

**DEPARTMENT OF VETERANS AFFAIRS
VHA MASTER SPECIFICATIONS**

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SECTION 01 00 00

GENERAL REQUIREMENTS

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SECTION 01 00 00

GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for replacing flooring as required by drawings and specifications.
- B. Visits to the site by Bidders: there will be one and only one opportunity to visit the site during the bidding process.
- C. - NOT USED
- D. - NOT USED
- E. All employees of general contractor and subcontractors shall comply with VA security management program, check out contractor badges daily, be identified by project and employer, and are restricted from unauthorized access.
- F. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.

1.2 STATEMENT OF BID ITEM(S) PLEASE SEE BID DOCUMENTS

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, the specifications and drawings will be furnished electronically.
- B. Additional sets of drawings may be made by the Contractor, at Contractor's expense, from the electronic files provided.

1.4 CONSTRUCTION SECURITY REQUIREMENTS

- A. Security Procedures:
 - 1. General Contractor's employees shall not enter the project site without an appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
 - 2. For working outside the "regular hours" as defined in the contract. The General Contractor shall give a one week notice to the COR so that VA coverage for the work can be scheduled. This notice is separate from any notices required for utility shutdown described later in this section. If appropriate coverage is not available for the date and time requested, work will be scheduled for an alternate date/time.

3. No photography of VA premises is allowed without permission of the Contracting Officer's Representative (COR). When the COR has given permission to photograph the premises, the COR shall be present during the photographing and there shall be absolutely no patients or visitors in the photographs.
4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the Contracting Officer.

B. Key Control:

1. Construction sites shall be secured utilizing VA-provided lock cores. The Contractor is responsible for providing locksets and/or padlocks that are compatible with BEST 6-pin lock cores. The VA will provide keys for the locks. Keys are not to be duplicated by the Contractor.
2. The General Contractor shall provide full access to the construction site to the COR for the purpose of security inspections, including tool boxes and parked machines.
3. The General Contractor shall turn over all permanent lock cylinders to the VA locksmith for permanent installation.

C. Document Control:

1. The General Contractor is responsible for safekeeping of all drawings, project manuals, and other project information. This information shall be shared only with those with a specific need to accomplish the project.
2. All paper waste or electronic media such as CD's shall be shredded and destroyed in a manner acceptable to the VA.

1.5 FIRE SAFETY

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

1. American Society for Testing and Materials (ASTM):
E84-2009.....Surface Burning Characteristics of Building
Materials
2. National Fire Protection Association (NFPA):
10-2010.....Standard for Portable Fire Extinguishers
30-2008.....Flammable and Combustible Liquids Code

- 51B-2009.....Standard for Fire Prevention During Welding,
Cutting and Other Hot Work
- 70-2011.....National Electrical Code
- 241-2009.....Standard for Safeguarding Construction,
Alteration, and Demolition Operations
- 3. Occupational Safety and Health Administration (OSHA):
 - 29 CFR 1926.....Safety and Health Regulations for Construction
- B. Provide fire extinguishers in accordance with 29 CFR 1926, Subpart F.
- C. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, etc. Documentation shall be provided to the COR that individuals have undergone contractor's safety briefing.
- D. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- E. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- F. Temporary Construction Partitions:
 - 1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.
 - 2. Install one-hour fire-rated temporary construction partitions as shown on drawings to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.

3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials
- G. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- H. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with COR and facility Safety Manager.
- I. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to COR and facility Safety Manager.
- J. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- K. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- L. Sprinklers: Install, test and activate new automatic sprinklers prior to removing existing sprinklers.
- M. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COR and facility Safety Specialist. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the COR.
- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COR and facility Safety Specialist.
- O. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with COR. Obtain permits from facility Safety Specialist or COR before performing any hot work.
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to COR and facility Safety Manager.

- Q. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking areas.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
- S. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.

1.6 OPERATIONS AND STORAGE AREAS

- A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- C. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(FAR 52.236-10)

- D. Working space and space available for storing materials are not available on station.
- E. Workmen are subject to rules of the Medical Center applicable to their conduct.

- F. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly by patients or medical personnel and Contractor's personnel, except as permitted by COR where required by limited working space.
1. Do not store materials and equipment in other than assigned areas.
 2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two work days.
 3. Provide unobstructed access to Medical Center areas required to remain in operation.
 4. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.
- G. Utilities Services: Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems (except telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COR. All such actions shall be coordinated with the Utility Company involved:
1. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- H. The Medical Center will be occupied during performance of work; but immediate areas of alterations will be vacated.
1. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and

equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.

I. - NOT USED

J. When a building, or portion of a building, is turned over to Contractor, Contractor shall accept entire responsibility therefore.

1. Contractor shall maintain a minimum temperature of 4 degrees C (40 degrees F) at all times, except as otherwise specified.
2. Contractor shall maintain in operating condition existing fire protection and alarm equipment. In connection with fire alarm equipment, Contractor shall make arrangements for pre-inspection of site with the VA Safety Specialist, via the COR.

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

1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of COR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director's prior knowledge and written approval.
2. Contractor shall submit a request to interrupt any such services to COR, in writing, 2 weeks in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of Medical Center. Interruption time approved by Medical Center may occur at other than Contractor's normal working hours.
4. Major interruptions of any system must be requested, in writing, at least 15 calendar days prior to the desired time and shall be

- performed as directed by the COR. The COR shall be notified of approximate dates of expected upcoming major interruptions 30 days in advance so that the Medical Center can begin making plans for maintaining operations during the utility interruption.
5. In case of a contract construction emergency, service will be interrupted on approval of COR. Such approval will be confirmed in writing as soon as practical.
 6. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- L. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.
- M. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:
1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane must be open to traffic at all times.
 2. Method and scheduling of required cutting, altering and removal of existing roads, walks, and entrances must be approved by the COR.
- N. Coordinate the work for this contract with other construction operations as directed by COR. This includes the scheduling of exit closures, heavy equipment operations, and work impacting traffic.
- O. All site work shall comply with the State of New Hampshire Regulation Env-A 1100 with regards to vehicle & equipment idling.

1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COR of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a

report, signed by both, to the Contracting Officer. This report shall list by rooms and spaces:

1. Existing condition and types of resilient flooring, doors, windows, walls and other surfaces not required to be altered throughout affected areas of buildings.
2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, venetian blinds, shades, etc., required by drawings to be either reused or relocated, or both.
3. Shall note any discrepancies between drawings and existing conditions at site.
4. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and COR.

B. Re-Survey: 14 days before expected partial or final inspection date, the Contractor and COR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:

1. Re-survey report shall also list any damage caused by Contractor to such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of Contractor to restore damage caused by Contractor's workmen in executing work of this contract.

C. Protection: Provide the following protective measures:

1. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
2. Temporary protection against damage for portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.
3. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.

1.8 INFECTION PREVENTION MEASURES

- A. Implement the requirements of the Infection Control Risk Assessment (ICRA) provided by the VAMC. Different ICRA's may be provided for different tasks. The medical center's Construction Safety group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if levels are unacceptable.
- B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the Infection Control Risk Assessment (ICRA) provided by the VA Infection Control Coordinator.
- C. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.
- D. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
 - 1. The COR and VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
 - 2. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.
- E. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.
 - 1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by COR.
 - 2. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction. Coordinate with the COR to ensure that blanking off ducts and diffusers will not adversely affect the HVAC system.

3. Do not perform dust producing tasks within occupied areas without the approval of the COR. For construction in any areas that will remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
 - a. Provide dust proof two-hour fire-rated temporary drywall construction barriers to completely separate construction from the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes may be used where dust control is the only hazard, and an agreement is reached with the COR and Medical Center.
 - b. HEPA filtration is required where the exhaust dust may reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.
 - c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24" x 36"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.
 - d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.
 - e. The contractor shall not haul debris through patient-care areas without prior approval of the COR and the Medical Center. When,

approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.

- f. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any ceiling access panels opened for investigation beyond sealed areas shall be sealed immediately when unattended.
- g. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
- h. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

F. Final Cleanup:

- 1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.
- 2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings, cabinets, furniture (built-in or free standing), partitions, flooring, etc.

1.9 DISPOSAL AND RETENTION

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

- 1. Reserved items which are to remain property of the Government are noted on drawings or in specifications as items to be stored. Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items where directed by COR.
- 2. Items not reserved shall become property of the Contractor and be removed by Contractor from Medical Center.

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

1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(FAR 52.236-9)

- C. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, for additional requirements on protecting vegetation, soils and the environment. Refer to Articles, "Alterations", "Restoration", and "Operations and Storage Areas" for additional instructions concerning repair of damage to structures and site improvements.

1.11 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the COR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COR before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.
- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2).

1.12 LAYOUT OF WORK

- A. The Contractor shall lay out the work from Government established base lines and bench marks, indicated on the drawings, and shall be responsible for all measurements in connection with the layout.

(FAR 52.236-17)

- B. - NOT USED
- C. - NOT USED
- D. - NOT USED
- E. - NOT USED
- F. - NOT USED

1.13 - NOT USED

1.14 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property.

1.15 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Use of new installed mechanical and electrical equipment to provide heat, ventilation, plumbing, light and power will be permitted subject to compliance with the following provisions:
 - 1. Permission to use each unit or system must be given by COR. If the equipment is not installed and maintained in accordance with the following provisions, the COR will withdraw permission for use of the equipment.
 - 2. Electrical installations used by the equipment shall be completed in accordance with the drawings and specifications to prevent damage to the equipment and the electrical systems, i.e. transformers, relays, circuit breakers, fuses, conductors, motor controllers and their overload elements shall be properly sized, coordinated and adjusted. Voltage supplied to each item of equipment shall be verified to be correct and it shall be determined that motors are not overloaded. The electrical equipment shall be thoroughly cleaned before using it and again immediately before final inspection including vacuum cleaning and wiping clean interior and exterior surfaces.
 - 3. Units shall be properly lubricated, balanced, and aligned. Vibrations must be eliminated.
 - 4. Automatic temperature control systems for preheat coils shall function properly and all safety controls shall function to prevent coil freeze-up damage.
 - 5. The air filtering system utilized shall be that which is designed for the system when complete, and all filter elements shall be replaced at completion of construction and prior to testing and balancing of system.
 - 6. All components of heat production and distribution system, metering equipment, condensate returns, and other auxiliary facilities used in temporary service shall be cleaned prior to use; maintained to prevent corrosion internally and externally during use; and cleaned, maintained and inspected prior to acceptance by the Government. Boilers, pumps, feedwater heaters and auxiliary equipment must be operated as a complete system and be fully maintained by operating

personnel. Boiler water must be given complete and continuous chemical treatment.

- B. Prior to final inspection, the equipment or parts used which show wear and tear beyond normal, shall be replaced with identical replacements, at no additional cost to the Government.

1.16 TEMPORARY USE OF EXISTING ELEVATORS

- A. Use of existing freight elevator for handling building materials and Contractor's personnel will be permitted subject to following provisions:
 - 1. Contractor may use the freight elevator in Building No. 1 for daily use.
 - 2. Contractor covers and provides maximum protection of following elevator components:
 - a. Entrance jambs, heads soffits and threshold plates.
 - b. Entrance columns, canopy, return panels and inside surfaces of car enclosure walls.
 - c. Finish flooring.
 - 3. AT NO TIME IS THE FREIGHT ELEVATOR TO BE RESERVED FOR THE EXCLUSIVE USE OF ANY CONTRACTOR.

1.17 TEMPORARY TOILETS

- A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet (dry closets) where directed. Keep such places clean and free from flies, and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean.

1.18 AVAILABILITY AND USE OF UTILITY SERVICES

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The Contractor shall carefully conserve any utilities furnished without charge.
- B. The Contractor, at Contractor's expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines required to measure the amount of electricity used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

- C. Heat: Furnish temporary heat necessary to prevent injury to work and materials through dampness and cold. Use of open salamanders or any temporary heating devices which may be fire hazards or may smoke and damage finished work, will not be permitted. Maintain minimum temperatures as specified for various materials. Obtain heat by connecting to Medical Center heating distribution system. Steam is available at no cost to Contractor.
- D. Electricity (for Construction and Testing): Furnish all temporary electric services. Obtain electricity by connecting to the Medical Center electrical distribution system.
- E. Water (for Construction and Testing): Furnish temporary water service.
 - 1. Obtain water by connecting to the Medical Center water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
 - 2. Maintain connections, pipe, fittings and fixtures and conserve water-use so none is wasted. Failure to stop leakage or other wastes will be cause for revocation (at COR's discretion) of use of water from Medical Center's system.

1.19 TESTS - NOT USED

1.20 INSTRUCTIONS

- A. Contractor shall furnish Maintenance and Operating manuals and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals (two hard copies and one electronic copy each) for each separate piece of equipment shall be delivered to the COR coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each

precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.

1.21 GOVERNMENT-FURNISHED PROPERTY - NOT USED

1.22 RELOCATED EQUIPMENT AND ITEMS - NOT USED

1.23 HISTORIC PRESERVATION

Where the Contractor or any of the Contractor's employees, prior to, or during the construction work, are advised of or discover any possible archeological, historical and/or cultural resources, the Contractor shall immediately notify the COR verbally, and then with a written follow up.

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SECTION 01 32 16
PROJECT SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. The Contractor shall develop a Critical Path Method (CPM) plan and schedule demonstrating fulfillment of the contract requirements (Project Schedule), and shall keep the Project Schedule up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including all activities of subcontractors, equipment vendors and suppliers). Conventional Critical Path Method (CPM) technique shall be utilized to satisfy both time and cost applications.

1.2 CONTRACTOR'S REPRESENTATIVE:

- A. The Contractor shall designate an authorized representative responsible for the Project Schedule including preparation, review and progress reporting with and to the Contracting Officer's Representative (COR).
- B. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the requirements of this specification section.
- C. The Contractor's representative may develop the project schedule within their organization or engage the services of an outside consultant.

1.3 PROJECT SCHEDULE SUBMITTAL REQUIREMENTS

- A. The Contractor shall submit the original Project Schedule at or before the Preconstruction Conference.
- B. Within 14 calendar days after receipt of the original Project Schedule, the Contracting Officer or his representative, will do one or both of the following:
 - 1. Notify the Contractor concerning his actions, opinions, and objections.
 - 2. Schedule a meeting with the Contractor at or near the job site for joint review, correction or adjustment of the proposed plan if required. Within 14 calendar days after the joint review, the Contractor shall revise and submit the revised Project Schedule.
- C. Each submittal of the Project Schedule (including the original and monthly updates) shall be dated and shall include one hard copy and one electronic version of each deliverable.
 - 1. Hard copies of the schedule shall be printed on appropriately-sized paper (up to 30 x 42 inches).

2. Electronic versions of the schedule shall be compatible with Microsoft Project 2007.
3. Electronic versions of all other documents shall be either compatible with Microsoft Office 2010 or in pdf format.

1.4 PROJECT SCHEDULE REQUIREMENTS

- A. The Project Schedule shall reflect the Contractor's approach to scheduling the complete project and shall describe the activities to be accomplished and their interdependencies
- B. The Project Schedule shall include at a minimum, the following activities:
 1. All phasing described in Section 01 00 00, GENERAL REQUIREMENTS- OPERATIONS AND STORAGE AREAS- Paragraph "Phasing"
 2. Procurement- Submittals, review and approvals, fabrication and delivery of all key and long lead time procurement items.
 3. Design- All design submissions listed in the RFP solicitation, including the specified meeting and review activities.
 4. Detailed design and construction activities for the first 90 calendar days after Notice to Proceed.
 5. Summary activities which are necessary (and are not included above) to properly show:
 - a. The approach to scheduling the remaining work. The work for each major trade must be represented by at least one summary activity, so that the work cumulatively shows the entire project schedule.
 - b. Summary activities shall have the trade code of SUM, or be otherwise clearly identified.
- C. Each activity/event on the schedule shall contain the following as a minimum:
 1. Activity/event ID
 2. Activity/event description
 3. Duration
 4. Budget amount
 5. Early start date
 6. Early finish date
 7. Late start date
 8. Late finish date
 9. Total float
- D. Show on the project schedule the sequence of work activities/events required for complete performance of all items of work. The Contractor shall:
 1. Show activities/events as:

- a. Contractor's time required for submittal of shop drawings, templates, fabrication, delivery and similar pre-construction work.
 - b. Contracting Officer's and Architect-Engineer's review and approval of shop drawings, equipment schedules, samples, template, or similar items.
 - c. Interruption of VA Facilities utilities, delivery of Government furnished equipment, and rough-in drawings, project phasing and any other specification requirements.
 - d. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.
 - e. VA inspection and acceptance activity/event with a minimum duration of five work days at the end of each phase and immediately preceding any VA move activity/event required by the contract phasing for that phase.
- 2. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for the trades who are performing major work under this contract.
 - 3. Break up the work into activities/events of a duration no longer than 20 work days each or one reporting period, except as to non-construction activities/events (i.e., procurement of materials, delivery of equipment, concrete and asphalt curing) and any other activities/events for which the COR may approve the showing of a longer duration. The duration for VA approval of any required submittal, shop drawing, or other submittals will not be less than 10 work days.
 - 4. Describe work activities/events clearly, so the work is readily identifiable for assessment of completion.
 - 5. The schedule shall be generally numbered in such a way to reflect either discipline, phase or location of the work.
- E. The Project Schedule in its original form shall contain no contract changes or delays which may have been incurred during the schedule development period and shall reflect the Contractors as bid schedule. These changes/delays shall be entered at the first update after the Project Schedule has been approved.
 - F. Failure to include any element of work required for the performance of this contract on the Project Schedule shall not excuse the Contractor

from completing all work required within any applicable completion date of each phase, regardless of the COR's approval of the Project Schedule.

1.5 WORK ACTIVITY/EVENT COST DATA

- A. All work activities (including design), other than procurement activities, shall be cost loaded as specified and will be the basis for progress payments.
- B. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. Negative work activity/event cost data will not be acceptable, except on VA issued contract changes.
- C. The Contractor shall cost load work activities/events for guarantee period services, test, balance and adjust various systems in accordance with the provisions in Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS).
- D. In accordance with FAR 52.236 - 1 (PERFORMANCE OF WORK BY THE CONTRACTOR) and VAAR 852.236 - 72 (PERFORMANCE OF WORK BY THE CONTRACTOR), the Contractor shall identify which activities/events of the project will be self-performed by the contractor's own forces.
- E. The Contractor shall cost load work activities/events for all BID ITEMS. The sum of each BID ITEM work shall equal the value of the bid item in the Contractors' bid.

1.6 PAYMENT TO THE CONTRACTOR:

- A. The Contractor shall be entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated project schedule.
- B. The Contractor's payment requests shall be submitted monthly and shall include the following:
 - 1. The AIA application and certificate for payment documents G702 & G703, reflecting updated schedule activities and cost data in accordance with the provisions of the following Article, PAYMENT AND PROGRESS REPORTING, as the basis upon which progress payments will be made pursuant to Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS).
 - 2. The updated schedule, in Precedence Diagramming Method (PDM) format, as detailed in the Article PAYMENT AND PROGRESS REPORTING below.
 - 3. A listing of all agreed upon Project Schedule changes and associated data, as detailed in the Article CHANGES TO THE SCHEDULE.

- C. Approval of the Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly update of the project schedule, as detailed in the following Article, PAYMENT AND PROGRESS REPORTING.

1.7 PAYMENT AND PROGRESS REPORTING

- A. Monthly schedule update meetings will be held on dates mutually agreed to by the COR and the Contractor. The Contractor's representative responsible for the schedule shall attend all monthly schedule update meetings. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the COR three work days in advance of the schedule update meeting. Job progress will be reviewed to verify:
1. Actual start and/or finish dates for updated/completed activities/events.
 2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
 3. Logic, time and cost data for change orders and supplemental agreements that are to be incorporated into the Project Schedule.
 4. Changes in activity/event sequence and/or duration which have been made, pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
 5. Completion percentage for all completed and partially completed activities/events.
 6. Logic and duration revisions required by this section of the specifications.
 7. Activity/event duration and percent complete shall be updated independently.
- B. Within 5 business days of completion of the joint review, the Contractor shall provide the COR with an updated computer-produced calendar-dated schedule.
- C. Within 5 business days of receiving the updated schedule, the COR will provide the Contractor with either approval of the schedule or required corrections. Required corrections shall be made by the Contractor within 3 business days.

1.8 WEEKLY PROGRESS MEETINGS

- A. Meet weekly with the Government (or as otherwise mutually agreed to) between the meetings described in paragraph PAYMENT AND PROGRESS REPORTING for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. The then current and approved

schedule update shall be used for the purposes of this meeting and for the production and review of reports. The Contractor's Project Manager and the COR shall attend. The weekly progress meeting will address the status of RFI's, RFP's, and submittals.

- B. Provide a bar chart produced by the scheduling software, organized by Total Float and Sorted by Early Start Date, and a two week "look-ahead" schedule by filtering all schedule activities to show only current ongoing activities and activities scheduled to start during the upcoming two weeks, organized by activity/event and sorted by Early Start Date.
- C. The Government and the Contractor shall jointly review the reports. If it appears that activities on the longest path(s) which are currently driving the calculated completion date (driving activities), are not progressing satisfactorily and therefore could jeopardize timely project completion, corrective action must be taken immediately as described in paragraph RESPONSIBILITY FOR COMPLETION.
- D. The COR and the Contractor should conclude the meeting with a clear understanding of those work and administrative actions necessary to maintain project schedule status during the reporting period.

1.9 RESPONSIBILITY FOR COMPLETION

- A. If it becomes apparent from the current updated Project Schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
 - 1. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.
 - 2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
 - 3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the Contracting Officer for the proposed schedule changes. If such actions are approved, the representative schedule revisions shall be incorporated by the Contractor into the Project Schedule before the next update, at no additional cost to the Government.

1.10 CHANGES TO THE SCHEDULE

- A. With each monthly submission of the updated project schedule, the Contractor shall submit a list of any activity/event changes for any of the following reasons:

1. Delay in completion of any activity/event or group of activities/events, which may be involved with contract changes, strikes, unusual weather, and other delays will not relieve the Contractor from the requirements specified unless the conditions are shown on the CPM as the direct cause for delaying the project beyond the acceptable limits.
 2. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.
 3. The schedule does not represent the actual prosecution and progress of the project.
 4. When there is, or has been, a substantial revision to the activity/event costs regardless of the cause for these revisions.
- B. Project Schedule revisions which affect the previously approved schedules for Government furnished equipment, vacating of areas by the VA Facility, contract phase(s) and sub phase(s), utilities furnished by the Government to the Contractor, or any other previously contracted item, shall be furnished in writing to the Contracting Officer for approval.
- C. The cost of revisions to the project schedule resulting from contract changes will be included in the proposal for changes in work as specified in FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- D. The cost of revisions to the Project Schedule not resulting from contract changes is the responsibility of the Contractor.

1.11 ADJUSTMENT OF CONTRACT COMPLETION

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the COR may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in work days) and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.

- B. Actual delays in activities/events which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date.
- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental). The Contractor shall include, as a part of each change order proposal, a sketch showing all CPM logic revisions, duration (in work days) changes, and cost changes, for work in question and its relationship to other activities on the approved network diagram.

1.12 EARLY PROJECT COMPLETION

- A. In the event the project schedule calculates an early completion date of the last activity prior to the contract completion date, the Contractor shall identify those activities that it intends to accelerate and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. The last activity shall have a late finish constraint equal to the contract completion date and the schedule will calculate positive float. The Government will not approve an early completion schedule with zero float on the longest path. The Government is under no obligation to accelerate activities for which it is responsible in order to support a proposed early contract completion.

1.13 OWNERSHIP OF FLOAT

- A. Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

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SECTION 01 33 23
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- 1.1 Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1.2 For the purposes of this contract, samples, test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1.3 Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
 - A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
 - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
 - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1.4 Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract-required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.
- 1.5 Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Contracting Officer's Representative (COR) on behalf of the Contracting Officer.
- 1.6 The Contractor shall prepare a submittal register.
 - A. The submittal register shall contain the project title, project number, contractor name, and the following columns:
 1. Submittal Number
 2. Spec Section
 3. Paragraph Number
 4. Description
 5. Date submitted/Date received by COR
 6. Date Forwarded to Other Reviewer
 7. Date Received From Other Reviewer

8. Action

9. Date returned to Contractor

10. Notes

- B. The submittal register shall be submitted to the COR at or before the preconstruction meeting. This initial submittal register shall have the Spec Section, Paragraph Number, and Description filled in for every submittal required by the specifications for the project.
 - C. The submittal register shall be updated each time action is taken on a submittal. An up-to-date electronic version of the submittal register shall be e-mailed to the COR with each submittal.
- 1.7 The contractor shall number submittals consecutively. Contractor, in any subsequent correspondence regarding the submittal, shall refer to this submittal number.
- 1.8 The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.
- 1.9 Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Architect-Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect-Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1.10 Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
- A. Submit samples required by Section 09 06 00, SCHEDULE FOR FINISHES, in duplicate. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in duplicate, except where a greater number is specified.
 - B. Submittals will receive consideration only when covered by the VA-provided submittal approval form and signed by the Contractor. The form must be completely filled out, including the list of items, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required

for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.

1. A copy of submittal approval form must be enclosed with items.
Any items received without project and contractor identification will be considered "unclaimed goods" and held for a limited time only.
 2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
 3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
- C. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.
- D. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.
1. For each drawing required, submit one full size hard copy and one electronic copy.
 2. Each drawing shall have marked thereon, proper descriptive title, including Medical Center location, project number, manufacturer's number, reference to contract drawing number, detail Section Number, and Specification Section Number.
 3. Submit drawings fully protected for shipment.
 4. When work is directly related and involves more than one trade, shop drawings shall be submitted to Architect-Engineer under one cover.
- 1.11 Samples, shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to the COR.

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**SECTION 01 35 26
SAFETY REQUIREMENTS**

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SECTION 01 35 26
SAFETY REQUIREMENTS

1.1 APPLICABLE PUBLICATIONS:

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

B. American Society of Safety Engineers (ASSE):

A10.1-2011Pre-Project & Pre-Task Safety and Health
Planning

A10.34-2012Protection of the Public on or Adjacent to
Construction Sites

A10.38-2013Basic Elements of an Employer's Program to
Provide a Safe and Healthful Work
Environment American National Standard
Construction and Demolition Operations

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

E84-2013Surface Burning Characteristics of Building
Materials

D. The Facilities Guidelines Institute (FGI):

FGI Guidelines-2010Guidelines for Design and Construction of
Healthcare Facilities

E. National Fire Protection Association (NFPA):

10-2013Standard for Portable Fire Extinguishers

30-2012Flammable and Combustible Liquids Code

51B-2014Standard for Fire Prevention During
Welding, Cutting and Other Hot Work

70-2014National Electrical Code

- 70B-2013Recommended Practice for Electrical
Equipment Maintenance
- 70E-2015Standard for Electrical Safety in the
Workplace
- 99-2012Health Care Facilities Code
- 241-2013Standard for Safeguarding Construction,
Alteration, and Demolition Operations

F. The Joint Commission (TJC)

- TJC ManualComprehensive Accreditation and
Certification Manual

G. U.S. Nuclear Regulatory Commission

- 10 CFR 20Standards for Protection Against Radiation

H. U.S. Occupational Safety and Health Administration (OSHA):

- 29 CFR 1904Reporting and Recording Injuries &
Illnesses
- 29 CFR 1910Safety and Health Regulations for General
Industry
- 29 CFR 1926Safety and Health Regulations for
Construction Industry
- CPL 2-0.124Multi-Employer Citation Policy
- CPL 2.100.....(1995) Application of the Permit-Required
Confined Spaces (PRCS) Standards, 29 CFR
1910.146

I. VHA Directive 2005-007

J. United States Army Corps of Engineers (USACE) Safety and Health
Requirements Manual EM385-1-1(2014).

1.2 DEFINITIONS:

- A. OSHA "Competent Person" (CP). One who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them (see 29 CFR 1926.32(f)).
- C. "Qualified Person" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
- D. High Visibility Accident. Any mishap which may generate publicity or high visibility.
- E. Accident/Incident Criticality Categories:

No impact - near miss incidents that should be investigated but are not required to be reported to the VA;

Minor incident/impact - incidents that require first aid or result in minor equipment damage (less than \$5000). These incidents must be investigated but are not required to be reported to the VA;

Moderate incident/impact - Any work-related injury or illness that results in:

1. Days away from work (any time lost after day of injury/illness onset);
2. Restricted work;
3. Transfer to another job;
4. Medical treatment beyond first aid;

- 5. Loss of consciousness;
- 6. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (5) above or,
- 7. any incident that leads to major equipment damage (greater than \$5000).

These incidents must be investigated and are required to be reported to the VA;

Major incident/impact - Any mishap that leads to fatalities, hospitalizations, amputations, and losses of an eye as a result of contractors' activities. Or any incident which leads to major property damage (greater than \$20,000) and/or may generate publicity or high visibility. These incidents must be investigated and are required to be reported to the VA as soon as practical, but not later than 2 hours after the incident.

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

1.3 REGULATORY REQUIREMENTS:

A. In addition to the detailed requirements included in the provisions of this contract, comply with 29 CFR 1926, comply with 29 CFR 1910 as incorporated by reference within 29 CFR 1926, comply with ASSE A10.34, and all applicable [federal, state, and local] laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern

except with specific approval and acceptance by the Contracting Officer Representative.

1.4 ACCIDENT PREVENTION PLAN (APP):

A. The APP (aka Construction Safety & Health Plan) shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and ensure it is site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all worksite safety and health of each subcontractor(s). Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.

B. The APP shall be prepared as follows:

1. Written in English by a qualified person who is employed by the Prime Contractor articulating the specific work and hazards pertaining to the contract (model language can be found in ASSE A10.33). Specifically articulating the safety requirements found within these VA contract safety specifications.
2. Address both the Prime Contractors and the subcontractors work operations.
3. State measures to be taken to control hazards associated with materials, services, or equipment provided by suppliers.
4. Address all the elements/sub-elements and in order as follows:
 - a. **SIGNATURE SHEET.** Title, signature, and phone number of the following:

- 1) Plan preparer (Qualified Person such as corporate safety staff person or contracted Certified Safety Professional with construction safety experience);
- 2) Plan approver (company/corporate officers authorized to obligate the company);
- 3) Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional). Provide concurrence of other applicable corporate and project personnel (Contractor).

b. BACKGROUND INFORMATION. List the following:

- 1) Contractor;
- 2) Contract number;
- 3) Project name;
- 4) Brief project description, description of work to be performed, and location; phases of work anticipated (these will require an AHA).

c. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of current corporate/company Safety and Health Policy Statement, detailing commitment to providing a safe and healthful workplace for all employees. The Contractor's written safety program goals, objectives, and accident experience goals for this contract should be provided.

d. RESPONSIBILITIES AND LINES OF AUTHORITIES. Provide the following:

- 1) A statement of the employer's ultimate responsibility for the implementation of his SOH program;
- 2) Identification and accountability of personnel responsible for safety at both corporate and project

level. Contracts specifically requiring safety or industrial hygiene personnel shall include a copy of their resumes.

- 3) The names of Competent and/or Qualified Person(s) and proof of competency/qualification to meet specific OSHA Competent/Qualified Person(s) requirements must be attached.;
- 4) Requirements that no work shall be performed unless a designated competent person is present on the job site;
- 5) Requirements for pre-task Activity Hazard Analysis (AHAs);
- 6) Lines of authority;
- 7) Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;

e. SUBCONTRACTORS AND SUPPLIERS. If applicable, provide procedures for coordinating SOH activities with other employers on the job site:

- 1) Identification of subcontractors and suppliers (if known);
- 2) Safety responsibilities of subcontractors and suppliers.

f. TRAINING.

- 1) Site-specific SOH orientation training at the time of initial hire or assignment to the project for every employee before working on the project site is required.
- 2) Mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, electrical lockout/NFPA 70E, machine/equipment lockout,

confined space, et) and any requirements for periodic retraining/recertification are required.

- 3) Procedures for ongoing safety and health training for supervisors and employees shall be established to address changes in site hazards/conditions.
- 4) OSHA 10-hour training is required for all workers on site and the OSHA 30-hour training is required for Trade Competent Persons (CPs)

g. SAFETY AND HEALTH INSPECTIONS.

- 1) Specific assignment of responsibilities for a minimum daily job site safety and health inspection during periods of work activity: Who will conduct (e.g., "Site Safety and Health CP"), proof of inspector's training/qualifications, when inspections will be conducted, procedures for documentation, deficiency tracking system, and follow-up procedures.
- 2) Any external inspections/certifications that may be required (e.g., contracted CSP or CSHT)

h. ACCIDENT/INCIDENT INVESTIGATION & REPORTING. The Contractor shall conduct mishap investigations of all Moderate and Major as well as all High Visibility Incidents. The APP shall include accident/incident investigation procedure and identify person(s) responsible to provide the following to the Contracting Officer Representative :

- 1) Exposure data (man-hours worked);
- 2) Accident investigation reports;
- 3) Project site injury and illness logs.

i. PLANS (PROGRAMS, PROCEDURES) REQUIRED. Based on a risk assessment of contracted activities and on mandatory OSHA

compliance programs, the Contractor shall address all applicable occupational, patient, and public safety risks in site-specific compliance and accident prevention plans. These Plans shall include but are not be limited to procedures for addressing the risks associates with the following:

- 1) Emergency response;
- 2) Contingency for severe weather;
- 3) Fire Prevention;
- 4) Medical Support;
- 5) Posting of emergency telephone numbers;
- 6) Prevention of alcohol and drug abuse;
- 7) Site sanitation (housekeeping, drinking water, toilets);
- 8) Night operations and lighting;
- 9) Hazard communication program;
- 10) Electrical Safe Work Practices (Electrical LOTO/NFPA 70E);
- 11) General Electrical Safety;
- 12) Hazardous energy control (Machine LOTO);
- 13) Asbestos abatement;
- 14) Health hazard control program;
- 15) Crystalline Silica Monitoring (Assessment);
- 16) Demolition plan (to include engineering survey);
- 18) Public (Mandatory compliance with ANSI/ASSE A10.34-2012).

- C. Submit the APP to the or Contracting Officer Representative for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.
- D. Once accepted by the Contracting Officer Representative , the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer in accordance with FAR Clause 52.236-13, *Accident Prevention*, until the matter has been rectified.
- E. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer Representative . Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public and the environment.

1.5 ACTIVITY HAZARD ANALYSES (AHAS):

- A. AHAs are also known as Job Hazard Analyses, Job Safety Analyses, and Activity Safety Analyses. Before beginning each work activity involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or sub-contractor is to perform the work, the Contractor(s) performing that work activity shall prepare an AHA (Example electronic AHA forms can be found on the US Army Corps of Engineers web site)
- B. AHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site

conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.

C. Work shall not begin until the AHA for the work activity has been accepted by the Contracting Officer Representative and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.

1. The names of the Competent/Qualified Person(s) required for a particular activity (for example, activities as specified by OSHA and/or other State and Local agencies) shall be identified and included in the AHA. Certification of their competency/qualification shall be submitted to the Government Designated Authority (GDA) for acceptance prior to the start of that work activity.
2. The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).
 - a. If more than one Competent/Qualified Person is used on the AHA activity, a list of names shall be submitted as an attachment to the AHA. Those listed must be Competent/Qualified for the type of work involved in the AHA and familiar with current site safety issues.
 - b. If a new Competent/Qualified Person (not on the original list) is added, the list shall be updated (an administrative action not requiring an updated AHA). The new person shall acknowledge in writing that he or she has reviewed the AHA and is familiar with current site safety issues.
3. Submit AHAs to the Contracting Officer Representative for review for compliance with contract requirements in accordance

- with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES for review at least 15 calendar days prior to the start of each phase. Subsequent AHAs as shall be formatted as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.
4. The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.
 5. Develop the activity hazard analyses using the project schedule as the basis for the activities performed. All activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier, or subcontractor and provided to the prime contractor for review and approval and then submitted to the Contracting Officer Representative.

1.6 PRECONSTRUCTION CONFERENCE:

- A. Contractor representatives who have a responsibility or significant role in implementation of the accident prevention program, as required by 29 CFR 1926.20(b)(1), on the project shall attend the preconstruction conference to gain a mutual understanding of its implementation. This includes the project superintendent, subcontractor superintendents, and any other assigned safety and health professionals.
- B. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, establish a

schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.

- C. Deficiencies in the submitted APP will be brought to the attention of the Contractor within 14 days of submittal, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP. SPEC WRITER NOTE: If the contract will involve (a) work of a long duration or hazardous nature, or (b) performance within a Government facility that on the advice of VA construction safety representatives involves hazardous operations that might endanger the safety of the public, patients and/or Government personnel or property, the SSHO and Superintendent and/or Quality Control Manager must be separate persons (See Section 1.7(C) for choice).

1.7 "SITE SAFETY AND HEALTH OFFICER" (SSHO) AND "COMPETENT PERSON" (CP):

- A. The Prime Contractor shall designate a minimum of one SSHO at each project site that will be identified as the SSHO to administer the Contractor's safety program and government-accepted Accident Prevention Plan. Each subcontractor shall designate a minimum of one CP in compliance with 29 CFR 1926.20 (b)(2) that will be identified as a CP to administer their individual safety programs.
- B. Further, all specialized Competent Persons for the work crews will be supplied by the respective contractor as required by 29 CFR 1926 (i.e. Electrical, Demolition, Fire Safety/Life Safety).
- C. These Competent Persons can have collateral duties as the subcontractor's superintendent and/or work crew lead persons as well as fill more than one specialized CP role (i.e. Fire Safety/Life Safety,). However, the SSHO has be a separate qualified individual from the Prime Contractor's Superintendent and/or Quality Control Manager with duties only as the SSHO.

- D. The SSHO or an equally-qualified Designated Representative/alternate will maintain a presence on the site during construction operations in accordance with FAR Clause 52.236-6: *Superintendence by the Contractor*. CPs will maintain presence during their construction activities in accordance with above mentioned clause. A listing of the designated SSHO and all known CPs shall be submitted prior to the start of work as part of the APP with the training documentation and/or AHA as listed in Section 1.8 below.
- E. The repeated presence of uncontrolled hazards during a contractor's work operations will result in the designated CP as being deemed incompetent and result in the required removal of the employee in accordance with FAR Clause 52.236-5: Material and Workmanship, Paragraph (c).

1.8 TRAINING:

- A. The designated Prime Contractor SSHO must meet the requirements of all applicable OSHA standards and be capable (through training, experience, and qualifications) of ensuring that the requirements of 29 CFR 1926.16 and other appropriate Federal, State and local requirements are met for the project. As a minimum the SSHO must have completed the OSHA 30-hour Construction Safety class and have five (5) years of construction industry safety experience or three (3) years if he/she possesses a Certified Safety Professional (CSP) or certified Construction Safety and Health Technician (CSHT) certification or have a safety and health degree from an accredited university or college.
- B. All designated CPs shall have completed the OSHA 30-hour Construction Safety course within the past 5 years.
- C. In addition to the OSHA 30 Hour Construction Safety Course, all CPs with high hazard work operations such as operations involving electrical fire safety/life safety, shall have a specialized

formal course in the hazard recognition & control associated with those high hazard work operations. Documented "repeat" deficiencies in the execution of safety requirements will require retaking the requisite formal course.

- D. All other construction workers shall have the OSHA 10-hour Construction Safety Outreach course and any necessary safety training to be able to identify hazards within their work environment.
- E. Submit training records associated with the above training requirements to the Contracting Officer Representative for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES 15 calendar days prior to the date of the preconstruction conference for acceptance.
- F. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the SSHO or his/her designated representative. As a minimum, this briefing shall include information on the site-specific hazards, construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, emergency procedures, accident reporting etc... Documentation shall be provided to the Resident Engineer that individuals have undergone contractor's safety briefing.
- G. Ongoing safety training will be accomplished in the form of weekly documented safety meeting.

1.9 INSPECTIONS:

- A. The SSHO shall conduct frequent and regular safety inspections (daily) of the site and each of the subcontractors CPs shall conduct frequent and regular safety inspections (daily) of the their work operations as required by 29 CFR 1926.20(b)(2). Each week, the SSHO shall conduct a formal documented inspection of the entire construction areas with the subcontractors' "Trade

Safety and Health CPs" present in their work areas. Coordinate with, and report findings and corrective actions weekly to Contracting Officer Representative.

B. A Certified Safety Professional (CSP) with specialized knowledge in construction safety or a certified Construction Safety and Health Technician (CSHT) shall randomly conduct a monthly site safety inspection. The CSP or CSHT can be a corporate safety professional or independently contracted. The CSP or CSHT will provide their certificate number on the required report for verification as necessary.

1. Results of the inspection will be documented with tracking of the identified hazards to abatement.
2. The Contracting Officer Representative will be notified immediately prior to start of the inspection and invited to accompany the inspection.
3. Identified hazard and controls will be discussed to come to a mutual understanding to ensure abatement and prevent future reoccurrence.
4. A report of the inspection findings with status of abatement will be provided to the Contracting Officer Representative within one week of the onsite inspection.

1.10 ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS:

A. The prime contractor shall establish and maintain an accident reporting, recordkeeping, and analysis system to track and analyze all injuries and illnesses, high visibility incidents, and accidental property damage (both government and contractor) that occur on site. Notify the Contracting Officer Representative as soon as practical, but no more than four hours after any accident meeting the definition of a Moderate or Major incidents, High Visibility Incidents, , or any weight handling and hoisting equipment accident. Within notification include contractor name;

contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the or Contracting Officer Representative determine whether a government investigation will be conducted.

- B. Conduct an accident investigation for all Minor, Moderate and Major incidents as defined in paragraph DEFINITIONS, and property damage accidents resulting in at least \$20,000 in damages, to establish the root cause(s) of the accident. Complete the VA Form 2162 (or equivalent) , and provide the report to the Contracting Officer Representative within 5 calendar days of the accident. The Contracting Officer Representative will provide copies of any required or special forms.
- C. A summation of all man-hours worked by the contractor and associated sub-contractors for each month will be reported to the Contracting Officer Representative monthly.
- D. A summation of all Minor, Moderate, and Major incidents experienced on site by the contractor and associated sub-contractors for each month will be provided to the Contracting Officer Representative monthly. The contractor and associated sub-contractors' OSHA 300 logs will be made available to the Contracting Officer Representative as requested.

1.11 PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A. PPE is governed in all areas by the nature of the work the employee is performing. For example, specific PPE required for performing work on electrical equipment is identified in NFPA 70E, Standard for Electrical Safety in the Workplace.
- B. Mandatory PPE includes:

1. Hard Hats - unless written authorization is given by the Contracting Officer Representative in circumstances of work operations that have limited potential for falling object hazards such as during finishing work or minor remodeling. With authorization to relax the requirement of hard hats, if a worker becomes exposed to an overhead falling object hazard, then hard hats would be required in accordance with the OSHA regulations.
2. Safety glasses - unless written authorization is given by the or Contracting Officer Representative in circumstances of no eye hazards, appropriate safety glasses meeting the ANSI Z.87.1 standard must be worn by each person on site.
3. Appropriate Safety Shoes - based on the hazards present, safety shoes meeting the requirements of ASTM F2413-11 shall be worn by each person on site unless written authorization is given by the or Contracting Officer Representative in circumstances of no foot hazards.
4. Hearing protection - Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks.

1.12 INFECTION CONTROL

- A. Infection Control is critical in all medical center facilities. Interior construction activities causing disturbance of existing dust, or creating new dust, must be conducted within ventilation-controlled areas that minimize the flow of airborne particles into patient areas.

An AHA associated with infection control will be performed by VA personnel in accordance with FGI Guidelines (i.e. Infection Control Risk Assessment (ICRA)). The ICRA procedure found on the American Society for Healthcare Engineering (ASHE) website will be utilized. Risk classifications of Class II or lower will require approval by the Contracting Officer Representative before beginning any construction work. Risk classifications of Class III or higher will require a permit before beginning any construction work. Infection Control

permits will be issued by the Contracting Officer Representative. The Infection Control Permits will be posted outside the appropriate construction area. More than one permit may be issued for a construction project if the work is located in separate areas requiring separate classes. The primary project scope area for this project is: **Class III**, however, work outside the primary project scope area may vary. The required

1. Class I requirements:

a. During Construction Work:

- 1) Notify the Contracting Officer Representative .
- 2) Execute work by methods to minimize raising dust from construction operations.
- 3) Ceiling tiles: Immediately replace a ceiling tiles displaced for visual inspection.

b. Upon Completion:

- 1) Clean work area upon completion of task
- 2) Notify the Contracting Officer Representative .

2. Class II requirements:

a. During Construction Work:

- 1) Notify the Contracting Officer Representative .
- 2) Provide active means to prevent airborne dust from dispersing into atmosphere such as wet methods or tool mounted dust collectors where possible.
- 3) Water mist work surfaces to control dust while cutting.
- 4) Seal unused doors with duct tape.
- 5) Block off and seal air vents.
- 6) Remove or isolate HVAC system in areas where work is being performed.

b. Upon Completion:

- 1) Wipe work surfaces with cleaner/disinfectant.
- 2) Contain construction waste before transport in tightly covered containers.
- 3) Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area.
- 4) Upon completion, restore HVAC system where work was performed
- 5) Notify the or Contracting Officer Representative .

3. Class III requirements:

a. During Construction Work:

- 1) Obtain permit from the Contracting Officer Representative .
- 2) Remove or Isolate HVAC system in area where work is being done to prevent contamination of duct system.
- 3) Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. Install construction barriers and ceiling protection carefully, outside of normal work hours.
- 4) Maintain negative air pressure, 0.01 inches of water gauge, within work site utilizing HEPA equipped air filtration units and continuously monitored with a digital display, recording and alarm instrument, which must be calibrated on installation, maintained with periodic calibration and monitored by the contractor.

- 5) Contain construction waste before transport in tightly covered containers.
- 6) Cover transport receptacles or carts. Tape covering unless the cart has a solid lid.

b. Upon Completion:

- 1) Do not remove barriers from work area until completed project is inspected by the Contracting Officer Representative and thoroughly cleaned by the VA Environmental Services Department.
- 2) Remove construction barriers and ceiling protection carefully to minimize spreading of dirt and debris associated with construction, outside of normal work hours.
- 3) Vacuum work area with HEPA filtered vacuums.
- 4) Wet mop area with cleaner/disinfectant.
- 5) Upon completion, restore HVAC system where work was performed.
- 6) Return permit to the Contracting Officer Representative .

4. Class IV requirements:

a. During Construction Work:

- 1) Obtain permit from the .
- 2) Isolate HVAC system in area where work is being done to prevent contamination of duct system.
- 3) Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for

vacuuming prior to exit) before construction begins. Install construction barriers and ceiling protection carefully, outside of normal work hours.

- 4) Maintain negative air pressure, 0.01 inches of water gauge, within work site utilizing HEPA equipped air filtration units and continuously monitored with a digital display, recording and alarm instrument, which must be calibrated on installation, maintained with periodic calibration and monitored by the contractor.5)
Seal holes, pipes, conduits, and punctures.
- 6) Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave work site.
- 7) All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.

b. Upon Completion:

- 1) Do not remove barriers from work area until completed project is inspected by the Contracting Officer Representative with thorough cleaning by the VA Environmental Services Dept.
- 2) Remove construction barriers and ceiling protection carefully to minimize spreading of dirt and debris associated with construction, outside of normal work hours.
- 3) Contain construction waste before transport in tightly covered containers.

4) Cover transport receptacles or carts. Tape covering unless the cart has a solid lid.

5) Vacuum work area with HEPA filtered vacuums.

6) Wet mop area with cleaner/disinfectant.

7) Upon completion, restore HVAC system where work was performed.

8) Return permit to the Contracting Officer Representative.

B. Barriers shall be erected as required based upon classification (Class III & IV requires barriers) and shall be constructed as follows:

1. Class III and IV - closed door with masking tape applied over the frame and door is acceptable for projects that can be contained in a single room.

2. Construction, demolition or reconstruction not capable of containment within a single room must have the following barriers erected and made presentable on hospital occupied side:

- a. Class III & IV (where dust control is the only hazard, and an agreement is reached with the Resident Engineer and Medical Center) - Airtight plastic barrier that extends from the floor to ceiling. Seams must be sealed with duct tape to prevent dust and debris from escaping
- b. Class III & IV - Drywall barrier erected with joints covered or sealed to prevent dust and debris from escaping.
- c. Class III & IV - Seal all penetrations in existing barrier airtight
- d. Class III & IV - Barriers at penetration of ceiling envelopes, chases and ceiling spaces to stop movement air and debris

- e. Class IV only - Anteroom or double entrance openings that allow workers to remove protective clothing or vacuum off existing clothing
- f. Class III & IV - At elevators shafts or stairways within the field of construction, overlapping flap minimum of two feet wide of polyethylene enclosures for personnel access.

C. Products and Materials:

- 1. Sheet Plastic: Fire retardant polystyrene, 6-mil thickness meeting local fire codes
- 2. Barrier Doors: Self Closing Two-hour fire-rated solid core wood in steel frame, painted
- 3. Dust proof two-hour fire-rated drywall
- 4. High Efficiency Particulate Air-Equipped filtration machine rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Maintenance of equipment and replacement of the HEPA filters and other filters will be in accordance with manufacturer's instructions.
- 5. Exhaust Hoses: Heavy duty, flexible steel reinforced; Ventilation Blower Hose
- 6. Adhesive Walk-off Mats: Provide minimum size mats of 24 inches x 36 inches
- 7. Disinfectant: Hospital-approved disinfectant or equivalent product
- 8. Portable Ceiling Access Module

- D. Before any construction on site begins, all contractor personnel involved in the construction or renovation activity shall be

educated and trained in infection prevention measures established by the medical center.

- E. A dust control program will be establish and maintained as part of the contractor's infection preventive measures in accordance with the FGI Guidelines for Design and Construction of Healthcare Facilities. Prior to start of work, prepare a plan detailing project-specific dust protection measures with associated product data, including periodic status reports, and submit to Contracting Officer Representative for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- F. Medical center Infection Control personnel will monitor for airborne disease (e.g. aspergillosis) during construction. A baseline of conditions will be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality with safe thresholds established.
- H. In general, the following preventive measures shall be adopted during construction to keep down dust and prevent mold.
 - 1. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. HEPA filtration is required where the exhaust dust may reenter the medical center.
 - 2. Exhaust hoses shall be exhausted so that dust is not reintroduced to the medical center.
 - 3. Adhesive Walk-off/Carpet Walk-off Mats shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.

4. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as it is created. Transport these outside the construction area in containers with tightly fitting lids.
5. The contractor shall not haul debris through patient-care areas without prior approval of the Resident Engineer and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.
6. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
7. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

I. Final Cleanup:

1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.
2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings, cabinets,

furniture (built-in or free standing), partitions, flooring, etc.

3. All new air ducts shall be cleaned prior to final inspection.

J. Exterior Construction

1. Contractor shall verify that dust will not be introduced into the medical center through intake vents, or building openings. HEPA filtration on intake vents is required where dust may be introduced.
2. Dust created from disturbance of soil such as from vehicle movement will be wetted with use of a water truck as necessary
3. All cutting, drilling, grinding, sanding, or disturbance of materials shall be accomplished with tools equipped with either local exhaust ventilation (i.e. vacuum systems) or wet suppression controls.

1.13 TUBERCULOSIS SCREENING

- A. Contractor shall provide written certification that all contract employees assigned to the work site have had a pre-placement tuberculin screening within 90 days prior to assignment to the worksite and been found have negative TB screening reactions. Contractors shall be required to show documentation of negative TB screening reactions for any additional workers who are added after the 90-day requirement before they will be allowed to work on the work site. NOTE: This can be the Center for Disease Control (CDC) and Prevention and two-step skin testing or a Food and Drug Administration (FDA)-approved blood test.
1. Contract employees manifesting positive screening reactions to the tuberculin shall be examined according to current CDC guidelines prior to working on VHA property.

2. Subsequently, if the employee is found without evidence of active (infectious) pulmonary TB, a statement documenting examination by a physician shall be on file with the employer (construction contractor), noting that the employee with a positive tuberculin screening test is without evidence of active (infectious) pulmonary TB.
3. If the employee is found with evidence of active (infectious) pulmonary TB, the employee shall require treatment with a subsequent statement to the fact on file with the employer before being allowed to return to work on VHA property.

1.14 FIRE SAFETY

- A. Fire Safety Plan: Establish and maintain a site-specific fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to Contracting Officer Representative for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. This plan may be an element of the Accident Prevention Plan.
- B. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- C. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- D. Temporary Construction Partitions:
 1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas

- and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.
2. Install two-hour fire-rated temporary construction partitions as shown on drawings to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.
 3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.
- E. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- F. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Contracting Officer Representative .
- G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Contracting Officer Representative.
- H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.

J. - NOT USED

K. - NOT USED

- L. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with Contracting Officer Representative. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the Resident Engineer.
- M. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Contracting Officer Representative.
- N. Hot Work: Perform and safeguard hot work Contracting Officer Representative. Obtain permits from Contracting Officer Representative at the start of the work shift. Designate contractor's responsible project-site fire prevention program manager to permit hot work.
- O. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Contracting Officer .
- P. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- Q. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

Contracting Officer Representative that personnel have been trained in the fire safety aspects of working in areas with impaired structural or compartmentalization features.

1.15 ELECTRICAL

- A. All electrical work shall comply with NFPA 70 (NEC), NFPA 70B, NFPA 70E, 29 CFR Part 1910 Subpart J - General Environmental Controls, 29 CFR Part 1910 Subpart S - Electrical, and 29 CFR 1926 Subpart K in addition to other references required by contract.
- B. All qualified persons performing electrical work under this contract shall be licensed journeyman or master electricians. All apprentice electricians performing under this contract shall be deemed unqualified persons unless they are working under the immediate supervision of a licensed electrician or master electrician.
- C. All electrical work will be accomplished de-energized and in the Electrically Safe Work Condition (refer to NFPA 70E for Work Involving Electrical Hazards, including Exemptions to Work Permit). Any Contractor, subcontractor or temporary worker who fails to fully comply with this requirement is subject to immediate termination in accordance with FAR clause 52.236-5(c). Only in rare circumstance where achieving an electrically safe work condition prior to beginning work would increase or cause additional hazards, or is infeasible due to equipment design or operational limitations is energized work permitted. The Contracting Officer Representative with approval of the Medical Center Director will make the determination if the circumstances would meet the exception outlined above. An AHA and permit specific to energized work activities will be developed, reviewed, and accepted by the VA prior to the start of that activity.

1. Development of a Hazardous Electrical Energy Control Procedure is required prior to de-energization. A single Simple Lockout/Tagout Procedure for multiple work operations can only be used for work involving qualified person(s) de-energizing one set of conductors or circuit part source. Task specific Complex Lockout/Tagout Procedures are required at all other times.
 2. Verification of the absence of voltage after de-energization and lockout/tagout is considered "energized electrical work" (live work) under NFPA 70E, and shall only be performed by qualified persons wearing appropriate shock protective (voltage rated) gloves and arc rate personal protective clothing and equipment, using Underwriters Laboratories (UL) tested and appropriately rated contact electrical testing instruments or equipment appropriate for the environment in which they will be used.
 3. Personal Protective Equipment (PPE) and electrical testing instruments will be readily available for inspection by the The or Contracting Officer Representative.
- D.** Before beginning any electrical work, an Activity Hazard Analysis (AHA) will be conducted to include Shock Hazard and Arc Flash Hazard analyses (NFPA Tables can be used only as a last alternative and it is strongly suggested a full Arc Flash Hazard Analyses be conducted). Work shall not begin until the AHA for the work activity and permit for energized work has been reviewed and accepted by the Contracting Officer Representative and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.
- E.** Ground-fault circuit interrupters. GFCI protection shall be provided where an employee is operating or using cord- and plug-

connected tools related to construction activity supplied by 125-volt, 15-, 20-, or 30- ampere circuits. Where employees operate or use equipment supplied by greater than 125-volt, 15-, 20-, or 30- ampere circuits, GFCI protection or an assured equipment grounding conductor program shall be implemented in accordance with NFPA 70E - 2015, Chapter 1, Article 110.4(C)(2)..

1.16 FALL PROTECTION - NOT USED

1.17 SCAFFOLDS AND OTHER WORK PLATFORMS - NOT USED

1.18 EXCAVATION AND TRENCHES - NOT USED

Safety Officer.

1.19

1.20 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

A. All installation, maintenance, and servicing of equipment or machinery shall comply with 29 CFR 1910.147 except for specifically referenced operations in 29 CFR 1926 such as concrete & masonry equipment [1926.702(j)], heavy machinery & equipment [1926.600(a)(3)(i)], and process safety management of highly hazardous chemicals (1926.64). Control of hazardous electrical energy during the installation, maintenance, or servicing of electrical equipment shall comply with Section 1.15 to include NFPA 70E and other VA specific requirements discussed in the section.

1.21 CONFINED SPACE ENTRY - NOT USED

1.22 WELDING AND CUTTING - NOT USED

1.23 LADDERS - NOT USED

1.24 FLOOR & WALL OPENINGS

- A. All floor and wall openings shall comply with 29 CFR 1926 Subpart M.
- B. Floor and roof holes/openings are any that measure over 2 in (51 mm) in any direction of a walking/working surface which persons may trip or fall into or where objects may fall to the level

below. Skylights located in floors or roofs are considered floor or roof hole/openings.

- C. All floor, roof openings or hole into which a person can accidentally walk or fall through shall be guarded either by a railing system with toeboards along all exposed sides or a load-bearing cover. When the cover is not in place, the opening or hole shall be protected by a removable guardrail system or shall be attended when the guarding system has been removed, or other fall protection system.
1. Covers shall be capable of supporting, without failure, at least twice the weight of the worker, equipment and material combined.
 2. Covers shall be secured when installed, clearly marked with the word "HOLE", "COVER" or "Danger, Roof Opening-Do Not Remove" or color-coded or equivalent methods (e.g., red or orange "X"). Workers must be made aware of the meaning for color coding and equivalent methods.
 3. Roofing material, such as roofing membrane, insulation or felts, covering or partly covering openings or holes, shall be immediately cut out. No hole or opening shall be left unattended unless covered.
 4. Non-load-bearing skylights shall be guarded by a load-bearing skylight screen, cover, or railing system along all exposed sides.
 5. Workers are prohibited from standing/walking on skylights.

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SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies regulatory environmental compliance and the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of applicable project permits, visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
 - 1. Adversely affect human health or welfare,
 - 2. Unfavorably alter ecological balances of importance to human life,
 - 3. Affect other species of importance to humankind, or;
 - 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- C. Definitions:
 - 1. Debris: Combustible and noncombustible wastes, and waste materials resulting from construction or maintenance and repair work.
 - 2. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and from community activities.
 - 3. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
 - 4. Sanitary Wastes:
 - a. Sewage: Domestic sanitary sewage and human and animal waste.
 - b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2 QUALITY CONTROL

- A. Establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.
- C. All regulatory compliance activities shall be reviewed and accepted by the GEMS Coordinator, via the COR.

1.3 REFERENCES

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

- A. U.S. National Archives and Records Administration (NARA): 33 CFR 328 Definitions

1.4 SUBMITTALS

In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:

A. Environmental Protection Plan:

1. The Contractor shall submit an Environmental Protection Plan at or before the Preconstruction Conference.
2. The Environmental Protection Plan shall include the following:
 - a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for obtaining applicable environmental permits and ensuring adherence to the Environmental Protection Plan.
 - b. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control, and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
 - c. Procedures and methods to provide compliance with the applicable laws and regulations.
 - d. Documentation for applicable permits and licenses.
 - e. Drawings showing locations of any proposed temporary excavations, embankments and stockpiles of excess or spoil materials.
3. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued regulatory compliance and control of pollutants and other environmental protection measures.
4. Work may not begin until the Environmental Protection Plan is approved.

1.5 PROTECTION OF ENVIRONMENTAL RESOURCES

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract. Confine activities to areas defined by the specifications and drawings.
- B. Protection of Land Resources: - NOT USED
- C. Protection of Water Resources: - NOT USED
- D. Protection of Fish and Wildlife Resources: - NOT

- E. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State of NH Department of Environmental Services (DES) regulations and Federal emission and performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency for those construction operations and activities specified.
1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials at all times, including weekends, holidays, and hours when work is not in progress.
 2. Particulates Control: Maintain all work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance.
 3. Hydrocarbons and Carbon Monoxide: - NOT USED
 4. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.
- F. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the COR. Maintain noise-produced work at or below the decibel levels and within the time periods specified.
1. Comply with local noise regulations as in the City of Manchester, NH Code of Ordinances, Title X: General Regulations, Chapter 94: Noise Regulations.
 2. Perform construction activities involving repetitive, high-level impact noise only between 7:00 a.m. and 9:00 p.m., Monday-Friday, in accordance with Manchester's noise regulations. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
More than 12 minutes in any hour	70
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	75
 3. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:
 - a. Maintain maximum permissible construction equipment noise levels at 15 m (50 feet) (dBA):

EARTHMOVING		MATERIALS HANDLING	
FRONT LOADERS	75	CONCRETE MIXERS	75
BACKHOES	75	CONCRETE PUMPS	75
DOZERS	75	CRANES	75
TRACTORS	75	DERRICKS IMPACT	75
SCAPERS	80	PILE DRIVERS	95
GRADERS	75	JACK HAMMERS	75
TRUCKS	75	ROCK DRILLS	80
PAVERS, STATIONARY	80	PNEUMATIC TOOLS	80
PUMPS	75		
GENERATORS	75	SAWS	75
COMPRESSORS	75	VIBRATORS	75

- b. Use shields or other physical barriers to restrict noise transmission.
 - c. Provide soundproof housings or enclosures for noise-producing machinery.
 - d. Use efficient silencers on equipment air intakes.
 - e. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.
 - f. Line hoppers and storage bins with sound deadening material.
 - g. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.
4. Measure sound level for noise exposure due to each noise-producing construction activity a minimum of once per every five successive working days while work is being performed above 55 dB(A) noise level. Measure noise exposure at the property line or 15 m (50 feet) from the noise source, whichever is greater. Measure the sound levels on the A weighing network of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at 900 to 1800 mm (three to six feet) in front of any building face. Submit the recorded information to the COR noting any problems and the alternatives for mitigating actions.
- G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no

additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.

- H. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition satisfactory to the COR. Cleaning shall include off the station disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations.

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, reused, or recycled.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage, reuse, and recycle.
- D. At a minimum the following waste categories shall be diverted from landfills:
 - 1. Inerts (eg, concrete, masonry and asphalt).
 - 2. Clean dimensional wood and palette wood.
 - 3. Engineered wood products (plywood, particle board and I-joists, etc).
 - 4. Metal products (eg, steel, wire, beverage containers, copper, etc).
 - 5. Cardboard, paper and packaging.
 - 6. Bitumen roofing materials.
 - 7. Plastics (eg, ABS, PVC).
 - 8. Carpet and/or pad.
 - 9. Gypsum board.

1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 QUALITY ASSURANCE

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the minimization of avoidable waste, such as that created by the following:
 - 1. Excess or unusable construction materials.
 - 2. Packaging used for construction products.
 - 3. Poor planning and/or layout.
 - 4. Construction error.
 - 5. Over ordering.
 - 6. Weather damage.

7. Contamination.
 8. Mishandling.
 9. Breakage.
- B. Contractor shall develop and implement procedures to recycle construction and demolition waste to a minimum of 50 percent.
 - C. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
 - D. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website <http://www.cwm.wbdg.org> provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.
 - E. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties throughout the project.
 - F. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:
- B. Upon receiving the Notice to Proceed, prepare and submit to the COR a written Waste Management Plan. The plan must be approved before work can begin on site. The Waste Management Plan shall include the following information:
 1. The Designated Manager responsible for supervising, documenting, and instructing personnel on the Waste Management Plan.
 2. Techniques to be used to minimize waste generation.
 3. Procedures to be used for debris/waste stream management.
 4. An inventory of the estimated job site waste to be generated, including the following information for each anticipated material/waste stream:
 - a. Brief description.
 - b. Estimated total quantity of waste anticipated.
 - c. Estimated quantity to be salvaged, reused, or recycled.
 - d. Estimated quantity to be disposed of.

- e. Name of destination facility or site.
 - f. Location of destination facility or site.
 - g. Method of transportation.
5. Documentation that all facilities and sites listed in the inventory are approved to receive the listed materials. Should additional facilities/sites be added later in the project, documentation for these facilities/sites shall be submitted as an amendment to the Waste Management Plan. The submittal must be approved before the Contractor may utilize the facility/site.
- C. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal. State the beginning and ending dates of the period covered. Include the following information for each waste stream:
- a. Brief description.
 - b. Quantity (in pounds) of waste generated for the period.
 - c. Quantity (in pounds) of waste salvaged, reused, or recycled for the period.
 - d. Quantity (in pounds) of waste disposed of for the period.
 - e. Cumulative amount (in pounds) of waste generated for the project.
 - f. Cumulative amount (in pounds) of waste salvaged, reused, or recycled for the project.
 - g. Cumulative amount (in pounds) of waste disposed of for the project.
 - h. Name of destination facility or site.
 - i. Location of destination facility or site.
 - j. Method of transportation.
 - k. Costs associated with disposal, salvage, reuse, or recycling.
 - l. Savings and/or proceeds associated with disposal, salvage, reuse, or recycling.
 - m. Attach all applicable tracking data for the period, including receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, and invoices.
- D. For waste streams where reporting in pounds is not possible, report in a logical unit of measurement for the material and report the percent of waste salvaged, reused, or recycled.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 COLLECTION

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to the respective recycling facility for processing.
- C. Cover all waste that is stored outdoors that would have the potential to migrate into stormwater, including all dumpsters.
- D. Hazardous wastes and regulated materials shall be separated, stored, and disposed of according to local, state, federal regulations.
 - 1. All anticipated regulated and hazardous waste materials shall be communicated to the GEMS Coordinator, via the COR, one week in advance.
 - 2. Prepared shipping paperwork shall be provided to the GEMS Coordinator, via the COR, for review one week in advance. Quantities should not be filled in until the waste is ready to be shipped, however.
 - 3. Unanticipated regulated and hazardous waste materials shall be communicated to the GEMS Coordinator, via the COR, as soon as possible and absolutely no later than 24 hours following waste generation/identification.
 - 4. Shipping documents for regulated and/or hazardous waste shall only be signed by the VA GEMS Coordinator or by a designated authorized personnel.
 - 5. Hazardous waste shall only be shipped/leave the facility between the hours of 8am and 3:30pm, Monday through Friday, excluding all federal holidays. Shipments shall be scheduled one week in advance in order to ensure that appropriate VA personnel are available to sign shipping documents.

3.2 DISPOSAL

- A. Shipping documents prepared for waste disposal shall be submitted to the GEMS Coordinator for review and acceptance prior to the scheduled shipping date.
- B. Contractor shall provide all demolition, removal and legal disposal of materials.

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SECTION 09 05 16
SUBSURFACE PREPARATION FOR FLOOR FINISHES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies subsurface preparation requirements for areas to receive the installation of resilient flooring and carpet. This section includes removal of existing floor coverings, testing concrete for moisture and pH, remedial floor coating with self-leveling underlayment for concrete floor slabs having unsatisfactory moisture or pH conditions, and floor repair as required.
 - 1. The new concrete slabs will not be dry enough to use conventional adhesives. All new slabs shall be coated with a remedial floor coating and self-leveling underlayment.

1.2 RELATED WORK

- A. Section 09 65 16, RESILIENT SHEET FLOORING.
- B. Section 09 65 19, RESILIENT TILE FLOORING.
- C. Section 09 68 00, CARPETING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA and TEST DATA.
- B. Written approval confirming product compatibility with subfloor material manufacturer and the flooring manufacturer
- C. Product Data:
 - 1. Moisture remediation system.
 - 2. Underlayment Primer.
 - 3. Cementitious Self-Leveling Underlayment.
 - 4. Cementitious Trowel-Applied Underlayment.
- D. Test Data:
 - 1. Moisture test and pH results performed by a qualified independent testing agency or warranty holding manufacturer's technical representative.

1.4 DELIVERY AND STORAGE

- A. Deliver materials in containers with labels legible and intact and grade-seals unbroken.
- B. Store material to prevent damage or contamination.

1.5 APPLICABLE PUBLICATIONS

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

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

D4259-88 (2012)	Standard Practice for Abrading Concrete to alter the surface profile of the concrete and to remove foreign materials and weak surface laitance.
C109/C109M-12 (2012)	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens) Modified Air Cure Only
D7234-12 (2012)	Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
E96/E96M - 12 (2012)	Standard Test Methods for Water Vapor Transmission of Materials
F710-11 (2011)	Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
F1869-11 (2011)	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
F2170-11 (2011)	Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
C348-08 (2008)	Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
C191-13 (2013)	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle

PART 2 - PRODUCTS

2.1 MOISTURE REMEDIATION COATING

A. System Descriptions:

1. High-solids, epoxy system designed to suppress excess moisture in concrete prior to an overlayment. For use under resilient flooring, tile and carpet where issues caused by moisture vapor are a concern.

B. Products: Subject to compliance with applicable fire, health, environmental, and safety requirements for storage, handling, installation, and clean up.

C. System Components: Verify specific requirements as systems vary by manufacturer. Verify build up layers and installation method. Verify compatibility with substrate. Use manufacturer's standard components, compatible with each other and as follows:

1. Liquid applied coating:
 - a. Resin: epoxy.
 - b. Formulation Description: Multiple component high solids.
 - c. Application: Per manufacturer's written installation requirements.
 - d. Thickness: minimum 10 mils
- D. Material Vapor Permeance: Application shall achieve a permeance rating of less than 0.1 perm in accordance with ASTM E96/E96M.
- E. Maximum RH requirement: 100% testing in accordance with ASTM F2170.

Property	Test	Value
Tensile Strength	ASTM D638	4,400 psi
Volatile Organic Compound Limits (V.O.C.)	SCAMD Rule 1113	25 grams per liter
Permeance	ASTM E96	0.1 perms
Tensile Modulus	ASTM D638	1.9X10 ⁵ psi
Percent Elongation	ASTM D638	12%
Cure Rate	Per manufacture's Data	4 hours Tack free with 24hr recoat window
Bond Strength	ASTM D7234	100% bond to concrete failure

2.2 CEMENTITIOUS SELF-LEVELING UNDERLAYMENT

- A. System Descriptions:
 1. High performance self-leveling underlayment surfacer. Single component, self-leveling, cementitious material designed for easy application as an underlayment for all types of flooring materials. It is used for substrate repair and leveling.
- B. Products: Subject to compliance with applicable fire, health, environmental, and safety requirements for storage, handling, installation, and clean up. Gypsum-based products are unacceptable.
- C. System Characteristics:
 1. Wearing Surface: smooth
 2. Thickness: 1/8-inch, per application.
- D. Underlayment shall be calcium aluminate cement-based, containing Portland cement. Gypsum-based products are unacceptable.

- E. Compressive Strength: Minimum 4700 psi in 28 days in accordance with ASTM C109/C109M.
- F. Flexural Strength: Minimum 1000 psi in 28 days in accordance with ASTM C348
- G. Dry Time: Underlayment shall receive the application of floor coverings in 16 hours.
- H. Primer: compatible and as recommended by manufacturer for use over intended substrate
- I. System Components: Manufacturer's standard components that are compatible with each other and as follows:
 - 1. Primer:
 - a. Resin: copolymer
 - b. Formulation Description: single component ready to use.
 - c. Application Method: Squeegee and medium nap roller.
All puddles shall be removed, and material shall be allowed to dry, 1-2 hours at 70F/21C.
 - d. Number of Coats: (1) one.
 - 2. Grout Surfacing Base:
 - a. Formulation Description: Single component, cementitious self-leveling high-early and high-ultimate strength grout.
 - b. Application Method: colloidal mix pump, cam rake, spike roll.
 - 1) Thickness of Coat: 1/8-inch.
 - 2) Number of Coats: One.

Property	Test	Value
Compressive Strength	ASTM C109/C109M	2,200 psi @ 24 hrs 3,000 psi @ 7 days 4,700 psi @ 28 days
Initial set time Final Set time	ASTM C191	30-45 min. 1 to 2 hours
Bond Strength	ASTM D7234	100% bond to concrete failure

2.3 CEMENTITIOUS TROWEL-APPLIED UNDERLAYMENT (PATCHING AT EXISTING FLOOR COVERING LOCATIONS AND MINOR REPAIRS)

- A. Underlayment shall be product specified in Section 09 65 19, RESILIENT TILE FLOORING.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperature of work areas at not less than 16 degree C (60 degrees F), without interruption, for not less than 24 hours before testing and not less than three days after testing.
- B. Maintain higher temperatures for a longer period of time where required by manufacturer's recommendation.
- C. Do not install materials when the temperatures of the substrate or materials are not within 60-85 degrees F/ 16-30 degrees C.
- B. Repair damaged and deteriorated concrete according to flooring manufacturer's written recommendations.
- C. Verify that concrete substrates are dry.

3.3 MOISTURE REMEDIATION COATING:

- A. A. Prepare surface and apply moisture remediation coating system in accordance with remedial floor coating manufacturer's written instructions.
- B. Prior to remedial floor coating installation mechanically prepare the concrete surface to provide a concrete surface profile in accordance with ASTM D4259.
- C. Mix and apply moisture remediation coating in accordance with manufacturer's instructions.
- D. Location and Thickness:
 - 1. Basement Floor Slab and Slab on Grade Portions of First Floor: Apply 1/4-inch average thickness to entire basement floor slab. Provide smooth, uniform, gradual taper where underlayment meets existing slab surfaces.
 - a. Thickness shall be adjusted based upon slab flatness survey. Adjustment of cementitious self-leveling underlayment thickness, if required, will be modified accordingly in accordance with the contract.
 - 2. Moisture Remediation Coating: Apply not less than 1/16 and not more than 1/8-inch thickness over moisture remediation coating to act as absorptive surface for conventional resilient flooring adhesives. Provide smooth, uniform, gradual taper where underlayment meets uncoated slab surfaces.

3.4 CEMENTITIOUS UNDERLAYMENT:

- A. Install cementitious self-leveling underlayment over moisture remediation coating to provide surface to receive conventional water based adhesives.
- B. Mix and apply in accordance with manufacturer's instructions.

3.5 PROTECTION

- A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, tempered hardwood, or other suitable protection course

3.6 FIELD QUALITY CONTROL

- A. Where specified, field sampling of products shall be conducted by a qualified, independent testing facility.

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SECTION 09 65 13
RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base (RB) adhered to interior walls and partitions.
 - 2. Resilient stair treads (RST) adhered to interior stair treads.

1.2 RELATED REQUIREMENTS

- A. Sheet Flooring Integral Base: Section 09 65 16, RESILIENT SHEET FLOORING.
- B. Rubber Tile Flooring at Landings: Section 09 65 19, RESILIENT TILE FLOORING.

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
 - 1. F1861-08(2012)e1 - Resilient Wall Base.

1.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - 2. Adhesives and primers indicating manufacturer's recommendation for each application.
 - 3. Installation instructions.
- C. Samples:
 - 1. Resilient Base: 150 mm (6 inches) long, each type and color.
 - 2. Resilient Stair Treads: 150 mm (6 inches) long, each type and color.
- D. Sustainable Construction Submittals:
 - 1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.
 - 2. Low Pollutant-Emitting Materials:
 - a. Stair Treads: Submit FloorScore label.
 - b. Show volatile organic compound types and quantities.
- E. Operation and Maintenance Data:
 - 1. Care instructions for each exposed finish product.

1.5 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

1.6 STORAGE AND HANDLING

- A. Store products indoors in dry, weathertight facility.
- B. Protect products from damage when handling and during construction operations.

1.7 FIELD CONDITIONS

- A. Environment:
 - 1. Product Temperature: Minimum 21 degrees C (70 degrees F) for minimum 48 hours before installation.
 - 2. Work Area Ambient Temperature Range: 21 to 27 degrees C (70 to 80 degrees F) continuously, beginning 48 hours before installation.
 - 3. Install products when building is permanently enclosed and when wet construction is completed, dried, and cured.

PART 2 - PRODUCTS

2.1 PRODUCTS

- A. Provide each product from one manufacturer and from one production run.
- B. Basis of Design: Tarkett Johnsonite Resilient Wall Base. This information is provided for reference only, it does not exclude other manufacturer's that comply with specified product requirements.
- C. Requirements:
 - 1. Low Pollutant-Emitting Materials with low VOC limits for the following products:
 - a. Flooring Adhesives and Sealants.

2.2 STANDARD RESILIENT BASE

- A. Resilient Base, RB-1: 3 mm (1/8 inch) thick, 152 mm (6 inches) high.
 - 1. Type: Rubber; use one type throughout.
 - 2. ASTM F1861, Type TP thermoplastic rubber.
 - 3. Lengths: Continuous coil.
- B. Applications:

1. Resilient Flooring and Carpet Tile Flooring Locations per location list

C. Product Profile: DC-XX.

D. Basis-of-Design Product: Johnsonite; Traditional Wall Base.

1. Color: TBD.

2.3 MILLWORK CONTOURED RESILIENT BASE

A. Contoured Resilient Base, RB-2: ASTM F 1861, Type TP, Group 1.

1. Size: 9.52 mm (0.375 inch) thick, 133.4 mm (5.25 inches) high.

2. Lengths: 8 feet.

B. ASTM F1861, Type TP thermoplastic rubber, Group 1.

C. Basis-of-Design Product: Johnsonite Millwork Contoured Resilient Base.

1. Profile: Inflection MW-XX-G.

2. Color: TBD.

2.4 RESILIENT STAIR TREADS

A. Resilient Stair Treads: Rubber, pre-shaped nosing and tread all in one piece. (3/16 inch) thick nosing wear surface tapered to 3 mm (1/8 inch) thick at riser. Visually impaired stair strip, color to be selected.

1. Nosing: Flexible, accommodating angle between tread and riser; shape suiting sub-tread.

2. Size: Single piece full stair tread width and depth.

3. Basis of Design: Nora Norament stair treads, pattern TBD.

2.5 ADHESIVES

A. Adhesives: Low pollutant-emitting, water based type recommended by adhered product manufacturer for each application.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for product installation.

B. Protect completed work from damage.

3.2 INSTALLATION GENERAL

A. Install products according to manufacturer's instructions.

1. When instructions deviate from specifications, submit proposed resolution for Contracting Officer consideration.

3.3 RESILIENT BASE INSTALLATION

A. Applications:

1. Install resilient base in rooms scheduled on Drawings.

2. Install resilient base on casework toe spaces.
 3. Extend resilient base into closets, alcoves, and cabinet knee spaces, and around columns within scheduled room.
- B. Lay out resilient base with minimum number of joints.
1. Length: 600 mm (24 inches) minimum, each piece.
 2. Locate joints 150 mm (6 inches) minimum from corners and intersection of adjacent materials.
- C. Installation:
1. Apply adhesive uniformly for full contact between resilient base and substrate.
 2. Set resilient base with hairline butted joints aligned along top edge.
- D. Factory form corners and end stops.
- E. Roll resilient base ensuring complete adhesion.

3.4 CLEANING

- A. Remove excess adhesive before adhesive sets.
- B. Clean exposed resilient base surfaces. Remove contaminants and stains.
1. Clean with mild detergent. Leave surfaces free of detergent residue.

3.5 PROTECTION

- A. Protect products from construction traffic and operations.
1. Cover resilient stair treads with reinforced kraft paper, and plywood or hardboard.
 2. Maintain protection until directed by Contracting Officer's Representative.
- B. Replace damaged products and re-clean.
1. Damaged Products include cut, gouged, scraped, torn, and unbonded products.

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SECTION 09 65 16
RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Welded seam sheet flooring (WSF) with heat welded seams; provide integral cove base where indicated.

1.2 RELATED REQUIREMENTS

- A. Surface Preparation for Resilient Sheet Flooring: Section 09 05 16, Subsurface Preparation for Floor Finishes.
- B. Resilient Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
1. E648-15e1 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 2. E662-15a - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 3. F1303-04(2014) - Sheet Vinyl Floor Covering with Backing.
 4. F1913-04(2014) - Vinyl Sheet Floor Covering Without Backing.

1.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
1. Show size, configuration, and fabrication and installation details.
- B. Manufacturer's Literature and Data:
1. Description of each product.
 - a. Include VOC level for adhesives and primers.
 2. Installation instructions.
 3. Maintenance instructions for Owner.
 4. Warranty.
- C. Samples:
1. Sheet material, 38 mm by 300 mm (1-1/2 inch by 12 inch), of each color and pattern with welded seam using specified welding rod 300 mm (12 inches) square for each type, pattern and color.

2. Cap strip and fillet strip, 300 mm (12 inches) for integral base.
 3. Shop Drawings and Certificates: Layout of joints showing patterns where joints are expressed, and type and location of obscure type joints. Indicate orientation of directional patterns.
 4. Certificates: Quality Control Certificate Submittals and lists specified in paragraph, QUALIFICATIONS.
- D. Sustainable Construction Submittals:
1. Low Pollutant-Emitting Materials:
 - a. Sheet Flooring: Submit FloorScore label.
 - b. Identify volatile organic compound types and quantities.
- E. Certificates: Certify each product complies with specifications.
1. Heat welded seaming is manufacturer's prescribed method of installation.
- F. Qualifications: Substantiate qualifications comply with specifications.
1. Installer with project experience list.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
1. Regularly installs specified products and is approved by the manufacturer.

1.6 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

1.7 STORAGE AND HANDLING

- A. Store products indoors in dry, weathertight, conditioned facility.
- B. Protect products from damage during handling and construction operations.
- C. Move flooring, adhesives, and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.8 FIELD CONDITIONS

- A. Environment:
1. Work Area Ambient Temperature Range: Minimum 18 to 30 degrees C (65 to 85 degrees F) continuously, beginning 48 hours before

installation. Maintain room temperature above 18 degrees C (65 degrees F) after installation.

2. Install products when building is permanently enclosed and when wet construction is completed, dried, and cured.

1.9 WARRANTY

- A. Manufacturer's Warranty: Warrant resilient sheet flooring against material and manufacturing defects.
 1. Warranty Period for WSF-1: 10-Year Commercial Resilient Limited Warranty.
 2. Warranty Period for WSF-2: 10-Year Commercial Resilient Limited Warranty.

PART 2 - PRODUCTS

2.1 SYSTEM PERFORMANCE

- A. Sheet Flooring:
 1. Critical Radiant Flux: ASTM E648; 0.45 watts per sq.cm or more, Class I.
 2. Smoke Density: ASTM E662; less than 450.

2.2 PRODUCTS - GENERAL

- A. Basis-of-Design Products: This information is provided for reference only, it does not exclude other manufacturers that comply with specified product requirements.
- B. Provide vinyl sheet color and pattern from one production run.
- C. Sustainable Construction Requirements:
 1. Low Pollutant-Emitting Materials low VOC limits for the following products:
 - a. Flooring Adhesives and Sealants.
 - b. Vinyl Sheet Flooring.

2.3 RESILIENT SHEET FLOORING

- A. Resilient Sheet Flooring, WSF-2: ASTM F1913; Vinyl, without backing; FloorScore compliant with low VOCs.
 1. Wear Surface: Smooth.
 2. Thickness: 2 mm (0.080 inches).
 3. Wearing Surface: Smooth.
 4. Finish: Diamond-infused UV-cured polyurethane finish.

5. Sheet Size: Provide maximum size sheet produced by manufacturer to minimize joints.
 - a. Minimum Sheet Width: 2.0 m (79 inches).
 6. Installation Method: Welded seams.
 7. Basis-of-Design Product: Armstrong Commercial Flooring, Inc.; ColorArt Medintone with Diamond 10 Coating.
 - a. Color:TBD.
- B. Resilient Sheet Flooring, WSF-1: ASTM F1303; Type I, Grade 1, vinyl, with Class B backing.
1. Wear Surface: Smooth.
 2. Wear Layer Thickness: Minimum 0.51 mm (0.020 inches).
 3. Total Thickness: 2 mm (0.080 inches).
 4. Sheet Size: Provide maximum size sheet produced by manufacturer to minimize joints.
 - a. Minimum Width: 1.83 m (9 foot width).
 5. Finish: UV-cured polyurethane.
 6. Integral Cove Height: 4 inches, where indicated.
 7. Installation Method: Welded seams.
 8. Basis-of-Design Product: Mannington Commercial; Entwined Collection, Suber.
 - a. Color: TBD.

2.4 ACCESSORIES

- A. Welding Rod: Flooring manufacturer's standard, in color matching field color of sheet flooring.
- B. Adhesives: Water resistant type recommended by flooring manufacturer to suit application. VOC content to be 50 grams/L when calculated according to 40 CFR 59 (EPA Method 24).
1. Product: Armstrong Commercial Flooring; S-543 Premium Plus Commercial Vinyl Sheet Flooring Adhesive.
 - a. Provide S-580 Flash Cove Adhesive for integral base.
- C. Waterproof Adhesive System, Deduct Alternate: The new concrete will not dry to the required relative humidity (RH) within the construction time period for the application of conventional adhesive. Provide the following moisture resistant adhesive and accessories for this installation.
1. Adhesive system shall have no MVER, %RH or pH limit, and concrete does not require testing.

- a. Adhesive, leveling compound for surface patching, and primer shall come from the same manufacturer.
 - b. VOC: 0.
- 2. Products: Provide the following products from Formulators:
 - a. Adhesive: Aquaflex PSA Adhesive - VSF (Vinyl Sheet Flooring).
 - a. Application Trowel: Gundlach No. 680 CBD Notch trowel furnished with adhesive. New trowel shall be provided with each unit of adhesive.
 - b. Leveling Underlayment Compound: Aquaflex Patch Mix and Aquaflex 1+1 Polymer.
 - c. Skim Coat: Aquaflex Skim Fast.
 - d. Primer: Aquaflex D-Gas Primer.
- D. Base Accessories for WSF-1:
 - 1. Fillet Strip: 19 mm (3/4 inch) radius fillet strip compatible with flooring material.
 - 2. Cap Strip: J-Shape extruded flanged reducer strip compatible with flooring material approximately 25 mm (1 inch) exposed height with 13 mm (1/2 inch) flange.
- DI. Sealant:
 - 1. Compatible with flooring.

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. Ensure interior finish work such as drywall finishing, concrete, ceiling work, and painting work is complete and dry before installation.
 - 1. Complete mechanical, electrical, and other work above ceiling line.
 - 2. Ensure heating, ventilating, and air conditioning systems are installed and operating in order to maintain temperature and humidity requirements.
- D. Preparation, Base Bid: Concrete substrates prepared in Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.
- E. Preparation for Waterproof Adhesive, Deduct Alternate: Concrete surface shall be smooth, dry, porous and dust free.

- a. Specified waterproof adhesive does not require concrete moisture or pH testing.
 - a. Perform adhesive manufacturer's recommended adhesion and porosity test prior to flooring installation.
 - b. Adhere to manufacturer's requirements for installing components of waterproof adhesive system.
- b. Sand concrete surface with a rotary sander fitted with dust control. Use 20 grit or better disc to attain proper porosity of surface. Damp mop for dust removal.
- c. Apply underlayment to surface defects, irregularities and blemishes that would telegraph through resilient flooring. Sand ridges and surfaces to provide a smooth surface. Vacuum and damp mop to remove dust.
- d. Skim coat prepared surface, allow to dry and then sand. Damp mop for final dust removal; do not use sweeping compounds.
- e. Apply one coat of primer over the immediate section prior to adhesive in order penetrate and "de-gas" concrete substrate; comply with manufacture's requirements.

3.2 INSTALLATION - GENERAL

- A. Install products according to manufacturer's instructions.
 - 1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

3.3 INSTALLATION OF FLOORING

- A. Flooring Layout:
 - 1. Extend flooring wall-to-wall, under cabinets, casework, and other equipment for seamless flooring installation.
 - 2. Arrange sheets to minimize seams.
 - 3. Locate seams in inconspicuous and low traffic areas, minimum 150 mm (6 inches) away from parallel joints in flooring substrates.
- B. Match edges of flooring for color shading and pattern at seams.
- C. Install flooring flush with adjacent floor finishes.
- D. Extend flooring into toe spaces, door reveals, closets, and similar openings.
- E. Install flooring fully adhered to substrate.
 - 1. Air pockets or loose edges are not acceptable.

2. Trim sheet materials tight to flooring penetrations; seal joints at pipe with waterproof sealant specified in Section 07 92 00, JOINT SEALANTS.
- F. Butt joints tight, without gaps and bulges.
- G. Roll flooring within 30 minutes of installation process with an articulated 45 kg (100 lb.) roller lengthwise and then again at a right angle to first line of direction per resilient flooring and adhesive manufacturers' instructions.
- H. If using waterproof adhesive, practice "clean as you work" methods. Waterproof adhesive is solvent resistant when cured and cannot be cleaned with conventional solvent or soapy water.

3.4 INTEGRAL COVE BASE INSTALLATION

- A. Set preformed fillet strip at floor intersection with walls and other vertical surfaces.
- B. Extend flooring over fillet strip and 100 mm (4 inches) up wall surface.
- C. Form straight or radius internal and external corners to suit Application.
- D. Adhere base to wall surface.
- E. Terminate base exposed top edge with cap strip. Seal cap strip to wall with sealant.
- F. Weld joints as specified for flooring.

3.5 HEAT WELDING

- A. Heat weld joints of flooring and base using welding rod.
- B. Rout joint, insert welding rod into routed space, and fuse flooring and welding rods for seamless, watertight installation.
 1. Fuse joints for seamless weld.
- C. Finish joints flush, free from voids, and recessed or raised areas.

3.6 CLEANING

- A. Remove excess adhesive before adhesive sets.
- B. Clean and polish materials.
- C. Vacuum floor thoroughly.
- D. Perform initial maintenance according to flooring manufacturer's instructions.
 1. Delay washing flooring until adhesive is fully set and welded joints can contain wash water.

3.7 PROTECTION

- A. Protect flooring from traffic and construction operations.
- B. Keep traffic off sheet flooring for minimum 24 hours after installation.
- C. Cover flooring with reinforced kraft paper, and plywood or hardboard.
- D. Remove protective materials immediately before acceptance.
- E. Repair damage.
- F. Buff flooring to uniform sheen.

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SECTION 09 65 19
RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies the installation of luxury vinyl tile, rubber tile, and accessories required for a complete installation.

1.2 RELATED WORK:

- A. Resilient Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.
- B. Subfloor Testing and Preparation: Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

1.3 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Sustainable Design Submittals as described below:
 - 1. Volatile organic compounds per volume as described in PART 2 - PRODUCTS.
 - 2. Postconsumer and preconsumer recycled content.
- C. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - 2. Adhesives, underlayment, and primers, including printed statement of VOC content.
 - 3. Application, installation and maintenance instructions.
- D. Samples:
 - 1. Tile: Each type, color, thickness and finish.
 - 2. Edge Strips: Each type, color, thickness and finish.
- E. Shop Drawings:
 - 1. Layout of patterns as shown on the construction documents.
 - 2. Edge strip locations showing types and detail cross sections.
- F. Test Reports:
 - 1. Abrasion resistance: Depth of wear for each tile type and color and volume loss of tile, certified by independent laboratory. Tested per ASTM F510/F510M.
 - 2. Moisture and pH test results as per Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

1.4 DELIVERY:

- A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.
- B. Materials from containers which have been distorted, damaged or opened prior to installation are not acceptable.

1.5 STORAGE:

- A. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives, and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.6 QUALITY ASSURANCE:

- A. Installer Qualifications: A company specializing in installation with minimum three (3) years' experience and employs experienced flooring installers who have retained, and currently hold, an INSTALL Certification, or a certification from a comparable certification program.
 - 1. Installers to be certified by INSTALL or a comparable certification program with the following minimum criteria:
 - a. US Department of Labor approved four (4) year apprenticeship program, 160 hours a year.
 - b. Career long training.
 - c. Manufacturer endorsed training.
 - d. Fundamental journeyman skills certification.
- B. Furnish product type materials from the same production run.

1.8 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. ASTM International (ASTM):
 - D2047-11.....Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
 - E648-14c.....Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

E662-14.....Specific Optical Density of Smoke Generated by
Solid Materials

F1344-12 (R2013).....Rubber Floor Tile

F1700-13a.....Solid Vinyl Floor Tile

C. Code of Federal Regulation (CFR):

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS:

- A. Provide adhesives, underlayment, primers, and polish recommended by resilient floor material manufacturer.
- B. Critical Radiant Flux: 0.45 watts per sq. cm or more, Class I, per ASTM E648.
- C. Smoke Density: Less than 450 per ASTM E662.
- D. Slip Resistance - Not less than 0.5 when tested with ASTM D2047.

2.2 PRODUCTS - GENERAL

- A. Basis-of-Design Products: The information is provided for reference only, it does not exclude other manufacturer's that comply with specified product requirements.

2.2 RUBBER TILE:

- A. Tile Standard, RF: ASTM F1344, Class I-B, homogeneous rubber tile, through mottled.
- B. Hardness: Manufacturer's standard hardness, measured using Shore, Type A durometer per ASTM D2240.
- C. Wearing Surface: Molded pattern.
 - 1. Molded-Pattern Figure: Hammered.
- D. Thickness: 3.5 mm (0.14 inch).
- E. Size: 1004 x 1004 mm (39.53 x 39.52 inches).
- F. Basis-of-Design Product: Nora Systems, Inc.; Norament Grano.
 - 1. RT Color: Banded Agate 4882.

2.4 LUXURY VINYL TILE:

- A. Luxury Vinyl Tile, LVT-1 & LVT - 2: ASTM F1700, Class III, Printed Film Vinyl Tile, Type B, Embossed Surface; ISO 14001 and FloorScore compliant.
 - 1. Total Thickness: 2.5 mm (0.098 inch).
 - 2. Wear Layer Thickness: 1 mm (40 mil).

3. Size: 114 mm x 915 mm (4.5 X 36 inches).
4. Edge Treatment: Micro-beveled.
5. Product: Mannington Commercial; Amtico Collection.
 - a. Style: Wood.
 - b. Colors: TBD - for bidding purposes, plan on one of the following:
 - 1) LVT-1: Cherry AROW7000.
 - 2) LVT-2: Grande Pecan AROW7850.

2.5 ADHESIVE SYSTEM:

- A. Adhesives for LVT-1 & LVT-2, Base Bid: Provide water resistant type adhesive for flooring and accessories as recommended by the adhesive manufacturer to suit substrate conditions. VOC content to be 50 grams/L when calculated according to 40 CFR 59 (EPA Method 24). Submit manufacturer's descriptive data, documentation stating physical characteristics, and mildew and germicidal characteristics.
 1. Maximum Allowable MVER: 8 lbs. as measured by ASTM F 1869.
 2. Maximum Allowable RH: 90 percent RH as measured by ASTM F 2170.
 3. Alkalinity: Shall not a pH between 5.0 and 9.0 as measured by ASTM F 710.
 4. Basis-of-Design Product: Mannington Commercial; Amtico Pressure Sensitive - High Moisture Adhesive.
- B. Adhesives for RF, Base Bid: Water-based acrylic adhesive for flooring and accessories as recommended by the adhesive manufacturer to suit substrate conditions. Submit manufacturer's descriptive data, documentation stating physical characteristics, and mildew and germicidal characteristics.
 1. VOC Content: 0.
 2. Maximum Allowable RH: 85 percent RH as measured by ASTM F 2170.
 3. Basis-of-Design Product: Nora Systems, Inc.; Nora 485 Adhesive.
- C. Waterproof Adhesive System, Deduct Alternate: The new concrete will not dry to the required relative humidity (RH) within the construction time period for the application of conventional adhesive. Provide the following moisture resistant adhesive and accessories for this installation.
 1. Adhesive system shall have no MVER, %RH or pH limit, and concrete does not require testing.
 - a. Adhesive and leveling compound for surface patching shall come from the same manufacturer.
 - b. VOC: 0.

2. Provide the following products from Formulators:
 - a. Adhesives:
 - 1) For LVT: Aquaflex PSA Adhesive - LVT.
 - 2) For RF: Aquaflex PSA Adhesive - VCT and Rubber Tile.
 - 3) Application Trowel: Gundlach No. 680 CBD Notch trowel. New trowel shall be provided with each unit of adhesive.
 - b. Leveling Underlayment Compound: Aquaflex Patch Mix and Aquaflex 1+1 Polymer.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS:

- A. Maintain flooring materials and areas to receive resilient flooring at a temperature above 20 degrees C (68 degrees F) for three (3) days before application, during application and two (2) days after application, unless otherwise directly by the flooring manufacturer for the flooring being installed. Maintain a minimum temperature of 13 degrees C (55 degrees F) thereafter. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.
- B. Do not install flooring until building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

3.2 SUBFLOOR PREPARATION:

- A. Preparation, Base Bid: Prepare surfaces to receive resilient tile and adhesive as per Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.
 1. Perform adhesive manufacturer's recommended adhesion and porosity test prior to flooring installation.
- B. Preparation for Waterproof Adhesive, Deduct Alternate: Concrete surface shall be smooth, dry, porous and dust free.
 1. Specified waterproof adhesive does not require concrete moisture or pH testing.
 - a. Perform adhesive manufacturer's recommended adhesion and porosity test prior to flooring installation.
 - b. Adhere to manufacturer's requirements for installing components of waterproof adhesive system.

2. Sand the concrete surface with a rotary sander fitted with dust control. Use 20 grit or better disc to attain proper porosity of surface. Damp mop for dust removal.
3. Thoroughly vacuum surface and damp mop slab for final dust removal. Rinse mop often and replace water frequently to assure dust removal from slab surface.
4. Apply underlayment to surface defects, irregularities and blemishes that would telegraph through resilient flooring. Sand ridges and surfaces to provide a smooth surface. Vacuum and damp mop to remove dust.

3.3 INSTALLATION:

- A. Install in accordance with manufacturer's instructions for application and installation unless specified otherwise.
- B. Mix tile from at least two containers. An apparent line either of shades or pattern variance is not acceptable.
- C. Tile Layout:
 1. If layout is not shown on construction documents, lay tile symmetrically about center of room or space with joints aligned.
 2. Vary edge width as necessary to maintain full size tiles in the field, no edge tile to be less than 1/2 the field tile size, except where irregular shaped rooms make it impossible.
 3. Place tile pattern in the same direction; do not alternate tiles unless specifically indicated in the construction documents to the contrary.
- D. Application:
 1. Adhere floor tile to flooring substrates using a full spread of adhesive applied to substrate at manufacturer's required spread rate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
 - a. If using waterproof adhesive, clean off excess glue prior to moving on. Waterproof adhesive has aggressive bonding characteristics. Adjustments of tile after pressed into place may not be possible.
 2. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

3. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
 4. Roll tile floor with a minimum 45 kg (100 pound) roller length wise, and then again at right angle to the first line of direction per resilient flooring and adhesive manufacturers' instructions.
 5. If using waterproof adhesive, practice "clean as you work" methods. Waterproof adhesive is solvent resistant when cured and cannot be cleaned with conventional solvent or soapy water.
- E. Seal joints at pipes with sealants in accordance with Section 07 92 00, JOINT SEALANTS.
- F. Installation of Edge Strips:
1. Locate edge strips under center line of doors unless otherwise shown on construction documents.
 2. Set resilient edge strips in adhesive.
 3. Where tile edge is exposed, butt edge strip to touch along tile edge.
 4. Where thin set ceramic tile abuts resilient tile, set edge strip against floor file and against the ceramic tile edge.

3.4 CLEANING AND PROTECTION:

- A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.
- B. Keep traffic off resilient material for a minimum 72 hours after installation.
- C. Clean flooring as recommended in accordance with manufacturer's printed maintenance instructions and within the recommended time frame. As required by the manufacturer, apply the recommended number of coats and type of polish and/or finish in accordance with manufacturer's written instructions.
- D. When construction traffic occurs over tile, cover resilient materials with reinforced kraft paper properly secured and maintained until removal is directed by COR. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particle board over paper, secured and maintained until removal is directed by COR.
- E. When protective materials are removed and immediately prior to acceptance, replace damaged tile and mouldings, re-clean resilient materials.

3.5 LOCATION:

- A. Unless otherwise indicated in construction documents, install tile flooring, under areas where casework and other equipment occur.
- B. Extend tile flooring for room into adjacent closets and alcoves.

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SECTION 09 68 00
CARPETING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Section specifies carpet, carpet style entrance mats, PVC foot grille with carpet inserts, edge strips, adhesives, frames and other items required for complete installation.

1.2 RELATED WORK:

- A. Resilient Wall Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.
- B. Preparation of Substrates for Flooring: Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

1.3 QUALITY ASSURANCE:

- A. Installer Qualifications: A company specializing in carpet installation with a minimum three (3) years' experience and employing experienced flooring installers who have retained, and currently hold, an INSTALL Certification, or a certification from a comparable certification program, and a valid OSHA 10 certification.
 - 1. Installers to be certified by INSTALL or a comparable certification program with the following minimum criteria:
 - a. US Department of Labor approved four (4) year apprenticeship program, 160 hours a year.
 - b. Career long training.
 - c. Manufacturer endorsed training.
 - d. Fundamental journeyman skills certification.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Sustainable Design Submittals as described below:
 - 1. Volatile organic compounds per volume as specified in PART 2 - PRODUCTS.
- C. Product Data:
 - 1. Manufacturer's catalog data and printed documentation stating physical characteristics, durability, resistance to fading and flame resistance characteristics for each type of carpet material and installation accessory.

2. Manufacturer's printed installation instructions for the carpet, carpet style entrance mats, PVC foot grille with carpet inserts, including preparation of installation substrate, and recommended adhesives.
3. Manufacturer's printed documentation stating VOC (volatile organic compounds) levels for adhesives.

D. Samples:

1. Carpet: "Production Quality" samples 305 x 305 mm (12 x 12 inches) of carpets, showing quality, pattern and color specified.
2. Floor Edge Strip (Molding): 152 mm (6 inches) long of each color and type specified.

E. Shop Drawings: Installers layout plan showing carpet module, carpet style entrance mats and PVC foot grille with carpet inserts.

F. Maintenance Data: Carpet manufacturer's maintenance instructions describing recommended type of cleaning equipment and material, spotting and cleaning methods and cleaning cycles.

G. Installer's Qualifications.

H. Manufacturer's warranty.

1.5 DELIVERY AND STORAGE:

- A. Deliver carpet, carpet style entrance mats and PVC foot grille with carpet inserts in manufacturer's original wrappings and packages clearly labeled with manufacturer's brand name, size, dye lot number and related information. Transport carpet to job site in a manner that prevents damage and distortion that might render it unusable.
- B. Deliver adhesives in containers clearly labeled with manufacturer's brand name, number, installation instructions, safety instructions and flash points.
- C. Store in a clean, dry, well-ventilated area, protected from damage and soiling. Before installation, acclimate carpet, carpet style entrance mats and PVC foot grille with carpet inserts to the atmospheric conditions of the areas in which it will be installed for 2 days prior to installation.

1.6 ENVIRONMENTAL REQUIREMENTS:

- A. Maintain areas in which carpet products are to be installed at a temperature between 18 - 35 degrees C (65 - 95 degrees F) with a maximum relative humidity of 65 percent for two (2) days before installation, during installation and for three (3) days after installation.

- B. Minimum Substrate Surface Temperature: 18 degrees C (65 degrees F) at time of installation.
- C. Three (3) days after installation, maintain minimum temperature of 10 degrees C (50 degrees F) for the duration of the contract.

1.7 WARRANTY:

- A. Construction Warranty: Comply with FAR clause 52.246-21, "Warranty of Construction".
- B. Manufacturer Warranty: Manufacturer shall warranty their carpet for a minimum of ten (10) years from date of installation and final acceptance by the Government. Submit manufacturer warranty.

1.8 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Association of Textile Chemists and Colorists (AATCC):
 - 16-04.....Colorfastness to Light
 - 134-11.....Electric Static Propensity of Carpets
 - 165-08.....Colorfastness to Crocking: Textile Floor Coverings-AATCC Crockmeter Method
- C. ASTM International (ASTM):
 - D1335-12.....Tuft Bind of Pile Yarn Floor Coverings
 - D3278-96(R2011).....Flash Point of Liquids by Small Scale Closed-Cup Apparatus
 - D5116-10.....Determinations of Organic Emissions from Indoor Materials/Products
 - D5252-11.....Operation of the Hexapod Tumble Drum Tester
 - D5417-11.....Operation of the Vettermann Drum Tester
 - E648-14c.....Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
- 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. The Carpet and Rug Institute (CRI):
 - CIS.....Carpet Installation Standard
- F. International Standards and Training Alliance (INSTALL)
- G. International Organization for Standardization (ISO):
 - 2551-81.....Machine-Made Textile Floor Coverings

H. U.S. Consumer Product and Safety Commission (CPSC):

16 CFR 1630.....Surface Flammability of Carpets and Rugs

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. Basis-of-Design Products: This information is provided for reference only; it does not exclude other manufacturer's that comply with specified product requirements.

2.2 CARPET (four possible options for VA selsection):

A. Physical Characteristics:

1. Carpet free of visual blemishes, streaks, poorly dyed areas, fuzzing of pile yarn, spots or stains and other physical and manufacturing defects.

B. Carpet, CPT-1: CRI Green Label Plus.

1. Carpet Type: Modular tile 50 by 50 cm (19.685 by 19.685 inches).

a. Construction: Tufted.

b. Pile Type: Tufted textured-loop. Pile type and thickness must conform to ADA requirements.

c. Pile Fiber: Commercial 100 percent branded (federally registered trademark), nylon continuous filament.

d. Dye Method: 100 percent solution dyed.

e. Gauge: 47.2 ends/10 cm (1/12 inch).

f. Tufted Weight: 542 g/sq. m. (16.0 oz/sq.yd).

g. Stitches per Inch: 35.4 ends/10 cm (9.0/inch).

h. Finished Pile Thickness: 0.119 inch.

i. Pile Thickness: 25 mm (0.100 inch).

j. Treatments: Soil/Stain and Preservative Protections.

2. Static Control: Provide static control to permanently regulate static buildup to less than 3.0 kV when tested at 20 percent relative humidity and 21 degrees C (70 degrees F) in accordance with AATCC 134.

3. Backing Materials: Provide backing for glue-down installation.

a. Modular Tile:

1) Primary Backing/Backcoating: Manufacturer's standard non-woven layer of thermoplastic recycled content vinyl composite material.

2) Secondary Backing: Fiberglass-reinforced thermoplastic recycled content vinyl composite material.

4. Appearance Retention Rating (ARR): Carpet to be tested and have the minimum 3.5 - 4.0 severe ARR when tested in accordance with either the ASTM D5252 (Hexapod) or ASTM D5417 (Vettermann) test methods using the number of cycles for short and long term tests as specified in the ASTM standard.
 5. Tuft Bind: Comply with ASTM D1335 for tuft bind force required to pull a tuft or loop free from carpet backing with a minimum 36 N (8 pound) average force for modular carpet tile.
 6. Colorfastness to Crocking: Dry and wet crocking and water bleed, comply with AATCC 165 Color Transference Chart for colors, minimum class 4 rating.
 7. Colorfastness to Light (AATCC 16, Option 3): Color change between the exposed and unexposed carpet areas equivalent to a minimum of Grade 4 on the Gray Scale for Color Change after an exposure of 40 AFU (AATCC fading units) for all specified colors.
 8. Delamination Strength: Minimum of 440 N/m (2.5 lb./inch) between secondary backing.
 9. Flammability and Critical Radiant Flux Requirements:
 - a. Comply with 16 CFR 1630.
 - b. Test Carpet in accordance with ASTM E648.
 - c. Class I: Minimum critical radiant flux of 0.45 watts per square centimeter (2.9 watts per square inch).
 10. Pile Yarn Density (APYD): 5760.
 11. VOC Limits: Use carpet that complies with the following limits for VOC content when tested according to ASTM D5116:
 - a. Carpet, Total VOCs: 0.5 mg/sq.m x hr.
 - b. Carpet, 4-PC (4-Phenylcyclohexene): 0.05 mg/sq.m x hr.
 - c. Carpet, Formaldehyde: 0.05 mg/sq.m x hr.
 - d. Carpet, Styrene: 0.4 mg/sq.m x hr.
 12. Basis-of-Design Product: Interface; Progression III.
 - a. Color: TBD.
 13. Warranty: 15 year Standard, Non-Prorated Warranty.
- C. Carpet, CPT-2: Interface Glazing, Color: TBD
- D. Carpet, CPT-3: Interface Glazing, Color: TBD.
- E. Carpet, CPT-4: Interface Ground, Color: TBD

2.3 ADHESIVE AND CONCRETE PRIMER:

- A. Adhesive for CPT-1, Base Bid: Provide premium grade water resistant, mildew resistant, nonflammable, and nonstaining adhesives and primers for carpet installation. Provide release adhesive for modular tile carpet as recommended by the carpet manufacturer. Provide adhesives flashpoint of minimum 60 degrees C (140 degrees F) in accordance with

ASTM D3278. Materials are to have a VOC maximum of 50 g/L when calculated according to 40 CFR 59, (EPA Method 24).

1. Maximum Allowable RH: 90 percent RH as measured by ASTM F 2170.
2. Alkalinity: Shall be between 8.0 and 10.0.
3. Basis-of-Design Product: Interface; Grid Set Green Adhesive 2000 Plus.

B. Adhesive for MAT, Base Bid: Provide premium grade water resistant, mildew resistant, nonflammable, and nonstaining adhesives and primers for carpet installation. Provide release adhesive for modular tile carpet as recommended by the carpet manufacturer. Provide adhesives flashpoint of minimum 60 degrees C (140 degrees F) in accordance with ASTM D3278. Materials are to have a VOC maximum of 50 g/L when calculated according to 40 CFR 59, (EPA Method 24).

1. Maximum Allowable MVER: 5 lbs. as measured by ASTM F 1869.
2. Maximum Allowable RH: 75 percent RH as measured by ASTM F 2170.
3. Alkalinity: Shall be between 7.0 and 9.0 pH as measured by ASTM F 710.
4. Basis-of-Design Product: Mats, Inc.; Ultrabond G21.

C. Waterproof Adhesive System, Deduct Alternate: The new concrete will not dry to the required relative humidity (RH) within the construction time period for the application of conventional adhesive. Provide the following moisture resistant adhesive and accessories for this installation.

1. Adhesive system shall have no MVER, %RH or pH limit, and concrete does not require testing.
 - a. Adhesive and leveling compound for surface patching shall come from the same manufacturer.
2. Provide the following products from Formulators:
 - a. Adhesives:
 - 1) For Carpet Tile: Aquaflex Adhesive.
 - 2) VOC: 0.
 - 3) Application Trowel: Gundlach No. 680 CBD Notch trowel. New trowel shall be provided with each unit of adhesive.
 - b. Leveling Underlayment Compound: Aquaflex Patch Mix and Aquaflex 1+1 Polymer.

2.4 EDGE STRIPS (MOLDING):

A. Vinyl Edge Strip:

1. Basis-of-Design Manufacturer: Johnsonite.

- a. Carpet to Resilient Adaptor: CTA-XXX-A.
- b. Color: TBD.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
- C. Ensure interior finish work such as drywall finishing, concrete, ceiling work, and painting work is complete and dry before installation.
 - 1. Complete mechanical, electrical, and other work above ceiling line.
 - 2. Ensure heating, ventilating, and air conditioning systems are installed and operating in order to maintain temperature and humidity requirements.
- D. Preparation, Base Bid: Concrete substrates prepared in Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.
- E. Preparation for Waterproof Adhesive, Deduct Alternate: Concrete surface shall be smooth, dry, porous and dust free.
 - 1. Specified waterproof adhesive does not require concrete moisture or pH testing.
 - a. Perform adhesive manufacturer's recommended adhesion and porosity test prior to flooring installation.
 - b. Adhere to manufacturer's requirements for installing components of waterproof adhesive system.
 - 2. Sand concrete surface with a rotary sander fitted with dust control. Use 20 grit or better disc to attain proper porosity of surface. Damp mop for dust removal.
 - 3. Apply underlayment to surface defects, irregularities and blemishes that would telegraph through resilient flooring. Sand ridges and surfaces to provide a smooth surface. Thoroughly vacuum surface and damp mop slab for final dust removal. Rinse mop often and replace water frequently to assure dust removal from slab surface.
 - 4. Apply underlayment to surface defects, irregularities and blemishes that would telegraph through resilient flooring. Sand ridges and surfaces to provide a smooth surface. Vacuum and damp mop to remove dust.

3.2 GENERAL INSTALLATION:

- A. Isolate area of installation from rest of building.

- B. Perform all work by manufacturer's approved installers. Conduct installation in accordance with the manufacturer's printed instructions and CRI CIS.
- C. Protect edges of carpet meeting hard surface flooring with molding and install in accordance with the molding manufacturer's printed instructions.
- D. Follow ventilation, personal protection, and other safety precautions recommended by the adhesive manufacturer. Continue ventilation during installation and for at least three (3) days following installation.
- E. Do not permit traffic or movement of furniture or equipment in carpeted area for 24 hours after installation.
- F. Complete other work which would damage the carpet prior to installation of carpet.
- G. Follow carpet manufacturer's recommendations for matching pattern and texture directions.
- H. Cut openings in carpet where required for installing equipment, pipes, outlets, and penetrations. Bind or seal cut edge of carpet. Use additional adhesive to secure carpets around pipes and other vertical projections.

3.4 MODULAR TILE INSTALLATION:

- A. Install per CRI CIS, Adhesive Application.
 - 1. Adhere floor tile to flooring substrates using a full spread of adhesive applied to substrate at manufacturers required spread rate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
 - a. If using waterproof adhesive (deduct alternate), clean off excess glue prior to moving on. Waterproof adhesive has aggressive bonding characteristics. Adjustments of tile after pressed into place may not be possible. If using waterproof adhesive, practice "clean as you work" methods. Waterproof adhesive is solvent resistant when cured and cannot be cleaned with conventional solvent or soapy water.
- B. Lay carpet modules with pile in same direction unless specified otherwise.
- C. Install carpet modules so that cleaning methods and solutions do not cause dislocation of modules.

- D. Lay carpet modules uniformly to provide tight flush joints free from movement when subject to traffic.

3.5 EDGE STRIPS INSTALLATION

- A. Install edge strips over exposed carpet edges adjacent to uncarpeted finish flooring.
- B. Anchor vinyl edge strip to floor with adhesive. Apply adhesive to edge strip and insert carpet into lip and press lip down over carpet.

3.6 INSTALLATION OF CARPET STYLE ENTRANCE MAT

- A. General: Installation shall be in accordance with the manufacturer's printed instructions.
- B. Install entrance mat direct glue down smooth, uniform, and secure, with a minimum of seams. Seams shall be parallel with main traffic patterns, except at doorway openings where they shall be parallel with the doorway openings. Seams shall be kept away from areas with pivoting or rolling traffic.
- C. Apply regular, unnoticeable, and treated seams with a seam adhesive.
- D. Match patterns accurately. Neatly cut and fit cutouts, at door jambs and columns securely.

3.7 INSTALLATION OF PVC FOOT GRILLE

- A. General: Installation shall be in accordance with the manufacturer's printed instructions.
- B. Confirm recess for grille is clean, level and free of debris.
- C. Join frame sections by tightly butting the ends together with mitered corners, hair line tight.
- D. Install frame to be level with the finish floor with the corners square and correctly positioned, parallel to the doorway.
- E. Drill holes in the correct position and vacuum clean the dust. Fasten frame in place with stainless steel countersunk screws.

3.8 PROTECTION AND CLEANING:

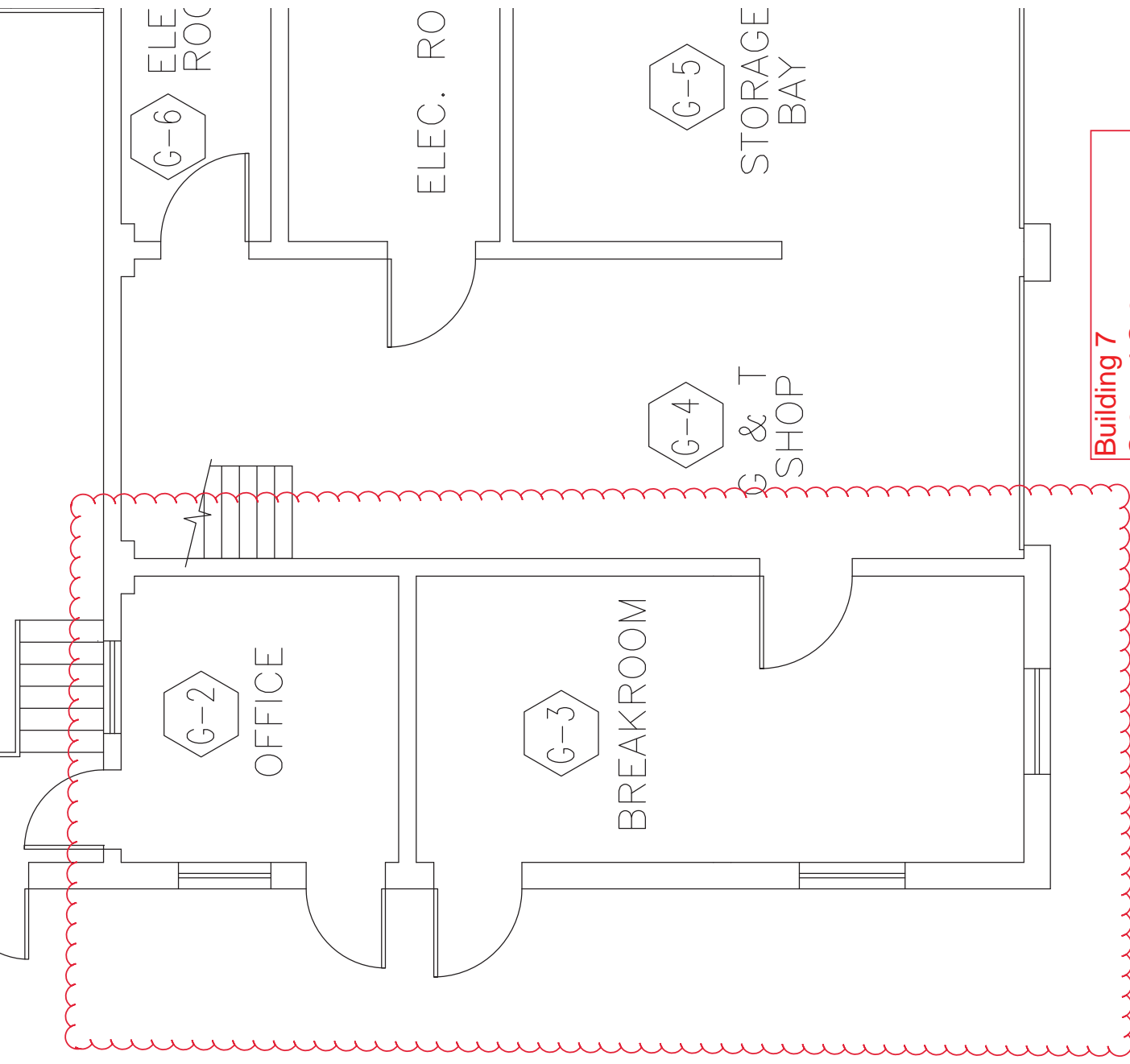
- A. Once a carpet, entrance mat and foot grille installation is complete, clean up scrap materials and debris, and vacuum the area, using manufacturer-approved equipment. Inspect seams carefully for evenness and protruding backing yarns, and inspect the perimeter of the installation for an acceptable finished appearance.
- B. Protect installed carpet, entrance mat and foot grille if furniture is being moved, by laying plywood, fiberboard or porous non-staining sheeting material for minimum time practical. Based on manufacturer guidelines, protect carpet, entrance mat and foot grille from rolling

or foot traffic. Protect against other materials or renovation or construction activities, including dust, debris, paint, contractor traffic, until it is ready for its final use.

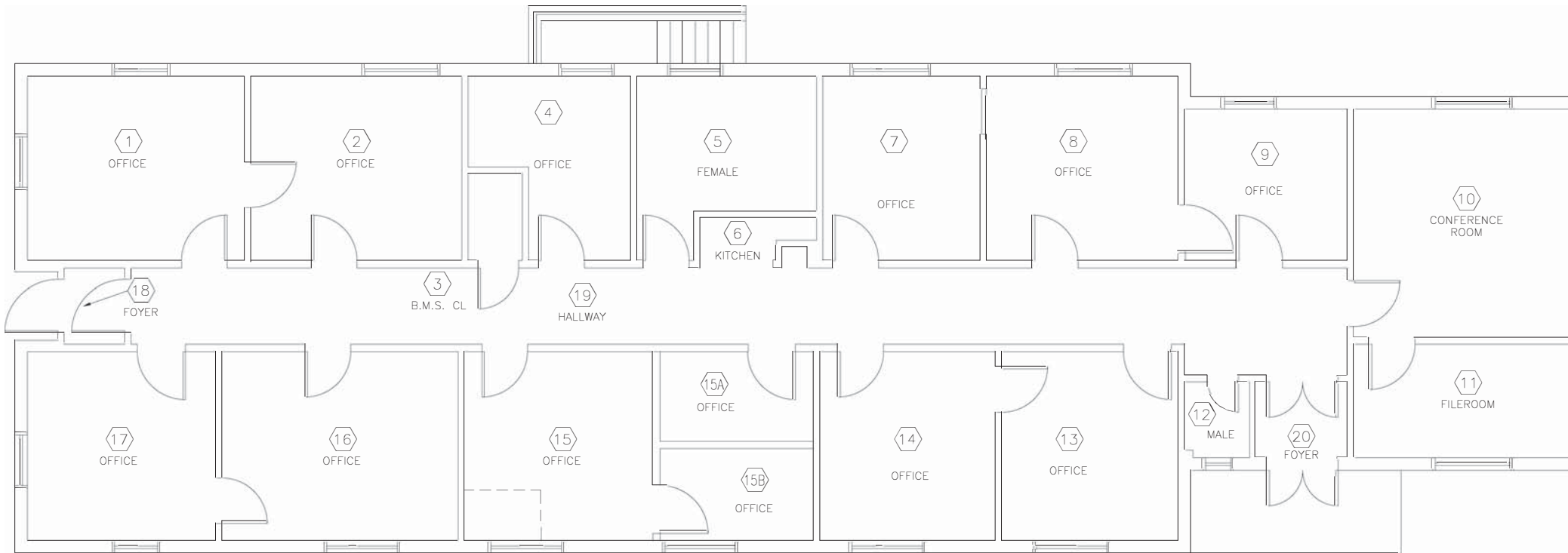
- C. Do not move furniture or equipment on unprotected carpeted, entrance mat and foot grille surfaces.
- D. Just before final acceptance of work, remove protection and vacuum carpet clean.

- - - E N D - - -

608-18-103 SATOC Flooring Project						
Building	Room	Area in sf	Flooring	Perimeter in sf	Base	Notes
7	G-3	261	Carpet	70	Vinyl Base	Breakroom
7	G-2	121	Carpet	35	Vinyl Base	Office
6	10	235	Carpet	62	Vinyl Base	Conference room
6	11	117	Carpet	60	Vinyl Base	Conference room storage
6	4	114	Carpet	42	Vinyl Base	Office
6	6	23	Carpet	24	Vinyl Base	Kitcehnette
6	8	162	Carpet	53	Vinyl Base	Office
6	9	114	Carpet	43	Vinyl Base	Office
6	15	164	Carpet	52	Vinyl Base	Copy room
6	15A	69	Carpet	35	Vinyl Base	Office
6	15B	66	Carpet	35	Vinyl Base	Office
6	16	204	Carpet	58	Vinyl Base	Office
6	19	470	Carpet	190	Vinyl Base	Hall
1	E213	233	Carpet	48	Vinyl Base	Office
1	N84	245	Polished Concrete	64	Vinyl Base	Warehouse
15	D32	905	Polished Concrete	143	Vinyl Base	Warehouse
15	S2	300	Resilient Sheet Flooring	112	Cove Base	Stairwell 2 - east wing
	S2A	300	Resilient Sheet Flooring	77	Cove Base	Stairwell 2 - east wing
15	D33	1650	Carpet	183	Vinyl Base	Solarium
	TOTAL:	5753				
			Notes:			
			Carpet: Shaw-59594; Veil Tile Quarter Turn; Color TBD			
			Vinyl Base: Johnsonite 6"; Color Beige.			
			Resilient Sheet Flooring: Armstrong Sheet Vinyl - Rejuvenation; Patern and Color TBD; Heat Weld			
			Cove Base: Rolled cove base 6"			
			Polished Concrete: Propose a means and method for this area.			

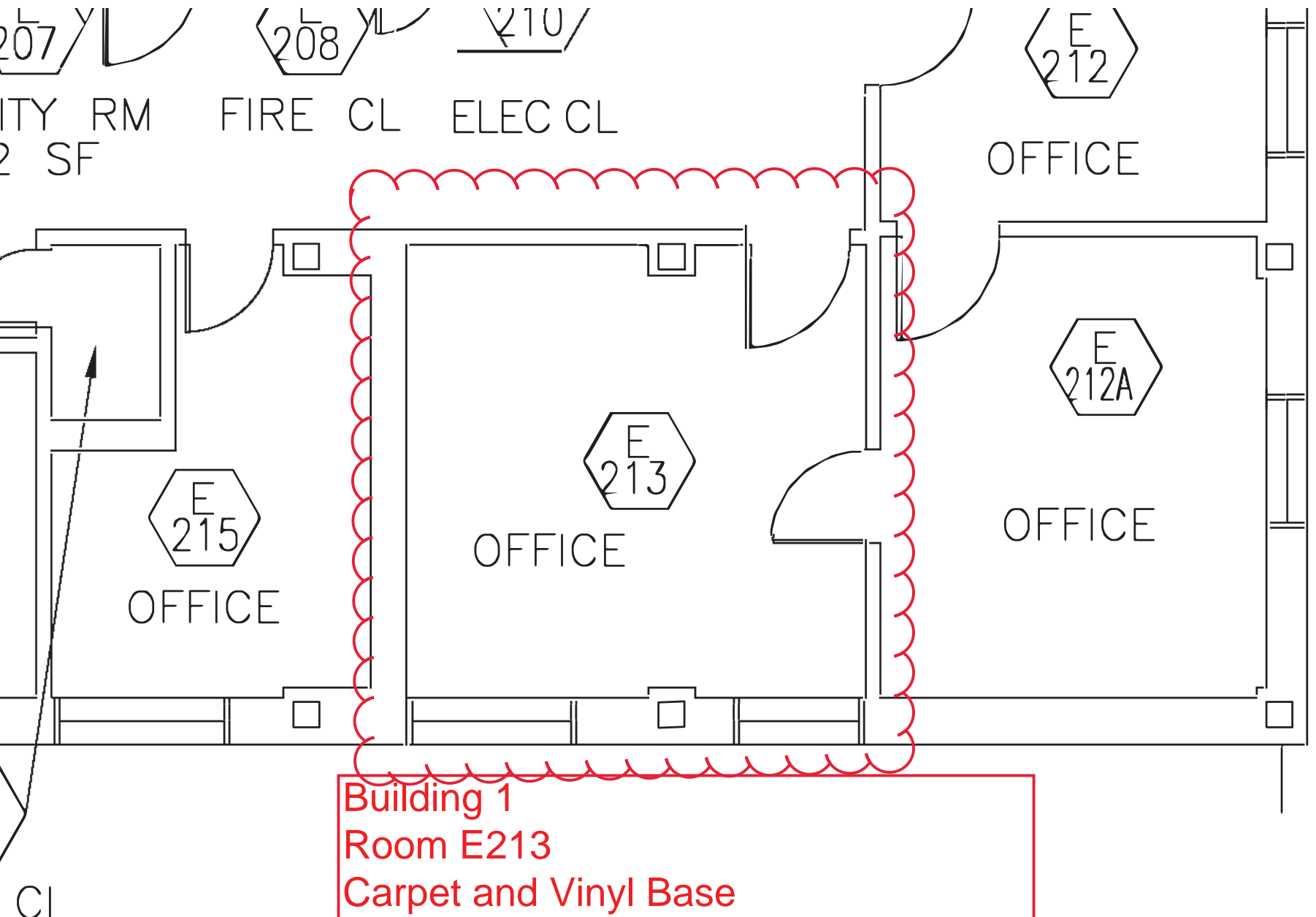


Building 7
G-2 and G-3
Carpet and Vinyl Base

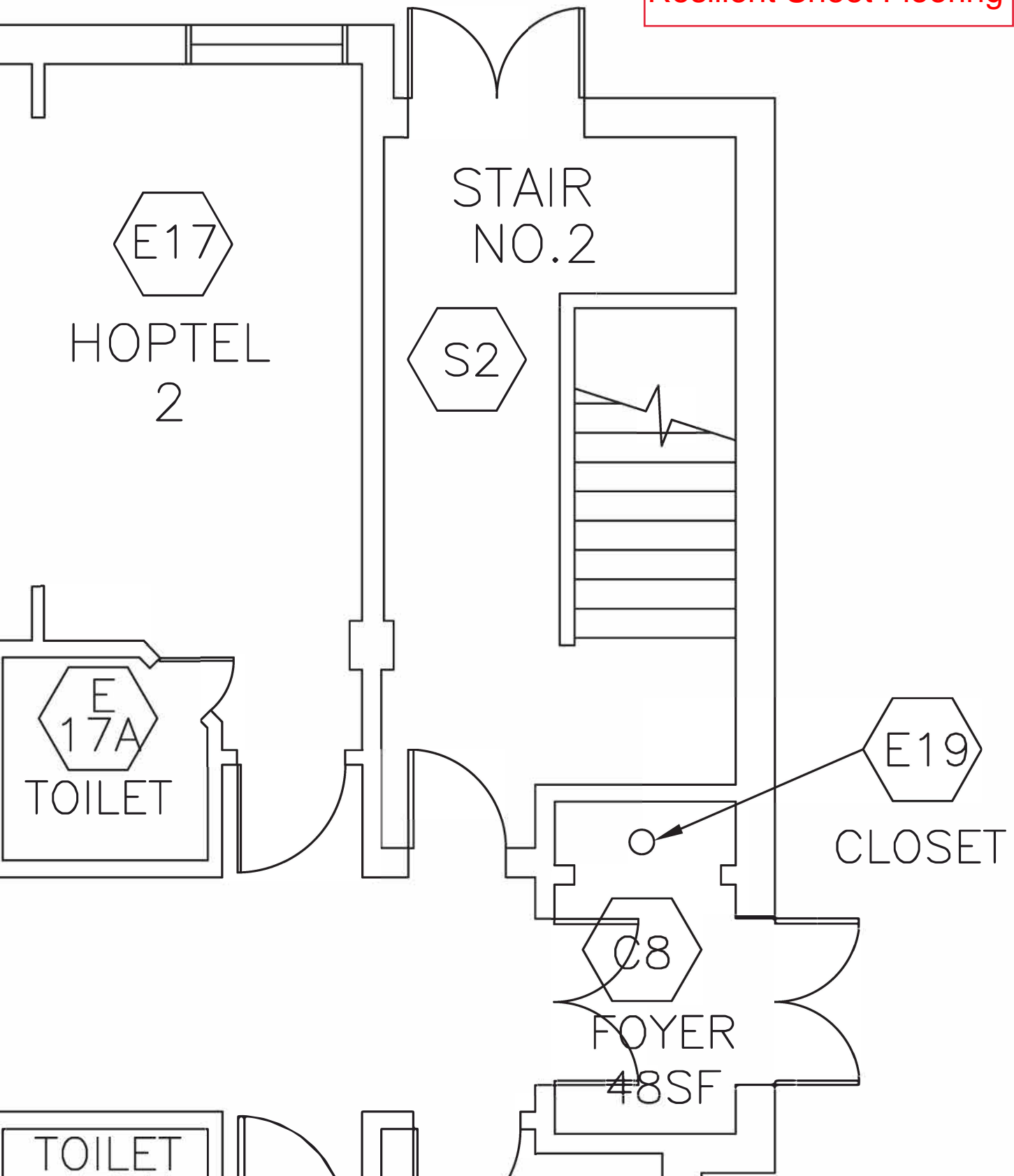


FIRST FLOOR

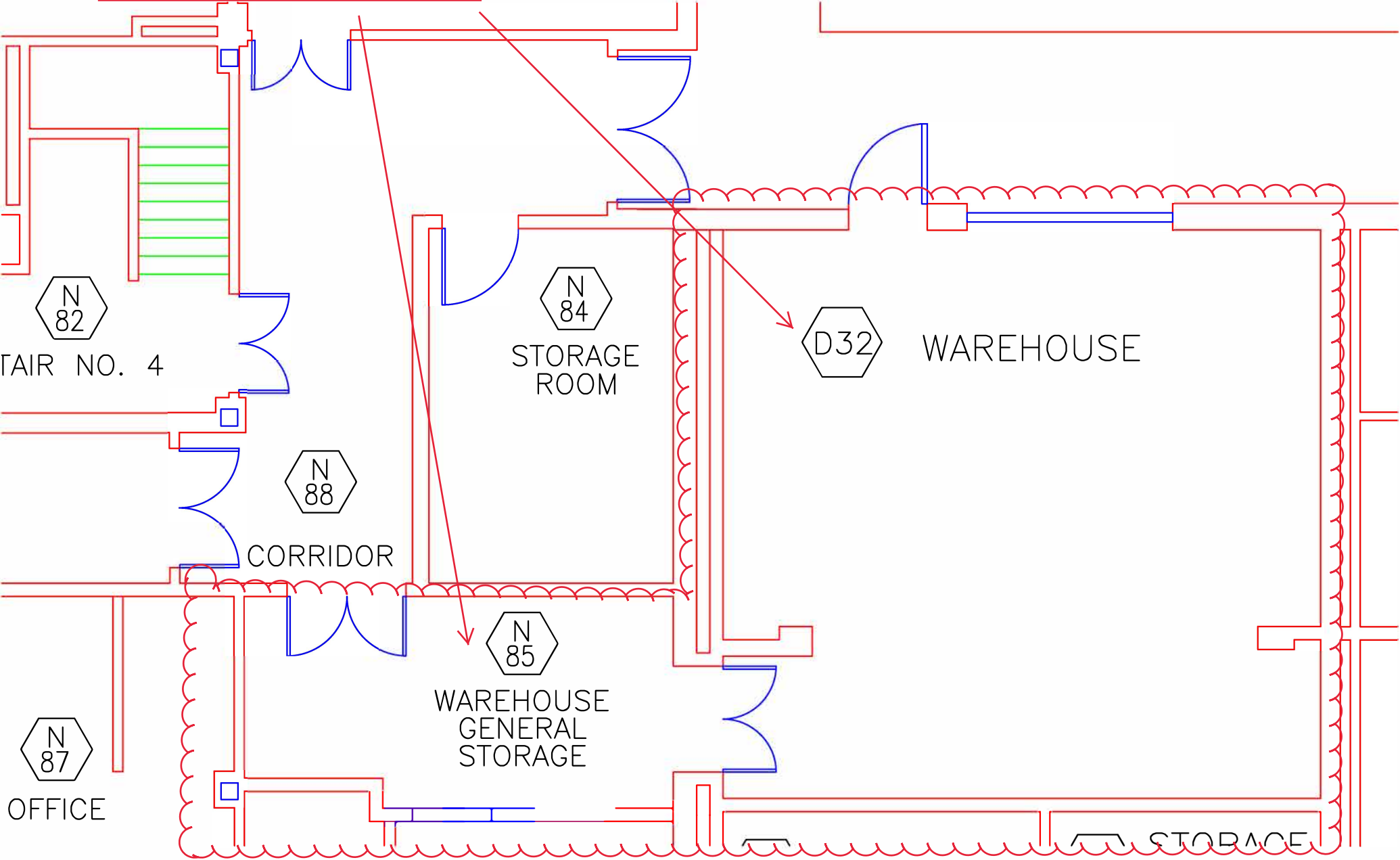
Building 6
Rooms 4, 6, 8, 9, 10, 11, 15A, 15B, 16, 19
Carpet and Vinyl Base



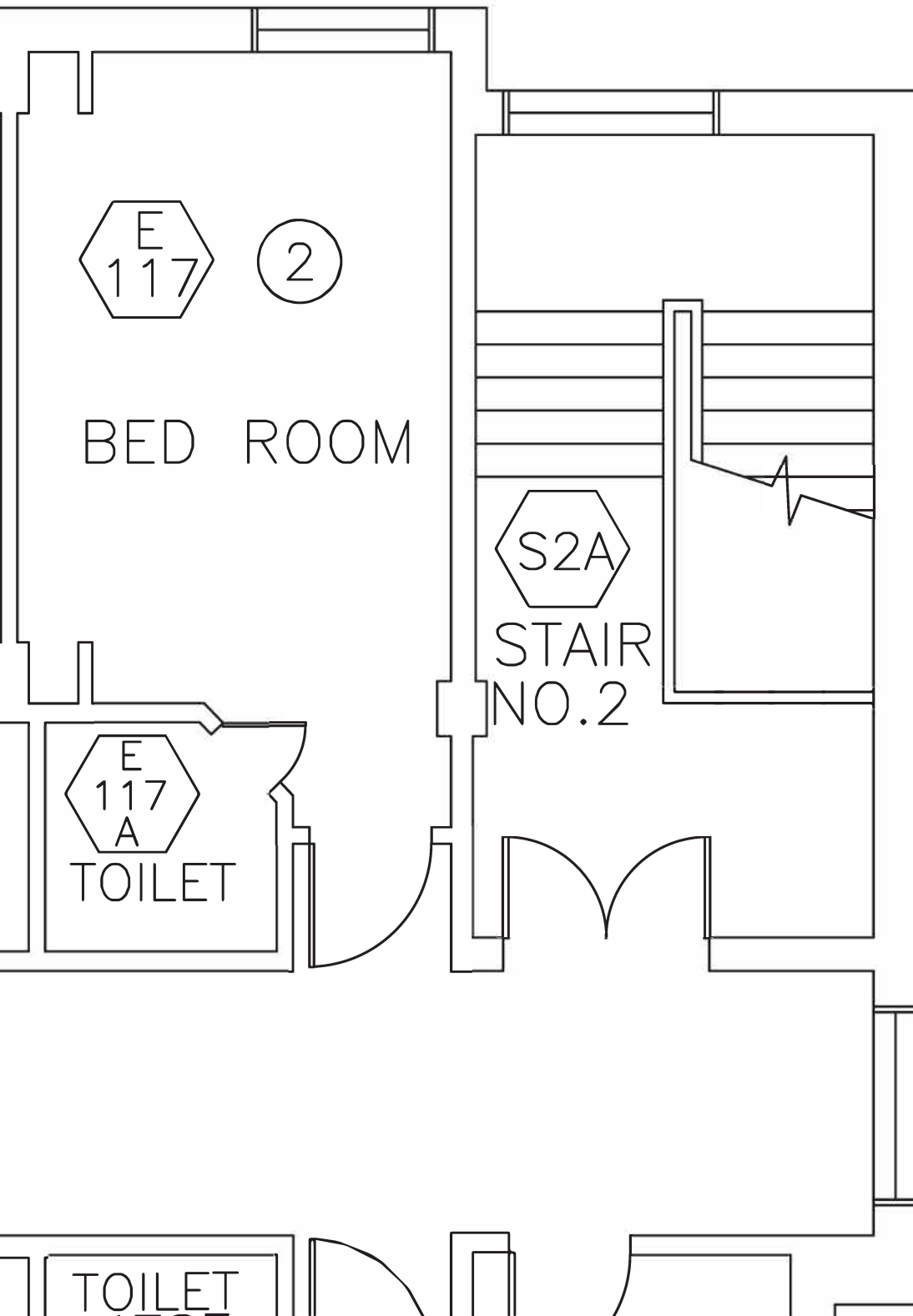
Building 15
Stairwell 2 First Floor
Resilient Sheet Flooring



Building 1 and 15
Rooms N85 and D32
Polished concrete



Building 15
Stairwell 2 Second Floor
Resilient Sheet Flooring



VA MEDICAL CENTER
MANCHESTER, NH

BUILDING SCHEDULE	
NO.	NAME
1.	MAIN MEDICAL CENTER
2.	QUARTERS
3.	A&MM AND FISCAL SERV.
4.	HUMAN RESOURCE & RES. QRTS.
5.	NATIONAL GUARD
6.	RESEARCH SERVICE
7.	BOILER PLANT & GARAGE
7A.	HAZARDOUS MATERIAL
	STORAGE
8.	WATER SUPPLY
	VALVE HOUSE
9.	WATER TOWER
10.	FLAGPOLE
11.	SMYTH TOWER
12.	FUEL OIL STORAGE TANKS
13.	STORAGE BUILDING
14.	STORAGE BUILDING
15.	120 BED N.H.C.U.
16.	LIQUID OXYGEN STOR.
17.	PRIMARY SWITCHGEAR
18.	AMBULATORY CARE BLDG.
19.	TRANSFORMER 225:500KVA
20.	ELECT. DISTRIB. VAULT
21.	TRANSFORMER 150 KVA
22.	TRANSFORMER 500KVA, 2-1000KVA, 2-2MVA
24.	CHIMNEY STACK
25.	WATER METER VAULT
26.	TRANSFORMER 500 KVA

