

PROJECT MANUAL

DEPARTMENT OF VETERANS AFFAIRS
MEDICAL CENTER

**LOUIS STOKES MEDICAL CENTER-
WADE PARK DIVISION
10701 EAST BLVD., CLEVELAND, OHIO 44106**

MRI Rooms IV Door Replacements

**DEPARTMENT OF VETERANS AFFAIRS
MASTER SPECIFICATIONS**

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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, furnish labor and materials, and perform work at the Louis Stokes VAMC Cleveland Facility as required by drawings and specifications.
- B. Site visits will be in accordance with specification reference FAR 52.236-27 Site Visits.
- C. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- D. 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.
- E. Training:
 - 1. All employees of general contractor or subcontractors shall have the following required hours of OSHA certified Construction Safety course and /or other relevant competency training, as determined by VA CP with input from the ICRA team.
 - a. Superintendent: 30 hours.
 - b. All other Workers: 10 hours.

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

1.2 STATEMENT OF BID ITEM(S)

THIS SECTION HAS INTENTIONALLY BEEN LEFT BLANK.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, zero (0) sets of specifications and drawings will be furnished.

1.4 CONSTRUCTION SECURITY REQUIREMENTS

A. Security Plan:

1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.
2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.

B. Security Procedures:

1. General Contractor's employees shall not enter the project site without 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 3 days notice to the Contracting Officer so that security can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
3. No photography of VA premises is allowed without written permission of the Contracting Officer.
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.

C. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the Resident Engineer for the purpose of security inspections of every area of project including tool boxes and parked machines and take any emergency action.

2. The General Contractor shall turn over all permanent lock cylinders to the VA locksmith for permanent installation. All new hardware core cylinders shall be compatible with existing VA key system.
3. All construction doors/access doors must use VA key system and remain locked at all times from the corridor/exterior side.

D. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.
2. No parking is available at Medical Center for contractors and contractor commuter vehicles shall be parked off-site.

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):

E84-2008.....Surface Burning Characteristics of Building
Materials

2. National Fire Protection Association (NFPA):

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

30-2007.....Flammable and Combustible Liquids Code

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

70-2007.....National Electrical Code

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

3. Occupational Safety and Health Administration (OSHA):

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

- B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to COTR and Facility Safety Manager for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES 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 Resident Engineer that individuals have undergone contractor's safety briefing.

- C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- D. Temporary Construction Partitions:
 - 1. Provide a temporary construction barrier to separate work area from the MRI. Non-ferrous metal studs shall be used and coordinate location with the VA.
- 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 COTR.
- G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to COTR. Any construction materials found in exit stairs or corridors will be disposed of at contractor's expense.

- H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- J. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COTR. 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 COTR.
- K. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COTR.
- L. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with COTR. Obtain permits from COTR at least 48 hours in advance.
- M. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to COTR.
- N. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- O. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily. A dumpster location will be unavailable to the contractor and construction debris shall be removed from the site on a daily basis.
- P. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.
- Q. If required, submit documentation to the COTR that personnel have been trained in the fire safety aspects of working in areas with impaired structural or compartmentalization features.

- R. See additional OSHA Requirements and Safety and Health Regulations attachment at the end of this specification section.

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. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.
- C. Working space and space available for storing materials shall be as determined by the COTR.
- D. Workmen are subject to rules of Medical Center applicable to their conduct.
- E. 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 COTR 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 that do not impede Medical Center activation. Provide unobstructed access to Medical Center areas required to remain in operation.
- F. Portions of the building 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. 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 Fire Department or Company (Department of Veterans Affairs or municipal) whichever will be required to respond to an alarm from Contractor's employee or watchman.
- J. 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 COTR.

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 COTR. 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. Refer to specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS and 27 05 11 REQUIREMENTS FOR COMMUNICATIONS for additional requirements.
 2. Contractor shall submit a request to interrupt any such services to COTR, in writing, 72 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
 3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of 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 COTR.
 5. In case of a contract construction emergency, service will be interrupted on approval of COTR. 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.
- K. 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.

- L. 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.
 - 2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the COTR.
- M. Coordinate the work for this contract with other construction operations as directed by COTR. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COTR 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 building.
 - 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 COTR.
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of COTR, to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by Contractor with new items in accordance with specifications which will be furnished by Government. Provided the contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled

"DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

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. Infection Control permits (see sample at the end of this specification section) will be issued by the COTR. 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 infection control precautions are denoted on the following table:

Description of Required Infection Control Precautions by Class

Class 1	<ol style="list-style-type: none">1. Notify and receive permission from the COTR to perform requested work.2. Execute work by methods to minimize raising dust from construction operations.3. Immediately replace a ceiling tile displaced for visual inspection.	<ol style="list-style-type: none">1. Notify COTR for inspection once the work is complete.
CLASS II	<ol style="list-style-type: none">1. Notify and receive permission from the COTR to perform requested work.2. Provide active means to prevent airborne dust from dispersing into atmosphere.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. Place dust mat at entrance and exit of work area.7. Remove or isolate HVAC system in areas where work is being performed.	<ol style="list-style-type: none">1. Wipe work surfaces with 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. Remove isolation of HVAC system in areas where work is being performed.

CLASS III	<ol style="list-style-type: none"> 1. Obtain and post valid Infection Control Construction Permit at each work site. Permit must be signed by COTR, I.C. Nurse and General Contractor to be valid. 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 methods (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. Construction of barrier will need to occur outside normal work shifts with approval of COTR. 4. Construct anteroom where possible and directed by COTR. 5. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 6. Contain construction waste before transport in tightly covered containers. 7. Cover transport receptacles or carts. Tape covering 	<ol style="list-style-type: none"> 1. Do not remove barriers from work area until completed project is inspected by the Owner's Safety Department. 2. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. Barriers are required to be removed after hours with approval of COTR. 3. Vacuum work area with HEPA filtered vacuums. 4. Wet mop area with disinfectant. 5. Remove isolation of HVAC system in areas where work is being performed.
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	<p>unless solid lid.</p> <p>8. If the spread of dust from construction personnel is not contained workers may be required to wear shoe covers and or be vacuumed prior to leaving worksite at the discretion of the COTR or I.C. Nurse.</p> <p>9. Seal holes, pipes, conduits and punctures appropriately.</p> <p>10. Include particle count readings on daily logs against baseline points as required by COTR or I.C. Nurse.</p>	
CLASS IV	<p>1. Follow all requirements listed in Class III as well as additional requirements listed below.</p> <p>2. 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 the work site.</p> <p>3. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.</p>	<p>1. Before work is turned over and accepted by the VA a certified I.H. must be used to certify cleaning as well as swab and air sampling of the area. These tests shall meet or exceed industry standards for the type of area being renovation.</p>

B. An infection control orientation will be provided by the VA Infection Control Personnel to the Contractor prior to construction start.

- C. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
- D. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group-as specified here. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to for review for compliance.
 - 1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.
- E. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. 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 COTR 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.
- F. 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 Resident Engineer. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.
 - 2. Do not perform dust producing tasks within occupied areas without the approval of the COTR. 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 one-hour 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. Barrier installation to be done outside normal Medical Center hours, coordinate with COTR.
- 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 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 09-08M 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.
- G. 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 with reports submitted to COTR.

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 identified by attached tags or 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 COTR.
 - 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 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 COTR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COTR 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).

1.11 LAYOUT OF WORK

- A. The Contractor shall lay out the work as, indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at Contractor's own expense, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work.

1.12 AS-BUILT DRAWINGS

09-08M

- A. The contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the COTR's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the COTR within 15 calendar days after each completed phase and after the acceptance of the project by the COTR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

1.13 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.

1.14 TEMPORARY USE OF EXISTING ELEVATORS

- A. Use of existing elevators for handling building materials and Contractor's personnel will be permitted subject to following provisions:
 - 1. Contractor makes all arrangements with the COTR for use of elevators and pays for cost if an elevator vendor is required for delivery. The COTR will ascertain that elevators are in proper condition. Contractor may use elevators for daily use between the hours of 7:00 a.m. and 6:00 p.m. and for special nonrecurring time intervals when permission is personnel for operating elevators will not be provided by the Department of Veterans Affairs.
 - 2. Contractor to develop a proposed elevator usage plan for review and approval by COTR.
 - 3. 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.
 - 4. If brake lining of elevators are excessively worn or damaged during temporary use, they shall be removed and replaced by new brake lining.

5. All parts of main controller, starter, relay panel, selector, etc., worn or damaged during temporary use shall be removed and replaced with new parts, if recommended by elevator inspector after elevator is released by Contractor. 09-08M
6. Place elevator in condition equal, less normal wear, to that existing at time it was placed in service of Contractor as approved by Contracting Officer.

1.15 TEMPORARY TOILETS

- A. Contractor may have for use of Contractor's workmen, such toilet accommodations as may be assigned to Contractor by Medical Center. Contractor shall keep such places clean and be responsible for any damage done thereto by Contractor's workmen. Failure to maintain satisfactory condition in toilets will deprive Contractor of the privilege to use such toilets.

1.16 AVAILABILITY AND USE OF UTILITY SERVICES

- A. Electricity (for Construction and Testing): Furnish all temporary electric services.
1. The use of facility power shall be protected by GFCI or NEC approved temporary power stations.
- B. 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 COTR's discretion) of use of water from Medical Center's system.

1.17 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.
- Manuals: Maintenance and operating manuals (four copies each) for each separate piece of equipment shall be delivered to the COTR 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.

B. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system, shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the COTR and shall be considered concluded only when the COTR is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the COTR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.18 ATTACHMENTS

HAZARDOUS WORK ACTIVITY CHECKLIST
OSHA REQUIREMENTS

Louis Stokes Cleveland

ICRA PERMIT

09-08M

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Hazardous Work Activity Checklist

Project:_____ Project/Contract #:_____

Any activity answered yes must be addressed in the Site Specific Safety Plan

Activity	Yes	No
Respiratory protection is required for the work being conducted List specifics		
Hearing protection is required for the work being conducted List specifics: Type of noise; impact, constant, start up		
Other personal protective equipment is required for the work being conducted, What activity? ____ List specifics: (Gloves, safety Glasses, hard hat, steel toes, overalls)		
There are overhead hazards associated with the work being conducted Wires, power, communication, grounding, location(s), signage List specifics:		
Work is being conducted in a confined space. Permit required? List specifics: Tanks, sewer, tunnels		
Ladders will be necessary for the work being conducted		
Scaffolding will be necessary for the work being conducted List specifics:		
Other work platforms will be necessary for the work being conducted List specifics: Rails, toe boards, netting		
Fall protection is required for the work being conducted List specifics:		
ASBESTOS Abatement Exposure to asbestos may be associated with the work being conducted List specifics: Renovation, Demolition, Emergency Response 29 <u>CFR</u> 1910.1001		
Hazardous materials will be used MSDSs will be provided for known substances List specifics: 29 CFR 1910.1200		

Hazardous Work Activity Checklist

Activity	Yes	No
Hot work(Cutting, Welding, Brazing, etc) Use of VAMC Cleveland Hot Work Policy (MCP 138-012) is required		
Additional ventilation will be necessary for the work being conducted List specifics: Reason for need of ventilation, confined space, foul odor, excessive heat.		
Operation and maintenance of electric power generation, control, transformation, transmission, and distribution lines and equipment are necessary for the work being conducted List specifics:		
Work will be conducted on energized equipment. Use of VAMC Cleveland Working on Energized Equipment policy (138-034) is required. List specifics: list voltages in area, emergency procedures		
Other electrical work will be conducted List specifics:		
Lock Out/Tag Out will be necessary for the work being conducted List specifics:		
Cranes, derricks, or slings will be necessary for the work being conducted List specifics:		
Excavating will be necessary for work being conducted List site specifics:		
Excavating or earthmoving equipment will be used List specifics:		
Industrial trucks will be used List specifics:		

Hazardous Work Activity Checklist

Activity	Yes	No
Other motorized vehicles will be used List specifics:		
Concrete and masonry construction operations will be necessary for work being conducted List specifics: % of recycled components		
Steel erection activities will be necessary for the work being conducted List specifics: New Steel % of recycled material,		
Alteration, conversion, or improvement of existing electric transmission and distribution lines and equipment will be necessary for the work being conducted List specifics:		
Hand and portable powered tools or other hand-held equipment will be used		
Compressed gas or compressed air equipment is necessary for work being conducted		
List all other hazardous activities that will be conducted or potentially hazardous equipment that will be used		

Hazardous Work Activity Checklist

Activity	Yes	No
Demolition will be necessary for the work being conducted		
<i>New Construction</i> : Minimum __%__ of total project waste shall be diverted from landfill. Recycled aggregate, Concrete, Steel		
<i>Interior Remodeling</i> : Minimum __%__ of total project waste shall be diverted from landfill. a) Ceiling tile b) Steel c) Carpet		
The following waste categories, at a minimum, shall be diverted from landfill a) Green waste (biodegradable landscaping materials). b) Soil. c) Inerts (concrete, asphalt, masonry). d) Clean dimensional wood, palette wood. e) Engineered wood products: plywood, particle board, I-joists, etc. f) Cardboard, paper, packaging. g) Asphalt roofing materials. h) Insulation. i) Gypsum board. j) Carpet and pad. k) Paint. l) Plastics: ABS, PVC. m) Beverage containers.		

Submitted by (Contractor) _____ Date: _____

Reviewed by (COTR) _____ Date: _ _

Reviewed by (CSM) _____ Date: _ _

SAMPLE INFECTION CONTROL PERMIT

Infection Control Construction Permit

Construction Class:	
Project Name and Number:	Permit #:
Location of Construction:	
COTR:	Telephone:
Contractor Performing Work:	
Supervisor:	Telephone:
CLASS I	<ol style="list-style-type: none"> 1. Obtain approval from COTR before activities begin 2. Work performed is limited to inspections and minor installations 3. Execute work by methods to minimize raising dust from inspection operations 4. Permit does not need to be posted for this classification.
CLASS II	<ol style="list-style-type: none"> 1. Obtain and post infection control permit at work location before work begins 2. Provide active means to prevent air borne dust from dispersing into atmosphere 3. Place dust mat at entrances and exits of work sites 4. Tools and equipment must be cleaned prior to entrance to the medical center 5. Isolate HVAC and seal unused doors with duct tape 6. Contain construction waste before transport in tightly covered containers
CLASS III	<ol style="list-style-type: none"> 1. Obtain and post infection control permit at work location before work begins 2. Follow all requirements listed for Class II in addition to requirements listed below 3. Isolate supply and return ductwork to prevent contamination of system. 4. Complete all critical dust barriers as well as the creation of an anti-room where required for inspection by COTR before work begins. 5. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 6. Construct anteroom where required by COTR and I.C. Nurse 7. Obtain COTR approval before construction and removal of any dust partitions 8. Include particle count readings on daily logs against baseline points as required by COTR or I.C. Nurse.
CLASS IV	<ol style="list-style-type: none"> 1. Obtain and post infection control permit at work location before work begins 2. Follow all requirements listed for Class III in addition to requirements listed below 3. Workers are required to wear clean suits on site 4. All personnel entering and leaving work site must be vacuumed using a HEPA filtered vacuum cleaner. 5. This class of permit will require additional specialized precautions unique to each activity which will be listed below
Additional Requirements:	
Infection Control Nurse:	Date:
COTR:	Date:
Contractor:	Date:

OSHA Requirements and Safety and Health Regulations

PART 1 - OSHA Requirements

1.1 General

- A. Contractors are required to comply with the Occupational Safety and Health Act of 1970. This will include the safety and health standard found in Code of Federal Regulations (CFR) 1910 and 1926. Copies of those standards can be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20420.
- B. In addition, Contractor will be required to comply with other applicable Medical Center policies and safety regulations. These policies and regulations will be presented to the Contractor at the pre-construction meeting. Each of the Contractor's employees will be required to read the statement of policies and regulations, and sign an acknowledgment that such policies and regulations are understood. Signed acknowledgment will be returned to the Contract Officer Technical Representative (COTR).
- C. Contractors involved with the removal, alteration or disturbance of asbestos-type insulation or materials or lead paint will be required to comply strictly with the regulations found in CFR 1910.1001 and the appropriate Environmental Protection Agency (EPA) lead regulations regarding disposal of asbestos or lead paint. Assistance in identifying asbestos or lead can be requested from the Medical Center's Industrial Hygienist and the COTR.
- D. Contractors entering locations of asbestos contamination or lead paint residue (i.e., pipe, basements, walls, windows) shall be responsible for providing respiratory protection to their employees and ensuring respirators are worn in accordance with the Occupational Safety and Health Administration (OSHA) [CFR 1910.1001(g)]. Asbestos-or lead paint-contaminated areas shall be defined on project drawings. The minimum equipment requirements will be a half-mask air-purifying respirator equipped with high efficiency filters and disposable coveralls, or as determined by air monitoring results.
- E. Contractor, along with other submittals and at least two weeks prior to bringing any materials on-site, must submit a complete list of chemicals the Contractor will use and Material Safety Data Sheets (MSDS) for all hazardous materials as defined in OSHA 1910.1200(d), Hazard Determination. Contracting Officer shall have final approval of all materials brought on site.

- F. The Contractor will be held solely responsible for the safety and health of their employees. The contractor will also be held responsible for protecting the health and safety of the VA Community (patients, staff, and visitors) from the unwanted effects of construction. VA staff will monitor the Contractor's performance in complying with all safety and health aspects of the project. Severe or constant violations may result in an immediate work stoppage or request for a Compliance Officer from the Occupational Safety and Health Administration.
- G. During all phases of demolition, construction and alterations, Contractors are required to understand and strictly follow National Fire Protection Association (NFPA) 241, Standard for Safeguarding Construction, Alteration and Demolition Operations. The Medical Center's Safety and Occupational Health Specialist or Industrial Hygienist will closely monitor the work area for compliance. Appropriate action will be taken for non-compliance.

PART 2 - Specific VA Medical Center Fire and Safety Policies, Procedures and Regulations

2.1 Introduction.

- A. The safety and fire protection of patients, employees, members of the public and government is one of continuous concern to this Medical Center.
- B. Contractors, their supervisors and employees are required to comply with Medical Center policies to ensure the occupational safety and health of all. Failure to comply may result in work stoppage.
- C. While working at this Medical Center, contractors are responsible for the occupational safety and health of their employees. Contractors are required to comply with the applicable OSHA standards found in 29 CFR 1910 for general industry and 29 CFR 1926 for construction. Failure to comply with these standards may result in work stoppage and a request to the Area Director of OSHA for a Compliance Officer to inspect your work site.
- D. Contractors are to comply with the requirements found in the National Fire Protection Association (NFPA) 241, Building Construction and Demolition Operation, and NFPA 51B, Fire Prevention in Use of Cutting and Welding Processes.
- E. Questions regarding occupational safety and health issues can be addressed to the Medical Center Safety and Occupational Health Specialist (ext. 4172) or Industrial Hygienist (ext. 4628).

- F. Smoking is not permitted in any interior areas of the Medical Center, including all interior stairwells, tunnels, construction and/or service/maintenance sites. Compliance with this policy by your direct and subcontracted labor force is required.

2.2 Hazard Communication

- A. Contractors shall comply with OSHA Standard 29 CFR 1926.59, Hazard Communication.
- B. Contractors shall submit to the COTR, copies of MSDS covering all hazardous materials to which the Contractor and VA employees are exposed.
- C. Contractors shall inform the Safety Officer of the hazards to which VA personnel and patients may be exposed.
- D. Contractors shall have a written Hazard Communication Program available at the construction site, which details how the Contractor will comply with 29 CFR 1926.59.

2.3 Fires

- A. All fires must be reported. In the event of a fire in your work area, use the nearest pull box station, and also notify Medical Center staff in the immediate area. Emergency notification can also be accomplished by dialing ext. 2222.
- B. Be sure to give the exact location from where you are calling and the nature of the emergency. If a Contractor experiences a fire that was rapidly extinguished by your staff, you still must notify the COTR within an hour of the event so that an investigation of the fire can be accomplished.

2.4 Fire Alarms, Smoke Detection and Sprinkler System

If the nature of your work requires the deactivation of the fire alarm, smoke detection or sprinkler system, you must notify the COTR. Notification must be made in accordance with the major and minor shutdown requirements of the specification so time can be allowed to deactivate the system and provide alternative measures for fire protection. Under no circumstance is a Contractor allowed to deactivate any of the fire protection systems in this Medical Center.

2.5 Smoke Detectors

False alarms will not be tolerated. You are required to be familiar with the location of the smoke detectors in your work area. When performing cutting, burning or welding or any other operations that may cause smoke or dust, you must take steps to temporarily cover

smoke detectors in order to prevent false alarms. Failure to take the appropriate action will result in the Contracting Officer assessing actual costs for government response for each false alarm that is preventable. Prior to covering the smoke detectors, the Contractor will notify the COTR, who will also be notified when the covers are removed.

2.6 Hot Work Permit

- A. Hot work is defined as operations including, but not limited to, cutting, welding, thermal welding, brazing, soldering, grinding, thermal spraying, thawing pipes or any similar situation. If such work is required, whenever possible the Contractor must notify the COTR no less than three (3) days in advance of such work. The Competent Hot Work Supervisor (CHWS) will inspect the work area and issue a Hot Work Permit, authorizing the performance of such work.
- B. All hot work will be performed in compliance with the Medical Center's policy 138-012 regarding Hot Work Permits and NFPA 241, Safeguarding Construction, Alteration and Demolition Operations; and NFPA 51B, Fire Prevention in Use of Cutting and Welding Processes; and applicable OSHA standard. A hot work permit will only be issued to individuals familiar with these regulations.
- C. A Hot Work Permit will be issued only for the period necessary to perform such work. In the event the time necessary will exceed one day, a Hot Work Permit may be issued for the period needed; however, the CHWS will inspect the area daily. Hot Work Permit will apply only to the location identified on the permit. If additional areas involve hot work, then additional permits must be requested.
- D. Contractors will not be allowed to perform hot work processes without the appropriate permit.
- E. Any work involving the Medical Center's fire protection system will require advance notification. Under no circumstance will the Contractor or employee attempt to alter or tamper with the existing fire protection system.
- F. Thirty minutes following completion of the hot work, the Fire Watch will perform an inspection of the area to confirm that sparks or drops of hot metal are not present.

2.7 Temporary Enclosures

Only non-combustible materials will be used to construct temporary enclosures or barriers at this Medical Center. Materials used to construct dust barriers must conform to NFPA 701, Standard Methods of Fire Tests for Flame-Resistant Textiles and Films.

2.8 Flammable Liquids

All flammable liquids will be kept in approved safety containers. Only the amount necessary for your immediate work will be allowed in the building. Flammable liquids must be removed from the building at the end of each day.

2.9 Compressed Gas Cylinders

Compressed gas shall be secured in an upright position at all times. A suitable cylinder cart will be used to transport compressed gas cylinders. Only those compressed gas cylinders necessary for immediate work will be allowed in occupied buildings. All other compressed gas cylinders will be stored outside of buildings in a designated area. Contractors will comply with applicable standards compressed gas cylinders found in 29 CFR 1910 and 1926 (OSHA).

2.10 Internal Combustion Engine-Powered Equipment

Equipment powered by an internal combustion engine (such as saws, compressors, generators, etc.) will not be used in an occupied building. Special consideration may be given for unoccupied buildings only if the OSHA and NFPA requirements have been met.

2.11 Powder-Activated Tools

The operator of powder-activated tools must be trained and certified to use them. Powder-activated tools will be kept secured at all times. When not in use, the tools will be locked up. When in use, the operator will have the tool under his immediate control.

2.12 Tools

- A. Under no circumstances will equipment, tools and other items of work to be left unattended for any reason. All tools, equipment and items of work must be under the immediate control of your employee.
- B. If for some reason a work area must be left unattended, then tools and other equipment must be placed in an appropriate box or container and locked. All tool boxes, containers or any other device used for the storage of tools and equipment will be provided with a latch and padlock, and will be kept locked at all times, except for putting in and removing tools.
- C. All doors to work areas will be closed and locked when rooms are left unattended. Failure to comply with this policy will be considered a violation of VA Regulations 1.218(b), Failure to comply with signs of a directive and restrictive nature posted for safety purposes, and subject to a \$50.00 fine. Subsequent similar violations may result in both imposition of such a fine as well as the Contracting Officer taking

action under the contract's Accident Prevention Clause [Federal Acquisition Regulation (FAR) 52.236-13] to suspend all contract work until violations may be satisfactorily resolved, or under FAR 52.236-5, Material and Workmanship Clause, to remove from the worksite any personnel deemed by the Contracting Officer to be careless to the point of jeopardizing the welfare of facility patients or staff.

- D. You must report any tools or equipment that are missing to the VA Police Department.
- E. Tools and equipment found unattended will be confiscated and removed from the work area.

2.13 Ladders

Ladders must not be left unattended in an upright position. Ladders must be attended at all times or taken down, and chained securely to a stationary object.

2.14 Scaffolds

All scaffolds will be attended at all times. When not in use, an effective barricade (fence) will be erected around the scaffold to prevent use by unauthorized personnel (Reference OSHA 1926, Subpart L).

2.15 Excavations

The contractor shall comply with OSHA 1926, Subpart P. An OSHA Competent Person must be on site during the excavation. The contractor shall coordinate with COTR and utility companies prior to the excavation to identify underground utilities tanks, etc. All excavations left unattended will be provided with a barricade suitable to prevent entry by unauthorized persons.

2.16 Storage

You must make prior arrangements with the COTR for the storage of building materials. Storage will not be allowed to accumulate in the Medical Center buildings.

2.17 Trash and Debris

You must remove all trash and debris from the work area on a daily basis. Trash and debris will not be allowed to accumulate inside or outside of the buildings. You are responsible for making arrangements for removal of trash from the Medical Center facility.

2.18 Protection of Floors

It may be necessary at times to take steps to protect floors from dirt, debris, paint, etc. A tarp or other protective covering may be used in accordance with specifications outlined in the general requirements section. However, you must maintain the proper amount of floor space for the safe passage of pedestrian traffic.

2.19 Signs

Signs must be placed at the entrance to work areas warning people of your work. Signs must be suitable for the condition of the work. Small pieces of paper with printing or writing are not acceptable. The VA Medical Center (VAMC) Safety Officer or COTR can be consulted in this matter.

2.20 Accidents and Injuries

Contractors must report all accidents and injuries involving their employees.

2.21 Infection Control

Contractors must control the generation of dust and the contamination of patient care surfaces, supplies and equipment. During demolition phases of the construction:

- A. The construction area shall be under negative pressure, ensuring there is an appreciable flow of clean air from the VA-occupied portion of the facility into the construction area. The airflow shall be sufficiently strong enough to draw in the plastic door flaps commonly located at the construction entrance or at the specific site within the construction area.
- B. Construction debris being transported through the VA-occupied portion of the facility shall be covered and/or wetted.
- C. Construction employees shall remove dust-laden clothing before entering the VA-occupied portion of the facility.
- D. Carpet/sticky mats shall be placed at all construction entrances, and be satisfactorily maintained so as to minimize the tracking of dust into the VA-occupied portion of the facility.
- E. Dry sweeping of dust and debris is not to be performed.
- F. Contractor must obtain an Infection Control Construction permit from the COTR before work can begin. A separate permit is required for each area work is being

done. Permit must be signed by the LC. Nurse, COTR, and Contractor. Permit is required to be posted outside work site at all times.

(Control measures B - E above must be practiced during the construction phase.)

2.22 Confined Space Entry

- A. Contractor will be notified if a project work area contains spaces requiring a confined space work permit. Entry to these confined space areas will only be permitted through compliance with a permit space program meeting the requirements of 29 CFR 1910.146 and 1926.21(b)(6).
- B. Contractor will be apprised of the elements including the hazards identified and the Medical Center's (last employer) experience with the space that makes the space in question a permit space.
- C. Contractor will be apprised of any precautions or procedures that the Medical Center has implemented for the protection of employees in or near permit space where Contractor personnel will be working.
- D. Medical Center and Contractor will coordinate entry operations when both Medical Center personnel and Contractor personnel will be working in or near permit spaces as required by 29 CFR 1910.146(d)(ii) and 1926.21(b)(6).
- E. Contractor will obtain any available information regarding permit space hazards and entry operation from the Medical Center.
- F. At the conclusion of the entry operations, the Medical Center and Contractor will discuss any hazards confronted or created in permit spaces.
- G. The Contractor is responsible for complying with 29 CFR 1910.246(d) through (g) and 1926.21(b)(6). The Medical Center, does not provide rescue and emergency services required by 29 CFR 1910.246(k) and 1926.21(b)(6).

2.23 Contractor Parking and Material Delivery

Contractor's parking is not available at the medical center and the delivery of building materials tools, etc., must be pre-arranged with the COTR.

SECTION 01 32 16.13
CONSTRUCTION PROGRESS SCHEDULES

PART 1- GENERAL

1.1 DESCRIPTION:

- A. The Contractor shall develop a Construction Progress Schedule demonstrating fulfillment of the contract requirements, shall keep the network 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) Precedence Diagramming Method (PDM) technique will be utilized to satisfy both time and cost applications. All schedule data and reports required under this specification section shall be based upon regular total float, not relative total float schedules.
- B. Contractor shall not perform any work onsite until the schedule associated with that work is first approved by the VA.
- C. The progress schedule shall be provided and approved by the VA prior to any work starting.

1.2 PAYMENT TO THE CONTRACTOR:

- A. Monthly, the contractor shall submit 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. The Contractor is entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated computer-produced calendar-dated schedule unless, in special situations, the Contracting Officer permits an exception to this requirement. Monthly payment requests shall include: three copies of up to five different reports (inclusive of all pages) to the contracting officer's representative; a listing of all project schedule changes, and associated data, made at the update; and an

electronic file (s) of the resulting monthly updated schedule. These must be submitted with and substantively support the contractor's monthly application and certificate for payment request documents.

- B. When the Contractor fails or refuses to furnish to the Contracting Officer the information and the associated updated Primavera (P3), (PDM) schedule in electronic format, which, in the sole judgment of the Contracting Officer, is necessary for processing the monthly progress payment, the Contractor shall not be deemed to have provided an estimate and supporting schedule data upon which progress payment may be made.

1.3 RESPONSIBILITY FOR COMPLETION

- A. Whenever it becomes apparent from the current weekly progress review meeting or the weekly computer-produced calendar-dated 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 CPM revisions shall be incorporated by the Contractor into the schedule before the next update, at no additional cost to the Government.

1.4 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 Contracting Officer may deem necessary

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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. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Contracting Officer's decision.
- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer. 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 schedule.
- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month by month basis.

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

- 1-1. For the purposes of this contract, samples (including laboratory samples to be tested), 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.
- 1-2. 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.
- 1-3. 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 (including any laboratory samples to be tested) will not serve as a basis for extending contract time for completion.
- 1-4. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by COTR on behalf of the Contracting Officer.
- 1-5. Upon receipt of submittals, Architect-Engineer will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.
- 1-6. 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

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to request therefor by Contracting Officer, adjustment in contract price and time will be made.

- 1-7. 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.
- 1-8. 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 quadruplicate. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.
 - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail and shall contain the list of items, name of Medical Center, 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 letter must be enclosed with items, and any items received without identification letter 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 and location of the Medical Center, 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.

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- C. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by Contracting Officer.
1. Laboratory shall furnish Contracting Officer with a certificate stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
 2. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past five years.
 3. Samples and laboratory tests shall be sent directly to approved commercial testing laboratory.
 4. Contractor shall send a copy of transmittal letter to both COTR and to Architect-Engineer simultaneously with submission of material to a commercial testing laboratory.
 5. Contractor shall forward a copy of transmittal letter to COTR simultaneously with submission to a commercial testing laboratory.
 6. Laboratory test reports shall be sent directly to COTR for appropriate action.
 7. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.
 8. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.
- D. 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.
- E. Approved samples will be kept on file by the COTR at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon

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request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.

F. 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 legible photographic paper or vellum reproducible.
2. Reproducible shall be full size.
3. 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.
4. A space 120 mm by 125 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
6. One reproducible print of approved or disapproved shop drawings will be forwarded to Contractor.
7. When work is directly related and involves more than one trade, shop drawings shall be submitted to Architect-Engineer under one cover.

1-10. At the time of transmittal to the Architect-Engineer, the Contractor shall also send a copy of the complete submittal directly to the COTR.

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SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)

- A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to - GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.
- B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-4) (JUN 1988)

The specifications and standards cited in this solicitation can be examined at the following location:

DEPARTMENT OF VETERANS AFFAIRS
Office of Construction & Facilities Management
Facilities Quality Service (00CFM1A)
811 Vermont Avenue, NW - Room 462
Washington, DC 20420
Telephone Numbers: (202) 461-8217 or (202) 461-8292
Between 9:00 AM - 3:00 PM

1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-3) (JUN 1988)

The specifications cited in this solicitation may be obtained from the associations or organizations listed below.

AA Aluminum Association
Inc. <http://www.aluminum.org>

AABC Associated Air Balance
Council <http://www.aabchg.com>

AAMA American Architectural Manufacturer's
Association <http://www.aamanet.org>

AAN American Nursery and Landscape
Association <http://www.anla.org>

AASHTO American Association of State Highway and Transportation
Officials <http://www.aashto.org>

AATCC American Association of Textile Chemists and
Colorists <http://www.aatcc.org>

ACGIH American Conference of Governmental Industrial
Hygienists <http://www.acgih.org>

ACI American Concrete
Institute <http://www.aci-int.net>

ACPA American Concrete Pipe
Association <http://www.concrete-pipe.org>

ACPPA American Concrete Pressure Pipe
Association <http://www.acppa.org>

ADC Air Diffusion
Council <http://flexibleduct.org>

AGA American Gas
Association <http://www.aga.org>

AGC Associated General Contractors of
America <http://www.agc.org>

AGMA American Gear Manufacturers Association,
Inc. <http://www.agma.org>

AHAM Association of Home Appliance
Manufacturers <http://www.aham.org>

AISC American Institute of Steel
Construction <http://www.aisc.org>

AISI American Iron and Steel
Institute <http://www.steel.org>

AITC American Institute of Timber
Construction <http://www.aitc-glulam.org>

Veterans Affairs Medical Center

AMCA Air Movement and Control Association,
Inc. <http://www.amca.org>

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ANLA	American Nursery & Landscape Association http://www.anla.org	n
ANSI	American National Standards Institute, Inc. http://www.ansi.org	c
APA	The Engineered Wood Association http://www.apawood.org	.
ARI	Air-Conditioning and Refrigeration Institute http://www.ari.org	h
ASAE	American Society of Agricultural Engineers http://www.asae.org	t
ASCE	American Society of Civil Engineers http://www.asce.org	t
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers http://www.ashrae.org	p
ASME	American Society of Mechanical Engineers http://www.asme.org	:
ASSE	American Society of Sanitary Engineering http://www.asse-plumbing.org	/
ASTM	American Society for Testing and Materials http://www.astm.org	/
AWI	Architectural Woodwork Institute http://www.awinet.org	w
AWS	American Welding Society http://www.aws.org	w
AWWA	American Water Works Association http://www.awwa.org	.
BHMA	Builders Hardware Manufacturers Association http://www.buildershardware.com	c
BIA	Brick Institute of America http://www.bia.org	h
CAGI	Compressed Air and Gas Institute http://www.cagi.org	l
CGA	Compressed Gas Association, Inc. http://www.cganet.com	o
CI	The Chlorine Institute,	r
		g

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CISCA	Ceilings and Interior Systems Construction Association	http://www.cisca.org	I n s u r a n c e
CISPI	Cast Iron Soil Pipe Institute	http://www.cispi.org	
CLFMI	Chain Link Fence Manufacturers Institute	http://www.chainlinkinfo.org	
CPMB	Concrete Plant Manufacturers Bureau	http://www.cpmc.org	
CRA	California Redwood Association	http://www.calredwood.org	h t t p : / / w w w . f m g l o b a l . c o m
CRSI	Concrete Reinforcing Steel Institute	http://www.crsi.org	
CTI	Cooling Technology Institute	http://www.cti.org	
DHI	Door and Hardware Institute	http://www.dhi.org	
EGSA	Electrical Generating Systems Association	http://www.egsa.org	
EEI	Edison Electric Institute	http://www.eei.org	
EPA	Environmental Protection Agency	http://www.epa.gov	
ETL	ETL Testing Laboratories, Inc.	http://www.etl.com	
FAA	Federal Aviation Administration	http://www.faa.gov	
FCC	Federal Communications Commission	http://www.fcc.gov	G
FPS	The Forest Products Society	http://www.forestry.org	A
GANA	Glass Association of North America	http://www.cssinfo.com/info/gana.html	G Y p s u
FM	Factory Mutual		

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Association [http://w
ww.gypsum.org](http://www.gypsum.org)

GSA

General Services

Administration [http://www.gsa.
gov](http://www.gsa.gov)

HI Hydraulic
Institute <http://www.pumps.org>

HPVA Hardwood Plywood & Veneer
Association <http://www.hpva.org>

ICBO International Conference of Building
Officials <http://www.icbo.org>

ICEA Insulated Cable Engineers Association
Inc. <http://www.icea.net>

ICAC Institute of Clean Air
Companies <http://www.icac.com>

IEEE Institute of Electrical and Electronics
Engineers <http://www.ieee.org>

IMSA International Municipal Signal
Association <http://www.imsasafety.org>

IPCEA Insulated Power Cable Engineers Association

NBMA Metal Buildings Manufacturers Association
<http://www.mbma.com>

MSS Manufacturers Standardization Society of the Valve and Fittings
Industry Inc.
<http://www.mss-hq.com>

NAAMM National Association of Architectural Metal
Manufacturers <http://www.naamm.org>

NAPHCC Plumbing-Heating-Cooling Contractors
Association <http://www.phccweb.org.org>

NBS National Bureau of Standards
See - NIST

NBBPVI National Board of Boiler and Pressure Vessel
Inspectors <http://www.nationboard.org>

NEC National Electric Code
See - NFPA National Fire Protection Association

NEMA National Electrical Manufacturers Association
<http://www.nema.org>

NFPA National Fire Protection
Association <http://www.nfpa.org>

NHLA National Hardwood Lumber
Association <http://www.natlhardwood.org>

NIH National Institute of
Health <http://www.nih.gov>

		A
NIST	National Institute of Standards and Technology http://www.nist.gov	l
NLMA	Northeastern Lumber Manufacturers Association, Inc. http://www.nelma.org	l
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879 (301) 670-0604	i a n c e
NSF	National Sanitation Foundation http://www.nsf.org	h
NWWDA	Window and Door Manufacturers Association http://www.nwwda.org	t
OSHA	Occupational Safety and Health Administration Department of Labor http://www.osha.gov	p : / / w
PCA	Portland Cement Association http://www.portcement.org	w w w
PCI	Precast Prestressed Concrete Institute http://www.pci.org	. i
PPI	The Plastic Pipe Institute http://www.plasticpipe.org	g m a
PEI	Porcelain Enamel Institute, Inc. http://www.porcelainenamel.com	o n l
PTI	Post-Tensioning Institute http://www.post-tensioning.org	i n e
RFCI	The Resilient Floor Covering Institute http://www.rfci.com	. o
RIS	Redwood Inspection Service See - CRA	r g
RMA	Rubber Manufacturers Association, Inc. http://www.rma.org	
SCMA	Southern Cypress Manufacturers Association http://www.cypressinfo.org	
SDI	Steel Door Institute http://www.steeldoors.org	
IGMA	Insulating Glass Manufacturers	

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SJI Steel Joist
Institute <http://www.steeljoist.org>

SMACNA Sheet Metal and Air-Conditioning Contractors
National Association,
Inc. <http://www.smacna.org>

SSPC The Society for Protective
Coatings <http://www.sspc.org>

STI Steel Tank
Institute <http://www.steeeltank.com>

SWI Steel Window
Institute <http://www.steelwindows.com>

TCA Tile Council of America,
Inc. <http://www.tileusa.com>

TEMA Tubular Exchange Manufacturers
Association <http://www.tema.org>

TPI Truss Plate Institute, Inc.
583 D'Onofrio Drive; Suite 200
Madison, WI 53719
(608) 833-5900

UBC The Uniform Building Code
See ICBO

UL Underwriters' Laboratories
Incorporated <http://www.ul.com>

ULC Underwriters' Laboratories of
Canada <http://www.ulc.ca>

WCLIB West Coast Lumber Inspection Bureau
6980 SW Varns Road, P.O. Box 23145
Portland, OR 97223
(503) 639-0651

WRCLA Western Red Cedar Lumber Association
P.O. Box 120786
New Brighton, MN 55112
(612) 633-4334

WWPA Western Wood Products
Association <http://www.wwpa.org>

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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, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
 - 1. Waste Management Plan development and implementation.
 - 2. Techniques to minimize waste generation.
 - 3. Sorting and separating of waste materials.
 - 4. Salvage of existing materials and items for reuse or resale.
 - 5. Recycling of materials that cannot be reused or sold.
- D. At a minimum the following waste categories shall be diverted from landfills:
 - 1. Soil.
 - 2. Inerts (eg, concrete, masonry and asphalt).
 - 3. Clean dimensional wood and palette wood.
 - 4. Green waste (biodegradable landscaping materials).
 - 5. Engineered wood products (plywood, particle board and I-joists, etc).
 - 6. Metal products (eg, steel, wire, beverage containers, etc).
 - 7. Cardboard, paper and packaging.
 - 8. Bitumen roofing materials.
 - 9. Plastics (eg, ABS, PVC).
 - 10. Carpet and/or pad.
 - 11. Gypsum board.
 - 12. Insulation.
 - 13. Paint.

1.2 RELATED WORK

- A. Section 02 41 00, DEMOLITION.
- B. 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 generation of as little waste as possible. Construction /Demolition waste includes products of 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. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that will be generated by demolition and construction.
- C. Contractor shall develop and implement procedures to reuse and recycle new materials to a minimum of 50 percent.
- D. 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.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. 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.wbdg.org> provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.

- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.
- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 TERMINOLOGY

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
- D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
- E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
- F. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
- G. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
- H. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
- I. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- J. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.

- K. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.
- L. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
 - 1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
 - 2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.
- M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.
- N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.
- O. Return: To give back reusable items or unused products to vendors for credit.
- P. Salvage: To remove waste materials from the site for resale or re-use by a third party.
- Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
- R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

1.5 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:

- B. Prepare and submit to the COTR a written demolition debris management plan. The plan shall include, but not be limited to, the following information:
1. Procedures to be used for debris management.
 2. Techniques to be used to minimize waste generation.
 3. Analysis of the estimated job site waste to be generated:
 - a. List of each material and quantity to be salvaged, reused, recycled.
 - b. List of each material and quantity proposed to be taken to a landfill.
 4. Detailed description of the Means/Methods to be used for material handling.
 - a. On site: Material separation, storage, protection where applicable.
 - b. Off site: Transportation means and destination. Include list of materials.
 - 1) Description of materials to be site-separated and self-hauled to designated facilities.
 - 2) Description of mixed materials to be collected by designated waste haulers and removed from the site.
 - c. The names and locations of mixed debris reuse and recycling facilities or sites.
 - d. The names and locations of trash disposal landfill facilities or sites.
 - e. Documentation that the facilities or sites are approved to receive the materials.
- C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.
- D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

1.6 APPLICABLE PUBLICATIONS

Publications listed below form a part of this specification to the extent referenced. Publications are referenced by the basic designation only. In the event that criteria requirements conflict, the most stringent requirements shall be met.

A. U.S. Green Building Council (USGBC):

LEED Green Building Rating System for New Construction

1.7 RECORDS

Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Records shall be kept in accordance with the LEED Reference Guide and LEED Template.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. List of each material and quantity to be salvaged, recycled, reused.
- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

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 respective recycling facility for processing.
- C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

3.2 DISPOSAL

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.
- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

3.3 REPORT

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.

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- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.
- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices. Include the net total costs for each disposal.

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LOUIS STOKES CLEVELAND
VA MEDICAL CENTER
10701 East Boulevard
Cleveland, OH 44106

MEDICAL CENTER POLICY 138-074
July 30, 2007

GREEN ENVIRONMENTAL MANAGEMENT SYSTEMS (GEMS)
Contracted Construction Waste Management Policy

1. **PURPOSE.** To outline the policy and procedures to ensure effective management/disposal of any waste generated through approved construction projects at the Louis Stokes Cleveland VA Medical Center.

2. **POLICY.** It is the policy of this medical center that construction projects shall generate the least amount of waste possible.

3. **RESPONSIBILITY.** The subcontractor shall employ processes that ensure the generation of as little waste as possible and shall avoid the generation of waste due to the following:

- a. Over-packaging
- b. Error
- c. Poor planning, layout
- d. Over ordering
- e. Breakage
- f. Mishandling
- g. Contamination
- h. Damage from weather

4. **PROCEDURES**

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

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

c. Contractor to determine site specific percentages of waste to be diverted from landfill.

(1) Waste Diversion Goals

(a) New Construction: Minimum 5% of total project waste shall be diverted from landfill.

(b) Demolition, Major Remodeling: Minimum 5% of total project waste shall be diverted from landfill.

(c} Interior Remodeling: Minimum 5% of total project waste shall be diverted from landfill.

(2) The following waste categories, at a minimum, shall be diverted from landfill:

- (a) Green waste (biodegradable landscaping materials)
- (b} Soil
- (c) Inerts (concrete, asphalt, masonry)
- (d} Clean dimensional wood, pallet wood
- (e) Engineered wood products: plywood, particle board, joists, etc.
- (f) Cardboard, paper, packaging
- (g) Asphalt roofing materials
- (h) Insulation
- (i) Gypsum board
- (j) Carpet and pad
- (k) Paint
- (l) Plastics: ABS, PVC
- (m) Beverage containers

5. DESCRIPTION OF WORK

a. Includes:

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

b. Related Elements:

- Alternates
- Construction waste management
- Site demolition
- Site clearing
- Slope protection/erosion control
- Asphalt concrete
- Crushed stone paving

- Portland cement concrete paving
- Valve boxes
- Storm sewers
- Chain link fences and gates
- Walk, road and parking appurtenances
- Miscellaneous landscaping materials
- Concrete, concrete formwork, and concrete reinforcement
- Cast-in-place concrete
- Unit masonry
- Structural steel
- Steel roof deck/steelfloor deck
- Cold formed metal framing
- Metal fabrications
- Rough and finish carpentry
- Engineered structural wood
- Plastic lumber
- Building insulation
- Modified bitumen roofing
- Metal doors
- Wood and plastic doors and frames
- Metal support systems
- Gypsum wallboard
- Acoustical treatment
- Resilient flooring
- Tile and carpet
- Painting
- Toilet compartments
- Louvers and vents
- Signage and graphics
- Ductwork and ductwork accessories

6. DEFINITIONS

- a. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- b. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- c. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7. **GUIDES.** No preference is given to the recycles listed below; they are listed for the convenience of the contractor.

- Dirt/clean fill
- Green/landscaping waste
- Concrete, asphaltic concrete
- Cardboard, paper, packaging
- Clean dimensional wood, pallet wood
- Usable pallets
- Metals from banding, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze
- Carpet and pad
- Gypsum board
- Paint
- Insulation
- Asphalt shingles
- Beverage containers

8. SUBMITTALS

a. Waste Management Plan. Prior to any waste removal, the Contractor shall submit their Waste Management Plan to the Medical Center. The Plan shall contain the following:

(1) Analysis of the estimated job site waste to be generated, including types and quantities.

(2) Proposed alternatives to land filling. Contractor shall prepare a site specific list of each material proposed to be salvaged, re-used, or recycled during the course of the project.

(3) Methods handling of materials to be recycled.

(a) On site:

- Materials separation
- Materials storage
- Materials protection, where applicable

(b) Off site: Provide name of mixed debris recycling facility; include list of materials to be recycled.

(4) Procedures. A description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

(5) Landfill Options. The name of the landfill(s) where trash will be disposed of.

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

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

(8) Waste Management Plan Implementation

(a) Manager. The Subcontractor shall designate an on-site party (or parties) responsible for instructing workers and subcontractors and overseeing and documenting results of the Waste Management Plan for the project.

(b) Distribution. The Subcontractor shall distribute copies of the Waste Management Plan to the Medical Center Chief Engineer.

(c) Instruction. The Subcontractor shall provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse and return methods to be used by all parties at appropriate stages of the project.

(d) Separation Facilities. The Subcontractor shall lay out and label a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.

(e) Hazardous Wastes. Hazardous wastes shall be separated, stored, and disposed of according to local, state and federal regulations.

b. Reports.

(1) The Contractor shall submit (monthly, quarterly, at end of job) a Waste Management Progress Report. The report shall contain the amount (in tons or cubic yards) of material land filled from the project, the identity of the landfill, the total amount of tipping fees paid at the landfill and the total disposal cost.

(2) Manifests shall be from recycle and/or disposalsite operators that can legally accept the materials for the purpose of reuse, recycling or disposal.

(a) Include legible copies of manifests,

(b) Weight tickets, receipts and invoices.

(3) For each material recycled, reused or salvaged from the project, provide the following:

- Amount (in tons or cubic yards)
- Date removed from the job site
- Receiving party
- Transportation cost
- Amount of any money paid or received for the recycled or salvaged material. Net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts, and/or invoices. Indicate the project information, including project title, name of

company completing form, and beginning and ending dates of period covered by summary form.

(4) The contractor will prohibit employees from taking recyclable waste for personal use or profit.

9. **REFERENCES.** GEMS Guidebook, Section 01010 General Requirements Contract Specifications

10. **RESCISSION.** Medical Center Policy 138-074, Green Environmental Management Systems (GEMS) Contracted Construction Waste Management Policy, dated July 30, 2007. The review date for this policy is July 30, 2010.

11. **FOLLOW-UP RESPONSIBILITY.** Chief, Engineering Service

Louis Stokes Cleveland

11-08M

**SECTION 02 41 00
DEMOLITION**

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies demolition and removal of buildings, portions of buildings, utilities, other structures and debris from trash dumps shown.

1.2 RELATED WORK:

- A. Disconnecting utility services prior to demolition: Section 01 00 00, GENERAL REQUIREMENTS.
- B. Reserved items that are to remain the property of the Government: Section 01 00 00, GENERAL REQUIREMENTS.
- C. Infectious Control: Section 01 00 00, GENERAL REQUIREMENTS, Article, INFECTION PREVENTION MEASURES.

1.3 PROTECTION:

- A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such adjacent areas of structures.
- B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations.
- C. Provide enclosed dust chutes with control gates from each floor to carry debris to truck beds and govern flow of material into truck. Provide overhead bridges of tight board or prefabricated metal construction at

dust chutes to protect persons and property from falling debris.

- D. Prevent spread of flying particles and dust. Sprinkle rubbish and debris with water to keep dust to a minimum. Do not use water if it results in hazardous or objectionable condition such as, but not limited to; ice, flooding, or pollution. Vacuum and dust the work area daily.
- E. In addition to previously listed fire and safety rules to be observed in performance of work, include following:
 - 1. No wall or part of wall shall be permitted to fall outwardly from structures.
 - 2. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for

immediate use. Instruct all possible users in use of fire extinguishers.

3. Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.

F. Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The contractor shall take necessary precautions to avoid damages to existing items to remain in place, to be reused, or to remain the property of the Medical Center; any damaged items shall be repaired or replaced as approved by the COTR. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal works. Repairs, reinforcement, or structural replacement must have COTR approval.

G. The work shall comply with the requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article INFECTION PREVENTION MEASURES.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DEMOLITION:

A. Completely demolish and remove buildings and structures, including all appurtenances related or connected thereto, as noted below:

1. As required for installation of new utility service lines.
2. To full depth within an area defined by hypothetical lines located 1500 mm (5 feet) outside building lines of new structures.

B. Debris, including brick, concrete, stone, metals and similar materials shall become property of Contractor and shall be disposed of by him daily, off the Medical Center to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the COTR Contractor shall dispose debris in compliance with applicable federal, state or local permits, rules and/or regulations.

C. Remove and legally dispose of all materials. Materials removed shall become property of contractor and shall be disposed of in compliance with applicable federal, state or local permits, rules and/or

regulations. The removal of hazardous material shall be referred to Hazardous Materials specifications.

- D. Remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the COTR. When Utility lines are encountered that are not indicated on the drawings, the COTR shall be notified prior to further work in that area.

3.2 CLEAN-UP:

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to COTR. Clean-up shall include ~~off~~ the disposal of all items and materials not required to remain property of the Government as well as all debris and rubbish resulting from demolition operations.

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SECTION 13 49 00
RADIO FREQUENCY AND MAGNETIC SHIELDING

PART 1 - GENERAL

1.1 DESCRIPTION

A. WORK OF THIS SECTION

1. General: Provide a pre-engineered radio frequency shielded and magnetic shielded enclosure including, all engineering design, documentation, labor, supervision, equipment, materials, transportation, and tooling necessary to fabricate, install, test, certify, and warrant a radio frequency (RF) and magnetic shielding system for use with Philips Intera Archieva Quasar Dual 3.0T in Room 1B-532 and Toshiba Vantage Atlas-X in Room 1B-538.
2. Site Conditions: RF/MAGNETIC Shielding Contractor must verify that he/she has visited the site and observed and understands all building conditions and construction under which the Work of this Section must be performed.
3. Coordination: RF/MAGNETIC Shielding Contractor shall provide each Contractor with coordination drawings to show relations of RF/MAGNETIC Shielding materials, equipment, and construction with building materials, equipment, and construction. Refer to Construction Drawings and MRI equipment vendor drawings, shield design report, and site planning documents for size, location, integration, coordination, and performance requirements of the shielding system. Philips and Toshiba project drawings are issued with the Construction Drawings, for reference only. Shielding vendor's work and requirements must be coordinated with General Contractor and other work before construction operations begin.
4. Work Included: Perform all work necessary and required for the construction of the Project, including, but not limited to the following:
 - a. All required shielding material for walls, floors and ceilings, including temporary protective materials for windows and doors.
 - b. Door and window units (borrowed lights) including frames, RF/MAGNETIC screens, plate glass and all hardware for a complete unit.
 - c. RF/MAGNETIC filter panel with a grounding stud for room lighting and power and miscellaneous requirements except for those supplied by the imaging equipment manufacturer.

- d. Provisions for utility line penetrations (plumbing and assemblies).
- e. Wave guides with extension collars for HVAC penetrations and cryogen venting.
- f. Testing to show compliance with the specified performance.
A minimum of two (2) tests are required, the first to conduct initial diagnostic test to determine the present benchmark performance of the existing RF/Magnetic shielding; and a second (final) diagnostic test to confirm the new RF/Magnetic shield meets or exceeds the benchmark diagnostic test.

QUALITY ASSURANCE

- A. Qualifications of Manufacturer: Shielding manufacturer shall have a minimum of 8 years' experience in manufacture and installation of radio frequency shielding system of type required for this Project and be of materials and system compatible with MRI equipment required for the Project.
 - 1. Manufacturer shall demonstrate that all components are manufactured directly by the manufacturers within the manufactured own plant.
 - 2. Manufacturer shall demonstrate that no parts, subassemblies, components or systems are remanufactured, reconditioned, or used.
 - 3. Manufacturer shall have within his direct employment experienced and properly equipped installation and erection crews.
 - 4. Manufacturer shall have within his direct employ experienced and properly equipped engineering, drafting, and project management departments.
 - 5. Manufacturer shall coordinate with the each Contractor, Architect and Owner as needed to control noise through the shielding enclosure, including flanking paths, HVAC ducts, waveguides, RF/MAGNETIC room doors, junctions between the RF/MAGNETIC room and parent wall, including doors and windows, to meet the shielding requirements indicated on the Construction Drawings and the RE Shielding Drawings.
- B. Use of Dissimilar Metals:
 - 1. Use of the following materials in manufacture and installation of shielded enclosure shall not be permitted.

- a. Dissimilar metals that exhibit an anodic voltage differential greater than 0.25 volts.
 - b. Copper or aluminum in direct contact with bare concrete.
 - c. Zinc plated RF/MAGNETIC framing in direct contact with copper RF/MAGNETIC medium.
 - d. Copper plated steel or brass RF/MAGNETIC framing in direct contact with galvanized steel.
2. Use of bronze or brass flame spray treatment of steel or aluminum RF/MAGNETIC contact surfaces in manufacturer and installation of shielded enclosure shall be permitted.
 3. RF/MAGNETIC shielding medium shall display an anodic voltage differential index of less than 0.04 volts and a cathodic group number of (0.00 volts) to 9 (0.40 volts).
 4. Construct shielding system with proper materials so that ionic conduction across joints and RF/MAGNETIC seams shall be less than 0.10 volts.

1.3 SUBMITTALS

- A. Shop Drawings: Submit shop drawings to show plans, sections, and details for clear communication of the preparation and finishing requirements for all construction elements immediately adjacent or connecting to the shielding system. Include details for attaching or connecting items to shielding or its penetrations. Clearly indicate materials and labor to be provided by others.
- B. Performance Test Report: A copy of all test reports must be provided to the COR. Report must show date and time of test, personnel present, specific test methodology, equipment and calibration data, measurements taken, and results obtained. Include test reports for:
 1. Qualification Test.
 2. Acceptance Test.
 3. Ground Isolation Monitoring Test.
- C. Maintenance: Submit maintenance procedures and materials to the COR at the time the installation is complete. An initial supply of maintenance materials and parts, sufficient for the first year of operation, will be provided.

1.4 WARRANTY

- A. Enclosure shall be guaranteed, in writing, by the manufacturer against defective materials and workmanship and to retain the specified shielding characteristics for periods as follows:
 1. Basic Enclosure: Five (5) years.

2. EMI Electrical Filters, RF/MAGNETIC Shielded Doors, RF/MAGNETIC Shielded Windows, Pipe Penetrations, and Air Vent RF/MAGNETIC Filters: Two (2) years.

PART 2 - PRODUCTS

2.2 MATERIALS

A. Shielding Material: Annealed pure copper with a conductivity rating of 1 or greater. RF/MAGNETIC seam and joint construction methods shall provide the maximum in shield conductivity, low impedance, RF/MAGNETIC attenuation, and reduction of eddy current generation.

B. Primary Enclosure: Vertical walls and ceilings shall be made integral with RF floor system.

1. Panels: Wall and ceiling shielded panels shall be laminated panels on wood frame construction. Panels shall be assembled of fire treated plywood wrapped on three sides with minimum 3 oz. pure copper and assembled to framing in accordance with RF/MAGNETIC shielding manufacturers standard procedures to provide shielding to meet Project requirements.
Construct each individual RF/MAGNETIC frame with wood plates and high strength adhesives. Include cross bracing and rigid backing construction as standard with manufacturer.
2. Ceiling construction to support the RF shielding ceiling panels shall be the responsibility of the shielding manufacturer.
 - (1) Floor Shielding: Provide a 6 mil polyethylene vapor barrier over structural floor before shielding floor is assembled. Assemble one layer of 1/8 inch thick hardboard, one (1) layer of minimum 3 ounce copper, and one (1) layer of plywood or hardboard. Provide clamping systems or soldering as required to maintain the integrity of the RF shield.
- 3 Mechanically Fastened Shielded Assembly: Mechanically fasten RF/MAGNETIC panels together to provide continuous, constant and uniform RF/MAGNETIC seams providing attenuation of electromagnetic energy to the level required by the installed MRI system.
Materials and methods employed to clamp individual RF/MAGNETIC panels into enclosure and constituting the RF/MAGNETIC seams or joints shall be in accordance with RF/MAGNETIC shielding manufacturer's standard procedures.
- 4 **Soldered Shielded Assembly:** Wall and ceiling shielding materials shall be laminated panels of 10 oz. copper sheet and 1/2 inch plywood, continuously soldered together.

Floor shielding assembly shall consist of a layer of 6 mil polyethylene vapor barrier, a layer of 3/4 inch plywood, a layer of 10 oz. copper sheet continuously soldered together and a layer of 1/2 inch plywood with a finished side facing up.

C. View Window: Factory assembled unit complete with frame, RF/MAGNETIC screen assembly, glass and glass stops.

- Frame: Window frame of extruded aluminum, engineered to affix RF/MAGNETIC attenuating screens and provide a means of securing double-sided glazing. All corners are to be mitered, fully welded, and ground smooth. Provide a RF/MAGNETIC seal design that will maintain a shielding effectiveness equal to that of the shielded enclosure.
- Screen: RF/MAGNETIC screen assembly shall consist of 2 layers of Type 304 stainless steel, finished black, assembled in layers in a horizontal orientation to each other so that resultant distortion of viewed image thru RF/MAGNETIC shielded window approaches zero. Window units that required the removal of interior finish for access to the screen are not acceptable.
- Glazing: Laminated glass lites installed on either side of the RF/MAGNETIC screen assembly.

D. Door and Frame Assembly: Factory assembled units consisting of door leaves, door frame, and seal assembly to maintain the shielding effectiveness equal to that of the shielded enclosure.

1. Frame: Hollow metal construction as specified for interior door frames. All corners are to be fully welded and ground smooth. Frame shall be RF/MAGNETIC shielding manufacturer's standard assembly as fabricated and installed to maintain the shielding effectiveness of the enclosure.
2. Door Leaf: Door material and construction as standard with RF/MAGNETIC shielding manufacturer's requirements, finished in plastic laminate surfacing material to match other doors indicated in Door Schedule.
3. Door Hardware: Minimum 4-1/2 inch fully mortised hinges, three hinges per leaf, latch handles and trim as standard with RF/MAGNETIC enclosure manufacturer. Hardware items and finish of hardware shall be as acceptable to Architect. Mortise lock cylinder shall be for coordinated with building keying system ..
4. Door and Frame assembly shall maintain a minimum STC rating of 35.

E. Pneumatic Door and Frame Assembly: Door system shall be visually similar to standard, hospital grade, interior doors and shall utilize conventional hospital quality hardware.

1. RF/MAGNETIC Performance: Provide a proven RF/MAGNETIC seal design that is easily maintained and serviced. The RF/MAGNETIC door leaf, frame and seal assembly shall maintain a shielding effectiveness equal to that the shielded enclosure and a minimum STC rating of 42.
2. The RF/MAGNETIC door system shall have a demonstrated life cycle test rating of at least 10,000 operational cycles without loss of specified RF/MAGNETIC attenuation. Door system shall demonstrate a life cycle test rating of 50,000 cycles with planned maintenance without loss of specified RF/MAGNETIC attenuation.
3. The RF/MAGNETIC sealing mechanism shall consist of continuous monolithic strip running the full length of each edge of the RF/MAGNETIC door leaf. No spring type RF/MAGNETIC contact fingers, or flaps, or woven expansion bladders shall be employed. Each monolithic strip shall automatically retract entirely into the door leaf edge presenting a smooth unbroken surface upon opening the door. The door shall be automatically activated to a RF sealed condition when placed in the closed position by an electronic photocell detector.
4. Door operation shall be fail-safe. Upon loss of either electrical or pneumatic power the door will revert to an unsealed condition.
5. The door shall have optional remote activation/deactivation capabilities.
6. The use of beryllium/copper or other spring contact fingers that contain beryllium alloy is expressly forbidden due to the carcinogenic nature of beryllium alloy.
7. Latch Handles and Trim: Satin chrome finish, US26SD.
8. Door Latch: Adjustable integral roller cam latching mechanism, incapable of being mechanically disabled in closed position. Door latching mechanisms containing ferromagnetic parts of items on either inside or outside of door are forbidden.
9. Door Lead Hinges: Minimum 4-1/2 inch brass or stainless steel, fully mortised, with minimum of two ball-bearing swing joints per hinge. Provide minimum of three hinges per leaf.
10. RF/MAGNETIC Door Finish: Plastic laminate, as selected by COR.
11. Provide a RF/MAGNETIC door interlock switch.
12. Provide a low noise, reciprocating piston, 120vAc electric air

compressor capable of 120-psi output pressure with on-board receiver tank. Provide coalescent air filter and automatic drain system for condensate water.

F. Accessories: The following accessories shall be provided as integral parts of the shielding system:

1. Electrical Penetrations: Provide RF/MAGNETIC filters on all incoming electrical lines. A filter shall be provided for each electrical conductor, including neutrals. Mounting method shall not degrade the attenuation of the enclosure. Coordinate quantities and locations of filters with electrical requirements and shop drawings. General requirements include:
 - a. 2 pair - 20A 120V power line for lighting circuits.
 - b. 1 pair - 20A 120V power line for a convenience outlet.
 - c. 1 pair - 5A 24V signal filter for oxygen sensing unit.
 - d. 1 pair - low voltage signal filter for smoke detector.
2. HVAC Penetrations: HVAC wave guide vents shall be brass construction with an aluminum extension of sufficient length to extend through the parent room wall. Connection to the tail shall be made via a canvas or PVC connector so as not to defeat the single point grounding requirements. The ductwork to be installed inside of the enclosure shall be connected directly to the wave guide vent. Frame the rough openings 3/4" larger in both dimensions than the scheduled sizes.
3. Other Penetrations: Other penetrations such as cryogen vents shall be provided with a wave guide per the requirements of the Imaging Equipment Manufacturer. Also, provide wave guides for a sprinkler system and medical gases as required in an approved manner.
4. Provide appropriate isolating sealant, gaskets, or insulating assemblies between the general trades construction and components of the RF/MAGNETIC enclosure, and all required penetrations through it, to provide for good sound and vibration control from the MRI Room to the adjacent occupied spaces.

2.3 PERFORMANCE

- A. RF/MAGNETIC shielded enclosure shall be designed and installed to provide an highly conductive medium (material conductivity of 1 or greater) that will attenuate externally generated electromagnetic energy to a level acceptable for proper operation of the installed MRI Imaging System.
- B. Construct installed enclosure so that, without connections to

earthing terminal, ohmic value of enclosure relative to earth ground shall be equal to or greater than 1000 ohms.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify on-site conditions affecting the work of this Section. Coordinate any discrepancies with the COR and MRI equipment vendor.
- B. Start of shielding installation indicates that site conditions are acceptable to the shielding contractor.

3.2 INSTALLATION

- A. All materials shall to be installed by the manufacturer of the shielding enclosure. Installation shall proceed after structural surface are ready to receive shielding materials in accordance with shielding manufacturers shop drawings and details on Drawings.
- B. All materials shall be installed in a workmanlike manner, consistent with industry construction standards and in accordance with requirements of the MRI equipment vendor.
- C. Shielding contractor, before leaving the job site at the end of the installation, shall review with the Contractor the proper procedures and details to be followed by other subcontractor in finishing the MRI Room.
- D. If the MRI Magnet is not delivered while the shielding contractor is on site, an employee of the shielding contractor must return to open and reseal the magnet access panel when magnet delivery occurs.

3.3 FIELD QUALITY CONTROL

- A. Testing to show compliance with the specified performance. A minimum of two (2) tests are required, the first to conduct initial diagnostic test to determine the present benchmark performance of the existing RF/Magnetic shielding; and a second (final) diagnostic test to confirm the new RF/Magnetic shield meets or exceeds the benchmark diagnostic test.

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