E488M	(2015) Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
ASTM F1941	(2010) Standard Specification for Electrodeposited Coatings on Threaded Fasteners (Unified Inch Screw Threads (UN/UNR))
ASTM F2329/F2329M	(2015) Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2018) International Building Code
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U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01	(2013; with Change 4, 2018) Structural
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Engineering

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 Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Framing Components; G

SD-03 Product Data

Steel Studs, Joists, Tracks, Bracing, Bridging and Accessories

SD-07 Certificates

Load-Bearing Cold-Formed Metal Framing

1.3 DELIVERY, STORAGE, AND HANDLING

Steel framing and related accessories must be stored and handled in accordance with the AISI S202, "Code of Standard Practice for Cold-Formed Steel Structural Framing".

1.4 LOAD-BEARING COLD-FORMED METAL FRAMING

Include top and bottom tracks, bracing, fastenings, and other accessories necessary for complete installation. Framing members must have the structural properties indicated. Where physical structural properties are not indicated, they must be as necessary to withstand all imposed loads. Non-load-bearing metal framing, furring, and ceiling suspension systems are specified in Section 09 22 00 SUPPORTS FOR GYPSUM BOARD. Metal suspension systems for acoustical ceilings are specified in Section 09 51 00 ACOUSTICAL CEILINGS.

Submit mill certificates or test reports from independent testing agency, qualified in accordance with ASTM E329, showing that the steel sheet used in the manufacture of each cold-formed component complies with the minimum yield strengths and uncoated steel thickness specified. Test reports must be based on the results of three coupon tests in accordance with ASTM A370.

1.5 MAXIMUM DEFLECTION

Deflections of structural members must not exceed the more restrictive of the limitations of ICC IBC and UFC 3-301-01.

1.6 QUALITY ASSURANCE

- a. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E329 for testing indicated.
- b. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating

thickness.

- c. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E119 by, and displaying a classification label from, a testing and inspecting agency acceptable to authorities having jurisdiction.
- d. AISI Specifications and Standards: Comply with:
 - (1) AISI S100, "North American Specification for the Design of Cold-Formed Steel Structural Members".
 - (2) AISI S200, "North American Standard for Cold-Formed Steel Framing - General Provision".
 - (3) AISI S201, "North American Standard for Cold-Formed Steel Framing - Product Data".
 - (4) AISI S202, "Code of Standard Practice for Cold-Formed Steel Structural Framing".
 - (5) AISI S211, "North American Standard for Cold-Formed Steel Framing - Wall Stud Design".
 - (6) AISI S212, "North American Standard for Cold-Formed Steel Framing - Header Design".
 - (7) AISI S213, "North American Standard for Cold-Formed Steel Framing - Lateral Design".

1.6.1 Drawing Requirements

Submit framing components to show sizes, thicknesses, layout, material designations, methods of installation, and accessories including the following:

- a. Cross sections, plans, and/or elevations showing component types and locations for each framing application; including shop coatings and material thicknesses for each framing component.
- b. Connection details showing fastener type, quantity, location, and other information to assure proper installation.
- c. Drawings depicting panel configuration, dimensions, components, locations, and construction sequence if the Contractor elects to install prefabricated/prefinished frames.

PART 2 PRODUCTS

2.1 STEEL STUDS, JOISTS, TRACKS, BRACING, BRIDGING AND ACCESSORIES

Framing components must comply with ASTM C955 and the following.

- a. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
 - (1) Minimum Base-Metal Thickness: As indicated.

(2) Flange Width: As indicated.

b. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:

(1) Minimum Base-Metal Thickness: As indicated.

(2) Flange Width: As indicated.

2.1.1 Studs and Joists of 54 mils (0.054 Inch) and Heavier

Galvanized steel, ASTM A653/A653M and ASTM A1003/A1003M, SS Grade 50, G60.

2.1.2 Studs and Joists of 43 mils (0.043 Inch) and Lighter

Studs and Joists of 43 mils (0.043 Inch) and Lighter, Track, and Accessories (All thicknesses): Galvanized steel, ASTM A653/A653M and ASTM A1003/A1003M, SS, Grade 33 33,000 psi G60.

2.1.3 Sizes, Thickness, Section Modulus, and Other Structural Properties

Size and thickness as indicated.

2.2 MARKINGS

Studs and track must have product markings stamped on the web of the section. The markings must be repeated throughout the length of the member at a maximum spacing of 4 feet on center and must be legible and easily read. The product marking must include the following:

- a. An ICC number.
- b. Manufacturer's identification.
- c. Minimum delivered uncoated steel thickness.
- d. Protective coating designator.
- e. Minimum yield strength.

2.3 CONNECTIONS

2.3.1 Steel-To-Concrete Connections

- a. Post-Installed Concrete Anchors: Adhesive or expansion anchors fabricated from corrosion-resistant materials with allowable load capacities in accordance with ICC-ES AC193 and ACI 318 greater than or equal to the design load as determined by testing per ASTM E488/E488M conducted by a qualified testing agency.
- b. Power-Actuated Fasteners: Fabricated from corrosion-resistant materials with allowable load capacities in accordance with ICC-ES AC 70 greater than or equal to the design load as determined by testing per ASTM E1190 conducted by a qualified testing agency.

2.3.2 Steel-To-Steel Connections

- a. Screws: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping steel screws of the type and size indicated. Provide

low-profile head beneath sheathing and manufacturer's standard elsewhere. Electroplated to a minimum of 5 micron zinc coating per ASTM F1941 or hot-dipped galvanized per ASTM A123/A123M or ASTM A153/A153M.

- b. Bolts: ASTM A307 coated by hot-dip process per ASTM F2329/F2329M or zinc-coated by mechanical-deposition process per ASTM B695, Class 55.
- c. Welding Electrodes: Comply with AWS standards.

2.4 PLASTIC GROMMETS

Supply plastic grommets for stud webs as recommended by stud manufacturer, to protect electrical wires and plumbing piping. Prevent metal-to-metal contact between wiring/piping and studs.

2.5 SEALER GASKET

Closed-cell neoprene foam, 1/4-inch thick, selected from manufacturer's standard widths to match width of bottom track on concrete slab or foundation.

PART 3 EXECUTION

3.1 FASTENING

Fasten framing members together by welding or by using self-drilling, self-tapping screws. Electrodes and screw connections must be as required and indicated in the design calculations.

3.1.1 Screws

Screws must be of the self-drilling self-tapping type, size, and location as indicated. Screw penetration through joined materials must not be less than three exposed threads. Minimum spacings and edge distances for screws must be as specified in AISI S100. Screws covered by sheathing materials must have low profile heads.

3.1.2 Anchors

Anchors must be of the type, size, and location as indicated.

3.1.3 Powder-Actuated Fasteners

Powder-actuated fasteners must be of the type, size, and location as indicated.

3.2 INSTALLATION

Install cold-formed framing in accordance with ASTM C1007 and AISI S200.

Install cold-formed steel framing according to AISI S202 and to manufacturer's written instructions unless more stringent requirements are indicated.

3.2.1 Tracks

Provide accurately aligned runners at top and bottom of studs. Install sealer gasket under bottom of track on concrete slab or foundation.

Anchor tracks as indicated in design calculations. Butt weld joints in tracks or splice with stud inserts. Fasteners must be at least 3 inches from the edge of concrete slabs.

3.2.2 Studs

Cut studs square and set with firm bearing against webs of top and bottom tracks. Position studs vertically in tracks and space as indicated in design. Do not splice studs. Provide at least two studs at jambs of doors and other openings 2 feet wide or larger. Provide jack studs over openings, as necessary, to maintain indicated stud spacing. Provide tripled studs at corners, positioned to receive interior and exterior finishes. Fasten studs to top and bottom tracks by welding or screwing both flanges to the tracks. Framed wall openings must include headers and supporting components as shown on the drawings. Headers must be installed in all openings that are larger than the stud spacing in a wall. In curtain wall construction, provide for vertical movement where studs connect to the structural frame. Provide horizontal bracing in accordance with the design calculations and AISI S100. Bracing must be as indicated.

3.2.3 Joists

- a. Provide a stud directly under each joist. The maximum spacing of studs as indicated must be maintained.
- b. Install temporary bracing and supports. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

3.2.4 Erection Tolerances

- a. Framing members must be within the following limits:
 - (1) Layout of walls and partitions: 1/4 inch from intended position;
 - (2) Plates and runners: 1/8 inch in 8 feet from a straight line;
 - (3) Studs: 1/8 inch in 8 feet out of plumb, not cumulative; and
 - (4) Face of framing members: 1/8 inch in 8 feet from a true plane.

-- End of Section --

SECTION 05 50 13

MISCELLANEOUS METAL FABRICATIONS
05/17

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 INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 303 (2016) Code of Standard Practice for Steel Buildings and Bridges

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M (2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A153/A153M (2016) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A653/A653M (2019) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM A780/A780M (2009; R 2015) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

ASTM A924/A924M (2018) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

MASTER PAINTERS INSTITUTE (MPI)

MPI 79 (2012) Primer, Alkyd, Anti-Corrosive for Metal

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM MBG 531 (2017) Metal Bar Grating 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-02 Shop Drawings

Equipment Platform Gratings, Installation Drawings; G

SD-03 Product Data

Equipment Platform Gratings; G

1.3 DELIVERY, STORAGE, AND PROTECTION

Protect from corrosion, deformation, and other types of damage. Store items in an enclosed area free from contact with soil and weather. Remove and replace damaged items with new items.

1.4 MISCELLANEOUS REQUIREMENTS

1.4.1 Fabrication Drawings

Submit fabrication drawings showing layout(s), connections to structural system, and anchoring details as specified in AISC 303.

1.4.2 Installation Drawings

Submit templates, erection, and installation drawings indicating thickness, type, grade, class of metal, and dimensions. Show construction details, reinforcement, anchorage, and installation in relation to the building construction.

PART 2 PRODUCTS

2.1 MATERIALS

Provide exposed fastenings of compatible materials (avoid contact of dissimilar metals). Coordinate color and finish with the material to which fastenings are applied.

2.1.1 Gratings

- a. Provide metal bar type grating in accordance with NAAMM MBG 531.

2.2 FABRICATION FINISHES

2.2.1 Galvanizing

Hot-dip galvanize items specified to be zinc-coated, after fabrication where practicable. Provide galvanizing in accordance with ASTM A123/A123M, ASTM A153/A153M, ASTM A653/A653M or ASTM A924/A924M, G90.

2.2.2 Galvanize

Expansion bolts, grating fasteners, washers, and parts or devices necessary for proper installation, unless indicated otherwise.

2.2.3 Repair of Zinc-Coated Surfaces

Repair damaged surfaces with galvanizing repair method and paint in accordance with ASTM A780/A780M or by application of stick or thick paste material specifically designed for repair of galvanizing, as approved by Contracting Officer. Clean areas to be repaired and remove slag from welds. Heat, with a torch, surfaces to which stick or paste material will

be applied. Heat to a temperature sufficient to melt the metals in the stick or paste. Spread molten material uniformly over surfaces to be coated and wipe off excess material.

2.3 EQUIPMENT PLATFORM GRATINGS

Provide steel grating in accordance with NAAMM MBG 531 for bar type platform gratings and grating treads at exterior stairs at platforms. Galvanize steel gratings, G90 coating.

- a. In accordance with NAAMM MBG 531, band edges of grating with bars of the same size as the bearing bars. Weld banding in accordance with the manufacturer's standard for trim. Design tops of bearing bars, cross or intermediate bars to be in the same plane and to match grating finish.
- b. Anchor gratings to structural members with bolts, toggle bolts, or expansion shields and bolts.
- c. Grating must be ASTM A653/A653M, G-90, steel with slip resistant surface. Provide nonslip nosings on grating treads. Furnish all brackets, connectors and other accessories.
- d. Fabricate grating treads with steel plate carriers at each end for securing treads to stringers with bolts.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

Install items at locations indicated in accordance with manufacturer's instructions. Verify all field dimensions prior to fabrication. Include materials and parts necessary to complete each assembly, whether indicated or not. Miss-alignment and miss-sizing of holes for fasteners is cause for rejection. Conceal fastenings where practicable. Joints exposed to weather must be watertight.

3.2 ANCHORAGE, FASTENINGS, AND CONNECTIONS

Provide anchorage as necessary, whether indicated or not, for fastening miscellaneous metal items securely in place. Include expansion shields, powder-driven fasteners and through bolts. Provide non-ferrous attachments for non-ferrous metal. Provide exposed fastenings of compatible materials (avoid contact of dissimilar metals), that generally match in color and finish the surfaces to which they are applied. Conceal fastenings where practicable. Provide all fasteners flush with the surfaces they fasten, unless indicated otherwise.

3.3 DISSIMILAR METALS

Where dissimilar metals are in contact, protect surfaces with a coating in accordance with MPI 79 to prevent galvanic or corrosive action. Clean surfaces with metal shavings from installation at the end of each work day.

3.4 PREPARATION

3.4.1 Material Coatings and Surfaces

Remove rust preventive coating just prior to field erection, using a

remover approved by the metal manufacturer. Surfaces, when assembled, must be free of rust, grease, dirt and other foreign matter.

3.4.2 Environmental Conditions

Do not clean or paint surfaces when damp or exposed to foggy or rainy weather, when metallic surface temperature is less than minus 5 degrees F above the dew point of the surrounding air, or when surface temperature is below 45 degrees F or over 95 degrees F, unless approved by the Contracting Officer. Metal surfaces to be painted must be dry for a minimum of 48 hours prior to the application of primer or paint.

-- End of Section --

SECTION 05 51 00

METAL STAIRS

02/17

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO M 314 (1990; R 2013) Standard Specification for
Steel Anchor Bolts

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 360 (2016) Specification for Structural Steel
Buildings

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISC/AISI 121 (2004) Standard Definitions for Use in the
Design of Steel Structures

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.2.1 (2012; Errata 2013) Square and Hex Bolts
and Screws (Inch Series)

ASME B18.6.1 (2016) Wood Screws (Inch Series)

ASME B18.6.3 (2013; R 2017) Machine Screws, Tapping
Screws, and Machine Drive Screws (Inch
Series)

ASME B18.21.1 (2009; R 2016) Washers: Helical
Spring-Lock, Tooth Lock, and Plain Washers
(Inch Series)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2015; Errata 1 2015; Errata 2 2016)
Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M (2014) Standard Specification for Carbon
Structural Steel

ASTM A108 (2013) Standard Specification for Steel
Bar, Carbon and Alloy, Cold-Finished

ASTM A123/A123M (2017) Standard Specification for Zinc

	(Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2016) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A283/A283M	(2013) Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A307	(2014; E 2017) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A449	(2014) Standard Specification for Hex Cap Screws, Bolts, and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
ASTM A500/A500M	(2018) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A568/A568M	(2019a) Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for
ASTM A575	(1996; E 2013; R 2013) Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades
ASTM A653/A653M	(2019) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A924/A924M	(2018) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
ASTM A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM A1011/A1011M	(2018a) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

ASTM C514	(2004; R 2014) Standard Specification for Nails for the Application of Gypsum Board
ASTM C636/C636M	(2013) Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
ASTM E488/E488M	(2015) Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2018; ERTA 18-1; ERTA 18-2; ERTA 18-3; ERTA 18-4; TIA 18-1; TIA 18-2; TIA 18-3; TIA 18-4) Life Safety Code
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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-02 Shop Drawings

Metal Stair System; G

SD-03 Product Data

Steel Pan Stairs; G

Steel Stairs; G

SD-07 Certificates

Welding Procedures

Welder Qualification

SD-08 Manufacturer's Instructions

Protective Coating

1.3 QUALITY CONTROL

1.3.1 Qualifications for Welding Work

Submit welding procedures in accordance with AWS D1.1/D1.1M. Make test specimens in the presence of the Contracting Officer, and have the specimens tested by an approved testing laboratory at the Contractor's expense.

Certify welder qualification by tests in accordance with AWS D1.1/D1.1M, or under an equivalent approved qualification test. In addition, perform tests on test pieces in positions and with clearances equivalent to those actually encountered. If a test weld fails to meet requirements, ensure that two test welds are retested immediately and that each test weld is made and passes. Failure in the immediate retest requires that the welder be retested after further practice or training and a complete set of test

welds be made.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Submit complete and detailed fabrication drawings for all iron and steel hardware, and for all steel shapes, plates, bars, and strips used in accordance with the design specifications referenced in this section.

2.2 FABRICATION

Preassemble items in the shop to the greatest extent possible. Disassemble units only to the extent necessary for shipping and handling. Clearly mark units for reassembly and coordinated installation.

For the fabrication of work exposed to view, use only materials that are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove blemishes by grinding, or by welding and grinding, before cleaning and treating surfaces and applying surface finishes, including zinc coatings.

2.2.1 General Fabrication

Prepare and submit metal stair system shop drawings with detailed plans and elevations at scales not less than 1 inch to 1 foot and with details of sections and connections at scales not less than 3 inches to 1 foot. Also detail the placement drawings, diagrams, and templates for installation of anchorages, including concrete inserts, anchor bolts, and miscellaneous metal items having integral anchorage devices.

Use materials of size and thicknesses indicated or, if not indicated, of the size and thickness necessary to produce a finished product that is strong enough and durable enough for its intended use. Work the materials to the dimensions indicated on approved detail drawings, using proven methods of fabrication and support. Use the type of materials indicated or specified for the various components of work.

Form exposed work true to line and level, with accurate angles and surfaces and with straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch, and bend metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

Continuously weld corners and seams in accordance with the recommendations of AWS D1.1/D1.1M. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Form exposed connections with hairline joints that are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type indicated or, if not indicated, use Phillips flat-head (countersunk) screws or bolts.

Provide and coordinate anchorage of the type indicated for the supporting structure. Fabricate anchoring devices, and space them as indicated and as necessary to provide adequate support for the intended use of the work.

Use hot-rolled steel bars for work fabricated from bar stock unless work is indicated or specified as fabricated from cold-finished or cold-rolled stock.

2.2.2 Steel Pan Stairs

2.2.2.1 General

Joining pieces by welding. Fabricate units so that bolts and other fastenings do not appear on finished surfaces. Make joints true and tight, and connections between parts lighttight. Grind continuous welds smooth where exposed.

Construct metal stair units to sizes and arrangements indicated to support a minimum live load of 100 pounds per square foot. Provide framing, hangers, columns, struts, clips, brackets, bearing plates, and other components as required for the support of stairs and platforms.

2.2.2.2 Stair Framing

Fabricate stringers of structural-steel channels. Provide closures for exposed ends of strings.

Construct platforms of structural-steel channel headers and miscellaneous framing members as indicated. Bolt headers to stringers and newels, and bolt framing members to stringers and headers.

2.2.2.3 Riser, Subtread, and Subplatform Metal Pans

Form metal pans of 0.1084-inch (12-gage) galvanized structural steel sheets, conforming to ASTM A653/A653M, Grade A, with zinc coating conforming to ASTM A653/A653M and ASTM A924/A924M. Shape the pans to the configuration indicated.

Construct risers and subtread metal pans with steel angle supporting brackets, of the size indicated, welded to stringers. Secure metal pans to brackets with rivets or welds. Secure subplatform metal pans to platform frames with welds.

2.2.2.4 Metal Safety Nosings

Between stringers, provide abrasive cast metal safety nosings, 4 inches wide by the full length of the step. Fabricate nosings to the thickness, profile, and surface pattern indicated. Equip each nosing with integral anchors for embedding in the pan fill material, and space the anchors not more than 4 inches from each end and not more than 15 inches on center.

2.2.3 Protective Coating

Shop-prime interior steelwork as indicated in accordance with AISC/AISI 121, except surfaces of steel encased in concrete; welded surfaces; high-strength, bolt-connected surfaces; and surfaces of crane rails.

2.3 COMPONENTS

2.3.1 Steel Stairs

Provide steel interior stairs complete with stringers, metal-pan concrete-filled treads, landings, columns, handrails, and necessary bolts and other fastenings. Shop-paint steel stairs and accessories.

Provide equipment platform stairs complete with stringers, steel plate

treads, landings, columns, handrails, and necessary bolts and other fastenings. Galvanize steel stairs, gratings and accessories.

2.3.1.1 Design Loads

Design stairs to sustain a live load of not less than 100 pounds per square foot, or a concentrated load of 300 applied where it is most critical. Except for a commercial product, design and fabricate steel stairs to conform to AISC 360. Design fire stairs to conform to NFPA 101.

2.3.1.2 Materials

Provide steel stairs of welded construction except that bolts may be used where welding is not practicable. Do not use screw or screw-type connections.

- a. Structural Steel: ASTM A36/A36M.
- b. Support metal pan for concrete fill on angle cleats welded to stringers or treads with integral cleats, welded or bolted to the stringer. Close exposed ends.
- c. Before fabrication, obtain necessary field measurements and verify drawing dimensions.
- d. Clean metal surfaces free of mill scale, flake rust, and rust pitting before shop finishing. Weld permanent connections. Finish welds flush and smooth on surfaces that will be exposed after installation.

2.3.2 Concrete Inserts

Carbon steel bolts having special wedge-shaped heads, nuts, washers, and shims and galvanized in accordance with ASTM A153/A153M. Provide slotted-type concrete inserts consisting of galvanized 1/8-inch thick pressed steel plate conforming to ASTM A283/A283M; of box-type welded construction with slot designed to receive 3/4-inch diameter square-head bolt with knockout cover; and be hot-dip-galvanized in accordance with ASTM A123/A123M.

2.3.3 Masonry Anchorage Devices

Provide masonry anchorage devices consisting of expansion shields complying with AASHTO M 314, ASTM E488/E488M and ASTM C514 as follows:

- a. Bolt anchor expansion shields for lag bolts; zinc-alloy, long-shield anchors class, Group II, Type 1, Class 1.

Use toggle bolts of the tumble-wing type, conforming to ASTM A325, ASTM A449, and ASTM C636/C636M, type, class, and style as required.

2.3.4 Fasteners

Select galvanized zinc-coated fasteners conforming to ASTM A153/A153M for exterior applications or where the fasteners are built into exterior walls or floor systems. Select the fasteners for the type, grade, and class required for the installation of steel stair items:

- a. Standard/regular hexagon-head bolts and nuts, conforming to ASTM A307, Grade A.

- b. Square-head lag bolts conforming to ASME B18.2.1.
- c. Cadmium-plated steel machine screws, conforming to ASME B18.6.3.
- d. Flat-head carbon steel wood screws, conforming to ASME B18.6.1.
- e. Plain, round, general-assembly-grade, carbon steel washers, conforming to ASME B18.21.1.
- f. Helical-spring, carbon steel lockwashers, conforming to ASME B18.2.1.

2.4 MATERIALS

2.4.1 Structural-Steel Plates, Shapes and Bars

Structural-size shapes and plates, conforming to ASTM A36/A36M, unless otherwise noted, except bent or cold-formed plates.

Steel plates - bent or cold-formed, conforming to ASTM A283/A283M, Grade C.

Steel bars and bar-size shapes, conforming to ASTM A36/A36M, unless otherwise noted for steel bars and bar-size shapes.

2.4.2 Structural-Steel Tubing

Provide the following:

- a. Structural steel tubing, hot-formed, welded or seamless, conforming to ASTM A500/A500M, Grade C, unless otherwise noted.

2.4.3 Hot-Rolled Carbon Steel Bars

Provide the following:

- a. Hot-rolled carbon steel bars and bar-size shapes, conforming to ASTM A575, grade as selected by the fabricator.

2.4.4 Cold-Finished Steel Bars

Provide the following:

- a. Cold-finished steel bars conforming to ASTM A108, grade as selected by the fabricator.

2.4.5 Hot-Rolled Carbon Steel Sheets and Strips

Provide the following:

- a. Hot-rolled carbon sheets and strips conforming to ASTM A568/A568M and ASTM A1011/A1011M, pickled and oiled.

2.4.6 Cold-Rolled Carbon Steel Sheets

Provide the following:

- a. Cold-rolled carbon steel sheets conforming to ASTM A1008/A1008M.

2.4.7 Galvanized Carbon Steel Sheets

Provide the following:

- a. Galvanized carbon steel sheets conforming to ASTM A653/A653M, with galvanizing conforming to ASTM A653/A653M and ASTM A924/A924M.

PART 3 EXECUTION

3.1 PREPARATION

Clean surfaces thoroughly before installation. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

Protect installed products until completion of project. Touch up, repair or replace, damaged products before substantial completion

3.2 INSTALLATION

Install in accordance with the manufacturer's instructions and approved submittals. Install in proper relationship with adjacent construction.

Install items at locations indicated, according to the manufacturer's instructions. Verify all measurements and take all field measurements necessary before fabrication. Ensure that exposed fastenings are compatible with generally match the color and finish of, and harmonize with the material to which they are applied. Include materials and parts necessary to complete each item, even though such work is not definitely shown or specified. Poor matching of holes for fasteners is cause for rejection. Conceal fastenings where practicable. Select thickness of metal and details of assembly and supports that adequately strengthen and stiffen the construction. Form joints exposed to the weather to exclude water.

3.2.1 Field Preparation

Remove rust-preventive coating just before field erection, using a remover approved by the coating manufacturer. Provide surfaces, when assembled, free of rust, grease, dirt and other foreign matter.

3.2.2 Field Welding

Comply with AWS D1.1/D1.1M in executing manual shielded-metal arc welding, (for appearance and quality of new welds) and in correcting existing welding.

3.2.3 Safety Nosings

Completely embed nosing in concrete before the initial set of the concrete occurs and finish flush with the top of the concrete surface.

3.2.4 Touchup Painting

Immediately after installation, clean all field welds, bolted connections,

and abraded areas of the shop-painted material, and repaint exposed areas with the same paint used for shop painting. Apply paint by brush or spray to provide a minimum dry-film thickness of 2 mils.

-- End of Section --

SECTION 05 52 00

METAL RAILINGS

02/18

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO M 314 (1990; R 2013) Standard Specification for
Steel Anchor Bolts

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.2.1 (2012; Errata 2013) Square and Hex Bolts
and Screws (Inch Series)

ASME B18.6.3 (2013; R 2017) Machine Screws, Tapping
Screws, and Machine Drive Screws (Inch
Series)

ASME B18.21.1 (2009; R 2016) Washers: Helical
Spring-Lock, Tooth Lock, and Plain Washers
(Inch Series)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2015; Errata 1 2015; Errata 2 2016)
Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M (2014) Standard Specification for Carbon
Structural Steel

ASTM A53/A53M (2018) Standard Specification for Pipe,
Steel, Black and Hot-Dipped, Zinc-Coated,
Welded and Seamless

ASTM A108 (2013) Standard Specification for Steel
Bar, Carbon and Alloy, Cold-Finished

ASTM A123/A123M (2017) Standard Specification for Zinc
(Hot-Dip Galvanized) Coatings on Iron and
Steel Products

ASTM A153/A153M (2016) Standard Specification for Zinc
Coating (Hot-Dip) on Iron and Steel
Hardware

ASTM A283/A283M (2013) Standard Specification for Low and

	Intermediate Tensile Strength Carbon Steel Plates
ASTM A307	(2014; E 2017) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A449	(2014) Standard Specification for Hex Cap Screws, Bolts, and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
ASTM A500/A500M	(2018) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A512	(2006; R 2012) Standard Specification for Cold-Drawn Buttweld Carbon Steel Mechanical Tubing
ASTM A575	(1996; E 2013; R 2013) Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades
ASTM C514	(2004; R 2014) Standard Specification for Nails for the Application of Gypsum Board
ASTM C636/C636M	(2013) Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
ASTM E488/E488M	(2015) Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
ASTM F3125/F3125M	(2015a) Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM AMP 521	(2001; R 2012) Pipe Railing Systems Manual
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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-02 Shop Drawings

Fabrication Drawings; G

SD-03 Product Data

Structural-Steel Plates, Shapes, and Bars; G

Masonry Anchorage Devices; G

Protective Coating; G

Steel Railings and Handrails; G

SD-05 Design Data

Metal Railing Calculations; G

SD-07 Certificates

Welding Procedures

Welder Qualification

1.3 QUALITY CONTROL

1.3.1 Welding Procedures

Submit results of welding procedures testing in accordance with AWS D1.1/D1.1M made in the presence of the Contracting Officer and by an approved testing laboratory at the Contractor's expense.

1.3.2 Welder Qualification

Submit certified welder qualification by tests in accordance with AWS D1.1/D1.1M, or under an equivalent approved qualification test. In addition, perform tests on test pieces in positions and with clearances equivalent to those actually encountered. If a test weld fails to meet requirements, conduct an immediate retest of two test welds and ensure that each test weld passes. Failure in the immediate retest will require that the welder be retested after further practice or training and make a complete set of test welds.

1.3.3 Design Data Required

- a. Engineering Responsibility: Preparation of shop drawings, design calculations, and other structural data by a qualified professional engineer.
- b. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of metal railings that are similar to those indicated for this project in material, design and extent.
- c. Submit metal railing calculations for verify sizes, gages, and spacing of members and connections for interior and exterior railings. Show methods and practices used in installation.

PART 2 PRODUCTS

2.1 FABRICATION

Preassemble items in the shop to the greatest extent possible.
Disassemble units only to the extent necessary for shipping and handling.

Clearly mark units for reassembly and coordinated installation. Provide fabrication drawings of the metal handrail assemblies.

For the fabrication of work exposed to view, use only materials that are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove blemishes by grinding, or by welding and grinding, before cleaning, treating, and applying surface finishes, including zinc coatings.

Provide railing and handrail detail plans and elevations at not less than 1 inch to 1 foot. Provide details of sections and connections at not less than 3 inches to 1 foot. Also detail setting drawings, diagrams, templates for installation of anchorages, including concrete inserts, anchor bolts, and miscellaneous metal items having integral anchors.

Use materials of size and thicknesses indicated or, if not indicated, of the size and thickness necessary to produce adequate strength and durability in the finished product for its intended use. Work the materials to the dimensions indicated on approved detail drawings, using proven details of fabrication and support. Use the type of materials indicated or specified for the various components of work.

Form exposed work true to line and level, with accurate angles and surfaces and straight sharp edges. Ensure that all exposed edges are eased to a radius of approximately 1/32 inch. Bend metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

Weld corners and seams continuously and in accordance with the recommendations of AWS D1.1/D1.1M. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Form the exposed connections with hairline joints that are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type indicated or, if not indicated, use countersunk Phillips flathead screws or bolts.

Provide anchorage of the type indicated and coordinated with the supporting structure. Fabricate anchoring devices and space as indicated and as required to provide adequate support for the intended use of the work.

Use hot-rolled steel bars for work fabricated from bar stock unless work is indicated or specified to be fabricated from cold-finished or cold-rolled stock.

2.1.1 Steel Handrails

Fabricate joint posts, rail, and corners by one of the following methods:

- a. Flush-type rail fittings of commercial standard, welded and ground smooth, with railing splice locks secured with 3/8 inch hexagonal-recessed-head setscrews.
- b. Mitered and welded joints made by fitting post to top rail and intermediate rail to post, mitering corners, groove-welding joints, and grinding smooth. Butt railing splices and reinforce them by a tight-fitting interior sleeve not less than 6 inches long.

- c. Railings may be bent at corners in lieu of jointing, provided that bends are made in suitable jigs and the pipe is not crushed.

2.1.2 Protective Coating

Shop-prime the interior railings as indicated in accordance with Section 09 90 00 PAINTS AND COATINGS except the following:

- a. steel surfaces encased in concrete
- b. steel surfaces for welding
- c. high-strength bolt-connected contact surfaces

Provide hot-dipped galvanized exterior railings as indicated in accordance with ASTM A123/A123M. Touch up abraded surfaces and cut ends of galvanized members with zinc-dust, zinc-oxide primer, or an approved galvanizing repair compound.

2.2 COMPONENTS

2.2.1 Structural Steel Plates, Shapes And Bars

Provide structural-size shapes and plates, except plates to be bent or cold-formed, conforming to ASTM A36/A36M, unless otherwise noted.

Provide steel plates, to be bent or cold-formed, conforming to ASTM A283/A283M, Grade C.

Provide steel bars and bar-size shapes conforming to ASTM A36/A36M, unless otherwise noted.

2.2.2 Structural-Steel Tubing

Provide structural-steel tubing, hot-formed, welded or seamless, conforming to ASTM A500/A500M, Grade B, unless otherwise noted.

2.2.3 Hot-Rolled Carbon Steel Bars

Provide bars and bar-size shapes conforming to ASTM A575, grade as selected by the fabricator.

2.2.4 Cold-Finished Steel Bars

Provide cold-finished steel bars conforming to ASTM A108, grade as selected by the fabricator.

2.2.5 Cold-Drawn Steel Tubing

Provide tubing conforming to ASTM A512, sunk-drawn, butt-welded, cold-finished, and stress-relieved.

2.2.6 Steel Pipe

Provide pipe conforming to ASTM A53/A53M, type as selected, Grade B; primed finish, unless galvanizing is required; standard weight (Schedule 40).

2.2.7 Masonry Anchorage Devices

Provide masonry anchorage devices consisting of expansion shields complying with AASHTO M 314, ASTM E488/E488M and ASTM C514 as follows:

Provide bolt anchor expansion shields for lag bolts; zinc-alloy, long-shield anchor class, Group II, Type 1, Class 1.

Provide tumble-wing-type toggle bolts conforming to ASTM F3125/F3125M, ASTM A449 and ASTM C636/C636M, type, class, and style as required.

2.2.8 Fasteners

Provide galvanized zinc-coated fasteners in accordance with ASTM A153/A153M used for exterior applications or where built into exterior walls or floor systems. Select fasteners for the type, grade, and class required for the installation of steel stair items.

Provide standard hexagon-head bolts, conforming to ASTM A307, Grade A.

Provide square-head lag bolts conforming to ASME B18.2.1.

Provide cadmium-plated steel machine screws conforming to ASME B18.6.3.

Provide plain round, general-assembly-grade, carbon steel washers conforming to ASME B18.21.1.

Provide helical spring, carbon steel lockwashers conforming to ASME B18.2.1.

2.2.9 Steel Railings And Handrails

Design handrails to resist a concentrated load of 200 lb in any direction at any point of the top of the rail or 50 lb per foot applied horizontally to the top of the rail, whichever is more severe. NAAMM AMP 521, provide the same size rail and post. Provide pipe collars of the same material and finish as the handrail and posts.

2.2.9.1 Steel Handrails

Provide steel handrails, including inserts in concrete, steel pipe conforming to ASTM A53/A53M or structural tubing conforming to ASTM A500/A500M, Grade A or B of equivalent strength. Provide steel railings of 1 1/2 inch nominal size, hot-dip galvanized or shop-painted as indicated.

Provide kickplates between railing posts where indicated, and consisting of 1/8 inch steel flat bars not less than 6 inches high. Secure kickplates as indicated.

Galvanize exterior railings, including pipe, fittings, brackets, fasteners, and other ferrous metal components. Provide black steel pipe for interior railings.

PART 3 EXECUTION

3.1 PREPARATION

Adjust stair railings and handrails before securing in place in order to ensure proper matching at butting joints and correct alignment throughout

their length. Space posts not more than 5 feet on center. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:

- a. Anchor posts to steel with oval steel flanges, angle type or floor type as required by conditions, welded to posts and bolted to the steel supporting members.
- b. Anchor rail ends into concrete and masonry with round steel flanges welded to rail ends and anchored into the wall construction with lead expansion shields and bolts.
- c. Anchor rail ends to steel with oval or round steel flanges welded to rail ends and bolted to the structural-steel members.

Secure handrails to walls by means of wall brackets and wall return fitting at handrail ends. Provide brackets of malleable iron castings, with not less than 3 inch projection from the finished wall surface to the center of the pipe, drilled to receive one 3/8 inch bolt. Locate brackets not more than 60 inches on center. Provide wall return fittings of cast iron castings, flush type, with the same projection as that specified for wall brackets. Secure wall brackets and wall return fittings to building construction as follows:

- a. For concrete and solid masonry anchorage, use bolt anchor expansion shields and lag bolts.
- b. For hollow masonry and stud partition anchorage, use toggle bolts having square heads.

Install toe boards and brackets where indicated. Make splices, where required, at expansion joints. Install removable sections as indicated.

3.2 INSTALLATION

3.2.1 Steel Handrail

Install handrail by means of masonry with expansion shields and bolts or toggle bolts and by means of base plates bolted to stringers or structural-steel frame work. Secure rail ends by steel pipe flanges anchored by expansion shields and bolts or through-bolted to a back plate or by 1/4 inch lag bolts to studs or solid backing as required.

3.2.2 Touchup Painting

Immediately after installation, clean field welds, bolted connections, abraded areas of the shop paint, and exposed areas painted with the paint used for shop painting. Apply paint by brush or spray to provide a minimum dry-film thickness of 2 mils.

3.3 FIELD QUALITY CONTROL

3.3.1 Field Welding

Ensure that procedures of manual shielded metal arc welding, appearance

and quality of welds made, and methods used in correcting welding work
comply with AWS D1.1/D1.1M.

-- End of Section --

SECTION 06 10 00

ROUGH CARPENTRY

08/16

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 LUMBER STANDARDS COMMITTEE (ALSC)

ALSC PS 20 (2015) American Softwood Lumber Standard

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.2.1 (2012; Errata 2013) Square and Hex Bolts and Screws (Inch Series)

ASME B18.6.1 (2016) Wood Screws (Inch Series)

AMERICAN WOOD COUNCIL (AWC)

AWC NDS (2015) National Design Specification (NDS) for Wood Construction

AWC WFCM (2012) Wood Frame Construction Manual for One- and Two-Family Dwellings

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA BOOK (2015) AWPA Book of Standards

AWPA M2 (2016) Standard for the Inspection of Preservative Treated Wood Products for Industrial Use

AWPA M6 (2013) Brands Used on Preservative Treated Materials

AWPA P5 (2015) Standard for Waterborne Preservatives

AWPA P18 (2014) Nonpressure Preservatives

AWPA P49 (2015) Standard for Fire Retardant FR-1

AWPA T1 (2017) Use Category System: Processing and Treatment Standard

AWPA U1 (2017) Use Category System: User Specification for Treated Wood

APA - THE ENGINEERED WOOD ASSOCIATION (APA)

APA L870 (2010) Voluntary Product Standard, PS
1-09, Structural Plywood

ASTM INTERNATIONAL (ASTM)

ASTM A153/A153M (2016) Standard Specification for Zinc
Coating (Hot-Dip) on Iron and Steel
Hardware

ASTM D2898 (2010; R 2017) Standard Practice for
Accelerated Weathering of
Fire-Retardant-Treated Wood for Fire
Testing

ASTM D3498 (2019a) Standard Specification for
Adhesives for Field-Gluing Wood Structural
Panels (Plywood or Oriented Strand Board)
to Wood Based Floor System Framing

ASTM F547 (2017) Standard Terminology of Nails for
Use with Wood and Wood-Base Materials

ASTM F1667 (2018a) Standard Specification for Driven
Fasteners: Nails, Spikes, and Staples

FM GLOBAL (FM)

FM 4435 (2013) Roof Perimeter Flashing

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC (2018) International Building Code

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-03 Product Data

Underlayment

Fire-retardant Treatment

Structural-use Panels

SD-06 Test Reports

Preservative-treated Lumber and Plywood

1.3 DELIVERY AND STORAGE

Deliver materials to the site in an undamaged condition. Store, protect,
handle, and install prefabricated structural elements in accordance with
manufacturer's instructions and as specified. Store materials off the

ground to provide proper ventilation, with drainage to avoid standing water, and protection against ground moisture and dampness. Store materials with a moisture barrier at both the ground level and as a cover forming a well ventilated enclosure. Do not use materials that have visible moisture or biological growth. Remove defective and damaged materials and provide new materials. Store separated reusable wood waste convenient to cutting station and area of work.

1.4 GRADING AND MARKING

1.4.1 Lumber

Mark each piece of framing and board lumber or each bundle of small pieces of lumber with the grade mark of a recognized association or independent inspection agency. Such association or agency must be certified by the Board of Review, American Lumber Standards Committee, to grade the species used.

1.4.2 Plywood

Mark each sheet with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark must identify the plywood by species group or span rating, exposure durability classification, grade, and compliance with APA L870.

1.4.3 Structural-Use Panels

Mark each panel with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the panel. The mark must indicate end use, span rating, and exposure durability classification.

1.4.4 Preservative-Treated Lumber and Plywood

The Contractor is responsible for the quality of treated wood products. Each treated piece must be inspected in accordance with AWPA M2 and permanently marked or branded, by the producer, in accordance with AWPA M6. The Contractor must provide Contracting Officer's Representative (COR) with the inspection report of an approved independent inspection agency that offered products comply with applicable AWPA Standards. The appropriate Quality Mark on each piece will be accepted, in lieu of inspection reports, as evidence of compliance with applicable AWPA treatment standards.

1.4.5 Fire-Retardant Treated Plywood

Mark each piece in accordance with AWPA M6. Labels of a nationally recognized independent testing agency will be accepted as evidence of conformance to the fire-retardant requirements of AWPA M6.

1.5 SIZES AND SURFACING

ALSC PS 20 for dressed sizes of yard and structural lumber. Lumber must be surfaced four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes must be within manufacturing tolerances allowed by the standard under which the product is produced. Other measurements are IP or SI standard.

1.6 MOISTURE CONTENT

Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products must be as follows at the time of delivery to the job site:

- a. Framing lumber, 19 percent maximum
- b. Materials other than lumber; moisture content must be in accordance with standard under which the product is produced

1.7 PRESERVATIVE TREATMENT

Treat wood products with waterborne wood preservatives conforming to AWPA P5. Pressure treatment of wood products must conform to the requirements of AWPA BOOK Use Category System Standards U1 and T1. Pressure-treated wood products must not contain arsenic, chromium, or other agents classified as carcinogenic, probably carcinogenic, or possibly carcinogenic to humans (compounds in Groups 1, 2A, or 2B) by the International Agency for Research on Cancer (IARC), Lyon, France. Pressure-treated wood products must not exceed the limits of the U.S. EPA's Toxic Characteristic Leaching Procedure (TCLP), and must not be classified as hazardous waste. Submit certification from treating plant stating chemicals and process used and net amount of preservatives retained are in conformance with specified standards. In accordance with AWPA U1 provide non-copper preservative treatment such as EL2, PTI or SBX, DOT for products in direct contact with sheet metal.

- a. 0.25 pcf intended for above ground use.
- b. 0.40 pcf intended for ground contact and fresh water use. All wood must be air or kiln dried after treatment. Specific treatments must be verified by the report of an approved independent inspection agency, or the AWPA Quality Mark on each piece. Minimize cutting and avoid breathing sawdust. Brush coat areas that are cut or drilled after treatment with either the same preservative used in the treatment or with a 2 percent copper naphthenate solution. The following items must be preservative treated:
 - (1) Wood members that are in contact with water.
 - (2) Wood furring, blocking and nailers that are set into or in contact with concrete or masonry.
 - (3) Nailers, edge strips, crickets, curbs, and cants for roof decks.

1.7.1 Existing Structures

Use borate, permathrin, or a sodium silicate wood mineralization process to treat wood. Use borate for interior applications only.

1.7.2 New Construction

Use a boron-based preservative conforming to AWPA P18, sodium silicate wood mineralization process, or Ammoniacal Copper Quaternary Compound to treat wood. Use boron-based preservatives for above-ground applications only.

1.8 FIRE-RETARDANT TREATMENT

Fire-retardant treated wood products must be pressure treated with fire retardants conforming to AWPA P49. Fire retardant treatment of wood products must conform to the requirements of AWPA U1, Commodity Specification H and AWPA T1, Section H. Treatment and performance inspection must be by an independent and qualified testing agency that establishes performance ratings. Each piece or bundle of treated material must bear identification of the testing agency to indicate performance in accordance with such rating. Treated materials to be exposed to rain wetting must be subjected to an accelerated weathering technique in accordance with ASTM D2898 prior to being tested. Such items which will not be inside a building, and such items which will be exposed to heat or high humidity, must receive exterior fire-retardant treatment. Fire-retardant-treated wood products must be free of halogens, sulfates, ammonium phosphate, and formaldehyde. Items to be treated include the following:

- a. Electrical and Telecommunications/Data panels backboards.

1.9 QUALITY ASSURANCE

1.9.1 Humidity Requirements

Sequence work to minimize use of temporary HVAC to dry out building and control humidity.

1.10 ENVIRONMENTAL REQUIREMENTS

During and immediately after installation of treated wood products at interior spaces, provide temporary ventilation.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Virgin Lumber

Lumber fabricated from old growth timber is not permitted. Avoid companies who buy, sell, or use old growth timber in their operations, when possible.

2.2 LUMBER

2.2.1 Framing Lumber

Framing lumber such as studs, plates, stringers, cant strips, bucks, sleepers, and nailers must be Spruce-Pine-Fir, No. 2 or better.

2.3 PLYWOOD AND STRUCTURAL-USE PANELS

2.3.1 Subflooring

2.3.1.1 Plywood

C-D Grade, Exposure 1 durability classification, Span rating of 24/16.

2.3.2 Wall Sheathing

Structural 1, C-D Grade and a minimum thickness of 15/32-inch.

2.3.3 Other Uses

2.3.3.1 Plywood

Plywood for general use. C-D Grade, Exposure 1.

2.3.3.2 Structural-Use Panels

Structural-use panels for shear walls. Structural 1, C-D Grade and a minimum thickness of 15/32 inch.

2.4 UNDERLAYMENT

Underlayment must conform to the following:

2.4.1 Plywood

Plywood must conform to APA L870, underlayment grade with exterior glue, or C-C (Plugged) exterior grade 11/32 inch thick, 4 feet wide.

2.5 OTHER MATERIALS

2.5.1 Miscellaneous Wood Members

2.5.1.1 Blocking

Blocking must be standard or number 2 grade.

2.6 ROUGH HARDWARE

Unless otherwise indicated or specified, rough hardware must be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials must be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry, or concrete walls or slabs must be hot-dip zinc-coated in accordance with ASTM A153/A153M. Nails and fastenings for fire-retardant treated lumber and woodwork exposed to the weather must be copper alloy or hot-dipped galvanized fasteners as recommended by the treated wood manufacturer.

2.6.1 Lag Screws and Lag Bolts

ASME B18.2.1.

2.6.2 Wood Screws

ASME B18.6.1.

2.6.3 Nails

ASTM F547, size and type best suited for purpose. In general, 8-penny or larger nails must be used for nailing through 1 inch thick lumber and for toe nailing 2 inch thick lumber; 16-penny or larger nails must be used for nailing through 2 inch thick lumber. Nails used with treated lumber and

sheathing must be hot-dipped galvanized in accordance with ASTM A153/A153M. Nailing must be in accordance with the recommended nailing schedule contained in AWC WFCM. Where detailed nailing requirements are not specified, nail size and spacing must be sufficient to develop an adequate strength for the connection. The connection's strength must be verified against the nail capacity tables in AWC NDS. Reasonable judgment backed by experience must ensure that the designed connection will not cause the wood to split. If a load situation exceeds a reasonable limit for nails, a specialized connector must be used.

2.6.4 Wire Nails

ASTM F1667.

PART 3 EXECUTION

3.1 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

Conform to ICC IBC unless otherwise indicated or specified. Select lumber sizes to minimize waste. Fit framing lumber and other rough carpentry, set accurately to the required lines and levels, and secure in place in a rigid manner. Spiking and nailing not indicated or specified otherwise must be in accordance with the Nailing Schedule contained in ICC IBC; perform bolting in an approved manner. Spikes, nails, and bolts must be drawn up tight.

3.1.1 Subflooring

3.1.1.1 Plywood, and Structural-Use Panels

Apply best side up with the grain of outer plies or the long dimension at right angles to joists. Stagger end joints and locate over the centerline of joists. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges. Panels must be continuous over two or more spans. Nail panels 6 inches o.c. at supported edges and 10 inches o.c. over intermediate bearing. Nails must be 8-penny common or 6-penny threaded. Provide at least 1/2 inch clearance between subflooring and masonry or concrete walls. Subflooring may be installed with adhesive conforming to ASTM D3498 and nails spaced at 12 inches on center unless otherwise shown.

3.1.2 Underlayment

Install underlayment over subfloor just prior to laying of flooring and protect from water and physical damage. Stagger end joints of underlayment with respect to each other, and stagger all joints with respect to paralleling panel joints in subfloor. Space panels 1/16 inch apart at ends and 1/8 inch apart at edges and at least 1/2 inch from concrete or masonry walls. Nail panels 6 inches o.c. along edges and 6 inches o.c. each way throughout panel, but not closer than 3/8 inch to panel edges. Nails must be 4-penny annular ring or screw type and must be countersunk 1/16 inch. Lightly sand all joints to receive flooring.

3.1.3 Wall Sheathing

3.1.3.1 Plywood and Structural-Use Wall Sheathing

Apply horizontally. Extend sheathing over and fasten to sill and top plate. Abut sheathing edges over centerlines of supports. Allow 1/8 inch spacing between panels and 1/8 inch at windows and doors. Stagger vertical end joints. Fasten panels with #10 screws spaced 6 inches o.c. along edges of the panel and 12 inches o.c. over intermediate supports. Keep fasteners 3/8 inches away from panel ledges. Provide blocking for horizontal edges not otherwise supported.

3.2 MISCELLANEOUS

3.2.1 Wood Roof Nailers, Edge Strips, Crickets, Curbs, and Cants

Provide sizes and configurations indicated or specified and anchored securely to continuous construction.

3.2.1.1 Roof Edge Strips and Nailers

Provide at perimeter of roof, around openings through roof, and where roofs abut walls, curbs, and other vertical surfaces. Except where indicated otherwise, nailers must be 6 inches wide and the same thickness as the insulation. Anchor nailers securely to underlying construction. Anchor perimeter nailers in accordance with FM 4435.

3.2.1.2 Crickets, Cants, and Curbs

Provide wood saddles or crickets, cant strips, as indicated, specified, or necessary and of lumber.

3.2.2 Wood Blocking

Provide proper sizes and shapes at proper locations for the installation and attachment of wood and other finish materials, fixtures, equipment, and items indicated or specified.

3.2.3 Wood Furring

Provide where shown and as necessary for facing materials specified. Except as shown otherwise, furring strips must be nominal one by 3, continuous, and spaced 16 inches o.c. Erect furring vertically or horizontally as necessary. Nail furring strips to masonry. Do not use wood plugs. Provide furring strips around openings, behind bases, and at angles and corners. Furring must be plumb, rigid, and level and must be shimmed as necessary to provide a true, even plane with surfaces suitable to receive the finish required. Form furring for offsets and breaks in walls or ceilings on 1 by 4 wood strips spaced 16 inches o.c.

3.2.4 Temporary Closures

Provide with hinged doors and padlocks and install during construction at exterior doorways and other ground level openings that are not otherwise closed. Cover windows and other unprotected openings with polyethylene or other approved material, stretched on wood frames. Provide dustproof barrier partitions to isolate areas as directed.

3.2.5 Wood Sleepers

Run wood sleepers in lengths as long as practicable and stagger end joints in adjacent rows.

3.3 WASTE MANAGEMENT OF WOOD PRODUCTS

In accordance with the Waste Management Plan and as specified. Clearly separate damaged wood and other scrap lumber for acceptable alternative uses on site, including bracing, blocking, cripples, ties, and shims.

Separate treated, stained, painted, and contaminated wood and place in designated area for hazardous materials. Dispose of according to local regulations. Prevent sawdust and wood shavings from entering the storm drainage system. Do not burn scrap lumber that has been pressure treated, or lumber that is less than one year old.

-- End of Section --

SECTION 06 41 16.00 10

PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS
08/10

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 NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A161.2 (1998) Decorative Laminate Countertops,
Performance Standards for Fabricated High
Pressure

ASTM INTERNATIONAL (ASTM)

ASTM D1037 (2012) Evaluating Properties of Wood-Base
Fiber and Particle Panel Materials

ASTM F547 (2017) Standard Terminology of Nails for
Use with Wood and Wood-Base Materials

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.9 (2015) Cabinet Hardware

COMPOSITE PANEL ASSOCIATION (CPA)

CPA A208.1 (2016) Particleboard

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA LD 3 (2005) Standard for High-Pressure
Decorative Laminates

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

ANSI/WDMA I.S.1A (2013) Interior Architectural Wood Flush
Doors

WOODWORK INSTITUTE (WI)

NAAWS 3.1 (2017; 2018 Errata Edition) North American
Architectural Woodwork Standards

1.2 SYSTEM DESCRIPTION

Work in this section includes laminate clad custom casework cabinets as shown on the drawings and as described in this specification. This Section includes high-pressure laminate surfacing and cabinet hardware.

1.3 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-02 Shop Drawings

Shop Drawings; G

Installation

SD-03 Product Data

Wood Materials

High Pressure Decorative Laminate (HPDL); G

1.4 QUALITY ASSURANCE

1.4.1 General Requirements

Unless otherwise noted on the drawings, all materials, construction methods, and fabrication must conform to and comply with the custom grade quality standards as outlined in NAAWS 3.1, Section for laminate clad cabinets. These standards must apply in lieu of omissions or specific requirements in this specification. Contractors and their personnel engaged in the work must be able to demonstrate successful experience with work of comparable extent, complexity and quality to that shown and specified.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver all units to the site in undamaged condition, stored off the ground in fully enclosed areas, and protected from damage. The storage area must be well ventilated and not subject to extreme changes in temperature or humidity.

1.6 SEQUENCING AND SCHEDULING

Coordinate work with other trades. Units must not be installed in any room or space until painting, and ceiling installation are complete within the room where the units are located. Floor cabinets must be installed before finished flooring materials are installed.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

2.1.1 Lumber

- a. All framing lumber must be kiln-dried Grade III to dimensions as shown on the drawings.

2.1.2 Panel Products

2.1.2.1 Particleboard

All particleboard must be industrial grade, medium density (40 to 50 pounds per cubic foot), 3/4 inch thick. Particleboard must meet the minimum standards listed in ASTM D1037 and CPA A208.1.

2.2 SOLID POLYMER MATERIAL

Solid surfacing casework components must conform to the requirements of Section 06 61 16 SOLID SURFACING FABRICATIONS.

2.3 HIGH PRESSURE DECORATIVE LAMINATE (HPDL)

All plastic laminates must meet the requirements of ANSI/NEMA LD 3 and ANSI A161.2 for high-pressure decorative laminates. Design, colors, surface finish and texture, and locations must be as indicated on the drawings.

2.3.1 Horizontal General Purpose Standard (HGS) Grade

Horizontal general purpose standard grade plastic laminate must be 0.048 inches (plus or minus 0.005 inches) in thickness. This laminate grade is intended for horizontal surfaces where postforming is not required.

2.3.2 Vertical General Purpose Standard (VGS) Grade

Vertical general purpose standard grade plastic laminate must be 0.028 inches (plus or minus 0.004 inches) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of casework components where postforming is not required.

2.3.3 Horizontal General Purpose Postformable (HGP) Grade

Horizontal general purpose postformable grade plastic laminate must be 0.042 inches (plus or minus 0.005 inches) in thickness. This laminate grade is intended for horizontal surfaces where post forming is required.

2.3.4 Vertical General Purpose Postformable (VGP) Grade

Vertical general purpose postformable grade plastic laminate must be 0.028 inches (plus or minus 0.004 inches) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of components where postforming is required for curved surfaces.

2.4 THERMOSET DECORATIVE OVERLAYS (MELAMINE)

Thermoset decorative overlays (melamine panels) must be used for casework cabinet interior, drawer interior and all semi-exposed surfaces.

2.5 EDGE BANDING

Edge banding for casework doors and drawer fronts must be PVC vinyl and must be 0.020 inch thick. Material width must be 15/16 inches. Color and pattern must match exposed door and drawer front laminate pattern and color.

2.6 CABINET HARDWARE

All hardware must conform to ANSI/BHMA A156.9, unless otherwise noted, and must consist of the following components:

2.6.1 Door Hinges

European type, BHMA No. A156.9.

2.6.2 Cabinet Pulls

Basis of Design Product: Doug Mockett's DP 55A.

2.6.3 Drawer Slide

Side mounted type, BHMA No. A156.9 with full extension and a minimum 75 pound load capacity. Slides must include an positive stop to avoid accidental drawer removal.

2.6.4 Adjustable Shelf Support System

Multiple holes with metal or plastic pin supports.

2.7 FASTENERS

Nails, screws, and other suitable fasteners must be the size and type best suited for the purpose and must conform to ASTM F547 where applicable.

2.8 ADHESIVES, CAULKS, AND SEALANTS

2.8.1 Adhesives

Adhesives must be of a formula and type recommended by AWI. Adhesives must be selected for their ability to provide a durable, permanent bond and must take into consideration such factors as materials to be bonded, expansion and contraction, bond strength, fire rating, and moisture resistance. Adhesives must meet local regulations regarding VOC emissions and off-gassing.

2.8.1.1 Wood Joinery

Adhesives used to bond wood members must be a Type II for interior use polyvinyl acetate resin emulsion. Adhesives must withstand a bond test as described in ANSI/WDMA I.S.1A.

2.8.1.2 Laminate Adhesive

Adhesive used to join high-pressure decorative laminate to wood must be a water-based contact adhesive and consistent with AWI and laminate manufacturer's recommendations. PVC edgebanding must be adhered using a polymer-based hot melt glue.

2.8.2 Caulk

Caulk used to fill voids and joints between laminated components and between laminated components and adjacent surfaces must be clear, 100 percent silicone.

2.9 FABRICATION

Verify field measurements as indicated in the shop drawings before fabrication. Fabrication and assembly of components must be accomplished at the shop site to the maximum extent possible. Construction and fabrication of cabinets and their components must meet or exceed the requirements for AWI custom grade unless otherwise indicated in this specification. Cabinet style, in accordance with NAAWS 3.1, Section 400-G descriptions, must be flush overlay.

2.9.1 Base and Wall Cabinet Case Body

2.9.1.1 Cabinet Components

Cabinet components must be glued and dadoed together and be constructed from the following materials and thicknesses:

2.9.1.1.1 Body Members (Ends, Divisions, Bottoms, and Tops)

3/4 inch particleboard panel product.

2.9.1.1.2 Shelving

3/4 inch particleboard panel product.

2.9.1.1.3 Cabinet Backs

1/4 inch particleboard panel product.

2.9.1.1.4 Drawer Sides, Backs, and Subfronts

1/2 inch panel product.

2.9.1.1.5 Drawer Bottoms

1/4 inch particleboard panel product.

2.9.1.1.6 Door and Drawer Fronts

3/4-inch particleboard panel product.

2.9.1.2 Joinery Method for Case Body Members

2.9.1.2.1 Tops, Exposed Ends, and Bottoms

- a. Stop dado, glued under pressure, and either nailed, stapled or screwed (fasteners will not be visible on exposed parts).

2.9.1.2.2 Cabinet Backs (Wall Hung Cabinets)

Wall hung cabinet backs must not be relied upon to support the full weight of the cabinet and its anticipated load for hanging/mounting purposes. Method of back joinery and hanging/mounting mechanisms should transfer the load to case body members. Fabrication method must be:

2.9.1.2.2.1 Full Bound

Full bound, captured in grooves on cabinet sides, top, and bottom. Cabinet backs for floor standing cabinets must be side bound, captured in

grooves; glued and fastened to top and bottom.

2.9.1.2.3 Wall Anchor Strips

Wall Anchor Strips must be required for all cabinets with backs less than 1/2 inch thick. Strips must consist of minimum 1/2 inch thick lumber, minimum 2-1/2 inches width; securely attached to wall side of cabinet back - top and bottom for wall hung cabinets, top only for floor standing cabinets.

2.9.2 Cabinet Floor Base

Floor cabinets must be mounted on a base constructed of nominal 2 inch thick lumber. Finished height for each cabinet base must be as indicated on the drawings.

2.9.3 Cabinet Door and Drawer Fronts

Door and drawer fronts must be fabricated from 3/4 inch medium density particleboard. All door and drawer front edges must be surfaced with PVC edgebanding, color and pattern to match exterior face laminate.

2.9.4 Drawer Assembly

2.9.4.1 Drawer Components

Drawer components must consist of a removable drawer front, sides, backs, and bottom. Drawer components must be constructed of the following materials and thicknesses:

2.9.4.1.1 Drawer Sides and Back For Thermoset Decorative Overlay (Melamine) Finish

1/2 inch thick medium density particleboard or MDF fiberboard substrate

2.9.4.1.2 Drawer Bottom

1/4 inch thick thermoset decorative overlay melamine panel product.

2.9.4.2 Drawer Assembly Joinery Method

- a. Multiple dovetail (all corners) or French dovetail front/dadoed back, glued under pressure.
- b. Bottoms must be set into sides, front, and back, 1/4 inch deep groove with a minimum 3/8 inch standing shoulder.

2.9.5 Shelving

2.9.5.1 General Requirements

Shelving must be fabricated from 3/4 inch medium density particleboard. All shelving top and bottom surfaces must be finished with thermoset decorative overlay (melamine). Shelf edges must be finished in a thermoset decorative overlay (melamine).

2.9.5.2 Shelf Support System

The shelf support system must be:

2.9.5.2.1 Pin Hole Method

Drill holes on the interior surface of the cabinet side walls. Evenly space holes in two vertical columns. Space the holes in each column at 1 inch increments starting 6 inches from the cabinet interior bottom and extending to within 6 inches of the top interior surface of the cabinet. Drill holes to provide a level, stable surface when the shelf is resting on the shelf pins. Coordinate hole diameter with pin insert size to provide a firm, tight fit.

2.9.6 Laminate Application

Laminate application to substrates must follow the recommended procedures and instructions of the laminate manufacturer and ANSI/NEMA LD 3, using tools and devices specifically designed for laminate fabrication and application. Apply required grade of laminate in full uninterrupted sheets consistent with manufactured sizes using one piece for full length only, using adhesives specified herein or as recommended by the manufacturer. Fit corners and joints hairline. All laminate edges must be machined flush, filed, sanded, or buffed to remove machine marks and eased (sharp corners removed). Clean up at easing must be such that no overlap of the member eased is visible. Fabrication must conform to ANSI A161.2. Laminate types and grades for component surfaces must be as follows unless otherwise indicated on the drawings:

2.9.6.1 Base/Wall Cabinet Case Body

- a. Exterior (exposed) surfaces to include exposed and semi-exposed face frame surfaces: HPDL Grade VGS.
- b. Interior (semi-exposed) surfaces to include interior back wall, bottom, and side walls: Thermoset Decorative Overlay (melamine).

2.9.6.2 Adjustable Shelving

2.9.6.2.1 Top and Bottom Surfaces

Thermoset Decorative Overlay (melamine)

2.9.6.2.2 All Edges

Thermoset Decorative Overlay (melamine)

2.9.6.3 Fixed Shelving

2.9.6.3.1 Top and Bottom Surfaces

Thermoset Decorative Overlay (melamine)

2.9.6.3.2 Exposed Edges

Thermoset Decorative Overlay (melamine)

2.9.6.4 Door, Drawer Fronts,

2.9.6.4.1 Exterior (Exposed) and Interior (Semi-Exposed) Faces

HPDL Grade VGS

2.9.6.4.2 Edges

PVC edgebanding

2.9.6.5 Drawer Assembly

All interior and exterior surfaces: Thermoset Decorative Overlay (melamine).

2.9.6.6 Tolerances

Flushness, flatness, and joint tolerances of laminated surfaces must meet the NAAWS 3.1 custom grade requirements.

2.9.7 Finishing

2.9.7.1 Filling

No fasteners must be exposed on laminated surfaces.

PART 3 EXECUTION

3.1 INSTALLATION

Installation must comply with applicable requirements for NAAWS 3.1 custom quality standards. Cabinets and other laminate clad casework assemblies must be attached and anchored securely to the floor and walls with mechanical fasteners that are appropriate for the wall and floor construction.

3.1.1 Anchoring Systems

3.1.1.1 Floor

Base cabinets must utilize a floor anchoring system as detailed on the drawings. Anchoring and mechanical fasteners must not be visible from the finished side of the casework assembly. Where assembly abuts a wall surface, anchoring must include a minimum 1/2 inch thick lumber or panel product hanging strip, minimum 2-1/2 inch width; securely attached to the top of the wall side of the cabinet back.

3.1.1.2 Wall

Cabinet to be wall mounted must utilize minimum 1/2 inch thick lumber or panel product hanging strips, minimum 2-1/2 inch width; securely attached to the wall side of the cabinet back, both top and bottom.

3.1.2 Hardware

Casework hardware must be installed in types and locations as indicated on the drawings. Where fully concealed European-style hinges are specified to be used with particleboard or fiberboard doors, the use of plastic or synthetic insertion dowels must be used to receive 3/16 inch "Euro screws". The use of wood screws without insertion dowels is prohibited.

3.1.3 Doors, Drawers and Removable Panels

The fitting of doors, drawers and removable panels must be accomplished within target fitting tolerances for gaps and flushness in accordance with NAAWS 3.1 custom grade requirements.

-- End of Section --

SECTION 06 61 16

SOLID SURFACING FABRICATIONS
08/10

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.

ASTM INTERNATIONAL (ASTM)

ASTM D2583	(2013a) Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
ASTM D570	(1998; E 2010; R 2010) Standard Test Method for Water Absorption of Plastics
ASTM D638	(2014) Standard Test Method for Tensile Properties of Plastics
ASTM D696	(2016) Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer
ASTM E84	(2021a) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM G21	(2015) Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

CSA GROUP (CSA)

CSA B45.5-11/IAPMO Z124	(2011; Update 1 2012) Plastic Plumbing Fixtures - First Edition
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NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA LD 3	(2005) Standard for High-Pressure Decorative Laminates
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NSF INTERNATIONAL (NSF)

NSF/ANSI 51	(2012) Food Equipment Materials
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1.2 SYSTEM DESCRIPTION

- a. Work under this section includes countertops and window stools utilizing solid polymer (solid surfacing) fabrication as shown on the drawings and as described in this specification. Do not change source

of supply for materials after work has started, if the appearance of finished work would be affected.

- b. To provide a stable, sound, secure installation, close coordination is required between the solid polymer fabricator/installer and other trades to ensure that necessary structural wall support, cabinet counter top structural support, proper clearances, and other supporting components are provided for the installation of countertops to the degree and extent recommended by the solid polymer manufacturer.
- c. Appropriate staging areas for solid polymer fabrications. Allow variation in component size and location of openings of plus or minus 1/8 inch.

1.3 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-02 Shop Drawings

Detail Drawings; G

Installation; G

SD-03 Product Data

Solid Polymer Material; G

Qualifications

Fabrications

SD-10 Operation and Maintenance Data

Clean-up

1.4 QUALITY ASSURANCE

1.4.1 Qualifications

Fabricators must have a minimum of 5 years of experience working with solid polymer materials.

1.4.2 Detail Drawings

Submit Detail Drawings indicating locations, dimensions, component sizes, fabrication and joint details, attachment provisions, installation details, and coordination requirements with adjacent work.

1.5 DELIVERY, STORAGE, AND HANDLING

Do not deliver materials to project site until areas are ready for installation. Deliver components and materials to the site undamaged, in containers clearly marked and labeled with manufacturer's name. Store materials indoors with adequate precautions taken to prevent damage to finished surfaces. Provide protective coverings to prevent physical

damage or staining following installation, for duration of project.

1.6 WARRANTY

Provide manufacturer's warranty of ten years against defects in materials, excluding damages caused by physical or chemical abuse or excessive heat. Provide warranty for material and labor for replacement or repair of defective material for a period of ten years after component installation.

PART 2 PRODUCTS

2.1 MATERIAL

Provide solid polymer material that is a homogeneous filled solid polymer; not coated, laminated or of a composite construction; meeting CSA B45.5-11/IAPMO Z124 requirements. Provide materials with the minimum physical and performance properties specified. Superficial damage to a depth of 0.01 inch must be repairable by sanding or polishing. Provide material thickness as indicated on the drawings. Provide material not less than 1/2 inch in thickness.

2.1.1 Cast, 100 Percent Acrylic Polymer Solid Surfacing Material

Provide cast, 100 percent acrylic solid polymer material composed of acrylic polymer, mineral fillers, and pigments and meeting the following minimum performance requirements:

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Tensile Strength	4000 psi (max.)	ASTM D638
Hardness	55-Barcol Impressor (min.)	ASTM D2583
Thermal Expansion	.000023 in/in/F (max.)	ASTM D696
Boiling Water Surface Resistance	No Change	ANSI/NEMA LD 3-3.05
High Temperature Resistance	No Change	ANSI/NEMA LD 3-3.06
Impact Resistance (Ball drop)		ANSI/NEMA LD 3-303
1/4 inch sheet	36 inches, 1/2 lb ball, no failure	
1/2 inch sheet	140 inches, 1/2 lb ball, no failure	
3/4 inch sheet	200 inches, 1/2 lb ball, no failure	
Mold & Mildew Growth	No growth	ASTM G21

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Bacteria Growth	No growth	ASTM G21
Liquid Absorption (Weight in 24 hrs.)	0.1 percent max.	ASTM D570
Flammability		ASTM E84
Flame Spread	25 max.	
Smoke Developed	30 max.	
Sanitation	"Food Contact" approval	NSF/ANSI 51

2.1.2 Material Patterns and Colors

Provide patterns and colors for all solid polymer components and fabrications indicated on the project drawings. Pattern and color must be consistent in appearance, throughout the entire depth (thickness) of the solid polymer material.

2.1.3 Surface Finish

Provide exposed finished surfaces and edges with a uniform appearance. Exposed surface finish must be matte; gloss rating of 5-20.

2.2 ACCESSORY PRODUCTS

Provide accessory products, as specified below, manufactured by the solid polymer manufacturer or products approved by the solid polymer manufacturer for use with the solid polymer materials being specified.

2.2.1 Seam Adhesive

Provide a two-part adhesive kit to create permanent, inconspicuous, non-porous, hard seams and joints by chemical bond between solid polymer materials and components to create a monolithic appearance of the fabrication. Adhesive must be approved by the solid polymer manufacturer and color-matched to the surfaces being bonded where solid-colored, solid polymer materials are being bonded together. Provide clear or color matched seam adhesive where particulate patterned, solid polymer materials are being bonded together.

2.2.2 Silicone Sealant

Provide a mildew-resistant, FDA and OSHA Nationally Recognized Testing Laboratory (NRTL) listed silicone sealant or caulk in a clear formulation. The silicone sealant must be approved for use by the solid polymer manufacturer. Use sealant to seal all expansion joints between solid polymer components and all joints between solid polymer components and other adjacent surfaces such as walls, floors, ceiling, and plumbing fixtures.

2.2.3 Mounting Hardware

Provide mounting hardware, including sink/bowl clips, inserts and fasteners for attachment of undermount sinks and lavatories.

2.3 FABRICATIONS

Provide factory or shop fabricated components to sizes and shapes indicated, to the greatest extent practical, in accordance with approved Shop Drawings and manufacturer's requirements. Provide factory cutouts for sinks, lavatories, and plumbing fixtures where indicated on the drawings. Contours and radii must be routed to template, with edges smooth. Defective and inaccurate work will be rejected. Submit product data indicating product description, fabrication information, and compliance with specified performance requirements for solid polymer, joint adhesive and sealants.

2.3.1 Joints and Seams

Form joints and seams between solid polymer components using manufacturer's approved seam adhesive. Provide inconspicuous joints in appearance and without voids to create a monolithic appearance.

2.3.2 Edge Finishing

Rout and finish component edges to a smooth, uniform appearance and finish. Provide edge shapes and treatments, including any inserts, as detailed on the drawings. Rout all cutouts, then sand all edges smooth. Repair or reject defective or inaccurate work.

2.3.3 Counter Splashes

Fabricate backsplashes from 1/2 inch thick solid surfacing material to be 4 inches high. Provide backsplashes for all counter tops. Provide shop fabricated permanently attached backsplashes.

2.3.3.1 Permanently Attached Backsplash

Fasten permanently attached backsplashes with seam adhesive and to form a radiused coved transition from countertop to backsplash.

2.3.4 Window Stools

Fabricate window stools from 1/2 inch thick solid surfacing, solid polymer material, including dimensions, edge shape, and other details as indicated on the drawings.

2.3.5 Counter Tops

Fabricate all solid surfacing, solid polymer counter top components from 1/2 inch thick material including details, dimensions, locations, and quantities as indicated on the Drawings. Provide complete counter tops with 4 inch high permanently attached with coved transition backsplash and loose endsplashes at all locations. Attach 2 inch wide reinforcing strip of polymer material under each horizontal counter top seam.

2.3.5.1 Counter Top With Sink

- a. Stainless Steel (where indicated). Provide countertops with sinks that include cutouts to template as furnished by the sink manufacturer. Provide manufacturer's standard sink mounting hardware for stainless steel installation. Seal seam between sink and counter top must be sealed with silicone sealant. Install sink, faucet, and

plumbing requirements in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

- b. Provide solid polymer sinks that are a manufacturer's standard, pre-molded product specifically designed for attachment to solid polymer countertops and with a rear, center drain to accommodate ABA clearances under lavatory.

2.3.5.2 Solid Polymer Sinks

Provide polymer sinks that are a standard product of the solid polymer manufacturer, designed specifically to be installed in solid polymer countertops. Provide sinks with the same polymer composition as the adjoining counter top. Provide sink design that supports a seam adhesive undermount installation method. Provide sink as indicated on the drawings.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Components

Do not install items that show visual evidence of biological growth. Install all components and fabricated units plumb, level, and rigid. Make field joints between solid polymer components using solid polymer manufacturer's approved seam adhesives, to provide a monolithic appearance with joints inconspicuous in the finished work. Install all solid polymer sinks and bowls using a color-matched seam adhesive. Install all plumbing connections to sinks and lavatories in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

3.1.2 Silicone Sealant

Use a clear, silicone sealant or caulk to seal all expansion joints between solid polymer components and all joints between solid polymer components and other adjacent surfaces such as walls, floors, ceiling, and plumbing fixtures. Sealant bead must be smooth and uniform in appearance and use the minimum size necessary to bridge any gaps between the solid surfacing material and the adjacent surface. Install continuous bead that runs the entire length of the joint being sealed.

3.1.3 Plumbing

Make plumbing connections to sinks in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

3.2 CLEAN-UP

Clean all components after installation and cover to protect against damage during completion of the remaining project items. Components damaged after installation by other trades will be repaired or replaced at the General Contractor's cost. Component supplier will provide a repair/replace cost estimate to the General Contractor who must approve estimate before repairs are made. Submit a copy of maintenance data indicating manufacturer's care, repair and cleaning instructions. Provide maintenance video if available. Submit maintenance kit for matte finishes.

-- End of Section --

