Division 01 General Requirements

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01 30 13 Project Coordination

The work shall be performed in a single, continuous effort without delay or breaks in the work to perform other jobs, or to wait for materials or personnel changes.

Unusual conditions causing delays such as unseasonal weather, unexpected worksite conditions or the like will not count against the completion time. The COR will decide if conditions warrant a weather or unexpected conditions delay based on normal work conditions and for the type of work as well as seasonal weather expectations for the work site and location. Conditions on the work site present at the time of the site visit are considered in the contract time period stated and therefore will not be accepted as cause for delays.

01 31 19 Existing Condition Information

Not Used.

01 32 00 Construction Progress Documentation

All documents concerning the technical information, warranty, operation, and maintenance of the specific products installed and materials used in the work shall be kept, consolidated, and provided to the COR prior to final payment.

The following clause will apply to product and installation documentation, including at a minimum; spec sheets, instructions, work photos, and testing of connected/related systems after installation or repairs.

The records generated as part of this contract are subject to the NARA recordkeeping standards for Federal government projects.

Record Management Requirements

A. Applicability

This clause applies to all Contractors whose employees create, work with, or otherwise handle Federal records, as defined in Section B, regardless of the medium in which the record exists.

B. Definitions

"Federal record" as defined in 44 U.S.C. § 3301, includes all recorded information, regardless of form or characteristics, made or received by a Federal agency under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the United States Government or because of the informational value of data in them.

The term Federal record:

1. includes VHA records.
2. does not include personal materials.
3. **applies to records created, received, or maintained by Contractors pursuant to their VHA contract [contract documentation, including emails, texts, etc.].**
4. **may include deliverables and documentation associated with deliverables [submittals, reports, field notes & logs, etc.].**

C. Requirements

1. In accordance with 36 CFR 1222.32, all data created for Government use and delivered to, or falling under the legal control of, the Government are Federal records subject to the provisions of 44 U.S.C. chapters 21, 29, 31, and 33, the Freedom of Information Act (FOIA) (5 U.S.C. 552), as amended, and the Privacy Act of 1974 (5 U.S.C. 552a), as amended and must be managed and scheduled for disposition only as permitted by statute or regulation.

2. In accordance with 36 CFR 1222.32, the Contractor shall maintain all records created for Government use or created in the course of performing the contract and/or delivered to, or under the legal control of the Government and must be managed in accordance with Federal law. Electronic records and associated metadata must be accompanied by sufficient technical documentation to permit understanding and use of the records and data.

3. VHA and its contractors are responsible for preventing the alienation or unauthorized destruction of records, including all forms of mutilation. Records may not be removed from the legal custody of VHA or destroyed, except in accordance with the provisions of the agency records schedules and with the written concurrence of the Head of the Contracting Activity. Willful and unlawful destruction, damage, or alienation of Federal records is subject to the fines and penalties imposed by 18 U.S.C. 2701. In the event of any unlawful or accidental removal, defacing, alteration, or destruction of records, the Contractor must report to VHA. The agency must report promptly to NARA in accordance with 36 CFR 1230.

4. The Contractor shall not remove material from Government facilities or systems. This contract does not include access to nor handling of Federal VHA records or record systems (like servers, portable storage devices, personal electronics, etc.). With respect to the documentation of the work materiel (specifications, submittals, warranty, etc..), this project does not include handling or generation of any records that are considered proprietary or sensitive. While certain contract details are readily available and others are available through

FOIA, the contract administration documentation and details thereof are treated as proprietary in the interest of protecting the Contractor from competitors receiving their information and details of their work process. Any Contractor specific proprietary processes, products (i.e., Patented or Copyrighted materials) will be held as confidential by the Government. Normal, routine contract documentation may be emailed to the COR and/or CO as applies. For large files, an FTP site will be established by the Government for transfer of files and such will be generated only as needed. Destruction of contract records is EXPRESSLY PROHIBITED until all such contract documentation is provided to the CO during final project closeout and prior to Contractor side destruction of records. However, as this is Construction work, it is recommended that the Contractor keep such records for at least 15 years after completion of the work in case of latent defects or design flaws which may result in claims against the Contractor by the Government or interested parties (e.g., Subcontractors).

5. The Contractor is required to obtain the Contracting Officer's approval prior to engaging in any contractual relationship (sub-contractor) in support of this contract requiring the disclosure of information, documentary material, and/or records generated under, or relating to, contracts. The Contractor (and any sub-contractor) is required to abide by Government and VHA guidance for protecting sensitive, proprietary information, classified, and controlled unclassified information.

6. The Contractor shall not create or maintain any records containing any non-public VHA information that is not specifically tied to or authorized by the contract.

7. The Contractor shall not retain, use, sell, or disseminate copies of any deliverable that contains information covered by the Privacy Act of 1974 or that which is generally protected from public disclosure by an exemption to the Freedom of Information Act.

8. The VHA owns the rights to all data and records produced as part of this contract. All deliverables under the contract are the property of the U.S. Government for which VHA shall have unlimited rights to use, dispose of, or disclose such data contained therein as it determines to be in the public interest. The Contractor is not granted any rights to use the data generated or accessed as a part of this contract for use outside of this contract.

D. Flow down of requirements to subcontractors

1. The Contractor shall incorporate the substance of this clause, its terms, and requirements including this paragraph, in all subcontracts under this contract, and require written subcontractor acknowledgment of same.

2. Violation by a subcontractor of any provision set forth in this clause will be attributed to the Contractor.

<u>01 33 23 Submittals</u>

Submittals shall be marked with the project name and number:

Project Name: Fire System Maintenance FY26 A
Project Number: 568-26-SL001

Material and product submittals for this project include the door, frame, PIV valves, and hardware components. Documentation submittals include certifications, test reports, images, diagrams, and schematics. Submittals shall be submitted as soon as practical, and VA requires at least 3-days to review for each item or block of similar items.

COR or CO approval shall be obtained by Contractor prior to procurement or installation of submitted items.

Submittals shall provide all information required for the Government to crosscheck compliance with applicable Codes, Standards, Regulations and specification details. When submitting documentation that shows or contains multiple options, versions, methods and the like, each specific version shall be marked with all options installed, each specific method of installation marked and to which specific installation or instance(s) of that item it applies to. Contractor shall not submit a single submittal that is meant to include multiple different item versions, options, or methods. Each separate instance shall be a separate submittal package indicating where that instance is installed along with the relevant details clearly marked. As a rule of thumb, if your submittal has options or methods marked that are mutually exclusive, then a separate submittal is required.

In lieu of "as-built" drawings, the Contractor shall provide installation schematics and/or images for the door and the PIV valves during installation and at completion and prior to backfilling or covering. Photos shall show the in-place mounting hardware (i.e., behind the frame), newly installed condition, and general details of the completed work. Images and sketches showing details may be use or images with details marked on them (such as measurements, distances, sizes, etc.) may be used, but clean images shall also be provided in that case.

The purpose of this is to provide the VA with details so that maintenance and troubleshooting may be performed without guessing where things are located or how they were installed. This is primarily meant for hidden things like mounting plates, brackets, wires and hardware through walls and inside doors, jambs, and the like, and for detailing how and where exactly the hardware is mounted.

No patient images nor any information related to patients or hospital operations may be visible in any photos or videos. Images/videos may only be taken when there are no patients present in the area, or screening methods that do not show any VA employees or patients may be used contractor employees, plastic or cloth sheets, cardboard, tool or job boxes, etc., may be used to screen images. Images shall be processed to remove any of the prohibited things detailed in this paragraph prior to dissemination of any kind and on the device used to take the image if possible.

01 35 00 Safety Program

Patient health & safety is paramount in this contract. Within all requirements, the Contractor is charged with exercising extra caution around patients and around patient traffic areas.

The Contractor is expected to maintain the additional situational awareness and protections that the patients may not be able to provide for themselves. Given the medical nature of the facility, it is likely that patients are experiencing some form of limitation such as limited situational awareness, physical mobility, strength, reflexes, altered or impaired senses, and so forth.

Contractor shall have a Construction (29CFR1926) or Industrial (29CFR1910) Safety Program as required by Federal and State regulations and all employees shall be trained and certified in the programs that apply to their work in this contract.

Printed copies of the relevant portions of the Contractor's Safety Program shall be kept on site during work and shall be readily available to any Contractor employee and for inspection by COR or CO for the project. This shall include medical care facility training such as blood-borne pathogens, bodily fluids, and infection control training.

Contractor shall provide a single document with a complete list of employees on the project site certifying that all employees are certified to the appropriate standard (CFR1910 or 1926 or both). While proper training

and certification of the Safety Program for a Company or Contract is ultimately the responsibility of the Owner(s), the Certification may be assigned to the official Project or Corporate Safety Officer in lieu of the Owner so long as the Safety Officer is Owner-assigned and has the authority to enforce the Safety requirements.

See also Sections 01 57 19 and 01 74 19 concerning control of hazards.

The General Contractor is required to ensure that all individuals on the site and under the umbrella of the GC's contract are trained in the hazards of working in a medical environment. This must, at a minimum include blood born pathogen, personal and work area sanitization, and recognition and response to general and specific hazards.

01 43 00 Quality Assurance

It is the General Contractor's responsibility to guarantee that all products, treatment processes and construction methods meet the relevant codes and requirements. The General Contractor shall verify and certify all products, processes and methods before submitting them to the COR for approval.

Where a product is damaged with minor issues (dings or small scratches, seemingly insignificant size or configuration variance from requirements, etc.) consult the COR for acceptance of the product prior to use or installation.

Acceptance of defective or substandard workmanship and/or products may only be approved be at a benefit to the government and not for the convenience of the Contractor. Acceptance of defective products or workmanship that do not significantly affect the overall performance of the work is tantamount to a value change of the contract which must be documented and approved by the Contracting Officer. The COR will not accept defective products or workmanship that significantly alter the performance of the work or products.

01 45 00 Quality Control

It is the General Contractor's responsibility to provide on-site inspection and control of the work in progress. The General Contractor shall verify and certify all work is complete to the extent appropriate for that portion of the project and ready for final inspection prior to requesting inspection by the COR.

See Section 01 43 00 of this specification for defective workmanship and materials.

At certain points in the project, inspection and approval of that work will be required as a part of this contract. These points of inspection are referred to as Checkpoints and all parts of this work will have checkpoints that require inspection and approval by the COR prior to moving forward with the work.

Delays created by not providing the required notice in advance of checkpoint inspections are the responsibility of the General Contractor and not the Government.

The General Contractor shall coordinate with the COR to ensure that the appropriate checkpoints are inspected by the COR and that enough time for the COR to be prepared and present is scheduled. There must be at least a 24-hr notice of the date the inspection is required. Unless a specific date and time for an inspection is arranged and scheduled, on the day of the inspection at least one-hour notice must be given to the COR.

The COR has many duties and cannot wait around at the convenience of the Contractor; therefore, if the inspection is not able to be performed within 20 minutes of the scheduled time, that inspection will be considered a failure and a new one must be scheduled or arranged.

01 57 19 Temporary Environmental Controls

The Contractor is expected to consider the diminished capability of patients on the Hospital campus and to exercise extra caution with controlling minor construction debris, dust, fumes, vapor, lights, noises, and other environmental disturbances that patients may be sensitive to.

No specific hazards that require protection or mitigation (i.e., lead paint, asbestos) will be exposed during this work. The 'routine maintenance' categorical exclusion applies to this project. Environmental Assessment or Environmental Impact Statement are not required for this project due to the simple nature of the work.

The Hot Springs VA Medical Center treats all manner of patients. Hospital grade protection shall be afforded to patients and patient areas. Psychiatric as well as physical health issues shall be considered and controlled prior to starting any task. The COR of this project is the contact point for queries and concerns regarding any health issues. Any contractor employee may present questions and concerns to the COR.

Prevention shall be used wherever possible. Vacuums to pull in dust during drilling/coring, filtered and/or ducted fans or blowers to control fumes/gases, temporary enclosures to control spread of gases, fumes or dusts shall be used where patients may be affected by airborne particles or gases.

Temporary environmental controls shall be implemented for any procedure that produces a possible health hazard. Gases, vapors, fumes, dust, and debris shall be controlled and prevented from reaching any person in a concentration that could cause a reaction.

For physical hazards like boards with nails or splinters, non-uniform steps or drops in floors, holes, loose flooring, essentially any condition that may cause physical harm to patients, extra consideration for the possible diminished capabilities of patients shall be considered. Special analysis of the type of patients serviced by that area and the limited abilities of patients in general shall be considered when preparing to undertake every task.

Temporary health hazards, such as very minor amounts of fumes or gases (e.g., soldering), shall be contained or controlled until treated or dispersed. Treatment and dispersal methods shall guarantee exposure is below the maximum exposure thresholds for Contractor or VA employees. Extra precautions shall be taken in areas where patients may be passing through the work area.

All waste products shall be prevented from escaping the immediate work area (dust, smoke, fluids, gases, etc.) and shall be controlled immediately to prevent contact with patients or employees.

Toxic products shall not be stored where there is any access by non-Contractor individuals. The safety of not only VA employees and patients but their children and service animals shall be protected throughout this work. Lockable job-boxes may be kept in the area to store toxic and dangerous items, tools, and equipment. Physical lockout and security shall be in place during use to prevent any interaction with non-Contractor personnel.

Where very minor temporary hazards will be generated, simple prevention techniques may be used. For instance, cordon of an area that will give patients enough space to avoid the hazard, small fans to blow away paint vapors from a touch-up paint job (<1ft^2 of new paint per 50 ft^2 area), waiting until patients are clear of the area before soldering, using a vacuum to immediately intake dust during drilling. Tents, enclosures, HEPA filters,

etc., are not required unless prolonged production of hazards as would normally require extensive control measures are created or exposed.

01 58 16 Temporary Interior Signage

Temporary signage is not expected to be needed as a part of this project. However, if the Contractor finds that the work will block or restrict access to VA services for a period of time in excess of 15 minutes, the COR shall be notified, and arrangements made to accommodate VA patients and employees.

01 74 19 Construction Waste Management – Non-Hazardous Waste

All waste and debris from this work shall be contained and disposed by the Contractor. The work area and traveled ways shall be cleaned by the Contractor periodically throughout the workday and at the end of the job.

Periodic cleaning shall be performed as needed to prevent migration and spreading of debris by traffic, air currents, hospital or Contractor equipment, etc. Complete cleaning shall be done at the end of each work shift/day whichever is more frequent.

01 78 00 Closeout Submittals

See section 01 33 23 for additional documentation required for closeout.

Product warranty information, product and installation certifications, testing results, and operation and maintenance manuals must be included in the closeout documents. Previous documentation such as submittals or handouts for meetings are not considered closeout forms of the required documentation. All documentation listed here and in section 01 33 23 shall be provided in an electronic bundle to the COR prior to final payment. Documentation that is not well organized, complete and in logical order, will be rejected by the COR.

01 81 13 Sustainable Construction Requirements

Due to the nature of the products and processes of this work, use of recycled products is not feasible for the primary work of this project.

Use of environmentally friendly products and methods in support of this work (cleaning agents, sealants, etc.) remains a requirement of this project.

01 91 13 General Commissioning Requirements

See also Section 01 45 00 Quality Control.

Commissioning of the work will require testing of the installed work for full functionality.

Cycling of the gate valves and verification of the functionality of the Indicator posts will be required. The doors will need to be fully tested and inspected by the COR before being approved as complete.

When the work of this project is ready to be inspected and tested the COR shall be notified. The COR shall be notified twenty-four hours in advance of the date of the inspection and commissioning of the work and at least one hour in advance on the day of inspection (unless a specific date and time are previously scheduled).

Failure to perform the tests within twenty minutes of the scheduled or arranged time will count as a failed inspection. Delays brought about by the Contractor not providing adequate notification of the desired day of inspections or within an hour of the need for an inspection are the responsibility of the General Contractor.

—End of Division 01—

Div. 02 Existing Conditions

02 03 00 Conservation of Existing Historical Structure and Components

The Hot Springs VAMC campus is a historical site registered with the National Historical registry. While this work will take place inside a historical structure it does not involve any Historical structures or components. Care shall be taken to leave remaining structures and existing historical equipment in original condition. This includes building materials and components.

—End of Division 02—

SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes:
1. Hollow metal doors hung in hollow metal frames at interior locations.

1.2 RELATED WORK
A. Section 08 71 00, Door Hardware.
B. Section 09 91 00, Painting.
C. Section 07 92 00, Joint Sealants

1.3 GENERAL
A. This portion of the work consists of removing and replacing-in-kind one set of double doors between an interior main fire egress hallway and a fire egress staircase.
B. Hardware, doors and frame shall be metal, medium duty, hospital grade, fully accessible (consistent with Architectural Barriers Act).
C. Provide 90 minute rated door and hardware assemblies.

1.4 APPLICABLE PUBLICATIONS
A. Comply with latest versions of the normal and usual standards for this specific application as classified, unless specified otherwise in the contract.
B. Standards applied shall be for medium duty commercial application in hospital environment along primary fire egress route for interior fire exit double doors accessing stairwell.

1.5 SUBMITTALS
A. Submittal Drawings:
1. Show size, configuration, and fabrication and installation details.
B. Manufacturer's Literature and Data:
1. Complete technical description of each product. To include details of all door assembly components, hardware, and accessories (such as reinforcement plates, blank covers, brackets, etc.).
2. Include schedule showing each door and frame requirements fire label for openings.
3. Installation instructions and method.
C. Sustainable Construction Submittals:
1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.

1.6 QUALITY ASSURANCE
A. Manufacturer Qualifications:
1. Regularly manufactures specified products.
a. Certifies all products meet codes and requirements specific to this project, as applied.
B. Frame of Reference: See Section 1.3(A) and (B) of this Specification for Quality Assurance requirements.

1.7 DELIVERY
A. Doors and frames shall be protected during shipment and delivery to work site in such a way as to prevent damage to product (Including any accessories, hardware etc.) or degradation of finish (including UV or weather damage).

B. Before installation, inspect and reject products, including any hardware, which appear to be damaged in any way.

1.8 STORAGE AND HANDLING

A. Store products indoors in dry, weathertight conditioned facility.
   1. Temperature of storage shall be kept between 55°F and 90°F.
   2. Temperature and environmental conditions of storage shall be such that they allow the products and coatings to retain good resilience and flexibility so as to prevent damage during installation and use.

B. Protect products from damage until final acceptance has been issued by the Contracting Oficer.

1.9 WARRANTY

A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS

2.1 SYSTEM PERFORMANCE

A. Provide hollow metal doors and frames substantially similar to existing doors/frame to be replaced within following requirements and specified performance:
   1. Medium duty doors and hardware with medium duty frame.
   2. 90-minute Fire rated door and frame, UL listed and labeled.
   3. Inactive Leaf: Vertical rod exit panic device on interior and pull consistent with existing on exterior side.
   4. Active Leaf: Panic exit device on interior with lever entry on exterior and mortise lock.
   5. Shop applied and fully cured epoxy coating on all surfaces of frame and on outside of door leaves, including edges after all additional components (reinforcement, stifferners, braces, etc.) have been installed.
   6. Door frame, except below bottom-most mounting anchor (approx. bottom 2 inches) shall be packed with mineral wool of microbial resistant type. Leave frame empty below bottom anchor.

2.2 MATERIALS

A. Steel door and frames.

B. Chrome, nickel, or Stainless coated brass and steel according to requirements for duty-grade of components and hardware. See also Section 2.7 Finishes.

2.3 PRODUCTS - GENERAL

A. Provide hollow metal doors and frames from one manufacturer.

2.4 HOLLOW METAL DOORS

A. Provide medium duty hollow metal steel doors rated and labeled to 90-minutes.

2.5 HOLLOW METAL FRAMES

A. Hollow Metal Frames
   1. Provide medium duty hollow metal frame, fully welded to seal all seams and joints.
   2. Provide frames with full support for mounting and required accessories already installed.
   3. Provide shop applied epoxy coating as detailed in Section 09.
   4. Frame shall be 90 minute fire rated and labeled.

2.6 FABRICATION

A. Hardware Preparation hardware specified in Section 08 71 00, Door Hardware.

B. Hollow Metal Door Fabrication:

1. Doors shall be continuously welded at seams and stiffeners of permanently mounted components (stiffeners, braces, cover plates, mounting brackets, etc.) with special attention where water penetration may occur to interior of door.
2. Close top edge of exterior doors flush and seal to prevent water intrusion.

C. Fire Doors:

1. Close top and vertical edges flush.

D. Hollow Metal Frame Fabrication:

1. Fasten mortar/dust guards to back of hardware reinforcements.
2. Frame Anchors:
   a. Floor anchors:
      1) Do not install floor anchors. Use heavy duty jamb anchors at bottom 2”-4” from floor.
   b. Jamb anchors:
      1) Place anchors on jambs:
         a) Within 6 inches of top and within 2-4 inches of bottom of each frame.
         b) Provide at least 2 intermediate anchors on sides and 3-4 anchors along top of frame.
         c) Place anchors evenly spaced along top of frame starting at center of frame and moving toward walls.
         d) At intermediate points at maximum 600 mm (24 inches) spacing.
      2) Form jamb anchors from steel minimum 16 gage. Anchors that are not galvanized must be coated per Div 09 epoxy coating.
      3) Anchors for frames set in prepared openings:
         a) Anchors shall be selected to reinforce and brace entire cross section of frame restricting rotation as well as shear on frame mounting.
         b) Anchor bolts shall be minimum ¼” diameter galvanized hex head.
      4) Modify frame anchors to fit special frame and wall construction.
      5) Provide special anchors where shown on drawings and where required to suit application.

2.7 FINISHES

A. Hardware shall be in the chrome, satin nickel, stainless family of finishes. Sheen shall be bright or polished.

B. Doors, frame, and components like reinforcements, covers, and mounting anchors shall be coated with epoxy per Div 09. Concealed components shall be coated to minimum 10 mils thickness.

2.8 ACCESSORIES

A. Barrier Coating: ASTM D1187/D1187M.

B. Welding Materials: AWS D1.1/D1.1M, type to suit application.

C. Clips Connecting Members and Sleeves: Match door faces.

D. Fasteners: Galvanized steel or stainless steel.

1. Metal Framing: Steel drill screws.
2. Masonry and Concrete: Expansion bolts.

E. Anchors: Galvanized steel.

F. Galvanizing Repair Paint: MPI No. 18.

G. Insulation: Unfaced mineral wool.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for product installation.
B. Protect existing construction and completed work from damage.
C. Apply barrier coating to metal surfaces in contact with cementitious materials to minimum 0.7 mm (30 mils) dry film thickness.

3.2 INSTALLATION - GENERAL

A. Install products according to manufacturer's instructions and approved submittals.
   1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.
   2. Install fire doors and frames according to NFPA 80.
   3. Install smoke control doors and frames according to NFPA 105.

3.3 FRAME INSTALLATION

A. Apply barrier coating to concealed surfaces of frames built into masonry.
B. Plumb, align, and brace frames until permanent anchors are set.
   1. Use triangular bracing near each corner on both sides of frames with temporary wood spreaders at midpoint.
   2. Use wood spreaders at bottom of frame when shipping spreader is removed.
   3. Remove shipping spreaders prior to installation and brace in place with custom cut wood or other material braces cut and shaped specifically to each installation.
   4. Remove wood spreaders and braces when walls are built and jamb anchors are secured.
C. Floor Anchors:
      a. Do not anchor frame jambs to floor. Use heavy duty, low mounted wall jamb braces within 2”-4” of floor.
D. Jamb Anchors:
   1. Prepared Masonry and Concrete Openings:
      a. Direct Securement: 6 mm (1/4 inch) diameter expansion bolts through spacers.
E. Frame Insulation: Fill frames with microbial resistant mineral wool insulation. Do not use any type of organic insulation.
F. Touch up damaged factory finishes.
   1. Repair galvanized surfaces with galvanized repair paint.
   2. Repair painted surfaces with epoxy per Div 09.

3.4 DOOR INSTALLATION

A. Install doors plumb and level.
B. Adjust doors for smooth operation.
C. Touch up damaged finishes with epoxy coating per Div 09.

3.5 CLEANING

A. Clean exposed door and frame surfaces. Remove contaminants and stains.

3.6 PROTECTION

A. Protect doors and frames from traffic and construction operations until final acceptance by Contracting Officer is received.
B. Remove protective materials immediately before acceptance.
C. Repair damage.

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SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Door hardware and related items necessary for complete installation and operation of doors.

1.2 RELATED WORK

A. Application of Hardware: Section 08 11 13, HOLLOW METAL DOORS AND FRAMES
B. Painting: Section 09 91 00, PAINTING.

1.3 GENERAL

A. This portion of the work consists of removing and replacing in kind one set of double doors between an interior main fire egress hallway and a fire egress staircase.
B. Hardware, doors and frame shall be metal, medium duty, hospital grade, fully accessible (consistent with Architectural Barriers Act).
C. Provide 90 minute rated door hardware assemblies.

1.4 WARRANTY

A. Standard FAR Construction Warranty applies.
B. Product warranty per manufacturer.

1.5 MAINTENANCE MANUALS

A. Electronic copies of operation and maintenance manuals shall be provided for all installed items and components thereof.

1.6 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. Submit the schedule electronically per Section 01 33 23.
B. Ensure submittal provides all information required to determine suitability. This must include standards compliance as well as manufacturer/supplier data as needed to verify compliance with appropriate standard in addition to requirements set forth herein.
C. Hardware Schedule: Submit proposed Hardware with the following requirements called out per item:
D. Duty grade, hospital grade (Y/N), finish, base metal material.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Regularly manufactures specified products.
      a. Certifies all products meet codes and requirements specific to this project, as applied.
B. Frame of Reference: See Section 1.3(A) and (B) of this Specification for Quality Assurance requirements.

1.8 DELIVERY AND MARKING

A. Deliver items shipped directly to site according to requirements set forth in Division 01 General Requirements.

1.9 PREWORK MEETING

A. Convene a prework meeting before removal and preparation of existing hardware and mounting surface as required for new door and frame. Review the following:
B. Environmental controls for dust, debris and any hazards.
C. Fire Safety while opening is unprotected.
D. Coordination with delivery and installation of new door to minimize duration of unprotected opening.
E. Mitigation techniques if opening cannot be closed directly and must remain open for more than allotted installation time.

1.10 INSTRUCTIONS

A. Selection and mounting shall be consistent with latest federal and local codes for fire egress main path, stairwell access.
B. Update hardware to modern standards, i.e., replace door knobs with levers, etc.
C. All hardware shall comply with ABAAS, (Architectural Barriers Act Accessibility Standard) unless specified otherwise.
D. Provide hardware listed by UL. In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements.
E. Hardware for Labeled Fire Doors and Exit Doors: Conform to requirements of NFPA 80 for labeled fire doors and to NFPA 101 for exit doors, as well as to other requirements specified.
F. Keying: Cylinder and keys by others. Provide lock hardware minus cylinders and keys.

1.11 APPLICABLE PUBLICATIONS

A. Normal and usual Federal and State codes and standards for construction and hospital maintenance and repair requirements are a part of this work. There are no special publications that are specific only to this work.

PART 2 - PRODUCTS

2.1 HARDWARE REQUIREMENTS

A. Submit proposal for door hardware consistent with table below and according to the following requirements: The replacement door/frame and hardware shall be substantially similar to the replaced doors with updated products. Replacement door shall be of medium duty and hospital grade. All products and components shall meet most current industry standards for hospital environment. All products and components selected shall be selected and installed to meet the manufacturer’s requirements for best performance of that product with respect to service reliability, durability, and longevity of the entire door and frame assembly as a whole and each individual hardware item and component separately.

Double, interior, 90-minute fire doors.

Parallel Arm Closer Reinforcement (Frame)
Door Closer, Heavy-Duty Grade
5 Knuckle Ball Bearing Hinge 4.5”x4.5” US26D/652 (Satin Chrome)
Vertical Rod Exit Device with Lever 3ft US26D Satin Chrome Less Cylinder
Schlage 20-022-C Rim Cylinder 6 Pin C Keyway 626 (Satin Chrome)
Door Stop, Floor US26D (Satin Chrome)
Rubber Door Silencer
Alterations and additions incidental to work.
Flush Hollow Metal Door 86 Edge Prep.
Existing Wall Anchor Frame Prep; Punch & Dimple w/ Butterfly Anchors and Flat Head Sleeve Anchor Bolts.
Fill and Finish.
Exit Device Trim Function Hole Prep (Metal Door).
Surface Vertical Rod Exit Device Reinforcement (Frame Head)
Door work to include:
Frame anchors mounted to frame or provided according to Contractor's proposed installation method.

Frame reinforcements for exit devices, closers, any other accessories required as or incidental to part of this work.
Door reinforcement, cuts and all prep to mount hardware specified.

2.2 KEYS

A. Not Used. Keys and cylinder by others. Provide a deadbolt and latch assembly minus cylinder for 6-pin interchangeable core.

2.3 ARMOR PLATES, KICK PLATES, MOP PLATES AND DOOR EDGING

A. Not Used.

2.4 EXIT DEVICES

A. Provide Vertical, double, surface mount panic device exits similar in design and function to existing.

2.5 THRESHOLDS

A. No threshold required for this work.

2.6 MISCELLANEOUS HARDWARE

A. Mutes, install two mutes on door frame for each leaf.

B. Install floor mounted door stops for both doors to existing vinyl tile on concrete floor.

2.7 FINISHES

A. See Division 09 for painting and coating requirements for this door.

2.8 BASE METALS

A. Apply specified U.S. Standard finishes on different base metals as following:

Finish	Base Metal
652	Steel
626	Brass or bronze
630	Stainless steel

PART 3 - EXECUTION

3.1 HARDWARE HEIGHTS

A. Locate hardware on doors at heights consistent with existing doors being replaced.

3.2 INSTALLATION

A. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted on side of door inside rooms, inside stairs, and away from corridors. Where closers are mounted on doors they shall be mounted with hex nuts and bolts; foot shall be fastened to frame with machine screws. Door opening force shall not exceed 5 pounds maximum in accordance with ABAAS. Measure and adjust opening force for all doors equipped with closers.

B. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim and surrounding conditions.

C. Hinges Required Per Door:

Door Description	Number & Type of Hinges
Doors over 5 ft high and not over 7 ft 6 in high	3 butts, 5 knuckle, ball bearing, hospital grade.

3.3 FINAL INSPECTION

A. General Contractor shall perform final inspection before requesting inspection by COR. Door shall be correctly installed, properly adjusted, and ready for final acceptance before requesting inspection by COR.

B. Testing results shall be provided to COR at time of COR's inspection. This includes such things as opening force, complete closing and latching, etc. Alternatively, simple tests, such as opening force, may be performed by Contractor and verified by COR at time of final inspection.

3.4 DEMONSTRATION

A. Demonstrate efficacy of mechanical hardware and electrical, and electronic hardware systems, including adjustment and maintenance procedures, to satisfaction of Resident/Project Engineer and VA Locksmith.

- - - E N D - - -

SECTION 09 91 00
PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the painting and finishing as shown on the construction documents and/or specified herein.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Painter qualifications. Painter must be experienced with application of specified coatings. Painter must be able to read, understand, and follow directions of manufacturer(s) for application of product to provide best performance.

C. Manufacturer's Literature and Data:

1. Before work starts, submit the manufacturer's literature and technical data with relevant markings and notes as required.

D. Sample Panels:

1. Sample panels and color boards are not required as part of this work.

E. Manufacturers' Certificates indicating compliance with specified requirements and compatibility with other coating(s) to be used together:

1. Epoxy coating.
2. Primer/Sealer.

1.3 DELIVERY AND STORAGE

A. Deliver materials to site in manufacturer's sealed container marked to show following:

1. Project Name and Number

B. In addition to manufacturer's label, provide a label legibly printed as following:

1. Federal Specification Number, where applicable, and name of material.
2. Surface upon which material is to be applied.
3. Specify Coat Types: Prime; body; finish; etc.

C. Maintain space for storage, and handling of painting materials and equipment in a ventilated, neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.

D. Store materials at site at least 24 hours before using, at a temperature between 7 and 30 degrees C (45 and 85 degrees F).

1.4 **QUALITY ASSURANCE**

A. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces. Submit evidence that key personnel have successfully performed surface preparation and application of coating on a minimum of three (3) similar projects within the past three (3) years.

B. Paint Coordination: Provide finish coats which are compatible with the prime paints used on products as provided from manufacturer. Notify the Contracting Officer Representative (COR) in writing of any anticipated problems using the coating systems as specified with substrates primed by others.

1.5 **REGULATORY REQUIREMENTS**

A. Paint materials

a. Use of specified coatings meets all environmental requirements applicable to this project.

b. Variance from specifications will require reports by Contractor as to the environmental suitability of newly proposed products.

c. Waste materials shall be disposed according to local regulations.

d. Excess coatings in new, unopened original containers shall be provided to the government. Excess materials in opened containers shall be disposed of according to local regulations.

1.6 **SAFETY AND HEALTH**

A. Apply paint materials using safety methods and equipment in accordance with the following:

1. Comply with applicable Federal, State, and local laws and regulations, and with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis (AHA) as specified in Section 01 35 26, SAFETY REQUIREMENTS. The AHA is to include analyses of the potential impact of painting operations on painting personnel and on others involved in and adjacent to the work zone.

1.7 **APPLICABLE PUBLICATIONS**

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

B. American Conference of Governmental Industrial Hygienists (ACGIH):

ACGIH TLV-BKLT-2012.....Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)

ACGIH TLV-DOC-2012.....Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)

C. ASME International (ASME):

A13.1-07(R2013).....Scheme for the Identification of Piping Systems

D. Code of Federal Regulation (CFR):

40 CFR 59.....Determination of Volatile Matter Content, Water Content, Density Volume Solids, and Weight Solids of Surface Coating

E. Commercial Item Description (CID):

A-A-1272A.....Plaster Gypsum (Spackling Compound)

F. Federal Specifications (Fed Spec):

TT-P-1411A.....Paint, Copolymer-Resin, Cementitious (For Waterproofing Concrete and Masonry Walls) (CEP)

G. Master Painters Institute (MPI):

1.....Aluminum Paint

3.....Primer, Alkali Resistant, Water Based

4.....Interior/ Exterior Latex Block Filler

5.....Exterior Alkyd Wood Primer

6.....Exterior, Latex for Exterior Wood Primer

7.....Exterior Oil Wood Primer

8.....Exterior Alkyd, Flat MPI Gloss Level 1

9.....Exterior Alkyd Enamel MPI Gloss Level 6

10.....Exterior Latex, Flat

11.....Exterior Latex, Semi-Gloss

15.....Exterior Latex, Low Sheen (MPI Gloss Level 3-4)

17.....Primer, Bonding, Waterbased

18.....Organic Zinc Rich Primer

22.....Aluminum Paint, High Heat (up to 590% - 1100F)

23.....Primer, Metal, Surface Tolerant

27.....Exterior / Interior Alkyd Floor Enamel, Gloss

31.....Polyurethane, Moisture Cured, Clear Gloss

36.....Knot Sealer

39.....Primer, Latex, for Interior Wood

40.....Exterior, Latex High Build

42.....Textured Coating, Latex, Flat
43.....Interior Satin Latex, MPI Gloss Level 4
44.....Interior Low Sheen Latex, MPI Gloss Level 2
45.....Interior Primer Sealer
46.....Interior Enamel Undercoat
47.....Interior Alkyd, Semi-Gloss, MPI Gloss Level 5
48.....Interior Alkyd, Gloss, MPI Gloss Level 6
50.....Interior Latex Primer Sealer
51.....Interior Alkyd, Eggshell, MPI Gloss Level 3
52.....Interior Latex, MPI Gloss Level 3
53.....Interior Latex, Flat, MPI Gloss Level 1
54.....Interior Latex, Semi-Gloss, MPI Gloss Level 5
59.....Interior/Exterior Alkyd Porch & Floor Enamel, Low Gloss
60.....Interior/Exterior Latex Porch & Floor Paint, Low Gloss
66.....Interior Alkyd Fire Retardant, Clear Top-Coat (ULC Approved)
67.....Interior Latex Fire Retardant, Top-Coat (ULC Approved)
68.....Interior/ Exterior Latex Porch & Floor Paint, Gloss
71.....Polyurethane, Moisture Cured, Clear, Flat
77.....Epoxy Cold Cured, Gloss
79.....Marine Alkyd Metal Primer
90.....Interior Wood Stain, Semi-Transparent
91.....Wood Filler Paste
94.....Exterior Alkyd, Semi-Gloss
95.....Fast Drying Metal Primer
98.....High Build Epoxy Coating
99.....Sealer, Water-based, for Concrete Floors
101.....Epoxy Anti-Corrosive Metal Primer
107.....Primer, Rust-Inhibitive, Water-based

108.....High Build Epoxy Coating, Low Gloss
113.....Elastomeric, Pigmented, Exterior, Water-based, Flat
114.....Interior Latex, Gloss

115.....Epoxy-Modified Latex, Interior Gloss (MPI gloss level 6)
118.....Dry Fall, Latex Flat
119.....Exterior Latex, High Gloss (acrylic)
134.....Galvanized Water Based Primer
135.....Non-Cementitious Galvanized Primer
138.....Interior High Performance Latex, MPI Gloss Level 2
139.....Interior High Performance Latex, MPI Gloss Level 3
140.....Interior High Performance Latex, MPI Gloss Level 4
141.....Interior High Performance Latex (SG) MPI Gloss Level 5
144.....Latex, Interior, Institutional Low Odor / VOC, (MPI Gloss Level 2)
145.....Latex, Interior, Institutional Low Odor / VOC, (MPI Gloss Level 3)
146.....Latex, Interior, Institutional Low Odor / VOC, (MPI Gloss Level 4)
151.....Light Industrial Coating, Interior, Water-based, (MPI Gloss Level 3)
153.....Light Industrial Coating, Interior, Water-based, (MPI Gloss Level 4)
163.....Exterior Water Based Semi-Gloss Light Industrial Coating, MPI Gloss Level 5
164.....Exterior, Water Based, Gloss, Light Industrial Coating, MPI Gloss Level 6

H. Society for Protective Coatings (SSPC):
SSPC SP 1-82(R2004).....Solvent Cleaning
SSPC SP 2-82(R2004).....Hand Tool Cleaning
SSPC SP 3-28(R2004).....Power Tool Cleaning
SSPC SP 10/NACE No.2....Near-White Blast Cleaning
SSPC PA Guide 10.....Guide to Safety and Health Requirements

I. Maple Flooring Manufacturer’s Association (MFMA):

J. U.S. National Archives and Records Administration (NARA):
29 CFR 1910.1000.....Air Contaminants

K. Underwriter’s Laboratory (UL)

PART 2 - PRODUCTS

SPEC WRITER NOTES:

1. Coordinate material requirements to agree with applicable requirements specified in the referenced Applicable Publications.
2. Update and specify only that which applies to the project with paint schedule and Section 09 06 00, SCHEDULE FOR FINISHES.

2.1 **MATERIALS:**

A. Conform to the coating specifications and standards referenced in PART 3. Submit manufacturer's technical data sheets for specified coatings and solvents.

2.2 **PAINT PROPERTIES:**

A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.

B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

C. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer and use only to recommended limits.

D. //VOC Content: For field applications that are inside the weatherproofing system, paints and coating to comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 gram/liter.
2. Non-flat Paints and Coatings: 150 gram/liter.
3. Dry-Fog Coatings: 400 gram/liter.
4. Primers, Sealers, and Undercoaters: 200 gram/liter.
5. Anticorrosive and Antirust Paints applied to Ferrous Metals: 250 gram/liter.
6. Zinc-Rich Industrial Maintenance Primers: 340 gram/liter.
7. Pretreatment Wash Primers: 420 gram/liter.
8. Shellacs, Clear: 730 gram/liter.
9. Shellacs, Pigmented: 550 gram/liter. //

E. VOC test method for paints and coatings is to be in accordance with 40 CFR 59 (EPA Method 24). Part 60, Appendix A with the exempt compounds' content determined by Method 303 (Determination of Exempt Compounds) in the South Coast Air Quality Management District's (SCAQMD) "Laboratory Methods of Analysis for Enforcement Samples" manual.

2.3 **PLASTIC TAPE:**

A. Pigmented vinyl plastic film in colors as specified in Section 09 06 00, SCHEDULE FOR FINISHES or specified.

B. Pressure sensitive adhesive back.

C. // Snap on coil plastic markers.//

D. Widths as shown on construction documents.

2.4 **BIOBASED CONTENT**

A. Paint products shall comply with following bio-based standards for biobased materials:

Material Type	Percent by Weight
Interior Paint	20 percent biobased material
Interior Paint- Oil Based and Solvent Alkyd	67 percent biobased material
Exterior Paint	20 percent biobased material
Wood & Concrete Stain	39 percent biobased content
Polyurethane Coatings	25 percent biobased content
Water Tank Coatings	59 percent biobased content
Wood & Concrete Sealer- Membrane Concrete Sealers	11 percent biobased content
Wood & Concrete Sealer- Penetrating Liquid	79 percent biobased content

B. The minimum-content standards are based on the weight (not the volume) of the material.

PART 3 - EXECUTION

3.1 **JOB CONDITIONS:**

A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.

1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each day’s work.

B. Atmospheric and Surface Conditions:

1. Do not apply coating when air or substrate conditions are:
   a. Less than 3 degrees C (5 degrees F) above dew point.

b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the COR and the product manufacturer. Under no circumstances are application conditions to exceed manufacturer recommendations.

c. When the relative humidity exceeds 85 percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer’s printed instructions.

2. Maintain interior temperatures until paint dries hard.
3. Do no exterior painting when it is windy and dusty.
4. Do not paint in direct sunlight or on surfaces that the sun will warm.
5. Apply only on clean, dry and frost-free surfaces except as follows:

a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces only when allowed by manufacturer's printed instructions.

b. Concrete and masonry when permitted by manufacturer’s recommendations, dampen surfaces to which water thinned acrylic and cementitious paints are applied with a fine mist of water on hot dry days to prevent excessive suction and to cool surface.

6. Varnishing:

a. Apply in clean areas and in still air.

b. Before varnishing vacuum and dust area.

c. Immediately before varnishing wipe down surfaces with a tack rag.

3.2 **INSPECTION:**

A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.3 **GENERAL WORKMANSHIP REQUIREMENTS:**

A. Application may be by brush or roller. Spray application only upon acceptance from the COR in writing.

B. Furnish to the COR a painting schedule indicating when the respective coats of paint for the various areas and surfaces will be completed. This schedule is to be kept current as the job progresses.

C. Protect work at all times. Protect all adjacent work and materials by suitable covering or other method during progress of work. Upon completion of the work, remove all paint and varnish spots from floors, glass and other surfaces. Remove from the premises all rubbish and accumulated

materials of whatever nature not caused by others and leave work in a clean condition.

D. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.

E. When indicated to be painted, remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.

F. Materials are to be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.

G. Apply materials with a coverage to hide substrate completely. When color, stain, dirt or undercoats show through final coat of paint, the surface is to be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Government.

H. All coats are to be dry to manufacturer’s recommendations before applying succeeding coats.

I. All suction spots or “hot spots” in plaster after the application of the first coat are to be touched up before applying the second coat.

J. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

SPEC WRITER NOTES:
1. Insure other technical sections specify acceptable surface conditions to receive paint including patching and repair of new and existing surfaces.
2. Check structural sections specifying ferrous metal; mechanical and electrical sections of the specifications for proper surface condition and compatible prime coats to suit finishes specified. For instance, finish on concrete required to have cementitious coating; type of shop coat on bar joists required to be painted; will any parts of mechanical equipment have to be field painted; what kind of primers are specified, if any.

3.4 **SURFACE PREPARATION:**

A. General:

1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly

prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished are to be completely dry, clean and smooth.

2. See other sections of specifications for specified surface conditions and prime coat.
3. Perform preparation and cleaning procedures in strict accordance with the paint manufacturer’s instructions and as herein specified, for each particular substrate condition.
4. Clean surfaces before applying paint or surface treatments with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.
5. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   a. Concrete: 12 percent.
   b. Fiber-Cement Board: 12 percent.
   c. Masonry (Clay and CMU’s): 12 percent.
   d. Wood: 15 percent.
   e. Gypsum Board: 12 percent.
   f. Plaster: 12 percent.

B. Wood:
1. Sand to a smooth even surface and then dust off.
2. Sand surfaces showing raised grain smooth between each coat.
3. Wipe surface with a tack rag prior to applying finish.
4. Surface painted with an opaque finish:
   a. Coat knots, sap and pitch streaks with MPI 36 (Knot Sealer) before applying paint.
   b. Apply two coats of MPI 36 (Knot Sealer) over large knots.
5. After application of prime or first coat of stain, fill cracks, nail and screw holes, depressions and similar defects with wood filler paste. Sand the surface to make smooth and finish flush with adjacent surface.

6. Before applying finish coat, reapply wood filler paste if required, and sand surface to remove surface blemishes. Finish flush with adjacent surfaces.
7. Fill open grained wood such as oak, walnut, ash and mahogany with MPI 91 (Wood Filler Paste), colored to match wood color.
   a. Thin filler in accordance with manufacturer's instructions for application.
   b. Remove excess filler, wipe as clean as possible, dry, and sand as specified.

C. Ferrous Metals:
1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). // Where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.//
3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.
   a. Fill flat head countersunk screws used for permanent anchors.
   b. Do not fill screws of item intended for removal such as glazing beads.
4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge of spot prime to produce smooth finish coat.
5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.

D. // Zinc-Coated (Galvanized) Metal,// // Aluminum,// // Copper and Copper Alloys // Surfaces Specified Painted:
1. Clean surfaces to remove grease, oil and other deterrents to paint adhesion in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Spot coat abraded and damaged areas of zinc-coating which expose base metal on hot-dip zinc-coated items with MPI 18 (Organic Zinc Rich Coating). Prime or spot prime with MPI 134 (Waterborne Galvanized

Primer) or MPI 135 (Non-Cementitious Galvanized Primer) depending on finish coat compatibility.

E. Masonry, Concrete, Cement Board, Cement Plaster and Stucco:
   1. Clean and remove dust, dirt, oil, grease efflorescence, form release agents, laitance, and other deterrents to paint adhesion.
   2. Use emulsion type cleaning agents to remove oil, grease, paint and similar products. Use of solvents, acid, or steam is not permitted.
   3. Remove loose mortar in masonry work.
   4. Replace mortar and fill open joints, holes, cracks and depressions with new mortar specified in Section 04 05 13, MASONRY MORTARING // Section 04 05 16, MASONRY GROUTING //. Do not fill weep holes. Finish to match adjacent surfaces.
   5. Neutralize Concrete floors to be painted by washing with a solution of 1.4 Kg (3 pounds) of zinc sulfate crystals to 3.8 L (1 gallon) of water, allow to dry three (3) days and brush thoroughly free of crystals.
   6. Repair broken and spalled concrete edges with concrete patching compound to match adjacent surfaces as specified in Division 03, CONCRETE Sections. Remove projections to level of adjacent surface by grinding or similar methods.

F. Gypsum Plaster and Gypsum Board:
   1. Remove efflorescence, loose and chalking plaster or finishing materials.
   2. Remove dust, dirt, and other deterrents to paint adhesion.
   3. Fill holes, cracks, and other depressions with CID-A-A-1272A finished flush with adjacent surface, with texture to match texture of adjacent surface. Patch holes over 25 mm (1-inch) in diameter as specified in Section for plaster or gypsum board.

3.5 **PAINT PREPARATION:**

A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.

B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.

C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.

D. Mix two (2) component and two (2) part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.

E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.6 **APPLICATION:**

A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.

B. Unless otherwise specified, apply paint in three (3) coats; prime, body, and finish. When two (2) coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.

C. Apply each coat evenly and cover substrate completely.

D. Allow not less than 48 hours between application of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by COR.

SPEC WRITER NOTE: Do not allow spray painting at existing buildings occupied during the course of the work. Spray painting may be allowed in certain areas of new additions or separate buildings. Coordinate restrictions with COR.

E. Apply by brush or roller. Spray application for new or existing occupied spaces only upon approval by acceptance from COR in writing.

SPEC WRITER NOTE: Check application requirements with manufacturer of materials specified to determine if below paragraphs are applicable.

1. Apply painting materials specifically required by manufacturer to be applied by spraying.
2. In new construction and in existing occupied spaces, where paint is applied by spray, mask or enclose with polyethylene, or similar air tight material with edges and seams continuously sealed including items specified in “Building and Structural Work Field Painting”; “Work not Painted”; motors, controls, telephone, and electrical equipment, fronts of sterilizes and other recessed equipment and similar prefinished items.

F. Do not paint in closed position operable items such as access doors and panels, window sashes, overhead doors, and similar items except overhead roll-up doors and shutters.

3.7 **PRIME PAINTING:**

A. After surface preparation, prime surfaces before application of body and finish coats, except as otherwise specified.

B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.

C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel apply an additional prime coat.

D. Prime rabbets for stop and face glazing of wood, and for face glazing of steel.

E. Wood and Wood Particleboard:

1. Use same kind of primer specified for exposed face surface.
   a. Exterior wood: MPI 7 (Exterior Oil Wood Primer) for new construction and MPI 5(Exterior Alkyd Wood Primer) for repainting bare wood primer except where MPI 90 (Interior Wood Stain, Semi-Transparent) is scheduled.
   b. Interior wood except for transparent finish: MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat), thinned if recommended by manufacturer.
   c. Transparent finishes as specified under "Transparent Finishes on Wood Except Floors Article" // and "Finish for Wood Floors Article" //.
2. Apply two (2) coats of primer MPI 7 (Exterior Oil Wood Primer) or MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) to surfaces of wood doors, including top and bottom edges, which are cut for fitting or for other reason.
3. Apply one (1) coat of primer MPI 7 (Exterior Oil Wood Primer) or MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) as soon as delivered to site to surfaces of unfinished woodwork, except concealed surfaces of shop fabricated or assembled millwork and surfaces specified to have varnish, stain or natural finish.
4. Back prime and seal ends of exterior woodwork, and edges of exterior plywood specified to be finished.
5. Apply MPI 67 (Interior Latex Fire Retardant, Top-Coat (UL Approved) to wood for fire retardant finish.

F. Metals except boilers, incinerator stacks, and engine exhaust pipes:

1. Steel and iron: // MPI 79 (Marine Alkyd Metal Primer) // // MPI 95 (Fast Drying Metal Primer) //. Use MPI 101 (Cold Curing Epoxy Primer) where // MPI 77 (Epoxy Cold Cured, Gloss // // MPI 98 (High Build Epoxy Coating) // // MPI 108 (High Build Epoxy Marine Coating // finish is specified.
2. Zinc-coated steel and iron: // MPI 134 (Waterborne Galvanized Primer) // // MPI 135 (Non-Cementitious Galvanized Primer) //.

3.8 **EXTERIOR FINISHES:**

A. Apply following finish coats where specified in Section 09 06 00, SCHEDULE FOR FINISHES.

B. Wood:

1. Do not apply finish coats on surfaces concealed after installation, top and bottom edges of wood doors and sash, or on edges of wood framed insect screens.
2. Two (2) coats of // MPI 10 Exterior Latex, Flat) // // MPI 11 (Exterior Latex, Semi-Gloss) // // MPI 119 (Exterior Latex, High Gloss (acrylic)) // on exposed surfaces, except where transparent finish is specified.
3. Two (2) coats of // MPI 31 (Polyurethane, Moisture Cured, Clear Gloss) // // MPI 71 (Polyurethane, Moisture Cured, Clear Flat) // for transparent finish.

C. Steel and Ferrous Metal:

1. Chemical and moisture resistance and durability of the coating are paramount. Painted/coated products will be factory primed but may have small scratches or pinholes in the factory applied primer coat. Do not use water based coatings on the metal door or frame as this may promote rusting of the underlying material.
2. Use a two-part solvent/oil based epoxy such as Diamond Vogel Mult-E-Poxy 180 in the color specified.
3. Apply number of coats necessary to achieve 10 mil thickness according to manufacturer’s instruction for best performance.

D. Concrete Masonry Units // Brick // // Cement Plaster // // Concrete //:

1. General:
   a. Where specified in Section 09 06 00, SCHEDULE FOR FINISHES or shown.
   b. Mix as specified in manufacturer's printed directions.
   c. Do not mix more paint than can be used within four (4) hours after mixing. Discard paint that has started to set.

d. Dampen warm surfaces above 24 degrees C (75 degrees F) with fine mist of water before application of paint. Do not leave free water on surface.

e. Cure paint with a fine mist of water as specified in manufacturer's printed instructions.

2. Use two (2) coats of TT-P-1411 (Paint, Co-polymer-Resin, Cementitious), unless specified otherwise.

3.9 **INTERIOR FINISHES:**

A. Apply following finish coats over prime coats in spaces or on surfaces specified in Section 09 06 00, SCHEDULE FOR FINISHES.

SPECS WRITER NOTE: List other metals and finish coats required for field painting in Section 09 06 00, SCHEDULE FOR FINISHES.

B. Metal Work:

1. Apply to exposed surfaces.

2. Omit body and finish coats on surfaces concealed after installation except electrical conduit containing conductors over 600 volts.

3. Ferrous Metal, Galvanized Metal, and Other Metals Scheduled:

a. Apply two (2) coats of MPI 47 (Interior Alkyd, Semi-Gloss) unless specified otherwise.

b. Two (2) coats of // MPI 48 (Interior Alkyd Gloss) // // MPI 51 (Interior Alkyd, Eggshell) //.

c. One (1) coat of MPI 46 (Interior Enamel Undercoat) plus one coat of MPI 47 (Interior Alkyd, Semi-Gloss) on exposed interior surfaces of alkyd-amine enamel prime finished windows.

d. One (1) coat of MPI 101 primer over two (2) coats of waterborne light industrial coating MPI 163 on exposed surfaces in // battery rooms // // pool area // // chlorinator rooms //. Steel is to be blast cleaned to SSPC 10/NACE No. 2.

e. Machinery: One (1) coat MPI 9 (Exterior Alkyd Enamel).

f. Asphalt Coated Metal: One (1) coat MPI 1 (Aluminum Paint).

g. Ferrous Metal over 94 degrees K (290 degrees F): Boilers, Incinerator Stacks, and Engine Exhaust Pipes: One (1) coat MPI 22 (High Heat Resistant Coating.

C. Gypsum Board:

1. One (1) coat of // MPI 45 (Interior Primer Sealer) // // MPI 46 (Interior Enamel Undercoat) // plus one (1) coat of MPI 139 (Interior High Performance Latex, MPI Gloss level 3).

2. Two (2) coats of MPI 138 (Interior High Performance Latex, MPI Gloss Level 2).
3. One (1) coat of // MPI 45 (Interior Primer Sealer) // // MPI 46 (Interior Enamel Undercoat) // plus one (1) coat of MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5) or MPI 114 (Interior Latex, Gloss).
4. One (1) coat of // MPI 45 (Interior Primer Sealer) // MPI 46 (Interior Enamel Undercoat) // plus one (1) coat of MPI 48 (Interior Alkyd Gloss).

D. Plaster:
1. One (1) coat of // MPI 45 (Interior Primer Sealer) // MPI 46 (Interior Enamel Undercoat) // MPI 50 (Interior Latex Primer Sealer) // plus one (1) coat of MPI 139 (Interior High Performance Latex, MPI Gloss level 3).
2. Two (2) coats of MPI 51 (Interior Alkyd, Eggshell).
3. One (1) coat of // MPI 45 (Interior Primer Sealer) // // MPI 46 (Interior Enamel Undercoat) // or MPI 50 (Interior Latex Primer Sealer) plus one (1) coat of 139 (Interior High Performance Latex, MPI Gloss level 3).
4. One (1) coat MPI 101 (Cold Curing Epoxy Prime).

E. Masonry and Concrete Walls:
1. Over MPI 4 (Interior/Exterior Latex Block Filler) on CMU surfaces.
2. Two (2) coats of // MPI 53 (Interior Latex, Flat, MPI Gloss Level 1) // // MPI 52 (Interior Latex, MPI Gloss Level 3) // // MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5) // // MPI 114 (Interior Latex, Gloss) //.
3. Two (2) coats of // MPI 138 (Interior High Performance Latex, MPI Gloss Level 2) // // MPI 139 (Interior High Performance Latex, MPI Gloss Level 3) // // MPI 140 (Interior High Performance Latex MPI Gloss Level 4) // // MPI 141 (Interior High Performance Latex MPI Gloss Level 5) // // MPI 114 (Interior Latex, Gloss) //.

F. Wood:
1. Sanding:
   a. Use 220-grit sandpaper.
   b. Sand sealers and varnish between coats.
   c. Sand enough to scarify surface to assure good adhesion of subsequent coats, to level roughly applied sealer and varnish, and to knock off "whiskers" of any raised grain as well as dust particles.

2. Sealers:
   a. MPI 31 (gloss) or MPI 71 (flat) thinned as recommended by manufacturer at rate of one (1) part of thinner to four (4) parts of varnish.
   b. Apply sealers specified except sealer may be omitted where pigmented, penetrating, or wiping stains containing resins are used.
   c. Allow manufacturer's recommended drying time before sanding, but not less than 24 hours or 36 hours in damp or muggy weather.
   d. Sand as specified.
3. Paint Finish:
   a. One (1) coat of // MPI 45 (Interior Primer Sealer) // // MPI 46 (Interior Enamel Undercoat) // plus one (1) coat of MPI 47 (Interior Alkyd, Semi-Gloss.
   b. One (1) coat // MPI 66 (Interior Alkyd Fire retardant, Clear Top-Coat (UL Approved) // // MPI 67 (Interior Latex Fire Retardant, Top-Coat (UL Approved), intumescent type, on exposed wood // in attics with floors used for mechanical equipment // // and above ceilings where shown //.
   c. One (1) coat of // MPI 45 Interior Primer Sealer) // // MPI 46 (Interior Enamel Undercoat) // plus one (1) coat of MPI 48 (Interior Alkyd Gloss).
   d. Two (2) coats of MPI 51 (Interior Alkyd, Eggshell).
4. Transparent Finishes on Wood Except Floors.
   a. Natural Finish:
      One (1) coat of sealer // MPI 31 (gloss) // // MPI 71 (flat) // thinned with thinner recommended by manufacturer at rate of one (1) part of thinner to four (4) parts of varnish.
      Two (2) coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat // MPI 31 (Polyurethane, Moisture Cured, Clear Gloss.

      SPEC WRITER NOTES:
      1. Stain may be used when transparent finishes are specified to change the color of sapwood to match heartwood, and to enhance or even the color of the wood as required to match the finish specified.
      2. Verify requirements for stain with Section 09 06 00, SCHEDULE FOR FINISHES and woods used.

   b. Stain Finish:
      One (1) coat of MPI 90 (Interior Wood Stain, Semi-Transparent).

Use wood stain of type and color required to achieve finish specified. Do not use varnish type stains.

One (1) coat of sealer // MPI 31 (gloss) // // MPI 71 (flat) // thinned as recommended by manufacturer at rate of one (1) part of thinner to four (4) parts of varnish.

Two (2) coats of // MPI 71 (Polyurethane, Moisture Cured, Clear Flat) // // MPI 31 (Polyurethane Moisture Cured, Clear Gloss) //.

c. Varnish Finish:

One (1) coat of sealer // MPI 31 (gloss) // // MPI 71 (flat) // thinned as recommended by manufacturer at rate of one (1) part of thinner to four (4) parts of varnish.

Two (2) coats of // MPI 71 (Polyurethane, Moisture Cured, Clear Flat) // // MPI 31 (Polyurethane Moisture Cured, Clear Gloss) //.

d. Fire Retardant Intumescent Varnish:

MPI 66 (Interior Alkyd Fire Retardant, Clear Top-Coat (UL Approved)) Intumescent Type, Fire Retardant Coating where scheduled: Two (2) coats.

5. Finish for Wood Floors:

a. Hardwood Flooring:

Apply MPI 91 (Wood Filler Paste) to open grained wood. Remove surplus filler and wipe clean.

Sand lightly when dry. Remove dust.

Apply two (2) coats of CID-A-A-2335 (Sealer, Surface).

Apply two (2) thin coats of P-W-155 (Wax Floor, Water Emulsion) and machine buff to uniform luster.

b. Stage Floor: Sand only. No filling, sealing, or waxing is required.

c. // Exercise Area // // Recreation Hall //, // Gymnasium //, // Handball Boards in Exercise Area // Floor Finish:

Floor-Sealer Formulation: Pliable, penetrating type, MFMA Group I, Sealers.

Finish-Coat Formulation: Formulated for gloss finish and multicoat application.

Type: MFMA Group 5, Water-Based Finishes.

Allow 48 hours between coats.

Apply in one (1) continuous operation with squeegee or lamb’s wool applicator with application free from streaks in accordance with plastic coating manufacturer's directions.

SPEC WRITER NOTE: Verify stripe width, layouts and colors are to be shown in construction documents.

d. Striping:

Where striping is shown on construction documents for wood floors, apply pressure sensitive adhesive back vinyl plastic tape stripes in widths shown in construction documents.

Do striping when floor coating is dry.

Install stripes to straight lines and true curves.

Provide colors as specified in Section 09 06 00, SCHEDULE FOR FINISHES or indicated in construction documents.

G. Cement Board: One (1) coat of // MPI 138 (Interior High Performance Latex, MPI Gloss Level 2) // // MPI 139 (Interior High Performance Latex, MPI Gloss Level 3) // // MPI 140 (Interior High Performance Latex MPI Gloss Level 4) // // MPI 141 (Interior High Performance Latex, MPI Gloss Level 5 // // MPI 114 (Interior Latex, Gloss) //.

H. Concrete Floors: One (1) coat of MPI 68 (Interior/ Exterior Latex Porch & Floor Paint, Gloss).

I. Miscellaneous:

1. Apply where specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. MPI 1 (Aluminum Paint): Two (2) coats of aluminum paint.
3. Existing acoustical units scheduled to be repainted except acoustical units with a vinyl finish:
   a. Clean units free of dust, dirt, grease, and other deterrents to paint adhesion.
   b. Mineral fiber units: One (1) coat of // MPI 53 (Interior Latex, Flat, MPI Gloss Level 1) // // MPI 52 (Interior Latex, MPI Gloss Level 3) // // MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5) // // MPI 114 (Interior Latex, Gloss) //.
   c. Units of organic fiber or other material not having a class A rating: One (1) coat of // MPI 66 (Interior Alkyd Fire Retardant, Clear Top-Coat (UL Approved)) // // MPI 67 (Interior Latex Fire Retardant, Top-Coat (UL Approved)) // fire retardant paint.
4. Interstitial floor markings: One (1) coat // MPI 27 (Exterior/ Interior Alkyd Floor Enamel, Gloss) // // MPI 59 ((Interior/ Exterior Alkyd Porch & Floor Enamel, Low Gloss) // // MPI 68 (Interior/ Exterior Latex Porch & Floor Paint, Gloss) // // MPI 60 (interior/ Exterior Latex Porch & Floor Paint, Low Gloss) //.

3.10 **REFINISHING EXISTING PAINTED SURFACES:**

A. Clean, patch and repair existing surfaces as specified under "Surface Preparation". No "telegraphing" of lines, ridges, flakes, etc., through new surfacing is permitted. Where this occurs, sand smooth and re-finish until surface meets with COR's approval.

B. Remove and reinstall items as specified under "General Workmanship Requirements".

C. Remove existing finishes or apply separation coats to prevent non compatible coatings from having contact.

D. Patched or Replaced Areas in Surfaces and Components: Apply spot prime and body coats as specified for new work to repaired areas or replaced components.

E. Except where scheduled for complete painting apply finish coat over plane surface to nearest break in plane, such as corner, reveal, or frame.

F. In existing rooms and areas where alterations occur, clean existing stained and natural finished wood retouch abraded surfaces and then give entire surface one (1) coat of // MPI 31 (Polyurethane, Moisture Cured, Clear Gloss) // // MPI 71 (Polyurethane, Moisture Cured, Clear Flat) //.

G. Refinish areas as specified for new work to match adjoining work unless specified or scheduled otherwise.

H. Coat knots and pitch streaks showing through old finish with MPI 36 (Knot Sealer) before refinishing.

I. Sand or dull glossy surfaces prior to painting.

J. Sand existing coatings to a feather edge so that transition between new and existing finish will not show in finished work.

3.11 **PAINT COLOR:**

A. Color and gloss of finish coats is specified in Section 09 06 00, SCHEDULE FOR FINISHES.

B. For additional requirements regarding color see Articles, "REFINISHING EXISTING PAINTED SURFACE" and "MECHANICAL AND ELECTRICAL FIELD PAINTING SCHEDULE".

C. Coat Colors:

1. Color of priming coat: Lighter than body coat.
2. Color of body coat: Lighter than finish coat.
3. Color prime and body coats to not show through the finish coat and to mask surface imperfections or contrasts.

D. Painting, Caulking, Closures, and Fillers Adjacent to Casework:

1. Paint to match color of casework where casework has a paint finish.

2. Paint to match color of wall where casework is stainless steel, plastic laminate, or varnished wood.

3.12 **MECHANICAL AND ELECTRICAL WORK FIELD PAINTING SCHEDULE:**

A. Field painting of mechanical and electrical consists of cleaning, touching-up abraded shop prime coats, and applying prime, body and finish coats to materials and equipment if not factory finished in space scheduled to be finished.

B. In spaces not scheduled to be finish painted in Section 09 06 00, SCHEDULE FOR FINISHES paint as specified below.

C. Paint various systems specified in Division 02 – EXISTING CONDITIONS, Division 21 – FIRE SUPPRESSION, Division 22 - PLUMBING, Division 23 – HEATING, VENTILATION AND AIR-CONDITIONING, Division 26 - ELECTRICAL, Division 27 - COMMUNICATIONS, and Division 28 – ELECTRONIC SAFETY AND SECURITY.

D. Paint after tests have been completed.

E. Omit prime coat from factory prime-coated items.

F. Finish painting of mechanical and electrical equipment is not required when located in interstitial spaces, above suspended ceilings, in concealed areas such as pipe and electric closets, pipe basements, pipe tunnels, trenches, attics, roof spaces, shafts and furred spaces except on electrical conduit containing feeders 600 volts or more.

G. Omit field painting of items specified in “BUILDING AND STRUCTURAL WORK FIELD PAINTING”; “Building and Structural Work not Painted”.

H. Color:

1. Paint items having no color specified in Section 09 06 00, SCHEDULE FOR FINISHES to match surrounding surfaces.

2. Paint colors as specified in Section 09 06 00, SCHEDULE FOR FINISHES except for following:

SPEC WRITER NOTE: Do not change the following color designation.

a. White: Exterior unfinished surfaces of enameled plumbing fixtures. Insulation coverings on breeching and uptake inside boiler house, drums and drum-heads, oil heaters, condensate tanks and condensate piping.

b. Gray: Heating, ventilating, air conditioning and refrigeration equipment (except as required to match surrounding surfaces), and water and sewage treatment equipment and sewage ejection equipment.

c. Aluminum Color: Ferrous metal on outside of boilers and in connection with boiler settings including supporting doors and door frames and fuel oil burning equipment, and steam generation system (bare piping, fittings, hangers, supports, valves, traps and miscellaneous iron work in contact with pipe).

d. Federal Safety Red: Exposed fire protection piping, hydrants, post indicators, electrical conducts containing fire alarm control wiring, and fire alarm equipment.

e. Federal Safety Orange: Entire lengths of electrical conduits containing feeders 600 volts or more.

f. Color to match brickwork sheet metal covering on breeching outside of exterior wall of boiler house.

I. Apply paint systems on properly prepared and primed surface as follows:

1. Exterior Locations:

a. Apply two (2) coats of // MPI 8 (Exterior Alkyd, Flat) // // MPI 94 (Exterior Alkyd, Semi-gloss) // // MPI 9 (Exterior Alkyd Enamel) // to the following ferrous metal items:

Vent and exhaust pipes with temperatures under 94 degrees C(201 degrees F), roof drains, fire hydrants, post indicators, yard hydrants, exposed piping and similar items.

b. Apply two (2) coats of // MPI 10 (Exterior Latex, Flat) // // MPI 11 (Exterior Latex, Semi-Gloss) // // MPI 119 (Exterior Latex, High Gloss (acrylic)) // to galvanized and zinc-copper alloy metal.

c. Apply one (1) coat of MPI 22 (High Heat Resistant Coating), 650 degrees C (1200 degrees F) to incinerator stacks, boiler stacks, and engine generator exhaust.

2. Interior Locations:

a. Apply two (2) coats of MPI 47 (Interior Alkyd, Semi-Gloss) to following items:

Metal under 94 degrees C (201 degrees F) of items such as bare piping, fittings, hangers and supports.

Equipment and systems such as hinged covers and frames for control cabinets and boxes, cast-iron radiators, electric conduits and panel boards.

Heating, ventilating, air conditioning, plumbing equipment, and machinery having shop prime coat and not factory finished.

b. Ferrous metal exposed in hydrotherapy equipment room and chlorinator room of water and sewerage treatment plants: One (1) coat of MPI 101

(Cold Curing Epoxy Primer) and one (1) coat of // MPI 77 (Epoxy Cold Cured, Gloss // // MPI 98 (High Build Epoxy Coating)) // // MPI 108 (High Build Epoxy Marine coating) //.

c. Apply one (1) coat of MPI 50 (Interior Latex Primer Sealer) and one (1) coat of // MPI 53 (Interior Latex, Flat, MPI Gloss Level 1) // // MPI 44 (Interior Low Sheen Latex) // // MPI 52 (Interior Latex, MPI Gloss Level 3) // //MPI 43 (Interior Satin Latex) // // MPI 54 (Interior Latex, Semi-Gloss, MPI Gloss Level 5) // // MPI 114 (Interior Latex, Gloss) // on finish of insulation on boiler breeching and uptakes inside boiler house, drums, drumheads, oil heaters, feed water heaters, tanks and piping.

d. Apply two (2) coats of MPI 22 (High Heat Resistant Coating) to ferrous metal surface over 94 degrees K (290 degrees F) of following items:

Garbage and trash incinerator.

Medical waste incinerator.

Exterior of boilers and ferrous metal in connection with boiler settings including supporting members, doors and door frames and fuel oil burning equipment.

Steam line flanges, bare pipe, fittings, valves, hangers and supports over 94 degrees K (290 degrees F).

Engine generator exhaust piping and muffler.

e. Paint electrical conduits containing cables rated 600 volts or more using two (2) coats of // MPI 9 (Exterior Alkyd Enamel) // // MPI 8 (Exterior Alkyd, Flat) // // MPI 94 (Exterior Alkyd, Semi-gloss) // in the Federal Safety Orange color in exposed and concealed spaces full length of conduit.

3. Other exposed locations:

a. Metal surfaces, except aluminum, of cooling towers exposed to view, including connected pipes, rails, and ladders: Two (2) coats of MPI 1 (Aluminum Paint).

b. Cloth jackets of insulation of ducts and pipes in connection with plumbing, air conditioning, ventilating refrigeration and heating systems: One (1) coat of MPI 50 (Interior Latex Primer Sealer) and one (1) coat of // MPI 10 (Exterior Latex, Flat) // // MPI 11 (Exterior Latex Semi-Gloss // // MPI 119 (Exterior Latex, High Gloss (acrylic)) //.

3.13 **BUILDING AND STRUCTURAL WORK FIELD PAINTING:**

A. Painting and finishing of interior and exterior work except as specified here-in-after.

1. Painting and finishing of new // and existing // work including colors and gloss of finish selected is specified in Finish Schedule, Section 09 06 00, SCHEDULE FOR FINISHES.
2. Painting of disturbed, damaged and repaired or patched surfaces when entire space is not scheduled for complete repainting or refinishing.
3. Painting of ferrous metal and galvanized metal.
4. Painting of wood with fire retardant paint exposed in attics, when used as mechanical equipment space (except shingles).
5. Identity painting and safety painting.

B. Building and Structural Work not Painted:

1. Prefinished items:
   a. Casework, doors, elevator entrances and cabs, metal panels, wall covering, and similar items specified factory finished under other sections.
   b. Factory finished equipment and pre-engineered metal building components such as metal roof and wall panels.
2. Finished surfaces:
   a. Hardware except ferrous metal.
   b. Anodized aluminum, stainless steel, chromium plating, copper, and brass, except as otherwise specified.
   c. Signs, fixtures, and other similar items integrally finished.
3. Concealed surfaces:
   a. Inside dumbwaiter, elevator and duct shafts, interstitial spaces, pipe basements, crawl spaces, pipe tunnels, above ceilings, attics, except as otherwise specified.
   b. Inside walls or other spaces behind access doors or panels.
   c. Surfaces concealed behind permanently installed casework and equipment.
4. Moving and operating parts:
   a. Shafts, chains, gears, mechanical and electrical operators, linkages, and sprinkler heads, and sensing devices.
   b. Tracks for overhead or coiling doors, shutters, and grilles.
5. Labels:
   a. Code required label, such as Underwriters Laboratories Inc., Intertek Testing Service or Factory Mutual Research Corporation.

b. Identification plates, instruction plates, performance rating, and nomenclature.

6. Galvanized metal:
   a. Exterior chain link fence and gates, corrugated metal areaways, and gratings.
   b. Gas Storage Racks.
   c. Except where specifically specified to be painted.
7. Metal safety treads and nosings.
8. Gaskets.

SPEC WRITER NOTES:
1. Edit other exposed concrete surfaces not required to be painted.
2. Coordinate with Section 09 06 00, SCHEDULE FOR FINISHES to schedule exceptions to not painted surfaces.

9. Concrete curbs, gutters, pavements, retaining walls, exterior exposed foundations walls and interior walls in pipe basements.
10. Face brick.
11. Structural steel encased in concrete, masonry, or other enclosure.
12. Structural steel to receive sprayed-on fire proofing.
13. Ceilings, walls, columns in interstitial spaces.
14. Ceilings, walls, and columns in pipe basements.
15. Wood Shingles.

3.14 **IDENTITY PAINTING SCHEDULE:**

A. Identify designated service in new buildings or projects with extensive remodeling in accordance with ASME A13.1, unless specified otherwise, on exposed piping, piping above removable ceilings, piping in accessible pipe spaces, interstitial spaces, and piping behind access panels. For existing spaces where work is minor match existing.
   1. Legend may be identified using snap-on coil plastic markers or by paint stencil applications.
   2. Apply legends adjacent to changes in direction, on branches, where pipes pass through walls or floors, adjacent to operating accessories such as valves, regulators, strainers and cleanouts a minimum of 12.2 M (40 feet) apart on straight runs of piping. Identification next to plumbing fixtures is not required.
   3. Locate Legends clearly visible from operating position.
   4. Use arrow to indicate direction of flow using black stencil paint.

5. Identify pipe contents with sufficient additional details such as temperature, pressure, and contents to identify possible hazard. Insert working pressure shown on construction documents where asterisk appears for High, Medium, and Low Pressure designations as follows:
   a. High Pressure - 414 kPa (60 psig) and above.
   b. Medium Pressure - 104 to 413 kPa (15 to 59 psig).
   c. Low Pressure - 103 kPa (14 psig) and below.
   d. Add Fuel oil grade numbers.
6. Legend name in full or in abbreviated form as follows:

SPEC WRITER NOTES:
1. Check with mechanical sections to determine legends required, and pressures.
2. Define Fuel oil grade.

PIPING	COLOR OF EXPOSED PIPING	COLOR OF BACKGROUND	COLOR OF LETTERS	LEGEND ABBREVIATIONS
Blow-off		Green	White	Blow-off
Boiler Feedwater		Green	White	Blr Feed
A/C Condenser Water Supply		Green	White	A/C Cond Wtr Sup
A/C Condenser Water Return		Green	White	A/C Cond Wtr Ret
Chilled Water Supply		Green	White	Ch. Wtr Sup
Chilled Water Return		Green	White	Ch. Wtr Ret
Shop Compressed Air		Blue	White	Shop Air
Air-Instrument Controls		Green	White	Air-Inst Cont
Drain Line		Green	White	Drain
Emergency Shower		Green	White	Emg Shower
High Pressure Steam		Green	White	H.P. _____*
High Pressure Condensate Return		Green	White	H.P. Ret ____*
Medium Pressure Steam		Green	White	M. P. Stm ____*
Medium Pressure Condensate Return		Green	White	M.P. Ret _____*
Low Pressure Steam		Green	White	L.P. Stm _____*
Low Pressure Condensate Return		Green	White	L.P. Ret _____*
High Temperature Water Supply		Green	White	H. Temp Wtr Sup
High Temperature Water Return		Green	White	H. Temp Wtr Ret
Hot Water Heating Supply		Green	White	H. W. Htg Sup

Hot Water Heating Return		Green	White	H. W. Htg Ret
Gravity Condensate Return		Green	White	Gravity Cond Ret
Pumped Condensate Return		Green	White	Pumped Cond Ret
Vacuum Condensate Return		Green	White	Vac Cond Ret
Fuel Oil - Grade // //		Brown	White	Fuel Oil-Grade // //
(Diesel Fuel included under Fuel Oil)				
Boiler Water Sampling		Green	White	Sample
Chemical Feed		Green	White	Chem Feed
Continuous Blow-Down		Green	White	Cont. B D
Pumped Condensate		Green	White	Pump Cond
Pump Recirculating		Green	White	Pump-Recirc.
Vent Line		Green	White	Vent
Alkali		Orange	Black	Alk
Bleach		Orange	Black	Bleach
Detergent		Yellow	Black	Det
Liquid Supply		Yellow	Black	Liq Sup
Reuse Water		Yellow	Black	Reuse Wtr
Cold Water (Domestic)	White	Green	White	C.W. Dom
Hot Water (Domestic)				
Supply	White	Yellow	Black	H.W. Dom
Return	White	Yellow	Black	H.W. Dom Ret
Tempered Water	White	Yellow	Black	Temp. Wtr
Ice Water				
Supply	White	Green	White	Ice Wtr
Return	White	Green	White	Ice Wtr Ret
Reagent Grade Water		Green	White	RG
Reverse Osmosis		Green	White	RO
Sanitary Waste		Green	White	San Waste
Sanitary Vent		Green	White	San Vent
Storm Drainage		Green	White	St Drain
Pump Drainage		Green	White	Pump Disch
Chemical Resistant Pipe				
Waste		Orange	Black	Acid Waste
Vent		Orange	Black	Acid Vent
Atmospheric Vent		Green	White	ATV
Silver Recovery		Green	White	Silver Rec
Oral Evacuation		Green	White	Oral Evac
Fuel Gas		Yellow	Black	Gas
Fire Protection Water				
Sprinkler	Red	Red	White	Auto Spr
Standpipe	Red	Red	White	Stand
Sprinkler	Red	Red	White	Drain

SPEC WRITER NOTE: If solar hot water system is on project, include the following.

// Hot Water Supply Dom./

Solar Water	Green	White	H.W. Sup Dom/SW

Hot Water Return Dom./

Solar Water	Green	White	H.W. Ret Dom/SW //

SPEC WRITE NOTE: Coordinate with Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS / Section 27 05 33, RACEWAYS AND BOXES FOR COMMUNICATIONS SYSTEMS / Section 28 05 28.33, CONDUIT AND BACKBOXES FOR ELECTRONIC SAFETY AND SECURITY. Electrical conduits carrying high voltage require labels in compliance with Occupational Safety and Health Office. Label is to be listed as class 5000, 15000, and 25000 and not exact voltage.

7. Electrical Conduits containing feeders over 600 volts, paint legends using 50 mm (2 inch) high black numbers and letters, showing the voltage class rating. Provide legends where conduits pass through walls and floors and at maximum 6096 mm (20 foot) intervals in between. Use labels with yellow background with black border and words Danger High Voltage Class, // 5000 // // 15000 // // 25000 //.
8. See Sections for methods of identification, legends, and abbreviations of the following:
   a. Regular compressed air lines: Section 22 15 00, GENERAL SERVICE COMPRESSED-AIR SYSTEMS.
   b. Dental compressed air lines: Section 22 61 13.74, DENTAL COMPRESSED-AIR PIPING / Section 22 61 19.74, DENTAL COMPRESSED-AIR EQUIPMENT.
   c. Laboratory gas and vacuum lines: Section 22 62 00, VACUUM SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES / Section 22 63 00, GAS SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES.
   d. Oral evacuation lines: Section 22 62 19.74, DENTAL VACUUM AND EVACUATION EQUIPMENT.
   e. Medical Gases and vacuum lines: Section 22 62 00, VACUUM SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES / Section 22 63 00, GAS SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES.
   f. Conduits containing high voltage feeders over 600 volts: Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS / Section 27 05 33, RACEWAYS AND BOXES FOR COMMUNICATIONS SYSTEMS /

Section 28 05 28.33, CONDUITS AND BACKBOXES FOR ELECTRONIC SAFETY AND SECURITY.

B. Fire and Smoke Partitions:
   1. Identify partitions above ceilings on both sides of partitions except within shafts in letters not less than 64 mm (2 1/2 inches) high.
   2. Stenciled message: "SMOKE BARRIER" or, "FIRE BARRIER" as applicable.
   3. Locate not more than 6096 mm (20 feet) on center on corridor sides of partitions, and with a least one (1) message per room on room side of partition.
   4. Use semi-gloss paint of color that contrasts with color of substrate.

C. Identify columns in pipe basements and interstitial space:
   1. Apply stenciled number and letters to correspond with grid numbering and lettering indicated on construction documents.
   2. Paint numbers and letters 101 mm (4 inches) high, locate 45 mm (18 inches) below overhead structural slab.
   3. Apply on four (4) sides of interior columns and on inside face only of exterior wall columns.
   4. Color:
      a. Use black on concrete columns.
      b. Use white or contrasting color on steel columns.

3.15 **PROTECTION CLEAN UP, AND TOUCH-UP:**

A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.

B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.

C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

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SECTION 22 05 23
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes the requirements for general-duty valves for domestic water and sewer systems.

B. A complete listing of common acronyms and abbreviations are included in Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

1.2 RELATED WORK

A. Section 31 20 11, Earthwork.

1.3 APPLICABLE PUBLICATIONS

A. Comply with latest versions of the normal and usual standards for this specific application as classified, unless specified otherwise in the contract.

B. Standards applied shall be for Fire Sprinkler mains serving medical care facilities and administrative buildings.

1.4 SUBMITTALS

A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 23 of this contract.

B. Information and material submitted under this section shall be marked with project name and number per Division 01, Section 01 33 23 requirements.

C. Manufacturer's Literature and Data including full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.

D. Complete operating and maintenance manuals including wiring diagrams, technical data sheets, information for ordering replaceable parts and troubleshooting guide:

1. Include complete list indicating all components of the systems.
2. Diagrams shall have their terminals identified to facilitate installation, operation and maintenance.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Valves shall be prepared for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, grooves, and weld ends.
3. Set angle, gate, and globe valves closed to prevent rattling.
4. Set ball and plug valves open to minimize exposure of functional surfaces.
5. Set butterfly valves closed or slightly open.
6. Block check valves in either closed or open position.

B. Valves shall be prepared for storage as follows:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher than ambient dew point temperature.

C. A sling shall be used for large valves. The sling shall be rigged to avoid damage to exposed parts. Hand wheels or stems shall not be used as lifting or rigging points.

1.6 AS BUILT DOCUMENTATION

A. Comply with requirements in Paragraph “AS-BUILT DOCUMENTATION” of Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

PART 2 - PRODUCTS

2.1 VALVES, GENERAL

A. Asbestos packing and gaskets are prohibited.

B. Bronze valves shall be made with dezincification resistant materials. Bronze valves made with copper alloy (brass) containing greater than 15 percent zinc shall not be permitted.

2.2 SHUT-OFF VALVES

A. Cold, Hot and Re-circulating Hot Water:

1. 100 mm DN100 (4 inches) and greater:

a. OS&Y, Cast Iron Gate Valve. The gate valve shall meet. The gate valve shall have a CWP rating of 1380 kPa (200 psig). The valve materials shall meet ASTM A126, grey iron with bolted bonnet, flanged ends, bronze trim, and positive-seal resilient solid wedge disc.

PART 3 - EXECUTION

3.1 INSPECTION

A. Valve interior shall be examined for cleanliness, freedom from foreign matter, and corrosion. Special packing materials shall be removed, such as blocks, used to prevent disc movement during shipping and handling.

B. Valves shall be operated in positions from fully open to fully closed. Guides and seats shall be examined and made accessible by such operations.

C. Threads on valve and mating pipe shall be examined for form and cleanliness.

D. Mating flange faces shall be examined for conditions that might cause leakage. Bolting shall be checked for proper size, length, and material. Gaskets shall be verified for proper size and that its material composition is suitable for service and free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.2 INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Valves shall be located for easy access and shall be provide with separate support. Valves shall be accessible with access doors when installed inside partitions or above hard ceilings.

C. Valves shall be installed in horizontal piping with stem at or above center of pipe.

D. Valves shall be installed in a position to allow full stem movement.

E. Check valves shall be installed for proper direction of flow and as follows:

1. Swing Check Valves: In horizontal position with hinge pin level and on top of valve.

F. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that shall be sources of contamination. Comply with authorities having jurisdiction. Locate backflow preventers in same room as connected equipment or system.

1. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device

attached to or under backflow preventer. Simple air breaks are prohibited for this application.

3.3 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved aluminum or brass equipment tag with following information only:
   1. Valve type (e.g., "Gate valve, PIV").
   2. Nominal Size, both sides (e.g., "6.0 inch — 4.0 inch")
   3. Joint type, showing both sides (e.g., "Mechanical Joint – Mechanical Joint")
   4. Depth below grade as installed (e.g., "5 ft. BG"
   5. Date of Installation, Month and Year (e.g., "Mar 2026")

B. Provide Tags with durable mounting such as chain or durable wire. Metals such as aluminum (such as chain-link fence ties) or galvanized steel (two wraps of 14 ga or one wrap of 9 ga).

C. Tag(s) and mounting device(s) shall be exterior grade, resistant to cutting (including grass trimmers, etc.) and impact, and weatherproof as well as UV proof.

3.4 ADJUSTING

A. Valve packing shall be adjusted or replaced after piping systems have been tested and put into service but before final adjusting and balancing. Valves shall be replaced if persistent leaking occurs.

3.5 STARTUP AND TESTING

A. Perform tests as recommended by product manufacturer and listed standards and under actual or simulated operating conditions and prove full compliance with design and specified requirements. Tests of the various items of equipment shall be performed simultaneously with the system of which each item is an integral part.

B. When any defects are detected, correct defects and repeat test at no additional cost or time to the Government.

C. The COR will observe startup and contractor testing of selected equipment. Coordinate the startup and contractor testing schedules with the COR and Fire Department. Provide a minimum notice of 10 working days prior to startup and testing.

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SECTION 31 20 11
EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies the requirements for furnishing all equipment, materials, labor and techniques for earthwork including excavation, fill, backfill and site restoration utilizing fertilizer, seed and/or sod.

1.2 DEFINITIONS:

A. Unsuitable Materials:

1. Fills: Topsoil, frozen materials; construction materials and materials subject to decomposition; clods of clay and stones larger than 75 mm (3 inches); organic materials, including silts, which are unstable; and inorganic materials, including silts, too wet to be stable.

B. Earthwork: Earthwork operations required within the new construction area. It also includes earthwork required for auxiliary structures and buildings and sewer and other trenchwork throughout the job site.

C. The term fill means fill or backfill as appropriate.

D. The term tilth describes the physical nature and condition of soil specifically in relation to its ability to support plant and crop growth and the relevant micro-biome. The relevant characteristics include the type and mix of soil particles comprising the body of the material, moisture content, degree of aeration, soil biota (bacteria, fungi, worms, insects, etc.), rate of water infiltration and drainage.

E. The term biota with respect to soil is the collection of biological inhabitants of a soil that make up the living biological component of a soil matrix. This includes such things as naturally occurring fungi, bacteria, soil-dwelling insects, worms, and other microscopic and macroscopic life. Protecting cut sod from drying out, from exposure to direct and indirect sunlight and wind and even things like birds and rodents that may prey on the biota is important to ensure that site-cut sod and other plants (trees, bushes, etc.) can survive the storage, replanting or relocation process.

1.3 CLASSIFICATION OF EXCAVATION

A. Not Used

1.4 MEASUREMENT AND PAYMENT FOR EXCAVATION

A. The excavation for this work is minor and will be paid lump sum as part of the rest of the work.

1.5 MEASUREMENT AND PAYMENT FOR ROCK EXCAVATION

A. Rock is not expected to be encountered and will be handled as a changed condition if it occurs in significant quantity in the excavation.

1.6 SUBMITTALS:

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. The following submittals shall be required prior to beginning the work of this project.

B. Compaction equipment and method.

C. Proposed source and type of fill material if on-site materials prove to be insufficient to reach required grade after and removal of deleterious materials and subsequent compaction

1.8 APPLICABLE PUBLICATIONS

A. Standard Department of Transportation (DOT) specifications of South Dakota, Nebraska or Wyoming, latest revision. Specifically with respect to fill materials for non-structural and structural fill. The location of Hot Springs lends itself to sourcing fill materials from any of these states' sources.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Fills: Generally, State approved soils meeting state DOT standards (as referenced in Part 1.8 of this specification) will meet the requirements for use on this project. Materials approved from on site and off site sources having a minimum dry density of 1760 kg/m3 (110 pcf), a maximum Plasticity Index of 6, and a maximum Liquid Limit of 30.

B. Granular Fill: Bedding material for water pipe and non-structural granular fill for meeting DOT specifications for the applied use will be considered acceptable.

C. Seed: Should it be determined by the COR that seed is required for overseeding the replacement of existing cut sod, the VA will provide seed.

E. Sod: Cut and remove existing grass as sod to 3" depth below base of grass blades. Maintain cut sod in good condition and protect from damage for reuse.

F. Requirements For Offsite Soils Offsite soils brought in for use as backfill shall be sourced from sites known to be free of chemical contaminants or hazardous materials.

G. Buried Warning and Identification Tape: Places plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inch minimum width, color coded as specific below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, Unaffected by moisture or soil. Warning tape color codes:

Red: Electric
Yellow: Gas, Oil, Dangerous Materials
Orange: Telephone and Other Communications
Blue: Water Systems
Green: Sewer Systems
White: Steam Systems
Gray: Compressed Air

H. Detection Wire for Non-Metallic Piping: Detection shall be Insulated single strand, solid copper with a minimum of 12 AWG.

PART 3 - EXECUTION

3.1 SITE PREPARATION:

A. Site does not require a significant amount of clearing or grubbing as it is already developed.

B. Trees and Shrubs: No Trees or shrubs should be required to be removed for this work.

D. Cut and remove existing grass to be reused as sod. Cut existing grass to 3" depth below base of grass blades. Maintain cut sod in good condition and protect from damage for reuse. Contractor shall replace sod that is allowed to dry out or die at Contractor's expense.

E. Stripping Topsoil: If topsoil extends below 3" cut of existing rass by more than 6 inches then strip topsoil and relocate to on-site location as indicated by COR. Strip topsoil to mineral soil.

E. Disposal: All materials removed from the property shall be disposed of at a legally approved site, for the specific materials, and all

removals shall be in accordance with all applicable Federal, State and local regulations. No burning of materials is permitted onsite.

3.2 EXCAVATION:

A. Shoring, Sheeting and Bracing: Provide substantial excavation shoring and bracing such as a trench box or site-built frame with solid walls where depth of excavation is 4 feet or more. Excavation and work limits will be too narrow to slope to angle of repose.

1. Extend shoring and bracing from top to bottom of the excavation. Shore excavations that are carried below the elevations of adjacent existing foundations.
2. If the bearing of any foundation is disturbed by excavating, improper shoring or removal of shoring, placing of backfill, and similar operations, arrangement shall be made with COR to provide corrective measures at no cost to the government.
3. Do not remove shoring until permanent work in excavation has been inspected and approved by COR.

B. Excavation Drainage: Operate pumping equipment as required, to keep excavations free of water and subgrades dry, firm, and undisturbed until approval of permanent work has been received from Resident Engineer.

C. Trench Earthwork:

1. Utility trenches (except sanitary and storm sewer):
   a. Excavate to a width as necessary for sheeting and bracing and proper performance of the work.
   b. Grade bottom of trenches with bell-holes, scooped-out to provide a uniform bearing.
   c. Support piping on suitable undisturbed earth. Unstable material removed from the bottom of the trench or excavation shall be replaced with select granular material placed in layers not exceeding 6 inches loose thickness.
   d. Provide buried utility lines with utility identification tape of type specified in Part 2.1 of this specification. Bury tape 12 inches below finished grade.
   f. Bury detection wire directly above non-metallic piping exposed by this work at a distance not to exceed 12 inches above the top of pipe. The wire shall extend continuously and unbroken, from each wall of the excavation or to terminus. The wire shall remain insulated over its entire length.

g. Bedding shall be of the type specified in Part 2.1 of this specification. Initial backfill material shall be placed and compacted with approved tampers to a height of at least one foot above the utility pipe or conduit. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe. Provide bedding for buried piping in accordance with State Department of Transportation requirements for this type of work. Backfill to top of pipe shall be compacted until no more compaction is observed. Plastic piping shall have bedding to spring line of pipe.

F. Site Earthwork: Excavation shall be accomplished as required to fully expose valves and allow room for shoring and bracing as well as appropriate work space for sqafe and effective performance of this work.

G. Finished elevation of subgrade shall be as follows:

1. Planting and Lawn Areas 1 to 3 inches below the directly adjacent finished grade, unless otherwise required to maintain appropriate slope away from adjacent buildings. It is the intent of this work to leave the replaced sod from 2-3 inches above surrounding grade to provide for drainage away from PIV.

3.3 FILLING AND BACKFILLING:

A. General: Do not fill or backfill until all debris, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from the excavation. Proof-roll exposed subgrades with a fully loaded dump truck. Use excavated materials or borrow for fill and backfill, as applicable. Do not use unsuitable excavated materials. Do not backfill until foundation walls have been completed above grade and adequately braced, waterproofing or dampproofing applied, and pipes coming in contact with backfill have been installed, and inspected and approved by Resident Engineer.

C. Placing: Place material in horizontal layers not exceeding 8 inches in loose depth before compaction. Do not place material on surfaces that are muddy, frozen, or contain frost.

D. Compaction: Use approved equipment (hand or mechanical) well suited to the type of material being compacted. Do not operate mechanized vibratory compaction equipment within 10 feet of new or existing building walls without the prior approval of the Resident Engineer.

Moisten or aerate material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Compact each layer until there is no evidence of further compaction.

E. Borrow Material: Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Borrow material shall be obtained from the borrow areas identified on-site by the COR. Necessary clearing, grubbing, and satisfactory drainage of borrow pits and the disposal of debris thereon shall be considered related operations to the borrow excavation.

F. Opening and Drainage of Excavation and Borrow Pits: The Contractor shall notify the Resident Engineer sufficiently in advance of the opening of any excavation or borrow pit to permit elevations and measurements of the undisturbed ground surface to be taken. Except as otherwise permitted, borrow pits and other excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated spoil areas or otherwise disposed of as directed. Borrow pits shall be neatly trimmed and drained after the excavation is completed. The Contractor shall ensure that excavation of any area, operation of borrow pits, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

3.4 GRADING:

A. General: Uniformly grade the areas within the limits of this section, including adjacent transition areas. Smooth the finished surface within specified tolerance. Provide uniform levels or slopes between points where elevations are indicated, or between such points and existing finished grades. Provide a smooth transition between abrupt changes in slope.

B. Slope backfill outside the building away from the building walls for a minimum distance of 3048 mm (10 feet)at a minimum five percent (5%) slope.

3.5 LAWN AREAS:

A. General: Harrow and till to a depth of 4 inches, new or existing lawn areas to remain, which are disturbed during construction. Establish existing or design grades by dragging or similar operations. Do not carry out lawn areas earthwork when the soil is wet so that the tilth

of the soil will be destroyed. Plant bed must be approved by Resident Engineer before seeding or sodding operation begins.

B. Finished Grading: Begin finish grading after rough grading has been compacted until no further compaction is observed. Fine grade last lift of fill soil to provide positive drainage away from PIV and to soil at PIV to be approximately 2 inches above surrounding grade and sloping gently away. Scarify subgrade surface in lawn areas to a depth of 2-4 inches. Provide at least 3” of topsoil rolled with sod roller replace cut sod onto scarified soil.

C. Sodding: Topsoil shall be firmed by rolling and during periods of high temperature the topsoil shall be watered lightly immediately prior to laying sod. Sod strips shall be tightly butted at the ends and staggered in a running bond fashion. Placement on slopes shall be from the bottom to top of slope with sod strips running across slope. Secure sodded slopes by pegging or other approved methods. Roll sodded area with a roller not to exceed 225 kg/m (150 pounds per foot) of the roller width to improve contact of sod with the soil.

F. Watering: The Resident Engineer is responsible for having adequate water available at the site. As sodding is completed in any one section, the entire sodded area shall be thoroughly irrigated by the contractor, to a sufficient depth, that the underside of the new sod pad and soil, immediately below sod, is thoroughly wet. Resident Engineer will be responsible for sod after installation and acceptance.

3.6 DISPOSAL OF UNSUITABLE AND EXCESS EXCAVATED MATERIAL:

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Medical Center property.

3.7 CLEAN-UP:

Upon completion of earthwork operations, clean areas within contract limits, remove tools, and equipment. Provide site clear, clean, free of debris, and suitable for subsequent construction operations. Remove debris, rubbish, and excess material from the Medical Center property.

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