CLINIC AND OUTPATIENT PHARMACY
FLOW AND FINISHES STUDY

Department of Veterans Affairs
Building 100, Seattle, WA
VA Puget Sound Health Care System
Project No. 663-14-122

Project Manual – Construction Documents

June 2015

KMB Project # D1443

design groups, inc. p.s.
Project Manual
for
CLINIC AND OUTPATIENT PHARMACY
FLOW AND FINISHES STUDY

Department of Veterans Affairs
VA Puget Sound Health Care System
1660 South Columbia Way
Seattle, Washington 98108

Project No. 663-14-122

Owner:
US Department of Veterans Affairs
Network Contracting Office 20
8524 N Wall Street
Spokane, Washington 99208
Contact: Tanna Finley
Site Contact: Scott Buffington

Prepared by:
KMB design groups, inc. p.s.
828-7th Avenue SE
Olympia, Washington 98501
360.352.8883
Fax 360.352.8853
Principal: Ed Schilter, AIA
Project Manager: Craig McClelland, AIA, LEED AP

Approved By:

Tanna Finley
US Department of Veterans Affairs

Scott Buffington
VA Puget Sound Health Care System
**SECTION 00 01 10**  
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>DIVISION</th>
<th>00 01 15</th>
<th>List of Drawing Sheets</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIVISION</td>
<td>01 00 00</td>
<td>General Requirements</td>
<td>33</td>
</tr>
<tr>
<td>01 00 00</td>
<td></td>
<td>General Requirements</td>
<td>33</td>
</tr>
<tr>
<td>01 33 23</td>
<td></td>
<td>Shop Drawings, Product Data, and Samples</td>
<td>3</td>
</tr>
<tr>
<td>01 35 26</td>
<td></td>
<td>Safety Requirements</td>
<td>27</td>
</tr>
<tr>
<td>01 35 33</td>
<td></td>
<td>Dust And Infection Control</td>
<td>7</td>
</tr>
<tr>
<td>01 42 19</td>
<td></td>
<td>Reference Standards</td>
<td>4</td>
</tr>
<tr>
<td>01 57 19</td>
<td></td>
<td>Temporary Environmental Controls</td>
<td>4</td>
</tr>
<tr>
<td>01 74 19</td>
<td></td>
<td>Construction Waste Management</td>
<td>5</td>
</tr>
<tr>
<td>DIVISION</td>
<td>02 41 00</td>
<td>Demolition</td>
<td>3</td>
</tr>
<tr>
<td>02 41 00</td>
<td></td>
<td>Limited Hazardous Materials Survey Summary, April 16, 2015</td>
<td>8</td>
</tr>
<tr>
<td>DIVISIONS</td>
<td>03 AND 04</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>05 50 00</td>
<td></td>
<td>Metal Fabrications</td>
<td>5</td>
</tr>
<tr>
<td>DIVISION</td>
<td>06 20 00</td>
<td>Finish Carpentry</td>
<td>8</td>
</tr>
<tr>
<td>06 20 00</td>
<td></td>
<td>Finish Carpentry</td>
<td>8</td>
</tr>
<tr>
<td>DIVISION</td>
<td>07 – THERMAL AND MOISTURE PROTECTION – Not Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08 14 00</td>
<td>Interior Wood Doors</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>08 80 00</td>
<td>Glazing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DIVISION</td>
<td>09 – FINISHES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09 06 00</td>
<td>Schedule for Finishes</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>09 65 13</td>
<td>Resilient Base And Accessories</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>09 65 16</td>
<td>Resilient Sheet Flooring</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>09 91 00</td>
<td>Painting</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DIVISIONS</td>
<td>10 AND 11</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>12 32 00</td>
<td>Manufactured Wood Casework</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>DIVISIONS</td>
<td>13 THROUGH 25 – Not Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIVISION 26 - ELECTRICAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 00 00 Electrical Design Build Requirements</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 01 00 Electrical General Requirements</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 04 00 Existing Systems</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 05 00 Basic Materials &amp; Methods</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 05 26 Grounding and Bonding</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 51 00 Interior Lighting</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIVISION 27 - COMMUNICATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>27 05 33 Raceways and Boxes for Communications Systems</td>
<td>2</td>
</tr>
<tr>
<td>27 10 00 Structured Cabling</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIVISION 28 THROUGH DIVISION 48 – Not Used</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SECTION 00 01 15
### LIST OF DRAWING SHEETS

The drawings listed below accompanying this specification form a part of the contract.

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI001</td>
<td>COVER SHEET</td>
</tr>
<tr>
<td>AS101</td>
<td>DERMATOLOGY WAITING ROOM FLOOR PLAN</td>
</tr>
<tr>
<td>AD102</td>
<td>WEST CLINIC AND EYE CLINIC DEMO PLAN</td>
</tr>
<tr>
<td>AS102</td>
<td>WEST CLINIC AND EYE CLINIC FLOOR PLAN</td>
</tr>
<tr>
<td>AS103</td>
<td>PHARMACY WAITING FLOOR PLAN</td>
</tr>
<tr>
<td>AD104</td>
<td>EAST CLINIC WAITING ROOM DEMO PLAN</td>
</tr>
<tr>
<td>AS104</td>
<td>EAST CLINIC WAITING ROOM FLOOR PLAN</td>
</tr>
<tr>
<td>AS721</td>
<td>DERMATOLOGY WAITING ROOM INTERIOR ELEVATIONS</td>
</tr>
<tr>
<td>AS722</td>
<td>WAITING ROOM INTERIOR ELEVATIONS</td>
</tr>
<tr>
<td>AS723</td>
<td>EAST CLINIC WAITING ROOM INTERIOR ELEVATIONS</td>
</tr>
<tr>
<td>AS900</td>
<td>WAITING ROOM DETAILS AND SCHEDULES</td>
</tr>
<tr>
<td>AS901</td>
<td>CASEWORK INTERIOR ELEVATIONS</td>
</tr>
<tr>
<td>AS902</td>
<td>CASEWORK INTERIOR ELEVATIONS</td>
</tr>
<tr>
<td>AS903</td>
<td>WAITING ROOM DETAILS AND SCHEDULES</td>
</tr>
</tbody>
</table>

--- END ---
### SECTION 01 00 00
#### GENERAL REQUIREMENTS

#### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 SAFETY REQUIREMENTS</td>
<td>3</td>
</tr>
<tr>
<td>1.2 GENERAL INTENTION</td>
<td>3</td>
</tr>
<tr>
<td>1.3 STATEMENT OF BID ITEM(S)</td>
<td>8</td>
</tr>
<tr>
<td>1.4 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR</td>
<td>8</td>
</tr>
<tr>
<td>1.5 CONSTRUCTION SECURITY REQUIREMENTS</td>
<td>8</td>
</tr>
<tr>
<td>1.6 OPERATIONS AND STORAGE AREAS</td>
<td>11</td>
</tr>
<tr>
<td>1.7 ALTERATIONS</td>
<td>17</td>
</tr>
<tr>
<td>1.8 DISPOSAL AND RETENTION</td>
<td>19</td>
</tr>
<tr>
<td>1.9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS</td>
<td>20</td>
</tr>
<tr>
<td>1.10 RESTORATION</td>
<td>22</td>
</tr>
<tr>
<td>1.11 PHYSICAL DATA</td>
<td>22</td>
</tr>
<tr>
<td>1.12 NOT USED - PROFESSIONAL SURVEYING SERVICES</td>
<td>23</td>
</tr>
<tr>
<td>1.13 LAYOUT OF WORK</td>
<td>23</td>
</tr>
<tr>
<td>1.14 AS-BUILT DRAWINGS</td>
<td>23</td>
</tr>
<tr>
<td>1.15 USE OF ROADWAYS, PARKING LOTS, AND GROUNDS</td>
<td>24</td>
</tr>
<tr>
<td>1.16 NOT USED - RESIDENT ENGINEER'S FIELD OFFICE</td>
<td>24</td>
</tr>
<tr>
<td>1.17 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT</td>
<td>24</td>
</tr>
<tr>
<td>1.18 TEMPORARY USE OF EXISTING ELEVATORS</td>
<td>25</td>
</tr>
<tr>
<td>1.19 NOT USED - TEMPORARY USE OF NEW ELEVATORS</td>
<td>26</td>
</tr>
<tr>
<td>1.20 TEMPORARY TOILETS</td>
<td>26</td>
</tr>
<tr>
<td>1.21 AVAILABILITY AND USE OF UTILITY SERVICES</td>
<td>26</td>
</tr>
<tr>
<td>1.22 NEW TELEPHONE EQUIPMENT</td>
<td>27</td>
</tr>
</tbody>
</table>
1.23 TESTS ................................................................................................................................................... 27
1.24 INSTRUCTIONS .................................................................................................................................... 27
1.25 GOVERNMENT-FURNISHED PROPERTY ............................................................................................... 28
1.26 RELOCATED EQUIPMENT ITEMS ......................................................................................................... 29
1.27 STORAGE SPACE FOR DEPARTMENT OF VETERANS AFFAIRS EQUIPMENT ........................................ 30
1.28 CONSTRUCTION SIGN (>2M PROJECTS) ............................................................................................ 30
1.29 SAFETY SIGN ........................................................................................................................................ 31
1.30 PHOTOGRAPHIC DOCUMENTATION ................................................................................................. 31
1.31 NOT USED - FINAL ELEVATION DIGITAL IMAGES .............................................................................. 32
1.32 HISTORIC PRESERVATION .................................................................................................................... 32
1.33 EQUIPMENT ........................................................................................................................................ 32
1.34 FINAL PAYMENT .................................................................................................................................. 32
1.35 WARRANTY CALLS ............................................................................................................................... 32
1.36 INTERIM LIFE SAFETY MEASURE ....................................................................................................... 32
1.1 SAFETY REQUIREMENTS

A. Refer to section 01 35 26, SAFETY REQUIREMENTS for safety and infection control requirements.

1.2 GENERAL INTENTION

A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish all necessary tools, equipment, labor, materials, temporary equipment and items, tools, specialty services, supervision, and perform all work for construction of the waiting room remodels at the Seattle campus of the VA Puget Sound Health Care System. Provide all structural, architectural, mechanical, and electrical work. All work shall be performed per contract drawings and specifications.

B. It is strongly recommended that visits to the site be made prior to bid to verify existing conditions. Refer to Division 0, SPECIAL SECTIONS, for the scheduled pre-bid walk-thru. Visits to the site by Bidders may be made only by appointment with the Facilities Management Office. Please call the following: Scott Buffington, 206-277-3121. All bids will take into consideration of existing site conditions; it is the responsibility of the contractor to review the entire job site footprint and existing site conditions prior to bid submission. All proposals shall include a detailed cost breakdown (materials, labor, and equipment) by trade, specification division and section; lump sum costs are not acceptable.

C. Offices of KMB design groups, inc, as Architect-Engineers (A/E), will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.

D. Normal Operation / Construction Hours: Construction operations at the VA Puget Sound Health Care System are 7:30 AM to 4:30 PM, Monday through Friday, with the exception of Federal Holidays. Requests to work beyond normal work hours shall be submitted in writing to the Project Engineer for approval and will include a description of work to be performed. Approval is subject to availability of the Project Engineer, type of work to be performed, and the specific hours requested. Contractors are reminded that patients are generally asleep after 10:00 PM. Approval to work beyond this time will also include an evaluation of the anticipated noise level generated by the contractor. Under no circumstances will the contractor proceed without express written approval of the Project Engineer.

E. Before placement and installation of work subject to tests by testing laboratory or other parties retained by Department of Veterans Affairs or the Contractor, the Contractor shall notify the Project Engineer in sufficient time to enable testing laboratory and VA personnel to be present at the site to observe proper taking and testing of specimens and field inspection. Such prior notice shall be not less than three work days unless otherwise designated by the Project Engineer.

F. VA Green Environmental Management System (GEMS) Training: Prior to commencing work, the Contractor Superintendent shall complete the following GEMS Awareness Training and submit the
Project #/Name: __________________________
COTR Name: __________________________

VA Puget Sound Health Care System
Green Environmental Management System
Awareness Training

VA Puget Sound GEMS Coordinator is: Chelsea Branchcomb (253) 583-3511

Purpose of the GEMS Program: Combine all aspects of environmental management into a centralized program to promote: Pollution Prevention, Regulatory Compliance. Continuous Environmental Improvement and integrate healthy environmental practices into VA Puget Sound Healthcare System.

- Executive Order (EO) 13148, entitled ‘Greening the Government through Leadership in Environmental Management’ – Use reduction, Release reduction, Pollution Prevention, compliance, environmental Management, etc.

The primary functions of the GEMS program are to...
1) Maintain regulatory compliance
2) Manage pollution prevention
3) Strive for continual environmental improvement
4) Provide Environmental Guidance to all VA Puget Sound Services

Potential harmful effects of our everyday activities may include:
- Unplanned spills of hazardous materials
- Financial penalty for non-compliance
- Contamination of surface/runoff water
- Toxic effects of chemicals to the environment.
- Excessive use of water resources
- Negative effects of poor chemical management
- Creation of additional waste to landfills

Waste Reduction

Contractors must complete and fill out the attached Record of Materials Recycled and Reused and turn into the COTR or project engineer at the completion of the contract or when requested. Recyclable materials:

- Confidential White Paper
- Cardboard
- Ink & Toner
- Scrap Metal
- Oil
- Batteries
- Glass
- Cement fiber products
- Carpet and pad
- Insulation
- Wallboard
- Wood
- Asphalt
- Concrete
- Fluorescent Lamps
- Pallets/Wood
- Grease
- Reusable fixtures and accessories
Mercury, Batteries and Lamps – Universal Waste
Recycle all batteries and lamps including: alkaline, lead acid, Ni-Cad, lithium, etc. Provide all bill of lading or manifests to the COTR or project engineer if Universal Waste is disposed of as part of this contract. **Mercury Reduction.** It is the policy of the VA to use alternate non-mercury products and be “virtually mercury free.”

**Hazardous Waste**
Any items that are hazardous waste must be handled and disposed of properly in accordance with federal and state regulations. **If any hazardous waste is generated,** ensure COTR or project engineer is aware and contacted the GEMS Coordinator to discuss accumulation limits, storage areas, etc. **All hazardous waste manifests must be signed by the GEMS Coordinator (except asbestos disposal manifests).**

- Most items with an SDS meet WA State toxicity levels
- Used oil, hydraulic fuel, diesel fuel, jet fuel
- Contaminated soil
- Epoxies, adhesives, etc
- Waste paints, varnishes, solvents, sealers
- Spill or clean-up material used on above items
- Concentrated lead based paint
- Asbestos (Toxic Substance) ➔ GEMS Coordinator does not need to sign

**Spill Prevention Control and Countermeasure Plan.** Contractors may choose to use the facility’s SPCC Plan, but must also provide a basic amendment specific to the project. Storage of hazardous materials and fuels must be in weather protected areas, preferably in a berm or spill protected areas, and be accessible only to authorized personnel.

**Air Emissions.** No visible air emissions allowed in accordance with Puget Sound Clean Air Agency regulations; provide basic dust control plan to project engineer. Any work on refrigerators, air conditioners, chillers or other sources of ozone depleting substances must be reviewed by the GEMS Coordinator. Asbestos notifications with PSCAA are required when applicable.

**Storm Water.** Contractors must abide by all Clean Water Act and storm water requirements. Follow Western Washington Storm water Manual or stricter best management plans. Provide BMPs to COTR to project engineer. If construction permit is required, provide all documentation and Storm Water Pollution Prevention Plan to project engineer.
Federal Green Purchasing Program. It is VA policy that at least 95% (or the maximum extent practical) of new contract actions for products and services (including construction) are energy efficient, water efficient, bio-based, and/or environmentally preferable. Products acquired will be non-ozone depleting, contain recycled content, or are non-toxic or less-toxic, where such products and services meet agency performance requirements. Green products compilation: [http://www.gsa.gov/portal/content/198257](http://www.gsa.gov/portal/content/198257).

- **Recycled Content Products**  
The EPA recommends recycled content levels that you should use when purchasing CPG items. [www.epa.gov/cpg](http://www.epa.gov/cpg)

- **Environmentally Preferred products (EPP)**  
These products are alternatives to products that contain hazardous materials such as green cleaning products or mercury-free thermometers. [www.epa.gov/epp](http://www.epa.gov/epp)

- **Non Ozone Depleting Substances (ODSs)**  
EPA identifies alternatives to ODSs through its Significant New Alternatives Policy (SNAP) program and provides recommendations for specific products, such as refrigerants and fire extinguishers.  

- **Alternative Fuel vehicles**  
The Energy Policy Act (EPACT) of 2005 & EO 13423 mandated that 75% of Light Duty Vehicles in U.S. Metropolitan areas be alternative fuel vehicles (AFVs). Agencies then receive a credit for AFVs. As part of EO 13423 agencies are required to reduce petroleum usage by 2% annually.

- **BioBased Products**  
The Farm Security and Rural Investment Act of 2002 requires the purchase of biobased products designated by the USDA. [www.biopreferred.gov](http://www.biopreferred.gov)

- **Energy Star ® & energy Efficient products**  

I have read and acknowledged VA Puget Sound Health Care System GEMS Awareness Training.

Project Manager/Superintendent Name: ________________________________

Project Manager/Superintendent Signature: _____________________________

Company: __________________________ Date: __________________________
Record of Construction Debris Material Reused/Recycled

In accordance with the Federal Pollution Prevention Act (source reduction, recycling, treatment, and environmentally safe disposal to the environment), Resource Conservation and Recovery Act (cradle to grave management of hazardous waste and Federal procurement of recycled products), and Federal Facilities Compliance Act (subjects Federal facilities to Federal, State, and local waste management and disposal laws and regulations) contractors and project managers are required to monitor waste(s) taken from a project, and certify proper disposal. If recycle or reuse of a waste product (doors, light fixtures, etc.) is possible, reasonable effort should be made to reuse or recycle the product. At the conclusion of the project, this form shall be reviewed and signed by the Project COTR with a copy given to the GEMS Coordinator for their records.

This report is for Month: ________ Year: ________

<table>
<thead>
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<th>Material being reused/recycled</th>
<th>Reused or Recycled?</th>
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<th>Receiving Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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Project Manager/Superintendent Name: __________________________ Signature: __________________________

Project COTR’s Name: __________________________ Signature: __________________________  PAGE _____ OF _____
1.3 STATEMENT OF BID ITEM(S)

A. ITEM I, //GENERAL CONSTRUCTION:// See subject solicitation for Statement of Bid Items. Work includes general construction, alteration of finishes and new casework, work includes necessary removal of existing structures and construction and certain other items of work required by the drawings and specifications. Work also includes all labor, material, equipment and supervision to perform the required electrical construction work on this project including demolition of existing electrical items and installation of new casework including new outlets, data and lights. All work is to be completed in **120** calendar days.

1.4 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

A. Drawings, specifications, and contract documents may be obtained from the website where the solicitation is posted. Copies will be at Contractor’s expense.

1.5 CONSTRUCTION SECURITY REQUIREMENTS

A. Security Plan:

1. Physical security of the construction site and installations will meet requirements from the VA document ‘Physical Security Design Manual for VA Life-Safety Protected Facilities’.

2. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.

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

4. The General Contractor shall furnish to the Project Engineer lists of employees that will be or may be on the construction site(s). The List shall be on Company letter head that provides all of the company contact information, shall provide the project number and title, locations of work, names of the employees, their titles, their job types, and personal contact numbers (i.e. cell phone). All sub-contractors, vendors and suppliers for the project shall furnish the same listing on their individual company letter heads to the GC whom will provide the lists to the Project Engineer. These lists shall be updated as necessary during the entire duration of the project. These lists may be used to provide a check list record of personnel on-site each day to be provided with the contractors Daily Log reports. These lists may be used to provide a check list record of personnel on-site each day to be provided to the VA Police Department and their Dispatch Office where normal sign in and sign out occurs.

B. Security Procedures:

1. Contractor shall be required to obtain identification badges for employees working on the job site. IDs will be obtained by filling out VA Form 711, OF 306, and OF 612 and returning them to the Contracting Officer for completion. These forms will then be forwarded for abbreviated background investigations, and then an appointment will be scheduled for each employee for fingerprinting and photos for the temporary ID badge. Contractor must account for return of all issued badges at the end of construction.
2. 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.

3. For working outside the “regular hours” as defined in the contract, The General Contractor shall give 3 days’ notice to the Contracting Officer Project Engineer so that security and or escort arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown or access closure described later in this section.

4. No photography of VA premises is allowed without written permission of the Contracting Officer. Photography may never include VA patients or personnel.

5. 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 Project 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 lock cylinders with associated parts and instructions to the VA Project Engineer and locksmith for permanent installation. See Section 08 71 00, DOOR HARDWARE and coordinate.

3. Contractor may be issued keys and/or keycard for construction through the Project Engineer.

4. All keys and/or keycard must be turned in at the end of Contract.

5. Any key assigned to the contractor, which is lost or stolen will result in a replacement cost of $100.00 per key and/or keycard either lost or stolen. Any key either lost or stolen shall be reported to the Project Engineer; it is the contractor’s responsibility to inform VA Police and give a detailed report about the key loss. The contractor shall take a copy of the official police report and make payment to the Agent Cashier before any additional replacement keys are made. Final payment may be withheld and/or reduced until all keys are returned or accounted for. A copy of the Police Report and receipt of payment shall be provided to the VA Project Engineer.

D. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of “sensitive information”.

2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This information shall be shared only with those with a specific need to accomplish the project.
3. Certain documents, sketches, videos or photographs and drawings may be marked “Law Enforcement Sensitive” or “Sensitive Unclassified”. Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the Contracting Officer upon request.

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

5. All paper waste or electronic media such as CD’s and diskettes shall be shredded and destroyed in a manner acceptable to the VA.

6. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of “sensitive information”.

7. All electronic information shall be stored in specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
   a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
   b. “Sensitive information” including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.

E. Motor Vehicle Restrictions

1. Loading Dock access shall be restricted to picking up and dropping off materials and supplies.

2. Contractors are prohibited from parking in patient/visitor and employee parking areas. Parking in the Loading Dock is never permitted unless contractor has received prior written approval from Project Engineer. Parking, if available, shall be in designated locations on 6th floor of parking garage only. Violators will be ticketed.

F. Temporary Construction Partitions:

1. Install and maintain temporary construction partitions to provide smoke-tight separations between, construction areas, the areas that are described in phasing requirements, and adjoining areas. Construct partitions of gypsum board (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.

2. When Construction circumstances permit contractors may use poly barriers; double 6-mil poly extending through suspended ceiling to Floor Slab deck of roof, in lieu of hard barriers. Use of Poly Barriers must be approved by Project Engineer prior to installation.

3. Install one-hour and/or two-hour fire-rated temporary construction partitions as shown on drawings and/or as indicated in the specification sections to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.
4. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration fire stop materials in accordance with Section 07 84 00, FIRESTOPPING.

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

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

I. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily, report findings and corrective actions weekly to the Project Engineer.

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


L. Standpipes: Install and extend standpipes up with each floor in accordance with 29 CFR 1926 and NFPA 241. Do not charge wet standpipes subject to freezing until weather protected.

M. Sprinklers: Install, test and activate new automatic sprinklers prior to removing existing sprinklers.

N. Smoke Detectors: Prevent accidental operation. Replace all smoke detection devices in the construction area with heat detection devices for the duration of the project. Coordinate with Project Engineer and CO to insure compliance with VA SOP & HPM’s. Prior to final project inspection, smoke detectors shall be reinstalled. In lieu of replacement of smoke detectors, contractor may provide covers for smoke detectors to be installed for duration of workday and removed at the end of work operations each day. Use of temporary covers for smoke detectors must be approved by Project Engineer prior to installation and use.

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 Project Engineer and the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Project Engineer and the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Project Engineer and the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

C. The Contractor shall, under regulations prescribed by the Project Engineer and the Contracting Officer, use only established roadways, or use temporary roadways constructed by the
Contractor when and as authorized by the Project Engineer and 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, sidewalks, or landscaped areas the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, landscaped areas, or roads.

(FAR 52.236-10)

D. Working space and space available for storing materials shall be as determined by the Project Engineer. The Contractor shall keep ALL work areas, storage areas, staging areas, and access areas and routes clean and neat. The Contractor shall provide sufficient trash containers so there is no debris lying around. The containers shall be emptied at least daily and trash disposed of by the contractor. See section 1.5.R for disposal hours.

E. Workmen are subject to rules of the Medical Center applicable to their conduct.

F. Execute work in such a manner as to interfere as little as possible with work being done by others. Keep roads clear of construction materials, debris, standing construction equipment and vehicles at all times.

G. Execute work so as to interfere as little as possible with normal functioning of the 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 Project Engineer where required by limited working space.

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

2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two (2) work days. Provide unobstructed access to the Medical Center areas required to remain in operation.

3. 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. Immediate areas of alterations will be temporarily vacated while alterations are performed.

4. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.

H. Utilities Services:

1. Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems (except telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication,
where directed by Project Engineer. All such actions shall be coordinated with the VA or Utility Company involved:

2. 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.

I. Phasing:

1. The Medical Center must maintain its operation 24 hours a day 7 days a week. Therefore, any interruption in service must be scheduled and coordinated with the Project Engineer to ensure that no lapses in operation occur. It is the CONTRACTOR’s responsibility to develop a work plan and schedule detailing, at a minimum, the procedures to be employed, the equipment and materials to be used, the interim life safety measure to be used during the work, and a schedule defining the duration of the work with milestone subtasks.

2. To ensure such executions, Contractor shall furnish the Project Engineer with a schedule of approximate phasing dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof.

3. In addition, Contractor shall notify the Project Engineer two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such phasing dates to insure accomplishment of this work in successive phases mutually agreeable to the Medical Center Director, Project Engineer and Contractor.

4. The contractor is to submit his phasing schedule in writing to the Contracting Officer for review and approval no later than two weeks after issuance of the Notice to Proceed. This includes utility outages and access closures.

5. All work, such as corridor work, which is outside the main construction area, shall be done on evenings or weekends, so as not to disrupt the normal operations.

6. All renovation activities will take place at a busy Medical Center. The contractor shall not interfere with existing, on-going functions, or normal activity of the hospital. The contractor will provide walk-off mats for dust control, appropriate construction barriers, and keep noise & vibration to a minimum during normal business hours. Certain portions of the work will be confined to evenings, and/or weekends, as identified on the drawings.

7. No work shall start until the preconstruction survey and inspection is completed.

8. The Contractor shall provide a detailed asbestos abatement schedule, if required by the project scope.

9. Any utility service, parking lot, roadway, loading dock, and/or Grounds interruptions requests shall be submitted in writing two weeks in advance of the planned utility interruption/access closure.

10. Set up phasing by buildings, wings, floors, or areas in accordance with information received from the Medical Center through the Project Engineer and the Contracting Officer.
J. Vacated Buildings: Building(s) will be vacated by Government in accordance with above phasing beginning immediately after date of receipt of Notice to Proceed and turned over to Contractor.

K. Occupied Buildings: Building(s) will be occupied during performance of work, but immediate areas of alterations will be vacated.

1. Certain areas of Building(s) will be occupied by Medical Center personnel for various periods. 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.

2. Immediate areas of alterations not mentioned in preceding Subparagraph 1 will be temporarily vacated while alterations are performed.

L. Construction Fence: Before construction operations begin, Contractor shall provide a chain link construction fence, 2.1 m (seven feet) minimum height, around the construction and/or contractor’ area indicated on the drawings. Provide gates as required for access with necessary hardware, including hasps and padlocks. Fasten fence fabric to terminal posts with tension bands and to line posts and top and bottom rails with tie wires spaced at maximum 15 inches. Bottom of fences shall extend to one inch above grade. Remove the fence when directed by Project Engineer. Fence shall be kept closed unless personnel or entering or exiting to prevent patients or staff from wandering into the area. Coordinate with project engineer as fenced enclosure may not be necessary for the scope of work.

M. Buildings and Systems: When a building and/or construction site is turned over to Contractor, the 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.

N. Utilities Services: Maintain existing utility services for the 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 a main branch or suitable places where shown; or, in absence of such indication, where directed by the Project Engineer.
1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior written approval of the Project Engineer. 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, 27 05 11 REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS, and 28 05 11, REQUIREMENTS FOR ELECTRONIC SAFETY AND SECURITY INSTALLATIONS for additional requirements.

2. Contractor shall submit a request to interrupt any such services to the Project Engineer, in writing, two weeks in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.

3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of the 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 two weeks prior to the desired time and shall be performed as directed by the Project Engineer.

5. In case of a contract construction emergency, service will be interrupted on approval of the Project Engineer. Such approval will be confirmed in writing as soon as practical. On the next business day, the contractor’s Daily Log report shall explain the circumstances causing the emergency and the corrective actions taken.

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.

O. 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 at the main, branch or panel they originate from. 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.

P. Roads, Parking Lots, Docks and Grounds: To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:

1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane must be open to traffic at all times.

2.
3. Interruptions of these areas must be requested, in writing, at least two weeks prior to the desired time and shall be performed as directed by the Project Engineer.

4. Interruptions will follow the same procedures as outlined in Article 1.6.N., Existing Utility Services.

Q. Coordination of Work: Coordinate the work for this contract with other construction operations as directed by the Project Engineer. This includes the scheduling of traffic and the use of roadways, as specified in ‘USE OF ROADWAYS, PARKING LOTS, AND GROUNDS’ article in this specification section.

R. Coordination of Construction with Medical Center: The activities at the Medical Center shall take precedence over construction activities. The Contractor must cooperate and coordinate with the Medical Center, through the Project Engineer, in arranging the construction schedule to cause the least possible interference with facility activities on the campus. All communication between the contractor and the medical center personnel must be done through the Project Engineer and/or CO. Contractors are not to disturb Medical Center Personnel during hours of operation. Construction noise during the events or services shall not disturb the events or service. Trucks and workmen shall not pass through the event or service area during this period:

1. The Contractor is required to discontinue his work sufficiently in advance of Easter Sunday, Mother's Day, Father's Day, Memorial Day, Veteran's Day and/or Federal holidays, to permit him to clean up all areas of operation adjacent to existing event or service areas before these dates.


3. Clean-up shall include the removal of all equipment, tools, materials and debris and leaving the areas in a clean, neat condition.

S. Reports:

1. Daily Logs: The Contractor shall furnish a daily report for each day from the date of Notice to Proceed until Final Acceptance, including those days that no work is performed. The report shall have attached there to a copy of inspections conducted by the VA, a list of all employees on site that day. This report will include or be in addition to daily inspections.

2. Payment Requests: Monthly payment requests from the contractor will not be processed unless all paperwork is current, including daily reports, asbestos reports, updated process schedules and certified payrolls for the prime and all subs.

4. Requests for Information: All RFI’s shall be submitted to the Project Engineer to ensure timely response. The Government will answer RFI’s within twenty-one (21) calendar days from acceptance from the contractor.

5. Submittals:
a. Submittal Log: The contractor shall utilize the specifications and drawings to prepare and provide a submittal log. The Submittal Log shall list all submittals by specification section, paragraph and drawing numbers from the beginning to the end of the documents. The Submittal Log shall be provided to the Project Engineer within ten (10) calendar days after receipt of Notice To Proceed. The Government may require additional submittals at its discretion at no additional cost.

b. The contractor shall have all submittals completed and turned in to the Government for review by the A/E firm no later than thirty (30) calendar days from the date of the signed Notice to Proceed. The government will return submittals within twenty-one (21) calendar days from acceptance from the contractor. NO WORK SHALL BE STARTED UNTIL ALL RELATED SUBMITTALS ARE APPROVED. All materials shall be approved by the Government prior to delivery to the job site and start of work.

T. Material Safety Data Sheets (MSDS's): Contractor shall provide one loose-leaf binder, permanently labeled “MSDS for Project Clinic and Outpatient Pharmacy flow and finishes study” with copies of each Material Safety Data Sheet for each product, chemical, and other required materials to be used on this project.

1. All instructions for use shall be compiled with.

2. Products will not be used until MSDS's are submitted to the Project Engineer. These shall be provided for any material no later than the day before those materials arrive on VA property.

3. The contractor shall maintain a current binder on the job site at all times, readily available for viewing by the Project Engineer, Contracting Officer, or Safety Officer.

4. At no time shall the Contractor have, or permit the sub-contractors to have, materials on VA property/station without MSDS.

U. Fire Retardant Materials: All materials used on this project, including temporary barriers, plywood, poly, and other required materials shall be fire retardant. All poly shall be 6 mil. minimum. The semi-permanent construction barriers shall be smoke tight.

1.7 ALTERATIONS

A. Survey: Before any work is started, the Contractor shall make a thorough survey with the Project Engineer of areas in which alterations occur and areas which are anticipated routes of access. The contractor shall furnish a report, signed by all three, which lists any deficiencies noted at that time. This report shall be approved by the VA prior to the start of any work. The inspection shall include a 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(s) and grounds.

2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, 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(s).

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, Project Engineer.

B. Relocated Items: Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of the Project Engineer, 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. Re-Survey: Thirty (30) calendar days before expected partial or final inspection date, the Contractor and Project Engineer together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:

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

D. 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.

4. Once the contractor is notified by the VA of problems or damage to VA property, the contractor shall take immediate corrective action to protect and restore said property. During normal duty hours, corrective action shall be initiated within two (2) hours. After normal duty hours, corrective action shall be initiated within four (4) hours. The Daily Log for that day shall explain the problem(s) and corrective action(s) taken.

5. Dampen debris to keep down dust and provide temporary construction, dust-proof, asbestos containment, smoke rated, and/or fire rated barriers where specified, where indicated on the drawings, and as directed by the Project Engineer. Access doors in barriers shall be hinged and secured with VA provided locks if available; if VA locks are not available contractor is to provide locks as well as three (3) extra keys to the VA. Walk-off mats shall be provided at all access doors.
6. Block off all ducts and diffusers to prevent circulation of dust into occupied areas during construction. Provide Negative Air Machines as specified, to maintain negative pressure within the construction area(s).

7. The contractor shall not allow trash and debris to accumulate on the job site. As a minimum, trash and debris shall be removed once daily, with no flammable materials or trash left on the construction site overnight. All debris shall be removed from the job site in a closed container and disposed of in a proper manner.

E. 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 final cleaning in accordance with Infection Control requirements detailed in specification section 01 35 00 SAFETY REQUIREMENTS.

1.8 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 and/or in accordance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT:

1. Reserved items which are to remain property of the Government are identified by attached tags or noted on drawings and/or in specifications as items to be stored. The Project Engineer may also designate items to remain the property of the Government. Items 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 Project Engineer.

2. Items not reserved shall become property of the Contractor and be removed by Contractor from the Medical Center, or taken to the Engineering Shop area by the contractor on a case-by-case basis as directed by the Project Engineer.

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.

4. During above-ceiling work, the contractor will have to clear rooms, protect VA property and finishes, and move furnishings as necessary to protect the area an items from dust and debris, in the performance of the work above the ceiling.

5. PCB Transformers and Capacitors and Other Hazardous Waste: The Contractor shall be responsible for disposal of the Polychlorinated Biphenyl (PCB) transformers and capacitors and other Hazardous Waste. The transformers and capacitors and other Hazardous Waste shall be taken out of service and handled in accordance with the procedures of the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) as
outlined in Code of Federal Regulation (CFR), Titiled 40 and 49 respectively. The EPA's Toxic Substance Control Act (TSCA) Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7 also apply. Upon removal of PCB transformers and capacitors and other Hazardous Waste for disposal, the "originator" copy of the Uniform Hazardous Waste Manifest (EPA Form 8700-22), along with the Uniform Hazardous Waste Manifest Continuation Sheet (EPA Form 8700-22A) shall be returned to the Contracting Officer who will annotate the contract file and transmit the Manifest to the Medical Center's Project Engineer.

a. Copies of the following listed CFR titles may be obtained from the Government Printing Office:

40 CFR 261 .................... Identification and Listing of Hazardous Waste
40 CFR 262 .................... Standards Applicable to Generators of Hazardous Waste
40 CFR 263 .................... Standards Applicable to Transporters of Hazardous Waste
40 CFR 761 .................... PCB Manufacturing, Processing, Distribution in Commerce, and use Prohibitions
49 CFR 172 .................... Hazardous Material tables and Hazardous Material Communications Regulations
49 CFR 173 .................... Shippers - General Requirements for Shipments and Packaging
49 CRR 173 .................... Subpart A General
49 CFR 173 .................... Subpart B Preparation of Hazardous Material for Transportation
49 CFR 173 .................... Subpart J Other Regulated Material; Definitions and Preparation
TSCA .............................. Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7

6 Trash cans with outside hinges are not allowed.

7. Removal of materials or waste is only permitted before or after hospital work hours.

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

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

C. Contractor shall take all measures and provide all materials necessary for protecting and preserving existing equipment and property in affected areas of construction against dust, debris and physical damage, so that equipment and affected areas to be used in Medical Center operations will not be hindered. Contractor shall permit access to VA personnel through construction areas as required for maintenance and normal Medical Center operations.

D. When the construction area is turned over to Contractor, Contractor shall accept entire responsibility there-of. Contractor shall maintain in operating condition, existing fire protection, exit light circuits, alarm equipment, and other operational originating in, or passing through the construction area. IT IS VERY IMPORTANT ESSENTIAL AND LIFE SAFETY SYSTEMS BE CONTINUOUSLY MAINTAINED AND NOT INTERRUPTED WITHOUT TWO WEEKS PRIOR WRITTEN NOTICE TO THE MEDICAL CENTER.

E. Items of equipment and furnishings located in rooms in which work is to be done under this contract shall remain the property of the Government. During the alteration period when rooms and space are vacated by Veterans' Affairs, such items which are not required by drawings and specifications to be either relocated or reused, will be removed or protected by the Contractor as directed by the Project Engineer.

(FAR 52.236-9)

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

G. Refer to FAR clause 52.236-7, "Permits and Responsibilities." A National Pollutant Discharge Elimination System (NPDES) permit is required for projects when the disturbed area on the site one acre or more. The Contractor is considered an "operator" under the permit and has extensive responsibility for compliance with permit requirements. VA will make the permit application available at the (appropriate medical center) office. The apparent low bidder, contractor and affected subcontractors shall furnish all information and certifications that are required to comply with the permit process and permit requirements. Many of the permit requirements will be satisfied by completing construction as shown and specified. Some requirements involve the Contractor's method of operations and operations planning and the Contractor is responsible for employing best management practices. The affected activities often include, but are not limited to the following:

1. Designating areas for equipment maintenance and repair.
2. Providing waste receptacles at convenient locations and provide regular collection of wastes.

3. Locating equipment wash down areas on site, and provide appropriate control of washwaters.

4. Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials.

5. Providing adequately maintained sanitary facilities.

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 Project Engineer. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Project Engineer 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 PHYSICAL DATA

A. Data and information furnished or referred to below, in the contract specification sections, on the contract drawings, and/or in other VA furnished documentation is for the Contractor’s information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor. The contractor shall be responsible for conducting a thorough site investigation, before bidding, to satisfy themselves as to actual conditions.

1. The indications of physical conditions on the drawings and in the specifications are the result of site investigations by the VA.
(FAR 52.236-4)

B. Government does not guarantee that other materials will not be encountered nor that proportions, conditions or character of several materials will not vary from those indicated by explorations and investigations. Bidders are expected to examine site of work and logs of borings; and, after investigation, decide for themselves character of materials and make their bids accordingly. Upon proper application to Department of Veterans Affairs, bidders will be permitted to make explorations or site investigations of their own at the work site.

1.12 NOT USED - PROFESSIONAL SURVEYING SERVICES

1.13 LAYOUT OF WORK

A. The Contractor shall lay out the work from Government established base lines and bench marks, indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at Contractor's own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Project Engineer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them by the Project Engineer. If such marks are destroyed by the Contractor or through Contractor's negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(FAR 52.236-17)

1.14 AS-BUILT DRAWINGS

A. The contractor shall maintain two (2) full size sets of as-built (working) 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. Additional sketches will be required where original detail is changed, site conditions differ, and where required to clarify mark-ups. To ensure compliance, as-built drawings shall be made available for the Project Engineer's review, as often as requested.

C. Contractor shall deliver two (2) approved completed sets of as-built drawings to the Project Engineer within fifteen (15) calendar days after each completed phase of the project by the Project Engineer.

D. Upon completion of the project and before final settlement, Contractor shall deliver two (2) approved completed detailed sets of as-built drawings to the Project Engineer within fifteen (15) calendar days after project acceptance. These drawings shall show sizes, materials, connections to existing structures, utilities, building service equipment, circuits, electrical conduit and junction box locations and routes, and other required information.
E. Paragraphs A, B, C, & D shall also apply to all shop drawings and Installation drawings provided by equipment suppliers and vendors.

F. Charts, Graphs and Other Information: Provide three (3) hard copies and one (1) electronic of all valve locations for plumbing, mechanical & medical gas valve locations. One chart shall be mounted in the mechanical room location as directed by the Project Engineer. Chart shall be plastic laminate or in suitable picture frame.

1.15 USE OF ROADWAYS, PARKING LOTS, AND GROUNDS

A. For hauling, use only established public roads, parking lots, and grounds on Medical Center property and, when authorized by the Project Engineer, such temporary roads as necessary in the performance of contract work. Temporary roads shall be constructed and restoration performed by the Contractor at Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.

B. When new permanent roads are to be a part of this contract, Contractor may construct them immediately for use to facilitate building operations. These roads may be used by all who have business thereon within zone of building operations.

C. When certain buildings (or parts of certain buildings) are required to be completed in advance of general date of completion, all roads leading thereto must be completed and available for use at time set for completion of such buildings or parts thereof.

D. To minimize interference of construction activities with the flow of Medical Center Traffic and Parking, comply with the following:

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

3. Methods and scheduling for the cutting, altering, removal, and/or blockage of existing roads, walks, entrances, parking lots, and grounds must be approved by the Project Engineer prior to any work.

4. The Contractor shall submit a request to interrupt any roadway, parking lot, or loading dock to the Contracting Officer, in writing, two weeks in advance of any proposed interruption. The request shall state the reason, areas to be affected, date, exact time of, and approximate duration of such interruption.

1.16 NOT USED - RESIDENT ENGINEER’S FIELD OFFICE

1.17 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT

A. Use of new installed mechanical and electrical equipment to provide heat, ventilation, plumbing, light, and power will be permitted subject to written approval and compliance with the following provisions:

1. Permission to use each unit or system must be given by the Project Engineer. If the equipment is not installed and maintained in accordance with the following provisions, the Project Engineer will withdraw permission for use of the equipment. Metering may be required based on project use.
2. Electrical installations used by the equipment shall be completed in accordance with the drawings and specifications to prevent damage to the equipment and the electrical systems, i.e. transformers, relays, circuit breakers, fuses, conductors, motor controllers and their overload elements shall be properly sized, coordinated and adjusted. Installation of temporary electrical equipment or devices shall be in accordance with NFPA 70, National Electrical Code, (2014 Edition), Article 590, Temporary Installations. Voltage supplied to each item of equipment shall be verified to be correct and it shall be determined that motors are not overloaded. The electrical equipment shall be thoroughly cleaned before using it and again immediately before final inspection including vacuum cleaning and wiping clean interior and exterior surfaces.

3. Units shall be properly lubricated, balanced, and aligned. Vibrations must be eliminated.

4. Automatic temperature control systems for preheat coils shall function properly and all safety controls shall function to prevent coil freeze-up damage. ALL controls for the equipment shall be functioning properly to prevent damage to the equipment.

5. The air filtering system utilized shall be that which is designed for the system when complete, and all filter elements shall be replaced periodically during construction and at completion of construction and prior to testing and balancing of system.

6. All components of heat production and distribution system, metering equipment, condensate returns, and other auxiliary facilities used in temporary service shall be cleaned prior to use; maintained to prevent corrosion internally and externally during use; and cleaned, maintained and inspected prior to acceptance by the Government.

7. Equipment - boilers, pumps, feedwater heaters, and other distribution systems and auxiliary equipment must be operated as a complete system and be fully maintained by operating personnel. Boiler water must be given complete and continuous chemical treatment.

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

C. This paragraph shall not reduce the requirements of the mechanical and electrical specifications sections.

1.18 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 Project Engineer for use of elevators. The Project Engineer will ascertain that elevators are in proper condition. Personnel for operating elevators will not be provided by the Department of Veterans Affairs.

2. Contractor covers and provides maximum protection of following elevator components:
   a. Entrance jambs, heads soffits and threshold plates.
   b. Entrance columns, canopy, return panels and inside surfaces of car enclosure walls.
c. Finish flooring.

3. 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.

1.19 NOT USED - TEMPORARY USE OF NEW ELEVATORS

1.20 TEMPORARY TOILETS

A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water connections; or, when approved by the Project Engineer, provide suitable dry closets where directed. Keep such places clean and free from flies and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean.

B. Contractor may have for use of Contractor's workmen, such toilet accommodations as may be assigned to Contractor by the Medical Center's Project Engineer. 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.

1.21 AVAILABILITY AND USE OF UTILITY SERVICES

A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The amount to be paid by the Contractor for chargeable utility services shall be the prevailing rates charged to the Government. The Contractor shall carefully conserve any utilities furnished without charge.

B. 

E. Electricity (for Construction and Testing): Furnish all temporary electric services.

1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. Electricity for all other uses is available at no cost to the Contractor.


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 the Project Engineer discretion) of use of water from the Medical Center's system.

G. Steam: Furnish steam system for testing required in various sections of specifications.

1. Obtain steam for testing by connecting to the Medical Center steam distribution system. Steam is available at no cost to the Contractor.
2. Maintain connections, pipe, fittings and fixtures and conserve steam-use so none is wasted. Failure to stop leakage or other waste will be cause for revocation (at the Project Engineer discretion), of use of steam from the Medical Center's system.

1.22 NEW TELEPHONE EQUIPMENT

A. The contractor shall coordinate with the work of installation of telephone equipment by others. This work shall be completed before the project is turned over to VA.

1.23 TESTS

A. As per specification section 23 05 93 the contractor shall provide a written testing and commissioning plan complete with component level, equipment level, sub-system level and system level breakdowns. The plan will provide a schedule and a written sequence of what will be tested, how and what the expected outcome will be. This document will be submitted for approval prior to commencing work. The contractor shall document the results of the approved plan and submit for approval with the as built documentation.

B. Pre-test mechanical and electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.

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

D. Mechanical and electrical systems shall be balanced, controlled and coordinated. A system is defined as the entire complex which must be coordinated to work together during normal operation to produce results for which the system is designed. For example, air conditioning supply air is only one part of entire system which provides comfort conditions for a building. Other related components are return air, exhaust air, steam, chilled water, refrigerant, hot water, controls and electricity, etc. Another example of a complex which involves several components of different disciplines is a boiler installation. Efficient and acceptable boiler operation depends upon the coordination and proper operation of fuel, combustion air, controls, steam, feedwater, condensate and other related components.

E. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonably short period of time during which operating and environmental conditions remain reasonably constant.

F. Individual test results of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

1.24 INSTRUCTIONS

A. Contractor shall furnish Maintenance and Operating manuals (hard copies and electronic) and verbal instructions when required by the various sections of the specifications and as hereinafter specified.

B. Manuals: Maintenance and operating manuals (two hard copies and one electronic copy on compact disc) for each separate piece of equipment and system shall be delivered to the Project
Engineer coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment and system. They shall include complete information necessary for starting, adjusting, programming, 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. Manuals shall include all wiring diagrams, pipe and tubing diagrams, programming instructions, and other required information to completely maintain and operate each piece of equipment and system. 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.

C. 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 and system. 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 Project Engineer, the Contracting Officer, and the M&O Supervisor, and shall be considered concluded only when the Project Engineer, the Contracting Officer, and the M&O Supervisor, are satisfied in regard to complete and thorough coverage. The contractor shall submit a course outline with associated material to the COR for review and approval prior to scheduling training to ensure the subject matter covers the expectations of the VA and the contractual requirements. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the Project Engineer, does not demonstrate sufficient qualifications in accordance with requirements for instructors above. Training sessions may be recorded by the VA.

1.25 GOVERNMENT-FURNISHED PROPERTY

A. The Government shall deliver to the Contractor, the Government - furnished property shown on the Schedules and/or drawings.

B. Equipment furnished by Government to be installed by Contractor will be furnished to Contractor at the Medical Center.

C. Contractor shall be prepared to receive this equipment from Government and store or place such equipment, as required, not less than 90 calendar days before Completion Date of project.
D. Storage space for some, but not all, equipment may be provided by the Government and the Contractor shall be prepared to unload and store such equipment therein upon its receipt at the Medical Center. Coordination with the Project Engineer and the Contracting Officer is required.

E. Notify Contracting Officer in writing, 60 calendar days in advance, of date on which Contractor will be prepared to receive equipment furnished by Government. Arrangements will then be made by the Government for delivery of equipment.

1. Immediately upon delivery of equipment, Contractor shall arrange for a joint inspection thereof with a representative of the Government. At such time the Contractor shall acknowledge receipt of equipment described, make notations, and immediately furnish the Government representative with a written statement as to its condition or shortages.

2. Contractor thereafter is responsible for such equipment until such time as acceptance of contract work is made by the Government.

F. Equipment furnished by the Government will be delivered in a partially assembled (knock down) condition in accordance with existing standard commercial practices, complete with all fittings, fastenings, and appliances necessary for connections to respective services installed under contract. All fittings and appliances (i.e., couplings, ells, tees, nipples, piping, conduits, cables, and the like) necessary to make the connection between the Government furnished equipment item and the utility stub-up shall be furnished and installed by the contractor at no additional cost to the Government.

G. Completely assemble and install the Government furnished equipment in place ready for proper operation in accordance with specifications and drawings.

H. Furnish supervision of installation of equipment at construction site by qualified factory trained technicians regularly employed by the equipment manufacturer.

1.26 RELOCATED EQUIPMENT ITEMS

A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment and items indicated by symbol "R" or otherwise shown on the drawings to be relocated by the Contractor.

B. Perform relocation of such equipment or items at such times and in such a manner as indicated in the drawings and specifications and/or as directed by the Project Engineer.

C. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines are disconnected from equipment to be relocated. Remove abandoned lines in finished areas and cap as specified herein before under paragraph "Abandoned Lines".

D. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.
E. Contractor shall employ services of an installation engineer, who is an authorized representative of the manufacturer of this equipment to supervise disassembly, assembly and installation of existing equipment and items, required to be relocated.

F. All service lines such as noted above for relocated equipment shall be in place at point of relocation ready for use before any existing equipment is disconnected. Make relocated existing equipment ready for operation or use immediately after reinstallation.

1.27 STORAGE SPACE FOR DEPARTMENT OF VETERANS AFFAIRS EQUIPMENT

A. Contractor shall complete areas and/or rooms to be renovated and coordinate with the Project Engineer the use of elevators and areas/rooms for storage of certain materials and equipment by Department of Veterans Affairs.

1. Provide such space with adequate light, ventilation and heat in season and lock for adequate security. Contractor shall also install and connect portion of nearest specified fire protection system including all apparatus for instant use to provide water for adequate fire protection of storage space. Storage space shall be turned over to Contracting Officer ninety days prior to Completion Date of the buildings involved.

3. Forward two sets of drawings to Contracting Officer through the Project Engineer 120 days prior to Completion Date of building; drawings shall indicate those areas which will be made available to Department of Veterans Affairs for temporary storage.

4. All cost for utility services for such storage space shall be borne by Contractor until entire building is turned over for occupancy.

B. "Completion Date" shall mean that date as established by Contracting Officer upon which Contractor will turn over entire project or portions thereof to the Government.

1.28 CONSTRUCTION SIGN (>=$2M PROJECTS)

A. Maintain signs and remove when directed by the Project Engineer.

B. Provide two (2) construction signs with point of contact information at each entrance to the construction areas. Signs shall be constructed of a durable material, twelve (12) inches high and thirty (30) inches wide with yellow background and blue Helvetica lettering two (2) inches high. Letter as shown in the following:

DANGER - KEEP OUT
CONSTRUCTION AREA
AUTHORIZED PERSONNEL ONLY
EXCUSE THE INCONVENIENCE
WE ARE WORKING TO IMPROVE YOUR FACILITY
1.29 SAFETY SIGN

A. Provide a Safety Sign where directed by Project Engineer. Face of sign shall be 19 mm (3/4 inch) thick exterior grade plywood. Provide two 102 mm x 102 mm (four x four inch) posts extending full height of sign and 914 mm (three feet) into ground. Set bottom of sign level at 1219 mm (four feet) above ground.

B. Paint all surfaces of Safety Sign and posts with one prime coat and two coats of white gloss paint. Letters and design shall be painted with gloss paint of colors noted.

C. Maintain signs and remove when directed by Project Engineer.

D. Provide a Detail Drawing of construction sign showing required legend and other characteristics of sign to the Project Engineer for approval. Upon written approval, the contractor will construct and install the construction sign.

E. Post the number of accident free days on a daily basis.

F. Provide all OSHA required Safety Signs where required by OSHA and where directed by Project Engineer. These shall be commercially produced.

1.30 PHOTOGRAPHIC DOCUMENTATION

A. During the construction period through completion, furnish Department of Veterans Affairs with digital images, including one color print of each view and one Compact Disc (CD) per visit containing those views taken on that visit. Digital views shall be taken of interior as selected and directed by Project Engineer. Each view shall be taken with a minimum size of 6 megapixels (MP) and the images will be a minimum of 2272 x 1704 pixels for the 200x250mm (8x10 inch) prints and 2592 x 1944 pixels for the 400x500 mm (16 x 20 inch) prints, as per these specifications:

1. Normally such images will be taken at monthly intervals. However, the VA Project Engineer may also direct the taking of special digital images at any time prior to completion and acceptance of contract. If the number of trips to the site exceeds an average of one per month of the contract performance period then an adjustment in contract price will be made in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

2. In event a greater or lesser number of images than specified above are required by the Project Engineer, adjustment in contract price will be made in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

B. Images must show distinctly, at as large a scale as possible, all parts of work embraced in the picture.

C. Images on CD-ROM shall be recorded in JPEG format with a minimum of 24 bit color and no reduction in actual picture size. Compressed size of the file shall be no less than 80% or the original with no loss of information. File names shall contain the date the image was taken, the Project number and a unique sequential identifier. The CD-ROM shall also contain an index of all the images contained therein in either a TXT or Microsoft Word format.

D. in case any set of images are not submitted within five calendar days of the date established by the Project Engineer for taking thereof, the Project Engineer may have such
images/photographs taken and cost of same will be deducted from any money due to the Contractor.

E. Interior Final Photos: After completion of all work in an area final interior photos will be taken. The camera must allow the colors to be as close as possible to the actual colors. View shall be taken after final completion of work. The images shall also be provided on a CD to the Project Engineer Office.

1.31 NOT USED - FINAL ELEVATION DIGITAL IMAGES

1.32 HISTORIC PRESERVATION

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

1.33 EQUIPMENT

A. The contractor shall coordinate the installation of equipment with work performed by others. This work shall be completed before the building is turned over to VA.

B. All required programming devices, two (2) each of specialty tools, two (2) sets of start-up supplies, one (1) additional set of belts – fuses – etc. per each piece of equipment and other items required by the specification sections and drawings shall be furnished.

1.34 FINAL PAYMENT

A. Final payment under this contract shall be withheld pending receipt of ALL tests, close out documents, all equipment manuals, staff training, specialty tools, start-up supplies, as built drawings and certifications. These tests and certifications shall include: sprinkler certification, fire alarm certification, plumbing system leak tests - to include hot – cold - waste - vents, medical gas certifications, fire/smoke wall certification, vibration analysis of motor driven equipment, motor – shaft – base - pulley alignment certifications, HVAC TAB, Air Handler control demonstration/training of VA personnel, and other required information, completed punch list items and the return of all keys.

1.35 WARRANTY CALLS

A. The Government may contact the Contractor for warranty services by telephone, fax, e-mail, letter, or in person. The Contractor shall respond with actual physical repair activity (labor, equipment, materials, etc.) in accordance with contract documents. Please note that emergency calls may occur during other than normal work hours. A representative from the Facilities Management Service will identify the emergency calls.

1.36 INTERIM LIFE SAFETY MEASURE

A. An interim life safety measure (ILSM) to be completed as a mandatory portion of construction design development, prior to award of construction

--- E N D ---
SECTION 01 33 23
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.

1-2. For the purposes of this contract, test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.

1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:

A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.

1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract-required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.

1-5. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.

1-6. 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.

1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.

1-8. 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
1-9. 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.

C. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.

D. Approved samples will be kept on file by the Resident Engineer 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 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.

E. 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. Samples, shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to

.................................................................................................................................
(Architect-Engineer)
.................................................................................................................................
(A/E P.O. Address)
.................................................................................................................................
(City, State and Zip Code)

1-11. At the time of transmittal to the Architect-Engineer, the Contractor shall also send a copy of the complete submittal directly to the Resident Engineer.

- - - E N D - - -
SECTION 01 35 26
SAFETY REQUIREMENTS

TABLE OF CONTENTS

1.1 APPLICABLE PUBLICATIONS .............................................................................................................. 1
1.2 DEFINITIONS ...................................................................................................................................... 2
1.3 REGULATORY REQUIREMENTS .......................................................................................................... 3
1.4 ACCIDENT PREVENTION PLAN (APP) ................................................................................................. 3
1.5 ACTIVITY HAZARD ANALYSES (AHAs) ............................................................................................... 7
1.6 PRECONSTRUCTION CONFERENCE ................................................................................................... 8
1.7 “SITE SAFETY AND HEALTH OFFICER” (SSHO) and “COMPETENT PERSON” (CP) ....................... 9
1.8 TRAINING .......................................................................................................................................... 9
1.9 INSPECTIONS ................................................................................................................................... 10
1.10 ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS ........................................................................... 10
1.11 PERSONAL PROTECTIVE EQUIPMENT (PPE) ................................................................................ 11
1.12 INFECTION CONTROL .................................................................................................................. 12
1.13 TUBERCULOSIS SCREENING ........................................................................................................ 17
1.14 FIRE SAFETY .................................................................................................................................. 17
1.15 ELECTRICAL .................................................................................................................................. 22
1.16 FALL PROTECTION ....................................................................................................................... 23
1.17 NOT USED - SCAFFOLDS AND OTHER WORK PLATFORMS .......................................................... 23
1.18 NOT USED - EXCAVATION AND TRENCHES ............................................................................... 23
1.19 NOT USED - CRANES .................................................................................................................... 23
1.20 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT) ........................................................ 23
1.21 CONFINED SPACE ENTRY ............................................................................................................. 23
1.22 WELDING AND CUTTING ............................................................................................................. 24
1.23 LADDERS ...................................................................................................................................... 24
SAFETY REQUIREMENTS

1.24 FLOOR & WALL OPENINGS

VA260-16-Q-0078 A00001

01 35 26 - Page ii
SAFETY REQUIREMENTS
SAFETY REQUIREMENTS

1.1 APPLICABLE PUBLICATIONS:

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

B. American Society of Safety Engineers (ASSE):

   A10.1-2011 ................................ Pre-Project & Pre-Task Safety and Health Planning
   A10.34-2012 ............................... Protection of the Public on or Adjacent to Construction Sites
   A10.38-2013 ............................... Basic Elements of an Employer’s Program to Provide a Safe and Healthful Work Environment American National Standard Construction and Demolition Operations

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

   E84-2013 ............................... Surface Burning Characteristics of Building Materials

D. The Facilities Guidelines Institute (FGI):


E. National Fire Protection Association (NFPA):

   10-2013 ................................. Standard for Portable Fire Extinguishers
   30-2012 ................................. Flammable and Combustible Liquids Code
   51B-2014 ................................. Standard for Fire Prevention During Welding, Cutting and Other Hot Work
   70-2014 ................................. National Electrical Code
   70B-2013 ................................. Recommended Practice for Electrical Equipment Maintenance
   70E-2012 ................................. Standard for Electrical Safety in the Workplace
   99-2012 ................................. Health Care Facilities Code
   241-2013 ................................. Standard for Safeguarding Construction, Alteration, and Demolition Operations

F. The Joint Commission (TJC)
SAFETY REQUIREMENTS

TJC Manual .......................... Comprehensive Accreditation and Certification Manual

G. U.S. Nuclear Regulatory Commission

10 CFR 20 .......................... Standards for Protection Against Radiation

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

29 CFR 1904 .......................... Reporting and Recording Injuries & Illnesses

29 CFR 1910 .......................... Safety and Health Regulations for General Industry

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

CPL 2-0.124 .......................... Multi-Employer Citation Policy

I. VHA Directive 2005-007

1.2 DEFINITIONS:

A. OSHA “Competent Person” (CP). One who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them (see 29 CFR 1926.32(f)).

B. "Qualified Person" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

C. High Visibility Accident. Any mishap which may generate publicity or high visibility.

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

E. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

1. Death, regardless of the time between the injury and death, or the length of the illness;
2. Days away from work (any time lost after day of injury/illness onset);
3. Restricted work;
4. Transfer to another job;
5. Medical treatment beyond first aid;
6. Loss of consciousness; or

7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

1.3 REGULATORY REQUIREMENTS:

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

1.4 ACCIDENT PREVENTION PLAN (APP):

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

B. The APP shall be prepared as follows:

1. Written in English by a qualified person who is employed by the Prime Contractor articulating the specific work and hazards pertaining to the contract (model language can be found in ASSE A10.33). Specifically articulating the safety requirements found within these VA contract safety specifications.

2. Address both the Prime Contractors and the subcontractors work operations.

3. State measures to be taken to control hazards associated with materials, services, or equipment provided by suppliers.

4. Address all the elements/sub-elements and in order as follows:

a. SIGNATURE SHEET. Title, signature, and phone number of the following:

   1) Plan preparer (Qualified Person such as corporate safety staff person or contracted Certified Safety Professional with construction safety experience);

   2) Plan approver (company/corporate officers authorized to obligate the company);

   3) Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety
SAFETY REQUIREMENTS

b. BACKGROUND INFORMATION. List the following:

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

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

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

1) A statement of the employer’s ultimate responsibility for the implementation of his SOH program;
2) Identification and accountability of personnel responsible for safety at both corporate and project level. Contracts specifically requiring safety or industrial hygiene personnel shall include a copy of their resumes.
3) The names of Competent and/or Qualified Person(s) and proof of competency/qualification to meet specific OSHA Competent/Qualified Person(s) requirements must be attached.
4) Requirements that no work shall be performed unless a designated competent person is present on the job site;
5) Requirements for pre-task Activity Hazard Analysis (AHAs);
6) Lines of authority;
7) Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;

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

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

f. TRAINING.

1) Site-specific SOH orientation training at the time of initial hire or assignment to the project for every employee before working on the project site is required.
2) Mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, crane operator, rigger, crane signal person, fall protection, electrical lockout/NFPA 70E, machine/equipment lockout, confined space, etc...) and any requirements for periodic retraining/recertification are required.
3) Procedures for ongoing safety and health training for supervisors and employees shall be established to address changes in site hazards/conditions.
4) OSHA 10-hour training is required for all workers on site and the OSHA 30-hour training is required for Trade Competent Persons (CPs)

g. SAFETY AND HEALTH INSPECTIONS.

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

h. ACCIDENT INVESTIGATION & REPORTING. The Contractor shall conduct mishap investigations of all OSHA Recordable Incidents. The APP shall include accident/incident investigation procedure & identify person(s) responsible to provide the following to the Project Manager and Facility Safety Officer:

1) Exposure data (man-hours worked);
2) Accident investigations, reports, and logs.

i. PLANS (PROGRAMS, PROCEDURES) REQUIRED. Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs, the Contractor shall address all applicable occupational risks in site-specific compliance and accident prevention plans. These Plans shall include but are not be limited to procedures for addressing the risks associates with the following:

1) Emergency response;
SAFETY REQUIREMENTS

2) Contingency for severe weather;
3) Fire Prevention;
4) Medical Support;
5) Posting of emergency telephone numbers;
6) Prevention of alcohol and drug abuse;
7) Site sanitation (housekeeping, drinking water, toilets);
8) Night operations and lighting;
9) Hazard communication program;
10) Welding/Cutting “Hot” work;
11) Electrical Safe Work Practices (Electrical LOTO/NFPA 70E);
12) General Electrical Safety
13) Hazardous energy control (Machine LOTO);
14) Site-Specific Fall Protection & Prevention;
15) Excavation/trenching;
16) Asbestos abatement;
17) Lead abatement;
18) Crane Critical lift;
19) Respiratory protection;
20) Health hazard control program;
21) Radiation Safety Program;
22) Abrasive blasting;
23) Heat/Cold Stress Monitoring;
24) Crystalline Silica Monitoring (Assessment);
25) Demolition plan (to include engineering survey);
26) Formwork and shoring erection and removal;

27) Precast Concrete.

C. Submit the APP to the Project Manager and Facility Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

D. Once accepted by the Project Manager and Facility Safety Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

E. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Project Manager and Facility Safety Officer. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34) and the environment.

1.5 ACTIVITY HAZARD ANALYSES (AHAS):

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

B. AHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.

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

1. The names of the Competent/Qualified Person(s) required for a particular activity (for example, excavations, scaffolding, fall protection, other activities as specified by OSHA and/or other State and Local agencies) shall be identified and included in the AHA. Certification of their competency/qualification shall be submitted to the Government Designated Authority (GDA) for acceptance prior to the start of that work activity.

2. The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).
a. If more than one Competent/Qualified Person is used on the AHA activity, a list of names shall be submitted as an attachment to the AHA. Those listed must be Competent/Qualified for the type of work involved in the AHA and familiar with current site safety issues.

b. If a new Competent/Qualified Person (not on the original list) is added, the list shall be updated (an administrative action not requiring an updated AHA). The new person shall acknowledge in writing that he or she has reviewed the AHA and is familiar with current site safety issues.

3. Submit AHAs to the Project Manager and Facility Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES for review at least 15 __ calendar days prior to the start of each phase. Subsequent AHAs as shall be formatted as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity’s safety and health controls.

4. The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

5. Develop the activity hazard analyses using the project schedule as the basis for the activities performed. All activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier, or subcontractor and provided to the prime contractor for review and approval and then submitted to the Project Manager and Facility Safety Officer.

1.6 PRECONSTRUCTION CONFERENCE:

A. Contractor representatives who have a responsibility or significant role in implementation of the accident prevention program, as required by 29 CFR 1926.20(b)(1), on the project shall attend the preconstruction conference to gain a mutual understanding of its implementation. This includes the project superintendent, subcontractor superintendents, and any other assigned safety and health professionals.

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

C. Deficiencies in the submitted APP will be brought to the attention of the Contractor within 14 days of submittal, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.
1.7 “SITE SAFETY AND HEALTH OFFICER” (SSHO) AND “COMPETENT PERSON” (CP):

A. The Prime Contractor shall designate a minimum of one SSHO at each project site that will be identified as the SSHO to administer the Contractor’s safety program and government-accepted Accident Prevention Plan. Each subcontractor shall designate a minimum of one CP in compliance with 29 CFR 1926.20 (b)(2) that will be identified as a CP to administer their individual safety programs.

B. Further, all specialized Competent Persons for the work crews will be supplied by the respective contractor as required by 29 CFR 1926 (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations).

C. These Competent Persons can have collateral duties as the subcontractor’s superintendent and/or work crew lead persons as well as fill more than one specialized CP role (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations).

D. The SSHO or an equally-qualified Designated Representative/alternate will maintain a presence on the site during construction operations in accordance with FAR Clause 52.236-6: Superintendence by the Contractor. CPs will maintain presence during their construction activities in accordance with above mentioned clause. A listing of the designated SSHO and all known CPs shall be submitted prior to the start of work as part of the APP with the training documentation and/or AHA as listed in Section 1.8 below.

E. The repeated presence of uncontrolled hazards during a contractor’s work operations will result in the designated CP as being deemed incompetent and result in the required removal of the employee in accordance with FAR Clause 52.236-5: Material and Workmanship, Paragraph (c).

1.8 TRAINING:

A. The designated Prime Contractor SSHO must meet the requirements of all applicable OSHA standards and be capable (through training, experience, and qualifications) of ensuring that the requirements of 29 CFR 1926.16 and other appropriate Federal, State and local requirements are met for the project. As a minimum the SSHO must have completed the OSHA 30-hour Construction Safety class and have five (5) years of construction industry safety experience or three (3) years if he/she possesses a Certified Safety Professional (CSP) or certified Construction Safety and Health Technician (CSHT) certification or have a safety and health degree from an accredited university or college.

B. All designated CPs shall have completed the OSHA 30-hour Construction Safety course within the past 5 years.

C. In addition to the OSHA 30 Hour Construction Safety Course, all CPs with high hazard work operations such as operations involving asbestos, electrical, cranes, demolition, work at heights/fall protection, fire safety/life safety, ladder, rigging, scaffolds, and trenches/excavations shall have a specialized formal course in the hazard recognition & control associated with those high hazard work operations. Documented “repeat” deficiencies in the execution of safety requirements will require retaking the requisite formal course.

D. All other construction workers shall have the OSHA 10-hour Construction Safety Outreach course and any necessary safety training to be able to identify hazards within their work environment.
E. Submit training records associated with the above training requirements to the Project Manager and Facility Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES 15 calendar days prior to the date of the preconstruction conference for acceptance.

F. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the SSHO or his/her designated representative. As a minimum, this briefing shall include information on the site-specific hazards, construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, emergency procedures, accident reporting etc... Documentation shall be provided to the Resident Engineer that individuals have undergone contractor’s safety briefing.

G. Ongoing safety training will be accomplished in the form of weekly documented safety meeting.

1.9 INSPECTIONS:

A. The SSHO shall conduct frequent and regular safety inspections (daily) of the site and each of the subcontractors CPs shall conduct frequent and regular safety inspections (daily) of their work operations as required by 29 CFR 1926.20(b)(2). Each week, the SSHO shall conduct a formal documented inspection of the entire construction areas with the subcontractors’ “Trade Safety and Health CPs” present in their work areas. Coordinate with, and report findings and corrective actions weekly to Project Manager and Facility Safety Officer.

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

1. Results of the inspection will be documented with tracking of the identified hazards to abatement.

2. The Project Manager and Facility Safety Officer will be notified immediately prior to start of the inspection and invited to accompany the inspection.

3. Identified hazard and controls will be discussed to come to a mutual understanding to ensure abatement and prevent future reoccurrence.

4. A report of the inspection findings with status of abatement will be provided to the Project Manager and Facility Safety Officer within one week of the onsite inspection.

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

A. Notify the Project Manager and Facility Safety Officer as soon as practical, but no more than four hours after any accident meeting the definition of OSHA Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $5,000, or any weight handling equipment accident. Within notification include contractor name; contract title; type
SAFETY REQUIREMENTS

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

B. Conduct an accident investigation for recordable injuries and illnesses, for Medical Treatment defined in paragraph DEFINITIONS, and property damage accidents resulting in at least $20,000 in damages, to establish the root cause(s) of the accident. Complete the VA Form 2162, and provide the report to the Project Manager and Facility Safety Officer within 5 calendar days of the accident. The Project Manager and Facility Safety Officer will provide copies of any required or special forms.

C. A summation of all man-hours worked by the contractor and associated sub-contractors for each month will be reported to the Project Manager and Facility Safety Officer monthly.

D. A summation of all OSHA recordable accidents experienced on site by the contractor and associated sub-contractors for each month will be provided to the Project Manager and Facility Safety Officer monthly. The contractor and associated sub-contractors’ OSHA 300 logs will be made available to the Project Manager and Facility Safety Officer as requested.

1.11 PERSONAL PROTECTIVE EQUIPMENT (PPE):

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

B. Mandatory PPE includes:

1. Hard Hats – unless written authorization is given by the Project Manager and Facility Safety Officer in circumstances of work operations that have limited potential for falling object hazards such as during finishing work or minor remodeling. With authorization to relax the requirement of hard hats, if a worker becomes exposed to an overhead falling object hazard, then hard hats would be required in accordance with the OSHA regulations.

2. Safety glasses - unless written authorization is given by the Project Manager and Facility Safety Officer appropriate safety glasses meeting the ANSI Z.87.1 standard must be worn by each person on site.

3. Appropriate Safety Shoes – based on the hazards present, safety shoes meeting the requirements of ASTM F2413-11 shall be worn by each person on site unless written authorization is given by the Project Manager and Facility Safety Officer.

4. Hearing protection - Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks.
1.12 INFECTION CONTROL

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

B. An AHA associated with infection control will be performed by VA personnel in accordance with FGI Guidelines (i.e. Infection Control Risk Assessment (ICRA)). The ICRA procedure found on the American Society for Healthcare Engineering (ASHE) website will be utilized. Risk classifications of Class II or lower will require approval by the Project Manager and Facility Safety Officer before beginning any construction work. Risk classifications of Class III or higher will require a permit before beginning any construction work. Infection Control permits will be issued by the Project Engineer. 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 IV, however, work outside the primary project scope area may vary. The required infection control precautions with each class are as follows:

1. Class I requirements:
   a. During Construction Work:
      1) Notify the Project Manager and Facility Safety Officer
      2) Execute work by methods to minimize raising dust from construction operations.
      3) Ceiling tiles: Immediately replace a ceiling tiles displaced for visual inspection.
   b. Upon Completion:
      1) Clean work area upon completion of task
      2) Notify the Project Manager and Facility Safety Officer

2. Class II requirements:
   a. During Construction Work:
      1) Notify the Project Manager and Facility Safety Officer
      2) Provide active means to prevent airborne dust from dispersing into atmosphere such as wet methods or tool mounted dust collectors where possible.
      3) Water mist work surfaces to control dust while cutting.
      4) Seal unused doors with duct tape.
SAFETY REQUIREMENTS

5) Block off and seal air vents.
6) Remove or isolate HVAC system in areas where work is being performed.

b. Upon Completion:

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

3. Class III requirements:

a. During Construction Work:

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

b. Upon Completion:

1) Do not remove barriers from work area until completed project is inspected by the Project Manager and Facility Safety Officer and thoroughly cleaned by the VA Environmental Services Department.
2) Remove construction barriers and ceiling protection carefully to minimize spreading of dirt and debris associated with construction, outside of normal work hours.

3) Vacuum work area with HEPA filtered vacuums.

4) Wet mop area with cleaner/disinfectant.

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

6) Return permit to the Project Manager and Facility Safety Officer.

4. Class IV requirements:

   a. During Construction Work:

      1) Obtain permit from the Project Manager and Facility Safety Officer.

      2) Isolate HVAC system in area where work is being done to prevent contamination of duct system.

      3) Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. Install construction barriers and ceiling protection carefully, outside of normal work hours.

      4) Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.

      5) Seal holes, pipes, conduits, and punctures.

      6) Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave work site.

      7) All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.

   b. Upon Completion:

      1) Do not remove barriers from work area until completed project is inspected by the Project Manager and Facility Safety Officer with thorough cleaning by the VA Environmental Services Dept.

      2) Remove construction barriers and ceiling protection carefully to minimize spreading of dirt and debris associated with construction, outside of normal work hours.
3) Contain construction waste before transport in tightly covered containers.

4) Cover transport receptacles or carts. Tape covering unless solid lid.

5) Vacuum work area with HEPA filtered vacuums.

6) Wet mop area with cleaner/disinfectant.

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

8) Return permit to the Project Manager and Facility Safety Officer

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

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

2. Construction, demolition or reconstruction not capable of containment within a single room must have the following barriers erected and made presentable on hospital occupied side:
   a. Class III & IV (where dust control is the only hazard, and an agreement is reached with the Resident Engineer and Medical Center) - Airtight plastic barrier that extends from the floor to ceiling. Seams must be sealed with duct tape to prevent dust and debris from escaping
   b. Class III & IV - Drywall barrier erected with joints covered or sealed to prevent dust and debris from escaping.
   c. Class III & IV - Seal all penetrations in existing barrier airtight
   d. Class III & IV - Barriers at penetration of ceiling envelopes, chases and ceiling spaces to stop movement air and debris
   e. Class IV only - Anteroom or double entrance openings that allow workers to remove protective clothing or vacuum off existing clothing
   f. Class III & IV - At elevators shafts or stairways within the field of construction, overlapping flap minimum of two feet wide of polyethylene enclosures for personnel access.

D. Products and Materials:

1. Sheet Plastic: Fire retardant polystyrene, 6-mil thickness meeting local fire codes

2. Barrier Doors: Self Closing Two-hour solid core wood in steel frame, painted
3. Dust proof two-hour drywall

4. High Efficiency Particulate Air-Equipped filtration machine rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. HEPA filters should have ASHRAE 85 or other pre-filter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Maintenance of equipment and replacement of the HEPA filters and other filters will be in accordance with manufacturer’s instructions.

5. Exhaust Hoses: Heavy duty, flexible steel reinforced; Ventilation Blower Hose

6. Adhesive Walk-off Mats: Provide minimum size mats of 24 inches x 36 inches

7. Disinfectant: Hospital-approved disinfectant or equivalent product

8. Portable Ceiling Access Module

E. Before any construction on site begins, all contractor personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.

F. A dust control program will be establish and maintained as part of the contractor’s infection preventive measures in accordance with the FGI Guidelines for Design and Construction of Healthcare Facilities. Prior to start of work, prepare a plan detailing project-specific dust protection measures with associated product data, including periodic status reports, and submit to Project Engineer and Facility CSC for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

G. Medical center Infection Control personnel will monitor for airborne disease (e.g. aspergillosis) during construction. A baseline of conditions will be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality with safe thresholds established.

H. In general, the following preventive measures shall be adopted during construction to keep down dust and prevent mold.

1. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. HEPA filtration is required where the exhaust dust may reenter the medical center.

2. Exhaust hoses shall be exhausted so that dust is not reintroduced to the medical center.

3. Adhesive Walk-off/Carpet Walk-off Mats shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.

4. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as it is created. Transport these outside the construction area in containers with tightly fitting lids.
5. The contractor shall not haul debris through patient-care areas without prior approval of the Resident Engineer and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.

6. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.

7. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

I. Final Cleanup:

1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.

2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings, cabinets, furniture (built-in or free standing), partitions, flooring, etc.

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

J. Exterior Construction

1. Contractor shall verify that dust will not be introduced into the medical center through intake vents, or building openings. HEPA filtration on intake vents is required where dust may be introduced.

2. Dust created from disturbance of soil such as from vehicle movement will be wetted with use of a water truck as necessary.

3. All cutting, drilling, grinding, sanding, or disturbance of materials shall be accomplished with tools equipped with either local exhaust ventilation (i.e. vacuum systems) or wet suppression controls.

1.13 TUBERCULOSIS SCREENING – NOT REQUIRED

1.14 FIRE SAFETY

A. Fire Safety Plan: Establish and maintain a site-specific fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to Project Manager and Facility Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. This plan may be an element of the Accident Prevention Plan.
B. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.

C. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).

D. Temporary Construction Partitions:

1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.

2. Install two-hour temporary construction partitions as shown on drawings to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.

3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.

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

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

G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Project Manager and Facility Safety Officer.

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


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 Project Manager and Facility Safety Officer. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the Resident Engineer.
K. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Project Manager and Facility Safety Officer.

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

M. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Project Manager and Facility Safety Officer.

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. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Project Engineer and Facility Safety Office. Obtain permits from Facility Safety Office at least 48 hours in advance. Designate contractor's responsible project-site fire prevention program manager to permit hot work. Draft Hot work permit is on following pages:
**HOT WORK PERMIT**

<table>
<thead>
<tr>
<th>Date of Request: ____________________</th>
<th>OSHA 10 / 30 Hour Safety #: ____________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date(s) Work is to be Performed: ____________________</td>
<td>Time(s): ____________________</td>
</tr>
<tr>
<td>Location of Work: ____________________</td>
<td>WO or Project #: ____________________</td>
</tr>
<tr>
<td>Shop/Contractor Company Name: ____________________</td>
<td></td>
</tr>
<tr>
<td>Hot Work Operator: ____________________</td>
<td>Phone/Radio #: ____________________</td>
</tr>
<tr>
<td>Description of Work: ____________________</td>
<td></td>
</tr>
<tr>
<td>Fire Alarm System or Zone(s) to be taken out of service: ____________________</td>
<td></td>
</tr>
<tr>
<td>Fire Watch Required No/Yes. Name of Fire Watch/doc time on form back: ____________________</td>
<td></td>
</tr>
<tr>
<td>ILSM Required No/Yes ILSM #: ____________________</td>
<td></td>
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</tbody>
</table>

Before approval of any hot cutting, welding, or brazing operations, the safety official or an authorized appointee shall inspect the work area and confirm that precautions have been taken to prevent fire IAW NFPA 51B.

The following shall be complied with prior to any work being performed:

1. Hot Work Operator shall have this work permit at the Hot Work site at all times.
2. VAMC Fire Alarm systems personnel shall be responsible to disabled/enable systems each day.
3. Hot Work Operator shall know location of Fire alarm pull stations and exits in the Hot Work area.
4. All combustibles within 35’ of Hot Work area shall be protected in place or temporarily removed.
5. Any openings shall be cover/protected where sparks, hot embers, and/or burning material(s) may enter.
6. The area shall be inspected by VAMC Safety office or designated representative prior to start of work.
7. Hot Work Operator shall provide their own required fire extinguisher(s). **Facility** Fire Extinguishers shall **NOT** be used for fire watch. Contractor supplied fire extinguisher(s) shall meet the minimum rating of 2A10BC per NFC 10.
8. Provide a fire watch (if required). Shall be an individual other than the Hot Work Operator and that individual shall maintain fire watch for 60 minutes thereafter to ensure area is fire safe. **Document Fire Watch on back of Permit.**
9. Fire extinguisher will be provided on every floor, 20,000 square feet of work space and available for use within 20 ft. of where Hot Work is being performed.
10. Fire Dept. will be contacted if sprinkler system is off more than 10 hours in a 24 hour period.
11. Hot Work equipment shall be serviceable and in compliance with OSHA and National Fire Protection Codes.
12. In Hazardous locations (i.e., flammable liquid storage area) all precautions prescribed by OSHA and National Fire codes (as a MINIMUM) shall be taken prior to Hot Work operations.
13. Contractor shall return this HOT WORK PERMIT to the Safety office upon completion of Hot Work.

**DIAL 911 TO REPORT A FIRE/ PULL NEAREST FIRE ALARM STATION**

The signature of the contractor/craftsmen or representative below is agreement that the specifications listed above shall be adhered to at all times, during all Hot Work operations!

Contractor or Engineering Supervisor ____________________ (Date)

VA Approving Official ____________________ (Date)
## SAFETY REQUIREMENTS

### When to Conduct a Fire Watch

<table>
<thead>
<tr>
<th>Service Situation</th>
<th>Fire watch required?</th>
<th>ISLM required?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Putting a shield over one smoke detector to prevent dust/false alarms for more than 8 hours</strong></td>
<td>No</td>
<td>Recommended</td>
</tr>
<tr>
<td><strong>Rationale:</strong> Other features of fire protection are not compromised during the event, such as additional smoke detectors or sprinkler heads in the affected area.</td>
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<tr>
<td><strong>B. Covering all smoke detectors during a controlled event, such as only during the time contractors are working in an affected area, although after hours the entire area is fully operational</strong></td>
<td>No</td>
<td>Yes</td>
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<tr>
<td><strong>Rationale:</strong> During a controlled event, the organization would be managing the deficiency. The area would be continually monitored, and ILASM should be implemented as per policy.</td>
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<tr>
<td><strong>C. Shutting off a zone valve to the sprinkler system or disabling a fire alarm zone for more than 10 hours</strong></td>
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<tr>
<td>● <strong>Scheduled event</strong> (that is, working on, servicing, or upgrading fire alarm system or sprinkler system)</td>
<td>Not in all cases</td>
<td>Yes (with an emphasis on Occupant Notification)</td>
</tr>
<tr>
<td><strong>Rationale:</strong> During a controlled event, the organization would be managing the deficiency. The area would be continually monitored, and ILASM would be implemented as per policy.</td>
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<tr>
<td>● <strong>Unscheduled event</strong> (that is, shutting off a zone valve to the sprinkler system or disabling a smoke zone for more than 8 hours in response to a system failure)</td>
<td>Yes</td>
<td>Yes</td>
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</table>

### Who Conducts a Fire Watch?

An annex of the National Fire Protection Association (NFPA) 101-2015 explains: A fire watch should at least involve some special action beyond normal staffing, such as assigning an additional reliable individual to walk the areas affected. These individuals should be specially trained in fire prevention and in occupant and fire department notification techniques, and they should understand the particular fire safety situation for public education.

---

Is it necessary to contact the Local Fire Department and or Energy/Boiler Plant? **Y / N ALD** –ext. 76861 SD-ext. 62003

Is it necessary to contact the VA Dept. Manager? **Y / N** NA #

Name of person(s) contacted ____________________________

Who Contacted FD/Boiler Plant and or VA Dept. Manager? ____________________________ Date/Time ____________

**Fire Watch** (minimum at least 60 minutes after the Hot Works as been completed)

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Initials</th>
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11/5/14

Clinic and Outpatient Pharmacy Flow and Finishes Study
VA Seattle Division Project No. 663-14-122
1.15 ELECTRICAL


B. All qualified persons performing electrical work under this contract shall be licensed journeyman or master electricians. All apprentice electricians performing under this contract shall be deemed unqualified persons unless they are working under the immediate supervision of a licensed electrician or master electrician.

C. All electrical work will be accomplished de-energized and in the Electrically Safe Work Condition (refer to NFPA 70E for Work Involving Electrical Hazards, including Exemptions to Work Permit). Any Contractor, subcontractor or temporary worker who fails to fully comply with this requirement is subject to immediate termination in accordance with FAR clause 52.236-5(c). Only in rare circumstance where achieving an electrically safe work condition prior to beginning work would increase or cause additional hazards, or is infeasible due to equipment design or operational limitations is energized work permitted. The Chief of Facilities Management, Project Manager, and Facility Safety Officer with approval of the Medical Center Director will make the determination if the circumstances would meet the exception outlined above. An AHA specific to energized work activities will be developed, reviewed, and accepted prior to the start of that work.

1. Development of a Hazardous Electrical Energy Control Procedure is required prior to de-energization. A single Simple Lockout/Tagout Procedure for multiple work operations can only be used for work involving qualified person(s) de-energizing one set of conductors or circuit part source. Task specific Complex Lockout/Tagout Procedures are required at all other times.

2. Verification of the absence of voltage after de-energization and lockout/tagout is considered “energized electrical work” (live work) under NFPA 70E, and shall only be performed by qualified persons wearing appropriate shock protective (voltage rated) gloves and arc rate personal protective clothing and equipment, using Underwriters Laboratories (UL) tested and appropriately rated contact electrical testing instruments or equipment appropriate for the environment in which they will be used.

3. Personal Protective Equipment (PPE) and electrical testing instruments will be readily available for inspection by the Chief of Facilities Management Project Manager and Facility Safety Officer.

D. Before beginning any electrical work, an Activity Hazard Analysis (AHA) will be conducted to include Shock Hazard and Arc Flash Hazard analyses (NFPA Tables can be used only as a last alternative and it is strongly suggested a full Arc Flash Hazard Analyses be conducted). Work shall not begin until the AHA for the work activity has been accepted by the Project Manager and Facility Safety Officer and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.
E. Ground-fault circuit interrupters. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites shall have approved ground-fault circuit interrupters for personnel protection. “Assured Equipment Grounding Conductor Program” only is not allowed.

1.16 FALL PROTECTION

A. The fall protection (FP) threshold height requirement is 6 ft (1.8 m) for ALL WORK, unless specified differently or the OSHA 29 CFR 1926 requirements are more stringent, to include steel erection activities, systems-engineered activities (prefabricated) metal buildings, residential (wood) construction and scaffolding work.

1. The use of a Safety Monitoring System (SMS) as a fall protection method is prohibited.

2. The use of Controlled Access Zone (CAZ) as a fall protection method is prohibited.

3. A Warning Line System (WLS) may ONLY be used on floors or flat or low-sloped roofs (between 0 - 18.4 degrees or 4:12 slope) and shall be erected around all sides of the work area (See 29 CFR 1926.502(f) for construction of WLS requirements). Working within the WLS does not require FP. No worker shall be allowed in the area between the roof or floor edge and the WLS without FP. FP is required when working outside the WLS.

4. Fall protection while using a ladder will be governed by the OSHA requirements.

1.17 NOT USED - SCAFFOLDS AND OTHER WORK PLATFORMS

1.18 NOT USED - EXCAVATION AND TRENCHES

1.19 NOT USED - CRANES

1.20 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

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

1.21 CONFINED SPACE ENTRY

A. All confined space entry shall comply with 29 CFR 1910.146 except for specifically referenced operations in 29 CFR 1926 such as excavations/trenches [1926.651(g)].

B. A site-specific Confined Space Entry Plan (including permitting process) shall be developed and submitted to the Project Manager and Facility Safety Officer.
1.22 WELDING AND CUTTING

As specified in section 1.14, Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Project Manager and Facility Safety Officer. Obtain permits from Project Manager and Facility Safety Officer at least 48 hours in advance. Designate contractor’s responsible project-site fire prevention program manager to permit hot work.

1.23 LADDERS

A. All Ladder use shall comply with 29 CFR 1926 Subpart X.

B. All portable ladders shall be of sufficient length and shall be placed so that workers will not stretch or assume a hazardous position.

C. Manufacturer safety labels shall be in place on ladders

D. Step Ladders shall not be used in the closed position

E. Top steps or cap of step ladders shall not be used as a step

F. Portable ladders, used as temporary access, shall extend at least 3 ft (0.9 m) above the upper landing surface.

1. When a 3 ft (0.9-m) extension is not possible, a grasping device (such as a grab rail) shall be provided to assist workers in mounting and dismounting the ladder.

2. In no case shall the length of the ladder be such that ladder deflection under a load would, by itself, cause the ladder to slip from its support.

G. Ladders shall be inspected for visible defects on a daily basis and after any occurrence that could affect their safe use. Broken or damaged ladders shall be immediately tagged "DO NOT USE," or with similar wording, and withdrawn from service until restored to a condition meeting their original design.

1.24 FLOOR & WALL OPENINGS

A. All floor and wall openings shall comply with 29 CFR 1926 Subpart M.

B. Floor and roof holes/openings are any that measure over 2 in (51 mm) in any direction of a walking/working surface which persons may trip or fall into or where objects may fall to the level below. See 21.F for covering and labeling requirements. Skylights located in floors or roofs are considered floor or roof hole/openings.

C. All floor, roof openings or hole into which a person can accidentally walk or fall through shall be guarded either by a railing system with toeboards along all exposed sides or a load-bearing cover. When the cover is not in place, the opening or hole shall be protected by a removable
guardrail system or shall be attended when the guarding system has been removed, or other fall protection system.

1. Covers shall be capable of supporting, without failure, at least twice the weight of the worker, equipment and material combined.

2. Covers shall be secured when installed, clearly marked with the word “HOLE”, “COVER” or “Danger, Roof Opening-Do Not Remove” or color-coded or equivalent methods (e.g., red or orange “X”). Workers must be made aware of the meaning for color coding and equivalent methods.

3. Roofing material, such as roofing membrane, insulation or felts, covering or partly covering openings or holes, shall be immediately cut out. No hole or opening shall be left unattended unless covered.

4. Non-load-bearing skylights shall be guarded by a load-bearing skylight screen, cover, or railing system along all exposed sides.

5. Workers are prohibited from standing/walking on skylights.

--- END ---
SECTION 01 35 33  
DUST AND INFECTION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies minimum administrative and procedural requirements that the Contractor shall implement for dust and infection control as extensions of other provisions in the Contract Documents.

1. All construction work at a health care center is a potential health risk in that nuisance dust, mold spores and other microbial organisms can result from construction activities. As such, the Contractor shall:
   a. Not allow any dust to escape the construction work area within the project;
   b. Control any dust, due to construction Work, from entering the occupied areas; and
   c. Minimize dust and debris from construction operations at all times.

1.2 CONTROL REQUIREMENTS SUMMARY

A. Dust barriers/partitions are to be installed during all Work. Negative pressure differential fan units are to be installed to establish airflow controls. Refer to Item 1.5 for additional information.

1. During construction, the Contractor shall ensure:
   a. There is an active means to prevent airborne dust from dispersing into the areas outside the construction work areas by installing dust barriers/partitions at openings to the construction work areas and negative pressure differential fan units in the work areas;

2. Upon completion of the Project, the Contractor shall ensure:
   a. The work areas are vacuumed with a HEPA filtered vacuum
   b. The adjacent occupied areas of the building are vacuumed with a HEPA filtered vacuum and all work area surfaces are wiped clean

1.3 DEFINITIONS OF CONSTRUCTION ACTIVITIES

A. “Inspection and Non-Invasive Activities”: Lifting of ceiling tiles or opening of hard ceiling access panels for visual inspection only; painting (but not sanding); application of wall coverings; and other Owner approved activities which do not move or mobilize uncontrolled dust or require cutting of walls or floor coverings, such as electrical trim work and minor plumbing. (Inspection and Non-Invasive Activities do not include opening access doors in HVAC ductwork.)

1. Uncontrolled and uncontained Inspection and Non-Invasive Activities are not permitted in “highest risk” patient areas.

B. “Standard Risk Activities”: Small scale, short duration activities that are completed in a single work shift and/or that create minimal dust where dust migration is completely contained and controlled from dispersing into the atmosphere, such as installation of energy limited cabling (e.g., telephone, computers), access to chase spaces, cutting of walls or ceilings, and the performance of Inspection and Non-Invasive Activities in “highest risk” patient areas.
1. Standard Risk Activities are not permitted in “highest risk” patient areas without proper dust and infection control practices to contain dust and debris.

2. During construction, the Contractor shall ensure:
   a. There is an active means to prevent airborne dust from dispersing into the adjacent occupied areas.
   b. Unused enclosure doors are sealed with painter’s tape.
   c. HVAC system air vents (supply and exhaust) within enclosures are sealed shut.
   d. Dust containment (sticky) mats are located at entrance and exit to work area enclosure doors.

3. Upon completion of the Project, the Contractor shall ensure:
   a. Work surfaces are cleaned and wiped with approved disinfectants.
   b. The work area is damp mopped and/or vacuumed with a HEPA filtered vacuum.
   c. HVAC system isolation is removed and functioning within original conditions or new design standards.

C. “High Risk Activities” All requirements specified herein apply to any Work that potentially generates or disturbs a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies, such as sanding of walls for painting or wall coverings, removal of floor coverings, ceiling tiles and/or casework, and new wall construction. Also, includes HVAC ductwork and electrical work above ceilings, major cabling work, and any activity that cannot be completed within a single work shift.

1.4 DESCRIPTION OF GENERAL REQUIREMENTS

A. The Contractor shall identify a competent person responsible for establishing, coordinating and maintaining infection control interventions and safety training for the Project who shall be on-site at all times during the Work.

B. The Contractor shall submit a written “Dust and Infection Control and Monitoring Plan” for Owner’s review and approval prior to performing Work. The plan shall include, but not be limited to, locating dust proof enclosures, HEPA equipment locations and negative air routing, fire safety and security, noise and vibration control, construction access and exit path routing, temporary signage design and locations, odor control, waste management, and proposed cleaning equipment.

1. Submit temporary facilities drawings for all work areas showing the locations of dust proof enclosures and negative air machines, with ductwork routing, required for performance of the Work.
   a. For relocations required by the Work, revise and resubmit.

2. Submit a water control plan for concrete core drilling and saw cutting if this is to occur.

C. Daily Reports: Contractor shall submit daily dust and infection control reports that document:
   1. A general description of the activities completed during the shift;
2. Dust and Infection Control enclosure checks and modifications, if necessary.

D. Dust and Infection Control Training: The Contractor shall provide jobsite orientation for all construction personnel and suppliers of materials to the Project site to become familiar with the Project specific infection control requirements prior to performing any on-site construction activities.

E. All dust and infection control requirements shall be in place before commencing Work and shall remain in place and be maintained in good working order until the Work is complete, including but not limited to completing the following work:
   1. Punch List work is fully and finally complete;
   2. Door locks/keys are changed over;
   3. Owner’s air sampling has met dust and infection control completion criteria, and;
   4. Contractor’s final cleaning and/or Owner’s transplant cleaning and disinfection is complete.
      a. Contractor’s final cleaning shall occur after Punch List work is complete to the satisfaction of the Owner.

1.5 DUST AND INFECTION CONTROL REQUIREMENTS

A. Dust Proof Enclosures: The Contractor shall provide dust proof enclosures for all Work. Dust proof enclosures must: enclose the entire work area to completely isolate it from all surrounding areas; cut off any flow of particles from work areas to patient areas; and be functioning continuously. Doors shall remain closed and penetrations or openings to dust proof enclosures shall be tightly sealed at the end of each work shift.
   1. All dust proof enclosures shall be maintained on a daily basis to ensure proper airflow, appearance, and workplace security. Enclosure failure requires immediate corrective action by the Contractor.
      a. Enclosures which are not immediately repaired by the Contractor may be repaired by the Owner and all Owner costs required to repair the failure may, at the Owner’s sole discretion, be back-charged to the Contractor.
   2. When performing construction activities of a “high risk” classification, in highest risk patient areas, an anteroom to the enclosure entrance shall be required.
   3. Portable mini enclosures shall be equipped with a HEPA vacuum for vacuuming the work area prior to removing the enclosure.
   4. On phased projects, if dust proof enclosures are to be relocated as a part of the phasing of the work area, the work area shall be fully cleaned prior to the relocation of any dust proof enclosures to prevent dust from leaving the work area.

B. Work Area Air Pressure Requirements: The Contractor shall use negative air machine equipment to maintain a negative air pressure relationship of the work area from surrounding areas. Negative air pressurization of the work area is required at all times, and constant maintenance of
that pressure differential is the responsibility of Contractor, unless exempted in writing by the Owner.

1. Work area ventilation must be exhausted 100% to the exterior of the building and directed away from building air intakes to an approved location, unless otherwise approved in writing by the Owner.
   
a. If the Owner agrees exhausting to the exterior of the building is not feasible, HEPA filtered air may be exhausted to adjacent areas provided existing air relationships remain unchanged and the Contractor provides confirmation with an air balancing report. The air balancing report shall be provided to the Owner prior to the Contractor performing construction work.
   
   1) When exhausting indoors, exhaust near the ceiling through a velocity reducing pre-filter material approved by the Owner. Never exhaust into existing air ducts.

C. Negative Air Machines: The Contractor shall utilize HEPA equipped air filtration "negative air" machines and heavy duty flexible steel reinforced exhaust hoses.

   1. HEPA equipped air filtration machines shall be connected to normal power and ganged to a single switch for emergency shut-off.
   
   2. Exhaust hoses shall be of adequate size to ensure necessary air flow and be in place and intact at all times.
   
   3. The Contractor is to take care in maintaining the negative air machines in accordance with the manufacturer’s written instructions, including but not limited to, monitoring and changing all filters and seals as needed to ensure adequate airflow and complete filtering.
   
   4. The Contractor shall provide all necessary HEPA filters for the negative air machines.

D. Materials and Material Handling: The Contractor shall ensure that all materials, including new materials, construction debris, and tools, are transported clean and contained or wrapped in “dust impermeable” enclosures when transported project work areas. Containers and/or carts shall be tightly covered and their open surfaces shall be wrapped and taped closed unless there is a solid lid. Wrappings and/or bags shall be hermetically sealed.

   1. Wheels of containers and/or carts shall be wiped clean prior to entering the project work areas and entering or leaving the work area.
   
   2. Debris removal shall occur through approved routes and only at times approved by Owner.

E. Owner Air Monitoring: The Owner reserves the right to perform periodic field inspections and air quality testing inside and outside the work area and can approve removal of dust proof enclosures based upon air quality testing results. If Owner’s air monitoring indicates failure of negative pressurization of the work area enclosure, or Owner’s measurements and/or observations indicate the construction work is releasing particulates, dust, or vapors outside the work area, upon Owner’s notification to Contractor, Contractor shall implement immediate corrective actions to stop such emissions and to prevent future emissions.
1. Air sample results require approximately 48 hours. Areas that “fail” air sampling at the end of the Project will require additional visual inspection, assessment and remediation, with possible repeat cleaning. Retesting will be performed until the work area meets “passing” criteria.

F. Housekeeping:

1. Dust and Infection Control Cleaning: The Contractor shall provide dust and infection control cleaning during all construction activities within the health care center.
   a. Construction work areas and access routes shall be clean. Contractor shall continuously clean all work areas within the Project site and those work areas outside enclosure containment, including construction access routes, free from dust, debris, and construction materials. Clean and disinfect all existing surfaces and materials outside containment that are impacted by construction immediately upon completion of an activity.
   b. Damp mop, electrostatic cloth sweep, and/or vacuum with HEPA filtration the construction site and construction access routes during the work and before leaving work areas at the end of a shift to eliminate tracking and dust migration. Prior to the removal of any dust proof enclosures the Project site must be damp mopped and/or vacuumed and all surfaces wiped down with disinfectant. Submit disinfectant for Owner’s review and approval.
      1) Quaternary ammonium compounds are required for damp mopping.

2. Maintain sufficient supplies of cleaning equipment on-site including but not limited to: HEPA filtered vacuum cleaners; dust attracting mops; wet mops; brooms; buckets; and clean wiping rags.

3. Any materials capable of absorbing moisture must be fully dried within 48 hours of becoming wet. If material, either new or existing, inside or outside the work area, becomes wet as a result of the Contractor’s actions and is unable to be dried to an “as-new” condition within 48 hours, the Contractor shall remove the materials within the same 48 hour period. Any visible mold growth caused by or observed by Contractor inside the work area must be reported to Owner immediately. Owner will determine corrective actions to be taken in consultation with Contractor.
   a. Materials removed from the work area for this reason shall be replaced with new materials at Contractor’s expense.

4. Contractor shall take measures to control vermin and other pest infestations within the Project site. Food waste is to be removed daily and all food is to be stored in tightly sealed containers that are clearly labeled.
a. Any visible rodent droppings observed by the Contractor inside the work area must be reported to Owner immediately. Owner will determine corrective actions to be taken in consultation with Contractor.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 PERFORMANCE REQUIREMENTS

A. The Contractor shall implement the following, but not limited to, work procedures for the specified work:

1. Construction materials stored on-site shall be kept dry.
2. Immediately remove spills or excess applications of solvent containing products.
3. Existing supply and exhaust air grills serving the building HVAC system within dust proof enclosures shall be covered and sealed to prevent airflow and contamination of the duct system at all times.
4. At the end of the work day, all openings in pipes and ductwork shall be covered or sealed.
5. Work surfaces are misted with wetting agents to control dust during demolition and while cutting.
6. Vacuum subfloor surfaces prior to the application of resilient flooring materials.
7. Concealed spaces shall be vacuumed clean before covering or enclosing, including but not limited to: chases; stud tracks; above ceilings (including top surfaces of ductwork and cable trays); and surfaces covered by resilient flooring materials, casework, and accessories.
8. Immediately replace any ceiling tile briefly lifted for visual inspection outside of dust proof enclosures. Removed tiles shall not be left open and unattended. Limit tile removal to 1 tile per 50 square feet of area, unless otherwise approved by Owner.
9. Work shall be performed in rooms where patients are not present, and at least five (5) feet from patients or visitors in ambulatory or general public settings, when approved by Owner.
10. When an anteroom is required for a dust proof enclosure, all personnel must pass thru the anteroom before leaving the work site and they shall vacuum debris from their person using a HEPA vacuum cleaner or they shall wear cloth or paper coveralls that are removed within the anteroom each time they leave the work site. Anterooms shall be negatively pressurized the same as the associated dust proof enclosures.
11. All construction personnel and material suppliers entering a dust proof enclosure at a work site shall wear shoe covers. Shoe covers must be changed each time the person exits the work site.
12. Dust proof enclosures shall be removed only after receiving Owner’s written approval of the Project site air quality. Remove dust proof enclosure materials carefully to minimize spreading of dirt and debris associated with the Work.
a. Mini-enclosures shall be cleaned inside prior to dismantling, to prevent dust from escaping into occupied areas.

- - - END - - -
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)
425 Eye Street N.W, (sixth floor)
Washington, DC 20001
Telephone Numbers: (202) 632-5249 or (202) 632-5178
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

AAMA American Architectural Manufacturer's Association
http://www.aamanet.org
EPA  Environmental Protection Agency
   http://www.epa.gov

ETL  ETL Testing Laboratories, Inc.
   http://www.et1.com

FPS  The Forest Products Society
   http://www.forestprod.org

GANA  Glass Association of North America
   http://www.cssinfo.com/info/gana.html/

FM  Factory Mutual Insurance
   http://www.fmglobal.com

GA  Gypsum Association
   http://www.gypsum.org

GSA  General Services Administration
   http://www.gsa.gov

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

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

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

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

NBS  National Bureau of Standards
   See - NIST

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

NPA  National Particleboard Association
   18928 Premiere Court
   Gaithersburg, MD 20879
   (301) 670-0604
OSHA  Occupational Safety and Health Administration  
Department of Labor  
http://www.osha.gov

PEI  Porcelain Enamel Institute, Inc.  
http://www.porcelainenamel.com

RFCI  The Resilient Floor Covering Institute  
http://www.rfci.com

RMA  Rubber Manufacturers Association, Inc.  
http://www.rma.org

SDI  Steel Door Institute  
http://www.steeldoor.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

IBC  The International 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

- - - E N D - - -
SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.

B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
   1. Adversely effect human health or welfare,
   2. Unfavorably alter ecological balances of importance to human life,
   3. Effect other species of importance to humankind, or;
   4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.

C. Definitions of Pollutants:
   2. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
   3. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
   4. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
   5. Sanitary Wastes:
      a. Sewage: Domestic sanitary sewage and human and animal waste.
      b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2 QUALITY CONTROL

A. Establish and maintain quality control for the environmental protection of all items set forth herein.

B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.

1.3 REFERENCES

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

B. U.S. National Archives and Records Administration (NARA):
   33 CFR 328.................................Definitions
1.4 SUBMITTALS

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

1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the Resident Engineer to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Resident Engineer for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:
   a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
   b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site.
   c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
   d. Description of the Contractor's environmental protection personnel training program.
   e. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
   f. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
   g. Procedures to provide the environmental protection that comply with the applicable laws and regulations. Describe the procedures to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures as described in the Environmental Protection Plan.
   h. Permits, licenses, and the location of the solid waste disposal area.
   j. Environmental Monitoring Plans for the job site including land, water, air, and noise.
   k. Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.

B. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.
1.5 PROTECTION OF ENVIRONMENTAL RESOURCES

A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract. Confine activities to areas defined by the specifications and drawings.

B. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the Puget Sound Clean Air Agency Regulations and Federal emission and performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency, for those construction operations and activities specified.

1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.


3. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.

C. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the Resident Engineer. Maintain noise-produced work at or below the decibel levels and within the time periods specified.

1. Perform construction activities involving repetitive, high-level impact noise only between 8:00 a.m. and 6:00 p.m unless otherwise permitted by local ordinance or the Resident Engineer.

Repetitive impact noise on the property shall not exceed the following dB limitations:

<table>
<thead>
<tr>
<th>Time Duration of Impact Noise</th>
<th>Sound Level in dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 12 minutes in any hour</td>
<td>70</td>
</tr>
<tr>
<td>Less than 30 seconds of any hour</td>
<td>85</td>
</tr>
<tr>
<td>Less than three minutes of any hour</td>
<td>80</td>
</tr>
<tr>
<td>Less than 12 minutes of any hour</td>
<td>75</td>
</tr>
</tbody>
</table>

2. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:

a. Maintain maximum permissible construction equipment noise levels at 15 m (50 feet) (dBA):

<table>
<thead>
<tr>
<th>EARTHMOVING</th>
<th>MATERIALS HANDLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPRESSORS</td>
<td>PNEUMATIC TOOLS</td>
</tr>
<tr>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>PUMPS</td>
<td>VIBRATORS</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>GENERATORS</td>
<td>SAWS</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>
b. Use shields or other physical barriers to restrict noise transmission.

c. Provide soundproof housings or enclosures for noise-producing machinery.

d. Use efficient silencers on equipment air intakes.

e. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.

f. Line hoppers and storage bins with sound deadening material.

g. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.

3. Measure sound level for noise exposure due to the construction at least once every five successive working days while work is being performed above 55 dB(A) noise level. Measure noise exposure at the property line or 15 m (50 feet) from the noise source, whichever is greater. Measure the sound levels on the A weighing network of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at 900 to 1800 mm (three to six feet) in front of any building face. Submit the recorded information to the Resident Engineer noting any problems and the alternatives for mitigating actions.

G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.

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

- - - E N D - - -
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.
   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. Clean dimensional wood and palette wood.
   2. Engineered wood products (plywood, particle board and I-joists, etc).
   3. Metal products (eg, steel, wire, beverage containers, copper, etc).
   5. Plastics (eg, ABS, PVC).
   6. Carpet and/or pad.
   7. Gypsum board.
   8. Insulation.

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.
5. Over ordering.
6. Weather damage.
7. Contamination.
8. Mishandling.

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 recycle construction and demolition waste 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/tools/cwm.php 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 Resident Engineer 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
A. 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.

B. 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.
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.

--- E N D ---
PART 1 - GENERAL

1.1 DESCRIPTION:
This section specifies selective remodel demolition and removal of portions of buildings for the installation of new work as shown.

1.2 RELATED WORK:
A. Safety Requirements: Section 01 35 26 Safety Requirements Article, ACCIDENT PREVENTION PLAN (APP).
B. Reserved items that are to remain the property of the Government: Section 01 00 00, GENERAL REQUIREMENTS.
C. Asbestos Removal: Section 02 82 11, TRADITIONAL ASBESTOS ABATEMENT.
D. Environmental Protection: Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.
E. Construction Waste Management: Section 017419 CONSTRUCTION WASTE MANAGEMENT.

1.3 PROTECTION:
A. Perform selective 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. Comply with requirements of GENERAL CONDITIONS Article, ACCIDENT PREVENTION.
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. Comply with requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS.
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. 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.
E. 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 Resident Engineer. 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 Resident Engineer’s approval.

H. The work shall comply with the requirements of Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

I. The work shall comply with the requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article 1.7 INFECTION PREVENTION MEASURES.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 DEMOLITION:

A. Remove existing work as indicated and as required to accomplish new work.
   1. Do all demolition, drilling and/or removal work, as applicable, required for the completion of new work in existing building to remain as shown on Drawings or specified. Refer to Drawings and details for specific items of construction to be removed and other demolition requirements for the new work.
   2. The extent of demolition required for the entire project shall be verified by the Contractor at the jobsite and performed to the fullest extent required due to actual job conditions and requirements of new work indicated.
   3. Where demolition occurs next to existing work to remain, remove carefully only those items required for placing new work. Conduct demolition to minimize interference with adjacent structures to remain.
   4. Remove all loose material caused by or remaining from demolition work. Cut openings and/or pockets neatly ready for installation of new work. Use carborundum saws or approved means or devices where cuts will remain exposed in the completed work.
   5. Coordinate demolition work with work in other Sections.

B. Materials & Equipment To Be Removed For Re-Use Or Turned Over To Owner
   1. Carefully remove, disassemble or dismantle and store on the site those items to be removed and re-used in the completed work or retained by Owner, all as indicated on the Drawings and/or specified.
   2. Prior to removing any additional removed or demolished re-usable salvaged materials from site, Owner shall inspect said materials for selection of additional items to be retained. Carefully remove, disassemble or dismantle and deliver salvaged materials and equipment and store in approved locations on site, as directed.
   3. All other debris and non-selected materials and equipment shall become the property of the Contractor and removed from site.
C. Debris shall become property of Contractor and shall be disposed of by him daily, off the Medical Center site to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Resident Engineer. Contractor shall dispose debris in compliance with applicable federal, state or local permits, rules and/or regulations.

3.2 CLEAN-UP:

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to Resident Engineer. Clean-up shall include off the Medical Center Cemetery Property 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.

- - - E N D - - -
April 16, 2015

Mr. Craig McClelland, Architect
KMB Design Groups, Inc.
828 7th Avenue SW,
Olympia, WA 98501

RE: Limited Hazardous Materials Survey Summary
VA Puget Sound Health Care System (VAPSHCS) – Clinic and Outpatient Pharmacy
Flow and Finishes Study at Buildings 18 & 100, Seattle, WA
State of Washington Project No.: 663-14-122
PBS Project #41302.002

Dear Mr. McClelland:

PBS Engineering and Environmental, Inc. (PBS) performed a Limited Hazardous Materials Survey of building components at the VA Puget Sound Campus to determine the presence of asbestos-containing materials (ACMs), and lead containing paint (LCP) prior to the scheduled renovation project. The intent of this investigation is to ensure that the Department of Veteran Affairs is in compliance with applicable regulatory requirements that a "good faith inspection" for ACMs be performed prior to demolition or renovation activities.

Survey Process

Suspect asbestos materials were sampled by AHERA accredited building inspector Ferman Fletcher (Cert. #146539, expiration 4/23/2015) on April 15, 2015. Samples were assigned unique identification numbers and delivered to Seattle Asbestos Test (NVLAP #200768-0) under chain-of-custody protocols.

PBS collected bulk material samples from locations as identified in the drawings provided by KMB Design Groups. Additionally, PBS reviewed a historical asbestos survey report provided by EHSI in 2010. Pertinent information has been incorporated into our findings.

Findings

Asbestos-Containing Materials (ACM)

- No materials sampled in the work areas tested positive for asbestos.

The possibility exists that suspect ACM may be present in concealed locations not included in the inspection.
Lead-Containing Materials

One (1) representative painted coating was sampled and analyzed for the presence of lead. The paint sample was assigned a unique identification number and transmitted for analysis to NVL Laboratories, Inc. (NVLAP #102063) under chain-of-custody protocols. The sample was analyzed using Flame Atomic Absorption Lead Analysis. Lead was not identified above the analytical limit of detection in the sample analyzed. See attachments for location and result of paint sample. Refer to the attached Lead Sample Inventory for information on sample locations and concentrations detected.

Recommendations

ACMs

Caution should be exercised during demolition, as concealed ACMs may exist in various locations. Work that may impact asbestos should only be performed by personnel having received proper training and utilizing proper worker protection according to WISHA standards. Work impacting asbestos is subject to the requirements of various regulations, including, but not limited to: 40 CFR Part 61, NESHAPS; 40 CFR Part 763, AHERA; WAC 296-62 and 296-65; and Puget Sound Clean Air Agency Regulation III, Article 4, Asbestos.

PBS recommends that any previously unidentified materials revealed during renovation activities should be sampled for asbestos content prior to impact. In the event that previously unidentified materials are found to contain asbestos, a qualified Washington State licensed asbestos abatement contractor should be employed to remove them according to applicable local, state and federal regulations.

Lead-Containing Materials

Concealed painted coatings may exist in inaccessible areas of the building or in secondary coatings on building components. Any previously unidentified painted coatings should be considered lead containing until sampled and proven otherwise.

Impact of surfaces with detectable concentrations of lead or disturbance of lead-containing paint debris requires construction activities to be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-62-155). Workers impacting lead containing materials should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted.

Sincerely,

Report prepared by:     Report reviewed by:

Ferman Fletcher     Brian Stanford
AHERA Building Inspector    COO
Cert. #146539, exp. 4/23/2015

Attachments:  PLM Asbestos Laboratory Report and Chain-of-Custody
AAS Lead Laboratory Report and Chain-of-Custody
PBS Inspector Certification
Project: VAPSHCS Clinic & Outpatient Pharmacy
Analysis requested: PLM
Relinq'd by/Signature:
Received by/Signature:
Fax results to:
- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:
- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other

---

**BULK SAMPLE DATA FORM**

<table>
<thead>
<tr>
<th>Lab #</th>
<th>Sample #</th>
<th>Material</th>
<th>Location</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>41302.002</td>
<td>001</td>
<td>Carpet Mastic</td>
<td>Bldg 100; E. Clinic waiting room</td>
<td>SAT</td>
</tr>
<tr>
<td>41302.002</td>
<td>002</td>
<td>CB/CB Mastic/GWB</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>41302.002</td>
<td>003</td>
<td>Carpet Mastic</td>
<td>Bldg 100; Pharmacy Waiting Room</td>
<td></td>
</tr>
</tbody>
</table>

---
## Analytical Laboratory Report

**PLM by Method EPA/600/R-93/116**

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41302.002-001</td>
<td>1</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Gray rubbery material</td>
<td>None detected</td>
<td>Rubber/binder</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>41302.002-002</td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Off-white chalky material with paper</td>
<td>None detected</td>
<td>Binder/filler, Gypsum/binder</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>41302.002-003</td>
<td>1</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>5</td>
</tr>
</tbody>
</table>
April 16, 2015

Ferman Fletcher
PBS Environmental (Seattle)
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

RE: Metals Analysis; NVL Batch # 1506819.00

Dear Mr. Fletcher,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm). Percent (%) or mg/cm² by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft². TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m³. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested. Lead test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. If you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Nick Ly, Technical Director
# Analysis Report

## Total Lead (Pb)

**Client:** PBS Environmental (Seattle)

**Address:** 2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

**Attention:** Mr. Ferman Fletcher

**Project Location:** VAPSHCS & Outpatient Pharmacy

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample #</th>
<th>Sample Weight (g)</th>
<th>RL in mg/Kg</th>
<th>Results in mg/Kg</th>
<th>Results in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>15038070</td>
<td>41302.002-Pb01</td>
<td>0.0505</td>
<td>190.0</td>
<td>&lt; 190.0</td>
<td>&lt;0.0190</td>
</tr>
</tbody>
</table>

**Batch #: 1506819.00**

**Matrix:** Paint

**Method:** EPA 3051/7000B

**Client Project #:** 41302.002

**Date Received:** 4/15/2015

**Samples Received:** 1

**Samples Analyzed:** 1

---

**Sampled by:** Client

**Analyzed by:** Yasuyuki Hida  
**Reviewed by:** Nick Ly

**Date Analyzed:** 04/16/2015  
**Date Issued:** 04/16/2015

**Note:** Method QC results are acceptable unless stated otherwise.

- mg/ Kg = Milligrams per kilogram
- Percent = Milligrams per kilogram / 10000
- RL = Reporting Limit
- '<' = Below the reporting Limit

**Bench Run No:** 35-0416-5
**Project:** VAPSHCS Clinic & Outpatient Pharmacy  
**Project #:** 41302.002

**Analysis requested:** AAS for Pb  
**Date:** 4/15/15

**Relinqu'd by/Signature:**  
**Date/Time:** 4/15/15

**Received by/Signature:**  
**Date/Time:** 1530 Coa

**Fax results to:**
- [ ] Brian Stanford
- [ ] Ernest Edwards
- [ ] Gregg Middaugh
- [ ] Mark Hiley
- [x] Prudy Stoudt-McRae
- [ ] Joe Lucas
- [ ] Janet Murphy
- [ ] Willem Mager
- [x] Ferman Fletcher
- [ ] Tim Ogden
- [ ] Mike Smith
- [ ] Chuck Greeb

**TURN AROUND TIME:**
- [ ] 1 Hour
- [ ] 2 Hours
- [x] 24 Hours
- [ ] 48 Hours
- [ ] 3-5 Days
- [ ] Other

---

**BULK SAMPLE DATA FORM**

<table>
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<th>Sample #</th>
<th>Material</th>
<th>Location</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>41302.002-Pb01</td>
<td>White/GWB/Wall</td>
<td>Bldg 18; Dermatology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Certificate of Completion

This is to certify that

Ferman L. Fletcher

has satisfactorily completed
4 hours of refresher training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title II / 40 CFR 763 (AHERA)

146539
Certificate Number

Susan N. Maas
Instructor
EPA Provider Cert. Number: 1085

Apr 23, 2014
Date(s) of Training
Exam Score: NA
Expiration Date: Apr 23, 2015

Argus Pacific, Inc. • 1900 W. Nickerson, Suite 315 • Seattle, Washington • 98119 • 206.285.3373 • fax 206.285.3927
PART 1 - GENERAL

1.1 DESCRIPTION
A. This section specifies items and assemblies fabricated from structural steel shapes and other materials as shown and specified.
B. Items specified.
   1. Tube Steel Counter Top Frame Support

1.2 RELATED WORK
A. Counter supports attached to custom casework: Section 06 20 00, FINISH CARPENTRY.
B. Colors, finishes, and textures: Section 09 06 00, SCHEDULE FOR FINISHES.
C. Prime and finish painting: Section 09 91 00, PAINTING.

1.3 SUBMITTALS
A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
C. Shop Drawings:
   1. Each item specified, showing complete detail, location in the project, material and size of components, method of joining various components and assemblies, finish, and location, size and type of anchors.
   2. Mark items requiring field assembly for erection identification and furnish erection drawings and instructions.
   3. Provide templates and rough-in measurements as required.

1.4 QUALITY ASSURANCE
A. Each manufactured product shall meet, as a minimum, the requirements specified, and shall be a standard commercial product of a manufacturer regularly presently manufacturing items of type specified.
B. Each product type shall be the same and be made by the same manufacturer.
C. Assembled product to the greatest extent possible before delivery to the site.
D. Include additional features, which are not specifically prohibited by this specification, but which are a part of the manufacturer's standard commercial product.

1.5 APPLICABLE PUBLICATIONS
A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
B. American Society of Mechanical Engineers (ASME):
   B18.6.1-97 .................................Wood Screws
   B18.2.2-87(R2005).......................Square and Hex Nuts
C. American Society for Testing and Materials (ASTM):
   A36/A36M-12 ........................................ Structural Steel
   F436-11 ........................................ Hardened Steel Washers
   F468-06(R2012) ................................. Nonferrous Bolts, Hex Cap Screws, Socket Head Cap Screws
   and Studs for General Use
   F1667-11 ..................................... Driven Fasteners: Nails, Spikes and Staples
D. American Welding Society (AWS):
   D1.1-10 ........................................ Structural Welding Code Steel
E. National Association of Architectural Metal Manufacturers (NAAMM)
   AMP 500-06 ................................. Metal Finishes Manual
F. Structural Steel Painting Council (SSPC)/Society of Protective Coatings:
   SP 1-04 ........................................ No. 1, Solvent Cleaning
   SP 2-04 ........................................ No. 2, Hand Tool Cleaning
   SP 3-04 ........................................ No. 3, Power Tool Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS
A. Structural Steel: ASTM A36.
B. Steel Tubing: ASTM A500, Grade B.
C. Primer Paint: As specified in Section 09 91 00, PAINTING.

2.2 HARDWARE
B. Fasteners:
   1. Bolts with Nuts:
      a. ASME B18.2.2.
      c. ASTM F468 for nonferrous bolts.
   3. Washers: ASTM F436, type to suit material and anchorage.

2.3 FABRICATION GENERAL
A. Material
   1. Use material as specified. Use material of commercial quality and suitable for intended
      purpose for material that is not named or its standard of quality not specified.
   2. Use material free of defects which could affect the appearance or service ability of the
      finished product.
B. Size:
   1. Size and thickness of members as shown.
2. When size and thickness is not specified or shown for an individual part, use size and thickness not less than that used for the same component on similar standard commercial items or in accordance with established shop methods.

C. Connections
1. Except as otherwise specified, connections may be made by welding, riveting or bolting.
2. Field riveting will not be approved.
3. Design size, number and placement of fasteners, to develop a joint strength of not less than the design value.
4. Holes, for rivets and bolts: Accurately punched or drilled and burrs removed.
5. Size and shape welds to develop the full design strength of the parts connected by welds and to transmit imposed stresses without permanent deformation or failure when subject to service loadings.
6. Use Rivets and bolts of material selected to prevent corrosion (electrolysis) at bimetallic contacts. Plated or coated material will not be approved.
7. Use stainless steel connectors for removable members machine screws or bolts.

D. Fasteners and Anchors
1. Use methods for fastening or anchoring metal fabrications to building construction as shown or specified.
2. Where fasteners and anchors are not shown, design the type, size, location and spacing to resist the loads imposed without deformation of the members or causing failure of the anchor or fastener, and suit the sequence of installation.
3. Use material and finish of the fasteners compatible with the kinds of materials which are fastened together and their location in the finished work.
4. Fasteners for securing metal fabrication to existing construction or new construction may be expansion bolts, toggle bolts, power actuated drive pins, welding, self drilling and tapping screws or bolts.

E. Workmanship
1. General:
   a. Fabricate items to design shown.
   b. Furnish members in longest lengths commercially available within the limits shown and specified.
   c. Fabricate straight, true, free from warp and twist, and where applicable square and in same plane.
   d. Provide holes, sinkages and reinforcement shown and required for fasteners and anchorage items.
   e. Provide openings, cut-outs, and tapped holes for attachment and clearances required for work of other trades.
f. Prepare members for the installation and fitting of hardware.
g. Fabricate surfaces and edges free from sharp edges, burrs and projections which may cause injury.

2. Welding:
   a. Weld in accordance with AWS.
   b. Welds shall show good fusion, be free from cracks and porosity and accomplish secure and rigid joints in proper alignment.
   c. Where exposed in the finished work, continuous weld for the full length of the members joined and have depressed areas filled and protruding welds finished smooth and flush with adjacent surfaces.
   d. Finish welded joints to match finish of adjacent surface.

3. Joining:
   a. Miter or butt members at corners.
   b. Where frames members are butted at corners, cut leg of frame member perpendicular to surface, as required for clearance.

4. Cutting and Fitting:
   a. Accurately cut, machine and fit joints, corners, copes, and miters.
   b. Fit removable members to be easily removed.
   c. Design and construct field connections in the most practical place for appearance and ease of installation.
   d. Fit pieces together as required.
   e. Fabricate connections for ease of assembly and disassembly without use of special tools.
   f. Joints firm when assembled.
   g. Conceal joining, fitting and welding on exposed work as far as practical.
   h. Do not show rivets and screws prominently on the exposed face.
   i. The fit of components and the alignment of holes shall eliminate the need to modify component or to use exceptional force in the assembly of item and eliminate the need to use other than common tools.

SPEC WRITER NOTE: If more than one finish is used on project, specify applicable finish under the item. Coordinate paragraphs to delete finishes not used.

F. Finish:

1. Finish exposed surfaces in accordance with NAAMM AMP 500 Metal Finishes Manual.
2. Steel and Iron: NAAMM AMP 504.
   b. Surfaces exposed in the finished work:
      1) Finish smooth rough surfaces and remove projections.
2) Fill holes, dents and similar voids and depressions with epoxy type patching compound.

c. Shop Prime Painting:
   1) Surfaces of Ferrous metal:
      c) Remove all loose mill scale, rust, and paint, by hand or power tool cleaning as defined in SSPC-SP2 and SP3.
      d) Clean of oil, grease, soil and other detrimental matter by use of solvents or cleaning compounds as defined in SSPC-SP1.
   2) Non ferrous metals: Comply with MAAMM-500 series.

2.4 STEEL COUNTER TOP SUPPORT FRAME
   A. Fabricate tube steel frame with mitered and welded corners as shown.
   B. Drill top of frame with 6 mm (1/4 inch) holes spaced 200 mm (8 inches) on center for securing countertop.
   C. Fabricate legs of angle shapes and continuously weld to frame.
   D. Finish support frame with baked on enamel prime coat.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL
   A. Set work accurately, in alignment and where shown, plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.
   B. Install anchoring devices and fasteners as shown and as necessary for securing metal fabrications to building construction as specified. Power actuated drive pins may be used except for removable items and where members would be deformed or substrate damaged by their use.
   C. Spot prime all abraded and damaged areas of shop prime coat with same kind of paint used for shop priming.

3.2 STEEL COMPONENTS FOR MILLWORK ITEMS
   Coordinate and deliver to Millwork fabricator for assembly where millwork items are secured to metal fabrications.

3.3 CLEAN AND ADJUSTING
   A. Adjust movable parts including hardware to operate as designed without binding or deformation of the members centered in the opening or frame and, where applicable, contact surfaces fit tight and even without forcing or warping the components.
   B. Clean after installation exposed prefinished and plated items as recommended by the metal manufacture and protected from damage until completion of the project.

--- E N D ---
PART 1 - GENERAL

1.1 DESCRIPTION
A. This section specifies interior millwork.
B. Items specified.
   - Interview Booths with associated counter tops
   - Wall Paneling

1.2 RELATED WORK
A. Fabricated metal support brackets for countertops: Section 05 50 00, METAL FABRICATIONS.
B. Framing, furring and blocking: Section 06 10 00, ROUGH CARPENTRY.
C. Wood doors: Section 08 14 00, WOOD DOORS.
D. Color and texture of finish: Section 09 06 00, SCHEDULE FOR FINISHES.
E. Stock Casework: Section 12 32 00, MANUFACTURED WOOD CASEWORK.
F. Electrical light fixtures and duplex outlets: Division 26, ELECTRICAL.

1.3 SUBMITTALS
A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Shop Drawings:
   1. Millwork items – Half full size scale for sections and details 1:50 (1/4-inch) for elevations and plans.
   2. Show construction and installation.
C. Samples:
   1. Plastic laminate finished plywood or particleboard, 150 mm by 300 mm (six by twelve inches).
   2. Fabric for fabric covered panels, 150 mm by 300 mm (six by twelve inches).
D. Certificates:
   1. Indicating preservative treatment / fire retardant treatment of materials meet the requirements specified.
   2. Indicating moisture content of materials meet the requirements specified.
E. List of acceptable sealers for fire retardant and preservative treated materials.
F. Manufacturer's literature and data:
   1. Finish hardware
   2. Electrical components

1.4 DELIVERY, STORAGE AND HANDLING
A. Protect lumber and millwork from dampness, maintaining moisture content specified both during and after delivery at site.
B. Store finishing lumber and millwork in weathertight well ventilated structures or in space in existing buildings designated by Resident Engineer. Store at a minimum temperature of 21°C (70°F) for not less than 10 days before installation.

C. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

1.5 APPLICABLE PUBLICATIONS

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

B. American Society of Testing and Materials (ASTM):
   A36/A36M-08 Structural Steel
   A53-12 Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless
   A167-99 (R2009) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
   B26/B26M-09 Aluminum-Alloy Sand Castings
   B221-08 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
   E84-10 Surface Burning Characteristics of Building Materials

C. American Hardboard Association (AHA):
   A135.4-04 Basic Hardboard

D. Builders Hardware Manufacturers Association (BHMA):
   A156.9-03 Cabinet Hardware
   A156.11-10 Cabinet Locks
   A156.16-08 Auxiliary Hardware

E. Hardwood Plywood and Veneer Association (HPVA):
   HP1-09 Hardwood and Decorative Plywood

F. National Particleboard Association (NPA):
   A208.1-09 Wood Particleboard

G. American Wood-Preservers’ Association (AWPA):
   AWPA C1-03 All Timber Products – Preservative Treatment by Pressure Processes

H. Architectural Woodwork Institute (AWI):
   AWI-09 Architectural Woodwork Quality Standards and Quality Certification Program

I. National Electrical Manufacturers Association (NEMA):
   LD 3-05 High-Pressure Decorative Laminates

J. U.S. Department of Commerce, Product Standard (PS):
   PS20-10 American Softwood Lumber Standard
K. Military Specification (Mil. Spec):
   MIL-L-19140E..........................Lumber and Plywood, Fire-Retardant Treated

L. Federal Specifications (Fed. Spec.):
   A-A-1922A..........................Shield Expansion
   A-A-1936..............................Contact Adhesive
   FF-N-836D............................Nut, Square, Hexagon Cap, Slotted, Castle
   FF-S-111D(1)........................Screw, Wood
   MM-L-736(C)..........................Lumber, Hardwood

PART 2 – PRODUCTS

2.1 BIO-BASED MATERIAL:
   Bio-based Materials: For products designated by the USDA’s Bio-Preferred program, provide
   products that meet or exceed USDA recommendations for bio-based content, so long as products
   meet all performance requirements in this specification section. For more information regarding
   the product categories covered by the Bio-Preferred program, visit http://www.bio-preferred.gov

2.2 LUMBER
   A. Grading and Marking:
      1. Lumber shall bear the grade mark, stamp, or other identifying marks indicating grades of
         material.
      2. Such identifying marks on a material shall be in accordance with the rule or standard under
         which the material is produced, including requirements for qualifications and authority of the
         inspection organization, usage of authorized identification, and information included in the
         identification.
      3. The inspection agency for lumber shall be approved by the Board of Review, American
         Lumber Standards Committee, to grade species used.
   B. Sizes:
      1. Lumber Size references, unless otherwise specified, are nominal sizes, and actual sizes shall
         be within manufacturing tolerances allowed by the standard under which product is produced.
      2. Millwork, standing and running trim, and rails: Actual size as shown or specified.
   C. Hardwood: MM-L-736, species as specified for each item.
   D. Softwood: PS-20, exposed to view appearance grades:
      1. Use C select or D select, vertical grain for transparent finish including stain transparent finish.
      2. Use Prime for painted or opaque finish.

2.3 PLYWOOD
   A. Softwood Plywood:
      1. Prod. Std.
      2. Grading and Marking:
a. Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood.

b. The mark shall identify the plywood by species group or identification index, and shall show glue type, grade, and compliance with PS1.

3. Plywood, 13 mm (1/2 inch) and thicker; not less than five ply construction, except 32 mm (1-1/4 inch) thick plywood not less than seven ply.

4. Plastic Laminate Plywood Cores:
   a. Exterior Type, and species group.
   b. Veneer Grade: A-C.

5. Shelving Plywood:
   a. Interior Type, any species group.
   b. Veneer Grade: A-B or B-C.

6. Other: As specified for item.

2.4 PARTICLEBOARD

A. NPA A208.1

B. Plastic Laminate Particleboard Cores:
   1. Use Type 1, Grade 1-M-3, or Type 2, Grade 2-M-2, unless otherwise specified.
   2. Use Type 2, Grade 2-M-2, exterior bond, for tops with sinks.

C. General Use: Type 1, Grade 1-M-3 or Type 2, Grade 2-M-2.

2.5 PLASTIC LAMINATE

A. NEMA LD-3.

B. Exposed decorative surfaces including countertops, both sides of cabinet doors, and for items having plastic laminate finish. General Purpose, Type HGL.

C. Cabinet Interiors including Shelving: Both of following options to comply with NEMA, CLS as a minimum.
   1. Plastic laminate clad plywood or particle board.
   2. Resin impregnated decorative paper thermally fused to particle board.

D. Backing sheet on bottom of plastic laminate covered wood tops: Backer, Type HGP.

E. Post Forming Fabrication, Decorative Surfaces: Post forming, Type HGP.

2.6 BUILDING BOARD (HARDBOARD)

A. ANSI/AHA A135.4, 6 mm (1/4 inch) thick unless specified otherwise.

2.7 ADHESIVE


B. For Interior Millwork: Unextended urea resin, unextended melamine resin, phenol resin, or resorcinol resin.

2.8 STAINLESS STEEL

ASTM A167, Type 302 or 304.
2.9 ALUMINUM CAST
ASTM B26

2.10 ALUMINUM EXTRUDED
ASTM B221

2.11 HARDWARE

A. Rough Hardware:
   1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electric-galvanizing process. Galvanized where specified.
   2. Fasteners:

B. Finish Hardware
      a. Glass Door Hinge: Top and bottom mount with adjustable alignment up to 5 degrees both in and out.
         1) Construction: Solid brass.
         2) Finish: Oil rubbed bronze.
         3) Closing Type: Self-centering within 15 degrees of closed position.
         4) Accessories: Gaskets, screws, 3mm allen wrench, and glass fabrication dimensions.
      b. Glass Door Bumper: Rubber bumper stop.
      c. Glass Door Latch: 4” Dutch Door Slide Bolts.
   2. Auxiliary Hardware: ANSI A156.16.
   3. Steel Channel Frame and Leg supports for Counter top. Fabricated under Section 05 50 00, METAL FABRICATIONS.

2.12 MOISTURE CONTENT

A. Moisture content of lumber and millwork at time of delivery to site.
   1. Interior finish lumber, trim, and millwork 32 mm (1-1/4 inches) or less in nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on the remainder.
   2. Exterior treated or untreated finish lumber and trim 100 mm (4 inches) or less in nominal thickness: 15 percent.
   3. Moisture content of other materials shall be in accordance with the standards under which the products are produced.

2.15 ACOUSTICAL PANEL

A. Performance criteria:
   1. NRC 19 mm (3/4 inch) adhesive mounting direct to substrate.
2. Composite flame spread: ASTM E84, 25 or less.
3. Smoke developed: ASTM E84, 140 or less.

B. Glass fiber panel covered with fabric.
   1. Glass fiber panel one inch thick minimum, self supporting of density required for minimum NRC.
   2. Fabric covering treated to resist stains and soil, bonded directly to the glass fiber panel face, flat bonded directly to the glass fiber panel face, flat wrinkle-free surface.

C. Adhesive: As recommended by panel manufacturers.

2.16 FABRICATION

A. General:
   1. Except as otherwise specified, use AWI Custom Grade for architectural woodwork and interior millwork.
   2. Finish woodwork shall be free from pitch pockets.
   3. Except where special profiles are shown, trim shall be standard stock molding and members of the same species.
   4. Plywood shall be not less than 13 mm (1/2 inch), unless otherwise shown or specified.
   5. Edges of members in contact with concrete or masonry shall have a square corner caulking rebate.
   6. Fabricate members less than 4 m (14 feet) in length from one piece of lumber, back channeled and molded a shown.
   7. Interior trim and items of millwork to be painted may be fabricated from jointed, built-up, or laminated members, unless otherwise shown on drawings or specified.
   8. Plastic Laminate Work:
      a. Factory glued to either a plywood or a particle board core, thickness as shown or specified.
      b. Cover exposed edges with plastic laminate, except where aluminum, stainless steel, or plastic molded edge strips are shown or specified. Use plastic molded edge strips on 19 mm (3/4-inch) molded thick or thinner core material.
      c. Provide plastic backing sheet on underside of countertops, vanity tops, thru-wall counter // and sills // including back splashes and end splashes of countertops.
      d. Use backing sheet on concealed large panel surface when decorative face does not occur.

B. Interview Booth:
   1. Fabricate to AWI premium grade construction.
   2. Use softwood for framing, space members not over 600 mm (24 inches) on center. Use softwood for counter concealed members and mounting strip for writing surface.
   3. Use red oak for exposed hardwood trim.
4. Use red oak veneer plywood for exposed wood finish.
5. Acoustical panel glued to plywood substrate.
6. Use decorative plastic laminate writing surface pattern on counter.
7. Secure writing surfaces to divided panels with screws and to center support with mounting strips screwed to panel and top at underside.

C. Pass Thru Counter.
   1. Fabricate counter as shown. Return hardwood edge to metal frame at ends. Fabricate to join other counters where shown.
   2. Cut to fit metal frame profile.
   3. Use angle and fabricated shelf bracket supports.

D. Counter or Work Tops:
   1. Fabrication with plastic laminate over 32 mm (1-1/4 inch) thick core unless shown otherwise.
      a. Use decorative laminate for exposed edges of tops 38 mm (1-1/2 inches) wide and on back splash and end splash. Use plastic or metal edges for top edges less than 38 mm (1-1/2 inches) wide.
      b. Assemble back splash and end splash to counter top.
      c. Use one piece counters for straight runs.
      d. Miter corners for field joints with overlapping blocking on underside of joint.
   2. Fabricate wood counter for work benches as shown.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS
   A. Maintain work areas and storage areas to a minimum temperature of 21°C (70°F) for not less than 10 days before and during installation of interior millwork.
   B. Do not install finish lumber or millwork in any room or space where wet process systems such as concrete, masonry, or plaster work is not complete and dry.

3.2 INSTALLATION
   A. General:
      1. Millwork receiving transparent finish shall be primed and back-painted on concealed surfaces. Set no millwork until primed and back-painted.
      2. Secure trim with fine finishing nails, screws, or glue as required.
      3. Set nails for putty stopping. Use washers under bolt heads where no other bearing plate occurs.
      4. Seal cut edges of preservative and fire retardant treated wood materials with a certified acceptable sealer.
      5. Coordinate with plumbing and electrical work for installation of fixtures and service connections in millwork items.
      6. Plumb and level items unless shown otherwise.
7. Nail finish at each blocking, lookout, or other nailer and intermediate points; toggle or expansion bolt in place where nails are not suitable.

G. Interview Booths:
1. Anchor divider panel floor plates to floor with expansion bolts at ends and not over 900 mm (36 inch) centers.
2. Install both writing surface on mounting strips secured to divider panels and center support with screws if not shop assembled. Field assemble in accordance with shop drawings.

- - - E N D - - -
SECTION 08 14 00
INTERIOR WOOD DOORS

PART 1 - GENERAL

1.1 DESCRIPTION
A. This section specifies interior flush doors with prefinish, prefit option.

1.2 RELATED WORK
A. Door hardware including hardware location (height): Section 08 71 00, DOOR HARDWARE.
B. Finish: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS
A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Samples:
   1. Veneer sample 200 mm (8 inch) by 275 mm (11 inch) by 6 mm (1/4 inch) showing specified wood species sanded to receive a transparent finish. Factory finish veneer sample where the prefinished option is accepted.
C. Shop Drawings:
   1. Show every door in project and schedule location in building.
   2. Indicate type, grade, finish and size; include pertinent details.
   3. Provide information concerning specific requirements not included in the manufacturer’s literature and data submittal.
D. Laboratory Test Reports:
   1. Screw holding capacity test report in accordance with WDMA T.M.10.
   2. Split resistance test report in accordance with WDMA T.M.5.

1.4 WARRANTY
A. Doors are subject to terms of Article titled "Warranty of Construction", FAR clause 52.246-21, except that warranty shall be as follows:
   1. For interior doors, manufacturer’s warranty for lifetime of original installation.

1.5 DELIVERY AND STORAGE
A. Factory seal doors and accessories in minimum of 6 mill polyethylene bags or cardboard packages which shall remain unbroken during delivery and storage.
B. Store in accordance with WDMA I.S.1-A, Job Site Information.
C. Label package for door opening where used.

1.6 APPLICABLE PUBLICATIONS
Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
B. Window and Door Manufacturers Association (WDMA):
   I.S.1A-13 ........................................... Architectural Wood Flush Doors
   T.M.6-14 ........................................ Adhesive (Glue Bond) Durability Test Method
   T.M.7-14 ........................................ Cycle-Slam Test Method
   T.M.8-14 ........................................ Hinge Loading Test Method
   T.M.10-14 .................................... Screwholding Test Method

PART 2 - PRODUCTS

2.1 FLUSH DOORS
   A. General:
      2. Adhesive: Type II
      3. Thickness: 45 mm (1-3/4 inches) unless otherwise shown or specified.

   B. Face Veneer:
      1. In accordance with WDMA I.S.1-A.
      2. One species throughout the project unless scheduled or otherwise shown.
      3. For transparent finishes: Premium Grade, rotary cut, red oak.
         a. AA grade face veneer
         b. Door edges shall be same species as door face veneer.
      4. Factory sand doors for finishing.

2.2 PREFINISH, PREFIT OPTION
   A. Flush doors may be factory machined to receive hardware, bevels, undercuts, cutouts, accessories and fitting for frame.
   B. Factory fitting to conform to specification for shop and field fitting, including factory application of sealer to edge and routings.
   C. Flush doors to receive transparent finish (in addition to being prefit) shall be factory finished as follows:
      1. WDMA I.S.1-A Section F-3 specification for System TR-4, Conversion Varnish or System TR-5, Catalyzed Vinyl.
      2. Use stain when required to produce the finish specified in Section 09 06 00 SCHEDULE FOR FINISHES.

2.3 IDENTIFICATION MARK:
   A. On top edge of door.
   B. Either a stamp, brand or other indelible mark, giving manufacturer’s name, door’s trade name, construction of door, code date of manufacture and quality.
   C. Accompanied by either of the following additional requirements:
      1. An identification mark or a separate certification including name of inspection organization.
      2. Identification of standards for door, including glue type.
3. Identification of veneer and quality certification.
4. Identification of preservative treatment for stile and rail doors.

2.4 SEALING:

Give top and bottom edge of doors two coats of catalyzed polyurethane or water resistant sealer before sealing in shipping containers.

PART 3 - EXECUTION

3.1 DOOR PREPARATION

A. Field, shop or factory preparation: Do not violate the qualified testing and inspection agency label requirements for fire rated doors.
B. Clearances between Doors and Frames and Floors:
   1. Maximum 3 mm (1/8 inch) clearance at the jambs, heads, and meeting stiles, and a 19 mm (3/4 inch) clearance at bottom, except as otherwise specified.
C. Provide cutouts for special details required and specified.
D. Rout doors for hardware using templates and location heights specified in Section, 08 71 00 DOOR HARDWARE.
E. Fit doors to frame, bevel lock edge of doors 3 mm (1/8 inch) for each 50 mm (two inches) of door thickness // undercut where shown. //
F. Immediately after fitting and cutting of doors for hardware, seal cut edges of doors with two coats of water resistant sealer.
G. Finish surfaces, including both faces, top and bottom and edges of the doors smooth to touch.

3.2 INSTALLATION OF DOORS APPLICATION OF HARDWARE

Install doors and hardware as specified in this Section.

3.3 DOOR PROTECTION

A. As door installation is completed, place polyethylene bag or cardboard shipping container over door and tape in place.
B. Provide protective covering over knobs and handles in addition to covering door.
C. Maintain covering in good condition until removal is approved by Resident Engineer.

- - - E N D - - -
SECTION 08 80 00
GLAZING

PART 1 - GENERAL

1.1 DESCRIPTION
This section specifies glass required for interview booths.

1.2 RELATED WORK
A. Interview booths: Section 06 20 00, FINISH HARDWARE.

1.3 LABELS
A. Temporary labels:
   1. Provide temporary label on each light of glass identifying manufacturer or brand and glass
      type, quality and nominal thickness.
   2. Temporary labels shall remain intact until glass is approved by Resident Engineer.

B. Permanent labels:
   1. Locate in corner for each pane.
   2. Label in accordance with ANSI Z97.1 and SGCC (Safety Glass Certification Council) label
      requirements.
      a. Tempered glass.

1.4 SUBMITTALS
A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
D. Manufacturer's Literature and Data:
   1. Glass, each kind required.
E. Samples:
   1. Size: 150 mm by 150 mm (6 inches by 6 inches).
   2. Tinted glass.
   3. Reflective glass.
   4. Transparent (one-way vision glass) mirrors.

1.6 DELIVERY, STORAGE AND HANDLING
A. Delivery: Schedule delivery to coincide with glazing schedules so minimum handling of crates is
   required. Do not open crates except as required for inspection for shipping damage.
B. Storage: Store cases according to printed instructions on case, in areas least subject to traffic or
   falling objects. Keep storage area clean and dry.
C. Handling: Unpack cases following printed instructions on case. Stack individual windows on edge
   leaned slightly against upright supports with separators between each.

1.7 PROJECT CONDITIONS
Field Measurements: Field measure openings before ordering tempered glass products. Be
responsible for proper fit of field measured products.
1.8 WARRANTY
   A. Warranty: Conform to terms of "Warranty of Construction", FAR clause 52.246-21, except extend warranty period for the following:

1.9 APPLICABLE PUBLICATIONS
   A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
   B. American National Standards Institute (ANSI):
      Z97.1-09 ..................................... Safety Glazing Material Used in Building - Safety Performance Specifications and Methods of Test.
   C. American Society for Testing and Materials (ASTM):
      C1036-06 .................................. Flat Glass
      C1048-12 .................................. Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
      C1376-10 .................................. Pyrolytic and Vacuum Deposition Coatings on Flat Glass
   D. Code of Federal Regulations (CFR):
   E. Safety Glazing Certification Council (SGCC) 2012:
      Certified Products Directory (Issued Semi-Annually).

PART 2 - PRODUCT
2.1 COATED GLASS
   A. Ceramic Coated Vision Glass:
      1. ASTM C1048, Kind FT, Condition C, Type I, Class 1, Quality q3 with ceramic coating applied by silk-screen process.
      2. Solid pattern unless otherwise indicated in Drawings.
      3. Apply coating to second surface of monolithic glass.
      4. Thickness, 6 mm (1/4 inch).

PART 3 - EXECUTION
3.1 EXAMINATION
   B. Advise Contractor of conditions which may adversely affect glass installation, prior to commencement of installation: Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION
   A. For sealant glazing, prepare glazing surfaces in accordance with GANA-02 Sealant Manual.
   B. Determine glazing unit size and edge clearances by measuring the actual unit to receive the glazing.
   C. Shop fabricate and cut glass prior to tempering, including pre-drilling holes required for application of hardware.
D. Verify that components used are compatible.

3.3 INSTALLATION - GENERAL
A. Install complete with hardware in accordance with casework details for interview booths.
B. Set door panels with uniform gap between adjacent door panels and between door panels and counter top.

3.4 REPLACEMENT AND CLEANING
A. Clean new glass surfaces removing temporary labels, paint spots, and defacement after approval by Resident Engineer.
B. Replace cracked, broken, and imperfect glass, or glass which has been installed improperly.
C. Leave glass in clean, whole, and acceptable condition.

3.5 PROTECTION
Protect finished surfaces from damage during erection, and after completion of work. Strippable plastic coatings on colored anodized finish are not acceptable.

- - - E N D - - -
SECTION 09 06 00
SCHEDULE FOR FINISHES

PART I – GENERAL

1.1 DESCRIPTION
This section contains a coordinated system in which requirements for materials specified in other sections shown are identified by abbreviated material names and finish codes in the room finish schedule or shown for other locations.

1.2 MANUFACTURERS
Manufacturer’s trade names and numbers used herein are only to identify colors, finishes, textures and patterns. Products of other manufacturer’s equivalent to colors, finishes, textures and patterns of manufacturers listed that meet requirements of technical specifications will be acceptable upon approval in writing by contracting officer for finish requirements.

1.3 SUBMITALS
Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES-provide quadruplicate samples for color approval of materials and finishes specified in this section.

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

B. MASTER PAINTING INSTITUTE: (MPI)

PART 2- PRODUCTS
2.1 ROOM FINISH SCHEDULE
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**PART III EXECUTION**

**3.1 FINISH SCHEDULE ABBREVIATIONS**
<table>
<thead>
<tr>
<th>Term</th>
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<tr>
<td>Access Flooring</td>
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<td>Divider Strips Marble</td>
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<td>Resilient Stair Tread</td>
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<td>Rubber Base</td>
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</tr>
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<td>Wall Border</td>
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<td>Wood</td>
<td>WD</td>
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### 3.2 Finish Schedule Symbols

DESIGNER NOTE: Do not substitute these symbols. Add new symbols as required.

- ** Symbol: Same finish as adjoining walls
- - Symbol: No color required
- E Symbol: Existing
- XX Symbol: To match existing
- EFTR Symbol: Existing finish to remain
- RM Symbol: Remove

--- END ---
SECTION 09 65 13
RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the installation of resilient base.

1.2 RELATED WORK

A. Color and texture: Section 09 06 00, SCHEDULE FOR FINISHESS.
B. Resilient flooring: Section 09 65 16, RESILIENT SHEET FLOORING.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Manufacturer’s Literature and Data:
   1. Description of each product.
   2. Base material manufacturer’s recommendations for adhesives.
   3. Application and installation instructions.
C. Samples:
   1. Base: 150 mm (6 inches) long, each type and color.
   2. Adhesive: Literature indicating each type.

1.4 DELIVERY

A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.
B. Materials from containers which have been distorted, damaged or opened prior to installation will be rejected.

1.5 STORAGE

A. Store materials in weather tight and dry storage facility.
B. Protect material from damage by handling and construction operations before, during, and after installation.

1.6 APPLICABLE PUBLICATIONS

A. The publication listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
B. American Society for Testing and Materials (ASTM):
   F1861-08 .................................. Resilient Wall Base

PART 2 - PRODUCTS

2.1 GENERAL

Use only products by the same manufacturer and from the same production run.
2.2 RESILIENT BASE  
A. ASTM F1861, 3 mm (1/8 inch) thick, 100 mm (4 inches) high, Thermoplastics, Group 2-layered.  
   Style B-cove.  
B. Use only one type of base throughout.

2.3 ADHESIVES  
A. Use products recommended by the material manufacturer for the conditions of use.  
B. Use low-VOC adhesive during installation. Water based adhesive with low VOC is preferred over  
   solvent based adhesive.

PART 3 - EXECUTION  
3.1 PROJECT CONDITIONS  
A. Maintain temperature of materials above 21° C (70 °F), for 48 hours before installation.  
B. Maintain temperature of rooms where work occurs, between 21° C and 27° C (70°F and 80°F) for  
   at least 48 hours, before, during, and after installation.  
C. Do not install materials until building is permanently enclosed and wet construction is complete,  
   dry, and cured.

3.2 INSTALLATION REQUIREMENTS  
A. The respective manufacturer's instructions for application and installation will be considered for  
   use when approved by the Resident Engineer.  
B. Submit proposed installation deviation from this specification to the Resident Engineer indicating  
   the differences in the method of installation.  
C. The Resident Engineer reserves the right to have test portions of material installation removed to  
   check for non-uniform adhesion and spotty adhesive coverage.

3.3 PREPARATION  
A. Examine surfaces on which material is to be installed.  
B. Clean substrate area of oil, grease, dust, paint, and deleterious substances.  
C. Preparation of existing installation:  
   1. Remove existing base including adhesive.  
   2. Do not use solvents to remove adhesives.  
   3. Prepare substrate as specified.

3.4 BASE INSTALLATION  
A. Location:  
   1. Unless otherwise specified or shown, where base is scheduled, install base over toe space of  
      base of casework, lockers, laboratory, pharmacy furniture island cabinets and where other  
      equipment occurs.  
   2. Extend base scheduled for room into adjacent closet, alcoves, and around columns.  
B. Application:  
   1. Apply adhesive uniformly with no bare spots.
2. Set base with joints aligned and butted to touch for entire height.

3. Before starting installation, layout base material to provide the minimum number of joints with no strip less than 600 mm (24 inches) length.
   a. Short pieces to save material will not be permitted.
   b. Locate joints as remote from corners as the material lengths or the wall configuration will permit.

C. Form corners and end stops as follows:
   1. Score back of outside corner.
   2. Score face of inside corner and notch cove.

D. Roll base for complete adhesion.

3.5 CLEANING AND PROTECTION

A. Clean all exposed surfaces of base and adjoining areas of adhesive spatter before it sets.

B. Clean and polish materials in the following order:
   1. After two weeks, scrub resilient base with a minimum amount of water and a mild detergent. Leave surfaces clean and free of detergent residue. Polish resilient base to a gloss finish.

C. Where protective materials are removed and immediately prior to acceptance, replace damaged materials and re-clean resilient materials. Damaged materials are defined as having cuts, gouges, scrapes or tears and not fully adhered.

   - - - E N D - - -
SECTION 09 65 16
RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION
   A. This Section specifies the installation of sheet flooring with backing.
   B. Installation of sheet flooring including following:
      1. Heat welded seams.

1.2 RELATED WORK
   A. Color, pattern and texture: Section 09 06 00, SCHEDULE FOR FINISHES.
   B. Resilient base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.

1.3 QUALITY CONTROL-QUALIFICATIONS:
   A. The Contracting Officer shall approve products or service of proposed manufacturer, suppliers, and installers, and the Contractor shall submit certification that:
      1. Heat welded seaming is manufacturer's prescribed method of installation.
      2. Installer is approved by manufacturer of materials and has technical qualifications, experience, trained personnel, and facilities to install specified items.
      3. Manufacturer's product submitted has been in satisfactory operation, on three installations similar and equivalent in size to this project for three years. Submit list of installations.
   B. The sheet vinyl floor coverings shall meet fire performance characteristics as determined by testing products, per ASTM test method, indicated below by Underwriters Laboratories, Inc. (UL) or another recognized testing and inspecting agency acceptable to authorities having jurisdiction.
      1. Critical Radiant Flux: 0.45 watts per sq. cm or more, Class I, per ASTM E648.
      2. Smoke Density: Less than 450 per ASTM E662.
   C. The floor covering manufacturer shall certify that products supplied for installation comply with local regulations controlling use of volatile organic compounds (VOC's).

1.4 SUBMITTALS
   A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, submit following:
   B. Manufacturer's Literature and Data:
      1. Description of resilient material and accessories to be provided.
      2. Resilient material manufacturer's recommendations for adhesives, weld rods, sealants, and underlayment.
      3. Application and installation instructions.
   C. Samples:
      1. Sheet material, 38 mm by 300 mm (1-1/2 inch by 12 inch), of each color and pattern with a welded seam using proposed welding rod.
2. Shop Drawings and Certificates: Layout of joints showing patterns where joints are expressed, and type and location of obscure type joints. Indicate orientation of directional patterns.

3. Certificates: Quality Control Certificate Submittals and lists specified in paragraph, QUALIFICATIONS.

4. Adhesive, underlayment and primer: Pint container, each type.

1.5 PROJECT CONDITIONS

A. Maintain temperature of floor materials and room, where work occurs, above 18 °C (65 °F) and below 38 °C (100 °F) for 48 hours before, during and for 48 hours after installation. After above period, room temperature shall not fall below 13 °C (55 °F).

B. Construction in or near areas to receive flooring work shall be complete, dry and cured. Do not install resilient flooring over slabs until they have been cured and are sufficiently dry to achieve a bond with adhesive. Follow flooring manufacturer's recommendations for bond and moisture testing.

C. Building shall be permanently enclosed. Schedule construction so that floor receives no construction traffic when completed.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in original sealed packages or containers; labeled for identification with manufacturer's name and brand.

B. Deliver sheet flooring full width roll, completely enclosed in factory wrap, clearly marked with the manufacturer's number, type and color, production run number and manufacture date.

C. Store materials in weathertight and dry storage facility. Protect from damage due to handling, weather, and construction operations before, during and after installation. Store sheet flooring on end with ambient temperatures maintained as recommended by manufacturer.

D. Store sheet flooring on end.

E. Move sheet vinyl floor coverings and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

1.7 APPLICABLE PUBLICATIONS

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

B. American Society For Testing Materials (ASTM):

   E648-10............................................Critical Radiant Flux of Floor-Covering Systems Using a Radiant Energy Source.

   E662-12............................................Specific Optical Density of Smoke Generated by Solid Materials.

   F710-08.............................................Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.

   F1303-04(2009).................................Sheet Vinyl Floor Covering with Backing.
F2170-09 ........................................ Determining Relative Humidity in Concrete Floor Slabs using In-situ Probes

C. Resilient Floor Covering Institute (RFCI):

1.8 SCHEDULING

Interior finish work such as painting work shall be complete and dry before installation. Mechanical, electrical, and other work above ceiling line shall be completed. Heating, ventilating, and air conditioning systems shall be installed and operating in order to maintain temperature and humidity requirements.

1.9 WARRANTY:

Submit written warranty, in accordance with FAR clause 52.246-21, Warranty of Construction requirements except that warranty period shall be extended to include two (2) years.

PART 2 - PRODUCTS

2.1 SHEET VINYL FLOOR COVERINGS

A. Sheet Vinyl Floor Coverings: Embossed face, minimum thickness nominal 2.3 mm (0.091 inch). Sheet flooring shall conform to ASTM F1913 and material requirements specified in ASTM F1303, Type I, Grade 1, with Class A 4-ply backing.

B. Size: Provide maximum size sheet vinyl material produced by manufacturer to provide minimum number of joints. Minimum size width acceptable - 1800 mm (72 inches).

C. Each color and pattern of sheet flooring shall be of same production run.

2.2 WELDING ROD:

Product of floor covering manufacturer in color shall match field color of sheet vinyl covering.

2.3 APPLICATION MATERIALS AND ACCESSORIES

A. Floor and Base Adhesive: Type recommended by sheet flooring material manufacturer for conditions of use.

B. Mastic Underlayment (for concrete floors): Provide products with latex or polyvinyl acetate resins in mix. Condition to be corrected shall determine type of underlayment selected for use.

2.4 SHEET FLOORING

A. ASTM F1303, Type I, Grade 1, embossed clear PVC wear layer of 20 mils thick with Class A 4-ply fused backing system of .080 inch content PVC layer, fiberglass, PVC internal layer, and polyester mesh back.

B. Minimum nominal thickness 2.3 mm (0.091 inch); 1800 mm (6 ft) minimum width.

C. Critical Radiant Flux: 0.45 watts per sq.cm or more, Class I, per ASTM E648.

D. Smoke density: less than 450 per ASTM E662.

E. Color and pattern of sheet flooring of the same production run.
2.5 ADHESIVES

Water resistant type recommended by the sheet flooring manufacturer for the conditions of use.
VOC not to exceed 50g/L

2.6 LEVELING COMPOUND (FOR CONCRETE FLOORS)

Provide cementitious products with latex or polyvinyl acetate resins in the mix.

2.7 PRIMER (FOR CONCRETE SUBFLOORS)

As recommended by the adhesive or sheet flooring manufacturer.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

A. Maintain temperature of sheet flooring above 36 °C (65 °F), for 48 hours before installation.
B. Maintain temperature of rooms where sheet flooring work occurs above 36 °C (65 °F), for 48 hours, before installation and during installation.
C. After installation, maintain temperature at or above 36 °C (65 °F.)
D. Building is permanently enclosed.
E. Wet construction in or near areas to receive sheet flooring is complete, dry and cured.

3.2 SUBFLOOR PREPARATION

A. Concrete Subfloors: Verify that concrete slabs comply with ASTM F710.
   1. Installer shall examine surfaces on which resilient sheet flooring is to be installed, and shall advise Contractor, in writing, of areas which are unacceptable for installation of flooring material. Installer shall advise Contractor which methods are to be used to correct conditions that will impair proper installation. Installation shall not proceed until unsatisfactory conditions have been corrected.
   2. Slab substrates dry, free of curing compounds, sealers, hardeners, and other materials which would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by Resilient Floor Covering Institute recommendations in manual RFCI-MRP.
B. Broom or vacuum clean substrates to be covered by sheet vinyl floor coverings immediately before installation. Following cleaning, examine substrates to determine if there is visually any evidence of moisture, alkaline salts, carbonation, or dust.
C. Primer: If recommended by flooring manufacturer, prior to application of adhesive, apply concrete slab primer in accordance with manufacturer’s directions.
D. Correct conditions which will impair proper installation, including trowel marks, pits, dents, protrusions, cracks or joints.
E. Fill cracks, joints, depressions, and other irregularities in concrete with leveling compound.
   1. Do not use adhesive for filling or leveling purposes.
   2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joint lines.
F. Clean floor of oil, paint, dust and deleterious substances. Leave floor dry and cured free of residue from existing curing or cleaning agents.
G. Preparation shall include the removal of existing resilient floor and existing adhesive. Do not use solvents to remove adhesives. Coordinate with Asbestos Abatement Section if asbestos abatement procedures will be involved.
H. Remove existing resilient flooring and adhesive completely in accordance with Resilient Floor Covering Institute recommendations in manual RFCI-WP. Solvents shall not be used.

3.3 INSTALLATION OF FLOORING
A. Install work in strict compliance with manufacturer's instructions and approved layout drawings.
B. Maintain uniformity of sheet vinyl floor covering direction and avoid cross seams.
C. Arrange for a minimum number of seams and place them in inconspicuous and low traffic areas, but in no case less than 150 mm (6 inches) away from parallel joints in flooring substrates.
D. Match edges of resilient floor coverings for color shading and pattern at seams.
E. Where resilient sheet flooring abuts other flooring material floors shall finish level.
F. Extend sheet vinyl floor coverings into toe spaces, door reveals, closets, and similar openings.
G. Inform the Resident Engineer of conflicts between this section and the manufacturer's instructions or recommendations for auxiliary materials, or installation methods, before proceeding.
H. Install sheet in full coverage adhesives.
   1. Air pockets or loose edges will not be accepted.
   2. Trim sheet materials to touch in the length of intersection at pipes and vertical projections; seal joints at pipe with waterproof cement or sealant.
I. Keep joints to a minimum; avoid small filler pieces or strips.
J. Follow manufacturer’s recommendations for seams at butt joints. Do not leave any open joints that would be readily visible from a standing position.
K. Follow manufacturer’s recommendations regarding pattern match, if applicable.

3.4 WELDING
A. Heat weld all joints of flooring and base using equipment and procedures recommended by flooring manufacturer.
B. Welding shall consist of routing joint, inserting a welding rod into routed space, and terminally fusing into a homogeneous joint.
C. Upon completion of welding, surface across joint shall finish flush, free from voids, and recessed or raised areas.
D. Fusion of Material: Joint shall be fused a minimum of 65 percent through thickness of material, and after welding shall meet specified characteristics for flooring.
3.6 CLEANING

A. Clean small adhesive marks during application of sheet flooring and base before adhesive sets, excessive adhesive smearing will not be accepted.
B. Remove visible adhesive and other surface blemishes using methods and cleaner recommended by floor covering manufacturers.
C. Clean and polish materials per flooring manufacturer’s written recommendations.
D. Vacuum floor thoroughly.
E. Do not wash floor until after period recommended by floor covering manufacturer and then prepare in accordance with manufacturer’s recommendations.
F. Upon completion, Resident Engineer shall inspect floor and base to ascertain that work was done in accordance with manufacturer’s printed instructions.
G. Perform initial maintenance according to flooring manufacturer’s written recommendations.

3.7 PROTECTION:

A. Protect installed flooring as recommended by flooring manufacturer against damage from rolling loads, other trades, or placement of fixtures and furnishings.
B. Keep traffic off sheet flooring for 24 hours after installation.
C. Where construction traffic is anticipated, cover sheet flooring with reinforced kraft paper properly secured and maintained until removal is authorized by the Resident Engineer.
D. Where protective materials are removed and immediately prior to acceptance, repair any damage, re-clean sheet flooring, lightly re-apply polish and buff floor.
SECTION 09 91 00
PAINTING

PART 1-GENERAL

1.1 DESCRIPTION
A. Section specifies field painting.
B. Section specifies prime coats which may be applied in shop under other sections.
C. Painting includes shellacs, stains, varnishes, coatings specified, and striping or markers and identity markings.

1.2 RELATED WORK
A. Shop prime painting of steel and ferrous metals: Division 05 - METALS, Division 08 - OPENINGS, Division 12 - FURNISHINGS, Division 26 - ELECTRICAL sections.
B. Contractor option: Prefinished flush doors with transparent finishes: Section 08 14 00, WOOD DOORS.
C. Type of Finish, Color, and Gloss Level of Finish Coat: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS
A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Manufacturer's Literature and Data:
Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.
C. Sample Panels:
1. After painters’ materials have been approved and before work is started submit sample panels showing each type of finish and color specified.
2. Panels to show color: Composition board, 100 by 250 by 3 mm (4 inch by 10 inch by 1/8 inch).
3. Panel to show transparent finishes: Wood of same species and grain pattern as wood approved for use, 100 by 250 by 3 mm (4 inch by 10 inch face by 1/4 inch) thick minimum, and where both flat and edge grain will be exposed, 250 mm (10 inches) long by sufficient size, 50 by 50 mm (2 by 2 inch) minimum or actual wood member to show complete finish.
4. Attach labels to panel stating the following:
   a. Federal Specification Number or manufacturers name and product number of paints used.
   b. Specification code number specified in Section 09 06 00, SCHEDULE FOR FINISHES.
c. Product type and color.
d. Name of project.
5. Strips showing not less than 50 mm (2 inch) wide strips of undercoats and 100 mm (4 inch) wide strip of finish coat.

D. Sample of identity markers if used.

E. Manufacturers’ Certificates indicating compliance with specified requirements:
   1. Manufacturer’s paint substituted for Federal Specification paints meets or exceeds performance of paint specified.

1.4 DELIVERY AND STORAGE
A. Deliver materials to site in manufacturer’s sealed container marked to show following:
   1. Name of manufacturer.
   2. Product type.
   3. Batch number.
   4. Instructions for use.
   5. Safety precautions.
B. In addition to manufacturer’s label, provide a label legibly printed as following:
   1. Federal Specification Number, where applicable, and name of material.
   2. Surface upon which material is to be applied.
   3. If paint or other coating, state coat types; prime, body or finish.
C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.
D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

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

   B. American Conference of Governmental Industrial Hygienists (ACGIH):
      ACGIH TLV-BKLT-2012 ............. Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)
      ACGIH TLV-DOC-2012 .............. Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)

   C. Master Painters Institute (MPI):
      No. 17-15.............................. Interior Bonding Primer, Water Based
      No. 31-15............................... Polyurethane, Moisture Cured, Clear Gloss (PV)
      No. 71-15............................... Polyurethane, Moisture Cured, Clear, Flat (PV)
      No. 91-15............................... Wood Filler Paste
      No. 144-15............................ Interior Institutional Low Odor/VOC Latex (LF), MPI Gloss Level 2
PART 2 - PRODUCTS

2.1 MATERIALS

A. Wood Sealer: MPI 31 (gloss) or MPI 71 (flat) thinned with thinner recommended by manufacturer at rate of about one part of thinner to four parts of varnish.


C. Interior Bonding Primer, Water Based: MPI 17 or 137.

D. Interior Institutional Low Odor/VOC Latex, MPI Gloss Level 2(LF): MPI 144.

E. Interior Institutional Low Odor/VOC Latex, MPI Gloss Level 3(LL): MPI 145.

F. Interior Institutional Low Odor/VOC Latex, MPI Gloss Level 4: MPI 146.

2.2 PAINT PROPERTIES

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

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

2.3 REGULATORY REQUIREMENTS/QUALITY ASSURANCE

A. Paint materials shall conform to the restrictions of the local Environmental and Toxic Control jurisdiction.

1. Volatile Organic Compounds (VOC): VOC content of paint materials shall not exceed 10g/l for interior latex paints; 50g/l for primers.

2. Lead-Base Paint: Materials shall not contain lead.

3. Asbestos: Materials shall not contain asbestos.

4. Chromate, Cadmium, Mercury, and Silica: Materials shall not contain zinc-chromate, strontium-chromate, Cadmium, mercury or mercury compounds or free crystalline silica.

5. Human Carcinogens: Materials shall not contain any of the ACGIH-BKLT and ACGHI-DOC confirmed or suspected human carcinogens.

6. Use high performance acrylic paints in place of alkyd paints, where possible.

7. VOC content for solvent-based paints shall not exceed 250g/l and shall not be formulated with more than one percent aromatic hydro carbons by weight.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

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

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

B. Atmospheric and Surface Conditions:
   1. Maintain interior temperatures until paint dries hard.
   2. Apply only on clean, dry surfaces.
   3. Varnishing:
      a. Apply in clean areas and in still air.
      b. Before varnishing vacuum and dust area.
      c. Immediately before varnishing wipe down surfaces with a tack rag.

3.2 SURFACE PREPARATION

A. Method of surface preparation is optional, provided results of finish painting produce solid even color and texture specified with no overlays.

B. General:
   1. Remove prefinished items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
   2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
   3. See other sections of specifications for specified surface conditions and prime coat.
   4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.

C. Wood:
   1. Sand to a smooth even surface and then dust off.
   2. Sand surfaces showing raised grain smooth between each coat.
   3. Wipe surface with a tack rag prior to applying finish.
   4. Fill open grained wood such as oak with MPI 91 (Wood Filler Paste), colored to match wood color.
      a. Thin filler in accordance with manufacturer's instructions for application.
      b. Remove excess filler, wipe as clean as possible, dry, and sand as specified.

D. Gypsum Board:
   1. Remove dust, dirt, and other deterrents to paint adhesion.
   2. Fill holes, cracks, and other depressions with CID-A-A-1272A Spackling Compound finished flush with adjacent surface, with texture to match texture of adjacent surface. Patch holes over 25 mm (1-inch) in diameter.

3.3 PAINT PREPARATION

A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.
B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.

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

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

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

3.4 APPLICATION

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

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

C. Apply each coat evenly and cover substrate completely.

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

E. Finish surfaces to show solid even color, free from runs, lumps, brushmarks, laps, holidays, or other defects.

F. Apply by brush, roller or spray, except as otherwise specified.

G. Do not spray paint in existing occupied spaces.

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

3.5 PRIME PAINTING

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

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

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

D. Gypsum Board:

1. Surfaces scheduled to have MPI 144 (Interior Low Odor/VOC Latex, MPI Gloss Level 2), MPI 145 (Interior Low Odor/VOC Latex, MPI Gloss Level 3), or MPI 146 (Interior Low Odor/VOC Latex, MPI Gloss Level 4): Use MPI 144 (Interior Low Odor/VOC Latex, MPI Gloss Level 2), MPI 145 (Interior Low Odor/VOC Latex, MPI Gloss Level 3), or MPI 146 (Interior Low Odor/VOC Latex, MPI Gloss Level 4) respectively.

2. Primer: MPI 17 (Primer, Bonding, Water Based).

3.6 INTERIOR FINISHES

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

B. Gypsum Board:

1. Existing Painted Surfaces to be Painted: One coat of MPI 17 (Interior Bonding Primer) plus one coat of MPI 145 (Interior Low Odor/VOC Latex, MPI Gloss Level 3 (LL)). Tint primer coat per manufacturer's instructions to provide a shade lighter than finish coat color.
2. Surfaces to Received Vinyl Coated Fabric Wall Covering: One coat of MPI 17 (Interior Bonding Primer).

C. Wood:

1. Sanding:
   a. Use 220-grit sandpaper.
   b. Sand sealers and varnish between coats.
   c. Sand enough to scarify surface to assure good adhesion of subsequent coats, to level roughly applied sealer and varnish, and to knock off "whiskers" of any raised grain as well as dust particles.
2. Sealers:
   a. Apply sealers specified except sealer may be omitted where pigmented, penetrating, or wiping stains containing resins are used.
   b. Allow manufacturer's recommended drying time before sanding, but not less than 24 hours or 36 hours in damp or muggy weather.
   c. Sand as specified.
3. Transparent Finishes on Wood Except Floors.
   a. Natural Finish:
      1) One coat of sealer as written in 2.1 A.
      2) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)).
   b. Stain Finish:
      1) One coat of MPI 90 (Interior Wood Stain, Semi-Transparent (WS)).
      2) Use wood stain of type and color required to achieve finish specified. Do not use varnish type stains.
      3) One coat of sealer as written in 2.1 A.
      4) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)).
   c. Varnish Finish:
      1) One coat of sealer as written in 2.1 A.
      2) Two coats of MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)).
3.7 REFINISHING EXISTING PAINTED SURFACES
   A. Clean, patch and repair existing surfaces as specified under surface preparation.
   B. Remove and reinstall items as specified under surface preparation.
   C. Remove existing finishes or apply separation coats to prevent non compatible coatings from having contact.
   D. Patched or Replaced Areas in Surfaces and Components: Apply spot prime and body coats as specified for new work to repaired areas or replaced components.
   E. Except where scheduled for complete painting apply finish coat over plane surface to nearest break in plane, such as corner, reveal, or frame.
   F. In existing rooms and areas where alterations occur, clean existing stained and natural finished wood retouch abraded surfaces and then give entire surface one coat of MPI 31 (Polyurethane, Moisture Cured, Clear Gloss).
   G. Refinish areas as specified for new work to match adjoining work unless specified or scheduled otherwise.
   H. Sand or dull glossy surfaces prior to painting.
   I. Sand existing coatings to a feather edge so that transition between new and existing finish will not show in finished work.

3.8 PAINT COLOR
   A. Color and gloss of finish coats is specified in Section 09 06 00, SCHEDULE FOR FINISHES.
   B. For additional requirements regarding color see Articles, REFINISHING EXISTING PAINTED SURFACE.
   C. Coat Colors:
      1. Color of priming coat: Lighter than body coat.
      2. Color of body coat: Lighter than finish coat.
      3. Color prime and body coats to not show through the finish coat and to mask surface imperfections or contrasts.
   D. Painting, Caulking, Closures, and Fillers Adjacent to Casework:
      1. Paint to match color of casework where casework has a paint finish.
      2. Paint to match color of wall where casework is stainless steel, plastic laminate, or varnished wood.

3.9 BUILDING AND STRUCTURAL WORK FIELD PAINTING
   A. Painting and finishing of interior work except as specified under paragraph 3.9 B.
      1. Painting and finishing of new and existing work including colors and gloss of finish selected is specified in Finish Schedule, Section 09 06 00, SCHEDULE FOR FINISHES.
      2. Painting of disturbed, damaged and repaired or patched surfaces when entire space is not scheduled for complete repainting or refinishing.
B. Building and Structural Work not Painted:
   1. Prefinished items:
      a. Casework, doors, elevator entrances and cabs, metal panels, wall covering, and similar
         items specified factory finished under other sections.
      b. Factory finished equipment and pre-engineered metal building components such as metal
         roof and wall panels.
   2. Finished surfaces:
      a. Hardware except ferrous metal.
      b. Anodized aluminum, stainless steel, chromium plating, copper, and brass, except as
         otherwise specified.
      c. Signs, fixtures, and other similar items integrally finished.
   3. Concealed surfaces:
      a. Inside dumbwaiter, elevator and duct shafts, interstitial spaces, pipe basements, crawl
         spaces, pipe tunnels, above ceilings, attics, except as otherwise specified.
      b. Inside walls or other spaces behind access doors or panels.
      c. Surfaces concealed behind permanently installed casework and equipment.
   4. Moving and operating parts:
      a. Shafts, chains, gears, mechanical and electrical operators, linkages, and sprinkler heads,
         and sensing devices.
      b. Tracks for overhead or coiling doors, shutters, and grilles.
   5. Labels:
      a. Code required label, such as Underwriters Laboratories Inc., Inchcape Testing Services,
         Inc., or Factory Mutual Research Corporation.
      b. Identification plates, instruction plates, performance rating, and nomenclature.

3.14 PROTECTION CLEAN UP, AND TOUCH-UP
   A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items
      or by other approved methods.
   B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to
      be painted of paint drops or smears.
   C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish
      texture, free from defects in work which was damaged or discolored.

--- END ---
SECTION 12 32 00
MANUFACTURED WOOD CASEWORK

PART 1 - GENERAL

1.1 DESCRIPTION
A. This section specifies plastic laminate casework as detailed on the drawings, including related components and accessories required to form integral units. Wood casework items shown on the drawings, but not specified below shall be included as part of the work under this section, and applicable portions of the specification shall apply to these items. Each like item of casework shall be of the same design and by one manufacturer.

B. Where shown, provide plastic laminate casework items as follows:
   1. Base and upper cabinets and countertop at back wall behind interview booths in West Clinic Waiting.
   2. Base cabinet and countertop at back wall behind interview booths in Dermatology Waiting Room.
   3. Plastic laminate covered countertop behind interview booths in MAS / Waiting.

1.2 RELATED WORK
A. Custom Casework: Section 06 20 00, FINISH CARPENTRY.
B. Color and Finish of Plastic Laminate: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 MANUFACTURER'S QUALIFICATIONS
The fabrication of casework shall be by a manufacturer who produces casework similar to the casework specified and shown.

1.4 SUBMITTALS
A. Submit in accordance with Section `01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Manufacturer's Literature and Data:
   Locks for doors and drawers
   Adhesive cements
C. Samples:
   Counter top, plastic laminate, 150 mm (six inch) square
D. Shop Drawings (1/2 full size):
   1. All casework, showing details of construction, including materials, hardware and accessories.
   2. Fastenings and method of installation.

1.5 APPLICABLE PUBLICATIONS
A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
B. American Society for Testing and Materials (ASTM):
   A167-99 (R2009)..........................Stainless and Heat-Resisting chromium-Nickel Steel Plate, Sheet and Strip
   A1008-10.................................Steel, Sheet, Cold-Rolled, Carbon, Structural, High Strength Low Alloy
C. Composite Panel Association (CPA):
   A208.1-09.................................Particleboard
D. U.S. Department of Commerce Product Standards (Prod. Std):
   PS1-95......................................Construction and Industrial Plywood
E. Architectural Woodwork Institute (AWI):
F. National Electrical Manufacturers Association (NEMA):
   LD3-05......................................High Pressure Decorative Laminates
   LD3.1-95....................................Performance, Application Fabrication and Installations of High-Pressure Decorative Laminates

PART 2 - PRODUCTS

2.1 PLASTIC LAMINATE:
   A. NEMA LD-3.
   B. Exposed decorative surfaces including countertops, both sides of cabinet doors, and for items having plastic laminate finish. General purpose Type HGL.
   C. Cabinet Interiors Including Shelving: Both of following options to comply with NEMA, LD3.1 as a minimum.
      1. Plastic laminate clad plywood or particle board.
      2. Resin impregnated decorative paper thermally fused to particle board.
   D. Backing sheet on bottom of plastic laminate covered wood tops. Backer Type BKL.
   E. Post Forming Fabrication, Decorative Surface: Post forming Type HGP.

2.2 PLYWOOD, SOFTWOOD
   Prod. Std. PS1, five ply construction from 13 mm to 28 mm (1/2 inch to 1-1/8 inch) thickness, and seven ply for 31 mm (1 1/4 inch) thickness.

2.3 PARTICLEBOARD
   CPA A208.1, Type 1, Grade 1-M-3.

2.4 RUBBER OR VINYL BASE
   Straight (for carpet), cove (for resilient floor); 100 mm (4 inch) high, 3 mm (1/8 inch) thick, flexible to conform to irregularities in walls, partitions and floors.

2.5 SHEET STEEL
   ASTM A1008.
2.6 STAINLESS STEEL
ASTM A167, with No. 4 finish.

2.7 HARDWARE

A. Where pin tumbler locks are specified, disc tumbler lock "Duo A", with brass working parts and case, as manufactured by the Illinois Lock Company will be an acceptable substitute. Locks for each type casework, shall be keyed differently and shall be master-keyed for each type service, such as Nurses, Psychiatric, and Administration. Provide two keys for each lock. Exposed hardware, except as otherwise specified, shall be satin finished chromium plated brass or nickel plated brass.

B. Marking of Locks and Keys:
   1. The name of the manufacturer, or trademark by which manufacturer can readily be identified, legibly marked on each lock.
   2. The key change number marked on the exposed face of lock, and also stamped on each key.
   3. Key change numbers shall provide sufficient information for replacement of the key by the manufacturer.

C. Hinged Doors:
   1. Doors 900 mm (36 inches) and more in height shall have three hinges and doors less than 900 mm (36 inches) in height shall have two hinges. Each door shall close against two rubber bumpers.
   2. Hinges: Fabricate hinges with minimum 2 mm (0.072 inch) thick chromium plated steel leaves, and with minimum 3.5 mm (0.139 inch) diameter stainless steel pin. Hinges shall be five knuckle design with 63 mm (2-1/2 inch) high leaves and hospital type tips.
   3. Fasteners: Provide full thread wood screws to fasten hinge leaves to door and cabinet frame. Finish screws to match finish of hinges.

D. Door Catches:
   1. Friction or Magnetic type, fabricated with metal housing.
   2. Provide one catch for cabinet doors 1200 mm (48 inches) high and under, and two for doors over 1200 mm (48 inches) high.

E. Locks:
   1. Cylinder type pin tumbler.
   2. Equip doors and drawers where shown with locks.

F. Drawer and Door Pulls:
   Doors and drawers shall have flush pulls, fabricated of either chromium plated brass, chromium plated steel, stainless steel, or anodized aluminum.

G. Drawer Slides:
   1. Full extension steel slides with nylon ball-bearing rollers.
   2. Slides shall have positive stop.
3. Equip drawers with rubber bumpers.

H. Sliding Doors:
1. Each door shall be supported by two ball bearing bronze or nylon rollers, or sheaves riding on a stainless steel track at top or bottom, and shall be restrained by a nylon or stainless steel guide at the opposite end.
2. Plastic guides are not acceptable.
3. Each door shall have rubber silencers set near top and bottom of each jamb.

I. Shelf Standards (Except For Fixed Shelves):
Bright zinc-plated steel for recessed mounting with screws, 16 mm (5/8 inch) wide by 5 mm (3/16 inch) high providing 13 mm (1/2 inch) adjustment, complete with shelf supports.

2.12 FABRICATION

A. Casework shall be of the flush overlay design and, except as otherwise specified, be of premium grade construction and of component thickness in conformance with AWI Quality Standards.

B. Fabricate casework of plastic laminated covered plywood or particleboard as follows:
1. Where shown, doors, drawers, shelves and all semi-concealed surfaces shall be plastic laminated.
2. Horizontal and vertical reveals between doors and drawer for reveal overlay design shall be 19 mm (3/4 inch) unless otherwise shown.
3. Sliding doors shall have stops to prohibit bypass and be removable without use of tools.

C. Base:
1. Provide rubber or vinyl base with close, flush joints; set with adhesive.
2. Remove adhesive from exposed surfaces.
3. Install base at floor line after casework has been accurately leveled.
4. Rub base to glossy finish.

D. Countertops:
1. Countertops and splashbacks shall be plastic laminate factory glued to either a plywood (PS1), or particleboard (CPA A208.1) core.
2. Countertops shall be 19 mm (3/4 inch) thick with 38 mm (1-1/2 inch) high front edge.
3. Splashbacks shall be finished 19 mm (3/4 inch) thick and be secured to countertops with concealed metal fastenings and with contact surfaces set in waterproof adhesive.
4. Cover exposed edges of countertops and splashbacks with plastic laminate.

E. Support Members for Tops of Tables:
1. Construct as detailed.
2. Provide miscellaneous steel members and anchor as shown.

F. Legs For Counters:
1. Fabricate legs for counters of 1.6 mm (0.0635 inch) thick, 38 mm (1-1/2 inch) square tubular steel where shown.
2. Secure legs to counter tops and provide legs at bottom with shoes not less than 25 mm (one inch) in height.

3. Fabricate shoes of either stainless steel, aluminum or chromium plated brass.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set casework in place; level, plumb and accurately scribe and secure to walls, and/or floors.

B. The installation shall be complete including all trim and hardware. Leave the casework clean and free from defects.

3.2 FASTENINGS

A. Fastenings for securing casework to adjoining construction shall be as detailed on the drawings or approved shop drawings.

B. See Section 05 50 00, METAL FABRICATIONS for reinforcement of walls and partitions for casework anchorage.

--- END ---
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Design-build requirements specifically applicable to Divisions 26, 27, and 28 in addition to provisions of General Conditions, Supplementary Conditions, Division 01, and the electrical general requirements of Section 26 01 00.

1.02 DESCRIPTION OF WORK

A. The scope of the Electrical Work consists of but is not limited to the following:

1. Provide all labor, materials, equipment, and services necessary for complete design and installation of electrical systems as specified in the project documents and as required for a turnkey operable facility.

2. Contractor shall be responsible for verifying, coordinating, field locating, and recording all existing systems and site conditions that affect the electrical Work. Existing electrical systems within the existing building affected by the building expansion and renovation work shall be replaced or modified as required to comply with current code and the local authority having jurisdiction. Scope of work shall include selective demolition and modification to existing electrical systems. Failure to visit the site and verify conditions affecting work does not relieve Contractor from the necessity of doing any and all work which is necessary to make all electrical installations and systems complete.

3. It is the intent of this section to direct the Contractor to provide all calculations, documentation, and drawings necessary to comply with the design submittal requirements, obtain the permits required by the local authority having jurisdiction, and complete the project as described in the Contract Documents.

4. Contractor shall be responsible for obtaining adequate information of the existing building electrical systems and producing design documents which comply with the requirements of this section as well as all electrical codes enforced by the local authority having jurisdiction.

5. Any items not mentioned in these specifications or not indicated on project drawings, but necessary for successful and efficient operation of the Work shall be held to be implied and shall be furnished and installed as part of the Contract at no additional cost to the Owner.

6. Provide power to operate all building systems and equipment furnished under other divisions of the Project Documents or identified as Owner furnished, including all Fixtures, Furniture, and Equipment (FF&E) items.

1.03 DESIGN RESPONSIBILITIES

A. Contractor is responsible for all design and engineering necessary to document and perform all electrical work of the Project. This engineering and design shall be provided by an Electrical Engineer licensed in the State of Washington.

B. Prepare and submit electrical construction drawings for review and acceptance. Unless otherwise specified or directed, submit drawings to Owner, Architect/Engineer and General Contractor for permit set, construction set, and record as-built set.
C. Checking and acceptance of drawings by the Architect is for general conformance with design intent and Contract requirements and does not relieve Contractor of the responsibility to verify accuracy of dimensions, obtain field dimensions, coordinate dimensions with the work of others, and prevent interference with other equipment and other features of work. If a drawing as submitted is in accordance with Contract requirements, or has specifically indicated deviation from Contract requirements which the Architect finds to be in best interest of Owner and to be so minor as not to involve a change in contract price or impact the scheduled completion of the project, the Architect will accept drawings.

D. Acceptance of drawings will be general and, except as otherwise provided in the preceding paragraph, shall not be construed as: (1) permitting any departure from Contract requirements, (2) relieving Contractor of responsibility from errors in details, dimensions, or otherwise that may exist, (3) accepting departures from additional details or instructions previously furnished by Engineer and, (4) confirming clearance or lack of interference.

E. Checking and acceptance by the Architect shall not relieve Contractor of responsibility for deviations from drawings and specifications unless such deviation is specifically called to the Architect’s attention by a specific indication of "note deviation" or similar clear and bold indication at time of submission, nor shall it relieve the Contractor of responsibility for errors or omissions in drawings.

F. Electrical Contractor’s Electrical Engineer shall serve as the Electrical Engineer of record for the project, and shall seal (stamp) permit, construction, and record as-built drawings.

G. Electrical Contractor shall verify all existing facilities and site conditions necessary to perform all work of the Project. Any discrepancy with those shown on the Drawings shall be identified in writing and included with submission of the Bid Proposals.

1.04 SUBMITTALS

A. Comply with requirements of Division 1. Unless otherwise specified, furnish electrical construction drawings as follows:

1. Permit Drawings, Submittal Drawings, and Final Record Drawings shall be submitted as single PDF file (containing all drawings) to Owner, Architect and General Contractor. Create PDF files as full scale drawing; legible and ready for printing.

2. Record As-Built Drawings shall be submitted as self-contained (i.e.: XREFS, Blocks, and Text Styles used) AutoCAD (.dwg) files to the Owner and Architect. AutoCAD release version shall match Architectural plan files unless otherwise approved.

3. The Architect shall provide an AutoCAD version of building backgrounds, site plan, and title block for preparing submittals. A release form signed by the Contractor may be required. Drawing sheet size shall match architectural plans from project bid documents.

4. Title block information shall be current on each drawing sheet and reflect actual submittal. Information includes; date of submittal, submittal phase, project name, percentage of progress completion.

5. Drawings shall be complete with all dimensional and reference data and instructions required to complete the Work.
6. Contractor shall not order material, fabricate, or install electrical work prior to acceptance of final electrical construction documents without written approval.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 ELECTRICAL PLANS

A. Plans shall be drawn at 1/8 inch minimum scale and shall include at a minimum:

1. Symbols Legend
2. Lighting, Power and Signal Plans

B. Plan Content: Electrical plans shall indicate the following:

1. Lighting fixtures with circuit numbers.
2. Light fixture schedule
3. Power receptacle outlets with circuit numbers
4. Location of panelboards.
5. Panel schedules and load calculations per WA State L & I electrical plan review format.
6. Location of signal systems [telephone (voice), computer (data), and TV outlets].

3.02 ELECTRICAL DESIGN COORDINATION

A. Contact and coordinate with other project consultants, subcontractors, and vendors for quantity, location, field wiring, and connection requirements of specialties, and all equipment, fixtures, and appliances furnished under other divisions of the Project Documents and requiring electrical connection.

3.03 ELECTRICAL DESIGN REQUIREMENTS

A. Branch circuits: Branch circuits shall terminate in panelboards. Feeder neutrals shall have same ampacity as the phase conductors. Branch circuits shall be rated 20 amperes minimum. Branch circuits that serve more than one outlet shall not be loaded to exceed 60% of circuit ampacity. Provide separate neutrals for multi-wire branch circuits.

B. Interior Illumination: Comply with the Energy code and provide completed energy code forms required by the AHJ. Provide lighting as shown and scheduled in the project documents.

C. Lighting Controls: Comply with requirements of the Washington State Energy Code. Provide manual and automatic control of indoor lighting as shown and scheduled in the project documents.
D. Convenience Power: Comply with the following minimum design requirements in addition to information shown on drawings:

1. Provide one dedicated special purpose outlet for printers or copiers where noted.
2. Provide four-plex work station outlets in knee space of each new reception space.
3. Provide work station outlet for kiosks where noted.
4. Provide a maximum of 4 work station or computer purpose outlets per circuit.

E. Special Purpose Outlets: Comply with the following minimum design requirements in addition to information shown on drawings:

1. Provide dedicated circuit and/or outlet(s) for each of the following where provided:
   - Printer / Copy Machine 1200VA

F. Equipment Power: Provide all required wiring and electrical connections of fixed equipment, fixtures, and appliances furnished under other divisions of the Project Documents or identified as Owner furnished.

G. Signal Systems Pathway: Provide a minimum of (1) 1 inch conduit and deep double gang outlet box with single gang faceplate for all signal systems. Provide separate conduit pathway between signal closets for voice/data and for TV signal systems. Provide signal outlets with conduit rough-in for each work station, shared printer, fax, copy machine, and TV.

H. Telephone / Computer System Cabling: Provide minimum Category 6 compliant cable to each station from nearest telecommunications rack. Provide new patch panels as required to terminate new stations. Match existing wiring style.

1. Provide two RJ45 outlets with two Category 6 cables to nearest telecommunications rack for each workstation.
2. Provide one RJ45 outlet with one Category 6 cable to nearest telecommunications station for each kiosk, monitor, copier or printer.

I. Monitors: Provide VGA outlet and cable from monitor to workstation identified by owner. Provide multi-purpose plate specific for VGA and RJ45 outlets.

J. Fire Alarm: Maintain existing fire alarm system. Protect devices in areas of construction.

K. Intrusion Alarm and Monitoring: Maintain existing intrusion alarm and monitoring systems. Protect devices in areas of construction.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. General requirements specifically applicable to Division 26 in addition to provisions of General Conditions, Supplementary Conditions, Special Conditions, and Division 01.

B. General requirements of this section also apply to Divisions 27 and 28.

1.02 SCOPE OF ELECTRICAL WORK

A. Provide electrical systems and Work described, identified, specified, referenced, and shown in the Project Documents that are normally covered under Divisions 26, 27, and 28 of the Construction Specifications Institute (CSI) and/or as otherwise regulated by national, state, and local electrical codes. Electrical Work includes providing all equipment, materials, devices, appurtenances, and accessories necessary to provide complete and operating systems according to the intent of Project Documents.

B. Electrical work is not limited to Division 26, 27 and 28 specifications and what is shown on the electrical drawings. The Contractor is responsible to review all Project Documents for additional Electrical Work and requirements and to include this work as part of their scope under the Contract.

1.03 REGULATORY REQUIREMENTS

A. Comply with requirements of the following codes as adopted and supplemented by authority having jurisdiction:

   ANSI/NFPA 70 - National Electric Code
   IBC - International Building Code
   IMC - International Mechanical Code
   WAC 296-46B - Washington State Electrical Safety Standards, Administration, and Installation
   Washington State Energy Code

B. Comply with additional codes and regulations referenced in other sections.

C. Comply with additional codes and regulations required by authority having jurisdiction.

D. Obtain and pay for permits, plan review, and inspections from authorities having jurisdiction over work included under applicable Division Sections

E. Include all testing, shop drawings, and documentation required by the inspection authorities for permitting and final approval.

1.04 SUBMITTALS

A. Comply with requirements of Division 01.

B. Confirm dimensions, ratings, and specifications of electrical materials, devices, fixtures,
and equipment conform to project requirements prior to furnishing submittals. Coordinate electrical requirements with utilization equipment submitted under other sections and verify that voltage, phase, and rating are compatible with work shown in the electrical project documents.

1.05 SUBSTITUTIONS

A. Comply with requirements of Division 01.

1.06 RECORD DOCUMENTS

A. Comply with requirements of Division 01. Maintain at project site one set of clean, dry, and legible red-lined record drawings for submittal at Contract Close-out. Record information concurrently with construction progress.

1.07 OPERATION AND MAINTENANCE MANUALS

A. Comply with requirements of Division 01. Unless otherwise specified, furnish two complete, indexed, and hard back bound sets of Operation and Maintenance Manuals prior to completion of contract.

B. Include the following information where applicable:

1. Names, addresses, and telephone numbers of the contractor, the installing sub-contractor, and the local representative for each system or equipment.

2. All approved product data and shop drawings.

3. Identify all manufacturer warranties which exceed one year.

4. Model number and serial number of each piece of equipment provided.

5. Data from test results performed under the Contract.

C. Operation and maintenance data shall include complete parts lists, installation and maintenance instructions, safety precautions, operation sequence describing start-up, operation, and shut-down, internal and interconnecting wiring and control diagrams with data to explain detailed operation and control, and testing methods for each system and item of equipment.

D. Furnish a draft copy of Operations and Maintenance Manual for Architect/Engineer review and incorporate comments prior to final submittal. Allow 14 days for Architect/Engineer review.

1.08 CONFLICTS

A. Notify the Architect/Engineer of any conflicts or discrepancies before proceeding with any work or the purchasing of any materials related to the conflict or discrepancy until requesting and obtaining written instructions from the Architect/Engineer on how to proceed.
1.10 WARRANTY

A. In addition to requirements covered under General Conditions or Division 01, include manufacturer product warranties that exceed one year. Assemble or list warranties that exceed one year in Operation and Maintenance Manuals indicating start date. Certificates of extended warranty shall identify the Owner as the beneficiary.

B. If the Electrical Contractor does not have offices located within 150 miles of the project, provide a service/warranty work agreement with a local electrical subcontractor approved by the Owner. The service/warranty work agreement shall extend for the contract warranty period, and a copy shall be included in the Operation and Maintenance Manuals.

1.11 INTENT OF PROJECT DOCUMENTS

A. Drawings and specifications are complementary and what is called for in either is binding as if called for in both.

B. The drawings are diagrammatic and show the general arrangement of the construction and do not attempt to show all features of work, exact construction details, or actual routing of conduit and cable. Provide all necessary supports, off-sets, bends, risers, fittings, boxes, wiring, and accessories which are required for a complete and operating installation. Determine locations for required electrical outlets and connections prior to rough-in based on equipment product and installation submittal data and/or review of equipment on site.

C. The level of design presented in the documents represents the extent of the design being furnished to the Contractor; any additional design needed to perform the Work shall be provided by the Contractor. All design by the Contractor shall be performed by individuals skilled and experienced in such work, and where required by local code (or elsewhere in the documents) shall be performed by engineers licensed in the State where the project is located. Include in bid the costs of all such project design; including engineering, drafting, coordination, and all related activities and work. Contractor provided design services shall be included for but not limited to bidder design specifications, temporary electrical systems, layout routing to install the Work and share project space with other building systems, hanger and support systems, seismic bracing, preparation of shop drawings, locating and identifying requirements for equipment and fixture terminations, and methods/means of accomplishing the work.

1.12 COORDINATION

A. Examine architectural drawings and specifications and consult with other trades, as required to coordinate use of Project space and sequence of installation.

B. Arrange wiring and equipment to avoid interference with other work and to maximize accessibility for maintenance and repairs.

C. Coordinate with suppliers and installers to obtain product electrical data, shop drawings, and installation requirements for systems, equipment, and products furnished by Owner and/or other trades as required perform electrical work.
D. Contractor is responsible to review all the Project Documents and approved shop drawings provide under other divisions to identify and resolve conflicts between electrical systems and building construction, equipment, cabinets, counters, trim, and special finishes, prior to rough-in.

1.13 REQUIREMENTS FOR EQUIPMENT FURNISHED UNDER OTHER SECTIONS OR BY OWNER

A. Provide power wiring, disconnect switches, electrical connection of equipment, installation of furnished electrical controllers, parts, and accessories, and field wiring for systems, equipment, and products furnished under other divisions or by Owner.

1.14 DEFINITIONS

A. Electrical terms used in these specifications are as defined in NEC Art. 100 unless otherwise noted.

B. Abbreviations: Where not defined elsewhere in the Contract Documents, shall be as defined in RS Means Illustrated Construction Dictionary.

C. Concealed: Hidden from view as in walls, trenches, chases, furred spaces, crawl spaces, unfinished attics, and above suspended ceilings.

D. Exposed: Exposed to view in any room, hallway, passageway or outdoors.

E. Furnish: Obtain and/or prepare and deliver to the project.

F. Indicated: Shown, scheduled, noted, or otherwise called out on the drawings.

G. Install: Enter permanently into the project complete and ready for service.

H. Provide: Furnish and install complete and ready for service.

I. Equipment Connection: Make branch circuit connection, mount and connect control devices as required. Provide disconnect and overcurrent protection when required by NEC and IMC, if not otherwise indicated or furnished with equipment.

J. Wiring: Conductors in raceway or an approved cable assembly.

K. Open Cable or Wiring: Conductors above grade not installed in conduit or raceway.

L. Panel: Distribution panelboard, lighting and appliance panelboard, load center, and/or low voltage cabinet.

M. As Required: As necessary to form a safe, neat, and complete working installation (or product), fulfilling all the requirements of the specifications and drawings and in compliance with all codes.

N. Coordinate: Accomplish the work with all others that are involved in the work by directly discussing the work with them, arranging and participating in special meetings with them to discuss and plan the work being done by each, obtaining and completing any
necessary forms and documentation required for the work to proceed, reaching agreement on how parts of the work performed by each trade will be installed relative to each other both in physical location and in time sequence, exchanging all necessary information so as to allow the work to be accomplished with a united effort in accordance with the project requirements.

O. Finished Areas or Spaces: Areas and/or spaces receiving a finish coat of paint on one or more wall surface.

P. Verify: Obtain, by a means independent of the project Architect/Engineer and Owner, the information noted and the information needed to properly perform the work.

1.15 SCHEDULE OF VALUES

A. Provide Schedule of Values for use by Architect/Engineer to evaluate progress payment requests during construction.

PART 2 - PRODUCTS

2.01 MATERIALS, EQUIPMENT

A. General: Furnish only products that are new and free from defects with a manufacture date that is less than six months from date of installation. Where product and applicable software updates or upgrades are available from the manufacturer, furnish the latest version unless otherwise specified.

B. Listing and Labeling: Furnish and install only products that are listed and labeled by one or more of the following testing laboratories as approved by the Authority Having Jurisdiction:

- Underwriter’s Laboratories, Inc. (UL)
- ETL Testing Laboratories, Inc. (ETL)
- Factory Mutual (FM)

C. Products shall be delivered, handled, and stored per manufacturer recommendations. Protect fixtures, materials, and equipment from rain, water, dust, dirt, snow, and damage. Do not install products that have marred, scratched, deformed, or otherwise damaged. Do not install products that have been wet or exposed to the weather prior to assembly and/or installation.

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Install work using procedures defined in ANSI/NECA 1-2010, Standard Practice of Good Workmanship in Electrical Construction.

3.02 INSTALLATION

A. Provide all electrical work as specified and shown in the Project Documents. Provide all labor, equipment, material, accessories, and testing for electrical systems complete and operating. Include all scaffolding, rigging, hoisting, and services necessary for delivery
and installation of materials and equipment. Include required software applications and associated system programming for electronic products.

B. Provide as part of the Electrical Work all hangers, brackets, supports, framing, backing, accessories, incidentals, not specifically identified the project documents, but required to complete the system(s) in a safe and satisfactory working condition.

C. Quantity of materials and layout of the Work shall be provided based on field measurement of the actual project conditions and shall not be based on plan dimensions.

D. Contractor is responsible ensure that items to be furnished shall fit the space available. Contractor shall make the necessary field measurements to ascertain the space requirements, including those for connections, and to furnish and install equipment of a size and shape so that final installation shall meet the intent of the Project Documents. If approval is received by Addendum or Change Order to use other than the originally specified items, Contractor shall be responsible for specified capacities and for ensuring that items to be furnished will fit the space available.

E. Provide all testing and documentation of electrical systems as required to demonstrate compliance with the Project Documents.

F. Provide testing, documentation, and filing required to comply with commissioning requirements of Section C408 of the Energy Code. Include documentation in Operation and Maintenance Manuals.

3.03 CUTTING AND PATCHING

A. Provide cutting and patching to complete electrical work and to provide openings in elements of Work for electrical penetrations. Comply with requirements of Division 01.

B. Locate and execute cuts so as not to damage other work or weaken structural components. Core drill or saw cut rigid materials.

C. Patch to restore to original condition. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

3.04 EQUIPMENT FURNISHED UNDER OTHER SECTIONS OR BY OWNER

A. Review equipment submittals prior to electrical rough-in and installation. Verify location, rating, size, and type of connections. Coordinate field wiring requirements and details with supplier and installer. Notify Architect/Engineer of conflicts between requirements for actual equipment being furnished and equipment indicated in contract documents prior to commencing Work.

B. Make final connections to equipment. Provide cord and plug where required for plug-in connection.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Demolition of systems applicable to Division 26.
B. Requirements for remodeling applicable to Division 26.
C. Requirements of this section also apply to Divisions 27, 28, and 33.

1.02 RELATED SECTIONS

A. Demolition, Extension, and Relocation of Existing Installation: Comply with provisions of Division 01.
B. Disruption of Existing Building Services/Systems: Comply with provisions of Division 01.

1.03 EXISTING CONDITIONS

A. Contractors shall visit the project site prior to bidding and become familiar with the existing conditions and all other factors which may affect the execution of the work. Include all costs related to existing site conditions in the initial bid proposal.
B. Failure to visit the project site prior to bid does not relieve the Contractor of the responsibility to provide all required work and a complete installation within the intent of the Contract Documents.

1.04 POWER & SIGNAL OUTAGES

A. The facility will continue normal operations during the construction work. The Contractor shall schedule power outages with the Architect in accordance with requirements of Division 01. Include coordination, identification of affected areas, work schedule, and re-energizing of electrical systems with minimal disruption to facility operations.
B. Unscheduled power or signal outages to Owner occupied areas and systems essential to facility operation or life safety shall not be permitted at any time. In the event that the Contractor's work causes or contributes to a power outage or other system fault, the Contractor is responsible for immediately correcting the problem.
C. Schedule power and signal outages for evenings, weekends, or holidays unless otherwise approved; include costs for overtime and work outside regular hours.

1.05 FIRE ALARM SYSTEM

A. Maintain and operate the existing fire alarm system during construction. Comply with alarm, incident response, and fire watch requirements of the Authorities Having Jurisdiction for all areas served by the system. Plan and provide fire watch and/or temporary wiring where new construction interrupts required system operation.
B. Provide dust protection for installed smoke detectors located within the work area. Clean detectors after work is completed and dust protection is removed.
C. Coordinate all planned shutdowns and tests of the fire alarm system with the Fire Department and Alarm Reporting Center. Notify the Alarm Reporting Center of false alarms that occur during construction as required to mitigate Fire Department response.
D. Provide investigation, correction, and required repairs to the alarm system for false alarms and system trouble that occur during the project and for system failures cause by the Work. Fines and penalties for excessive false alarms that occur during the Project shall be the responsibility of the Contractor.

E. The Owner shall provide reimbursement for expenses associated with false alarms, system trouble, and system failure if the contractor can satisfactorily demonstrate that the incidents are not related to the Project.

PART 2 - PRODUCTS

2.01 MATERIALS & EQUIPMENT

A. New and Replacement Materials & Equipment: As specified in applicable sections, except product manufacture shall match existing for minor construction and for accessories to equipment that remains.

B. Materials & Equipment for Patching: Match existing products.

C. Access Panels: Standard flush metal door for drywall, masonry, or tile, with locks keyed to match electrical panels. Milcor Style M, except Style UFR for fire rated construction.

PART 3 - EXECUTION

3.01 PREPARATION

A. Field verify wiring and cabling for existing power and signal systems back to source of supply as required to perform Work.

B. Disconnect electrical systems in walls, floors, and ceilings being removed.

C. Provide temporary wiring and connections to maintain existing systems interrupted by new construction.

D. Carefully remove, store, and reinstall existing removable ceiling tiles and raised floor panels where access to perform work is required.

E. Carefully remove, store, and reinstall existing light fixtures where access to perform work is required. Provide additional fixture support and seismic bracing for reinstalled fixtures where required to meet current Code.

F. Cut and Patch conduit penetrations and required holes to access work at walls.

3.02 DEMOLITION & EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing systems to accommodate new construction. For selective demolition, refer to architectural plans and include electrical demolition to support removal and replacement work not otherwise indicated in electrical drawings.

B. Electrical demolition includes the disconnecting, removal, and disposal of fixtures, devices and equipment where indicated, along with associated wiring.

C. The following shall be considered as abandoned unless otherwise indicated:
1. Wiring to fixtures, devices, and equipment being removed or disconnected.

2. Conduit containing conductors or cable that have been disconnected from a source of supply or left empty by the removal of conductors.

3. Open conductors or cable that have been disconnected from a source of supply.

4. Fixtures, devices, equipment, and outlets located in walls, ceilings, and floors indicated to be removed.

5. Fixtures, devices, and equipment identified as being replaced.

D. Remove abandoned wire and cable for power and signal systems to source of supply.

E. Remove abandoned conduit, cable, and outlets where exposed and within accessible ceiling, attic, crawl, plenum, and opened wall spaces. Cut conduit flush with walls and floors; patch surfaces in finished spaces. Outdoors remove abandoned conduit and cable down to 24 inches below grade and restore site to its original grade and finish.

F. Disconnect abandoned outlets and remove devices. Provide blank covers for abandoned outlet boxes in floors, walls, and hard ceilings to remain.

G. Repair adjacent construction and finishes damaged during demolition and extension work.

H. Cut-in flush outlet boxes and fish conduit in existing construction of remodeled areas where conditions permit. Flexible conduit is approved where fishing of conduit is required. Where existing construction does not permit flush installation, use surface metal raceway.

I. Extend existing outlet boxes as required to accommodate new surface treatments or to extend wiring with surface raceway.

J. Maintain access to existing electrical systems to remain active. Modify installation or provide access panels as appropriate.

K. Replace, modify or extend existing outlet boxes to meet volume requirements. Cut surfaces as required to replace (or modify) existing outlet boxes and to install supports for new boxes and fixtures and patch to match adjacent surface.

L. Provide new supports for existing conduit and open cable accessed during construction and which is to remain or be reused, as required to comply with current Code. Comply with requirements of applicable signal system specifications for support of signal cables.

3.03 DISPOSITION OF MATERIALS

A. Prior to start of demolition, coordinate with Owner to identify materials and equipment for salvage. Disconnect and remove items to be salvaged and deliver to an area on site designated by the Owner. Disconnect, remove, and handle salvage material and equipment in a manner so as not to damage or otherwise render unusable.

B. Materials and equipment removed and not reused or salvaged to the Owner shall become the property of the Contractor unless otherwise indicated. Remove such material and equipment from the Owner’s property and dispose legally off site.

3.04 NAMEPLATES & CIRCUIT DIRECTORIES
A. Provide nameplates for existing distribution equipment to indicate new and revised equipment, circuit, and load designations.

B. Update panelboard and load center circuit directories to indicate changes and additions to each circuit. Updated and existing circuits shall be typewritten on new removable circuit index cards.

C. Nameplates and circuit directories shall comply with requirements of Section 26 20 00.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Conduit and fittings.
B. Building wire and cable.
C. Wiring connections and terminations.
D. Boxes.
E. Wiring devices.
F. Supporting devices.
G. Video Cable

PART 2 - PRODUCTS

2.01 CONDUIT

A. Rigid Steel Conduit (RGS): ANSI C80.1; hot dipped galvanized.
B. Intermediate Metal Conduit (IMC): Hot dipped galvanized.
C. Electric Metallic Tubing (EMT): ANSI C80.3; galvanized tubing.
D. Flexible Metal Conduit: Galvanized steel. Heavy wall except reduced wall may be used where concealed in building construction.

2.02 FITTINGS

A. RGS and IMC Conduit: ANSI/NEMA FB 1; threaded type. Provide hubs and connectors with insulated throat for conduit larger than 3/4 inch diameter
C. Flexible Conduit: ANSI/NEMA FB 1; steel, single screw squeeze type.

2.03 WIRE AND CABLE

A. Copper Building Wire, Interior: Type THWN-2, 600 volt insulation; conductors 8 AWG and larger shall be stranded.

2.04 WIRE CONNECTORS

A. Connectors for Wire Size 10 AWG and Smaller: Insulated steel spring twist-on pressure connector with plastic cap. Outdoors use watertight type with prefilled sealant gel.

2.05 BOXES

A. Outlet Boxes: ANSI/NEMA OS 1; galvanized sheet steel, with ½-inch male fixture studs or plaster rings as required.
B. Surface Outlet Boxes Below 8 Feet: Cast aluminum or malleable iron, threaded hubs.
C. Junction and Pull Boxes: Outlet box with blank cover except boxes larger than 4 inch square shall be screw cover type, galvanized steel with grey enamel finish, NEMA 1 indoors and NEMA 3R outdoors, unless otherwise indicated.

D. Fire Rated Construction: Recessed outlet boxes and rough-in cans that are installed in 2 hour rated area separation walls shall be UL listed with 1 ½ hour rating label.

E. Barriers: Provide permanent barriers in outlet boxes to separate adjacent wiring devices where voltage exceeds 300 volts. Provide permanent voltage separation barriers in outlet and junction boxes to separate wiring above 100 volts from wiring below 100 volts and where otherwise required by Code.

F. Color Coding of Device and Junction Boxes for Special Systems: Field painted or otherwise manufactured in the specified color, both inside and outside of box and cover. Provide color identification for the following electrical systems: Fire Alarm System - RED, Emergency Systems (NEC 700) - ORANGE.

2.07 WIRING DEVICES

A. Duplex Receptacles: Specification grade 5362 series, NEMA 5-20R, grounding type, as manufactured by Hubbell, Leviton, Pass & Seymour, Cooper. Color: Ivory [except receptacles on emergency circuit shall be red].

B. Isolated Grounding (Computer Purpose) Receptacles: Same manufacture, design, and color as duplex receptacles except ground terminal shall be isolated from device mounting strap and permanent special purpose identification shall be visible on the device.


D. Surface Mounted Device Plates: Raised galvanized steel on steel boxes; cast or stamped sheet aluminum on cast boxes.

E. Floor Box Service Fittings, Concealed Service: Screw type modular face plates offered by product manufacturer, configuration to match wiring devices provided. Provide blank plates for unused outlets. Provide raceway connection between outlets on opposite side of the box where required to meet application requirements.

F. Floor Box Service Fittings, Flush Service: Polished brass device plates with matching carpet flange. Receptacle outlets shall have single or duplex hinged lift flaps to match device, listed for scrub water exclusion. Signal outlets shall have hinged lift flap.

2.09 RACEWAY FOR COMMUNICATIONS AND SIGNAL CIRCUITS

A. Minimum 1” raceway.

2.10 VIDEO CABLE

A. Provide VGA cable from monitor station to work station location identified by Architect/Owner. Provide VGA outlet with faceplate at monitor and at work station.
2.11 SUPPORTING DEVICES

A. Metal Conduit Clamps & Straps: Steel, screw type; zinc or cadmium plated minimum indoors, hot dipped galvanized minimum outdoors.

B. Support Channel: Slotted 12-gauge steel channel with fittings, fasteners, brackets, clamps, floor plates, and accessories required; Pre-galvanized zinc coated (G90) indoors, ASTM 123 hot dipped galvanized outdoors.

C. Fasteners: Expansion anchors in concrete and solid masonry; toggle bolts in hollow masonry, plaster, or gypsum board wall construction; sheet metal screws in metal construction; wood screws in wood construction; set screw type beam clamps on steel columns and beams; U.L. listed clips for metal studs. Metal parts and accessories to be zinc or cadmium plated minimum indoors and hot dipped galvanized minimum outdoors.

2.12 ACCESSORIES

A. Air-Vapor Barriers:
   1. Pre-molded polyethylene box installed in all exterior framing walls (thermal envelope) around recessed outlet boxes.
   2. Foam electrical outlet gaskets for installation between device plate and finished outlet. Conceal behind device plate.

B. Pulling Wire:
   1. Interior; continuous fiber pulling line, 190# tensile strength.
   2. Below grade; Polyester measuring pulling tape 5/8 inch wide, 1800# tensile strength. Muletape

2.13 FIRE RATED CONSTRUCTION

A. Products for Fire Stopping to Seal Around Enclosures and Annular Space between Conduit and Building Construction at Conduit Penetrations: ANSI/UL 1479; Comply with requirements of Division 07.

B. Conduit Sleeves for Open Cable: ANSI/UL 1479; Fire stop conduit sleeve kit, with mounting escutcheons, gaskets, end bushings, warning labels, and non-hardening fire stop putty. SpecSeal READY SLEEVE, FS100 (1 inch diameter sleeve) and FS200 (2 inch diameter sleeve), or approved.

C. Pathway Sleeves for Open Cable, Greater than 2 Inch Diameter: ANSI/UL1497; Fire stop rectangular sleeve kit, 3-inch wide by 3-inch high by 10.5-inch length, expandable in 6-inch increments, self-contained integral fire sealing system that automatically adjusts to the installed cable loading. Provide radius control modules (each end of pathway), single or multiple gang wall kits, and expansion modules as required. Specified Technologies, Inc., EZ-Path System Series 33 or approved.

PART 3: EXECUTION
3.01 WIRING METHODS

A. GENERAL

1. Fixed wiring shall be conductors installed in conduit except where cable is specifically permitted in this specification.

2. Conceal all wiring within construction.

3. Where contractor wiring methods require the application of conductor ampacity adjustment or correction factors under NEC 310.15, the contractor shall submit calculations that show Code compliance, except the adjusted ampacity of the conductors installed shall not be less than the circuit overcurrent device rating shown or specified.

4. Device Plates: It is the electrical contractor’s responsibility to ensure that all line voltage and low voltage system faceplates and visible trim pieces are the same color. Exception: Where stainless steel device plates are used for line voltage systems, low voltage systems may use non-metallic plates of the same color.

B. CONDUIT REQUIREMENTS

1. Rigid Steel Conduit (RGS): May be used in all areas. Required at penetrations thru fire rated construction rated greater than 1 hour.

2. Intermediate Metal Conduit (IMC): May be used in all areas except where RGS is required or indicated.

3. Electrical Metallic Tubing (EMT): May be used in dry and damp locations where not subject to damage. May not be used in concrete, where in contact with earth, or where RGS is required or indicated. Maximum trade size 2 inches.

4. Flexible Conduit: May be used concealed in casework and where concealed in walls, up to 1 inch maximum trade size. Required for final equipment connections (maximum length 36 inches), to lighting fixtures from an outlet box (maximum length 72 inches), and where raceway passes thru seismic joints. Use liquid tight in damp or wet locations.

C. WIRE AND CABLE REQUIREMENTS

1. Use copper conductors.

2. Provide green grounding wire to each receptacle and light fixture.

3.02 SUPPORT - GENERAL

A. Support wiring, conduit, raceways, boxes, equipment, and fixtures from building structural members. Provide additional framing, channel, or listed support attachments as required to span or support between structural members and to avoid interference from pipes, ducts, and other equipment.

B. Do not install support anchors to penetrate thru roof deck.

C. Do not violate the integrity or exceed the capacity of the building structure used for support. Provide/fabricate additional support elements to transmit loads to the floor or
other parts of the building structure that can carry the load as approved by the Architect/Engineer.

3.03 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Minimum conduit trade size 1/2-inch diameter except all homeruns shall be 3/4-inch minimum diameter. Prewired 3/8 inch diameter flexible conduit not to exceed 72 inches in length may be used for fixture whips from an outlet box to light fixture.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route conduit parallel and perpendicular to walls and adjacent piping.

D. Maintain 12-inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

E. Locate holes in joists within center third of member depth measured from the edge and at least 24 inches from load bearing points. Maximum hole diameter one inch.

F. Support conduits from building structure with conduit straps or rods and hangers. #8 solid wire and CADDY clips may be used to hang 3/4-inch diameter conduit and smaller above accessible ceiling spaces.

G. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

H. Do not support conduit with perforated pipe straps or tie wraps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

I. Do not bore holes in truss members or notch structural members.

3.04 CONDUIT INSTALLATION

A. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes and for fastening conduit to sheet metal boxes in damp locations.

B. Use conduit bodies to make sharp changes in direction, as around beams.

C. Use factory elbows for bends in metal conduit larger than 1 inch. Conduit bends for signal systems that are greater than 45 degrees shall be minimum radius sweeps as follows:

<table>
<thead>
<tr>
<th>Conduit Size</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 inches</td>
<td>Standard radius</td>
</tr>
<tr>
<td>2 inches - 3 inches</td>
<td>24 inch radius</td>
</tr>
<tr>
<td>Over 3 inches</td>
<td>36 inch radius</td>
</tr>
</tbody>
</table>

D. Install insulated bushings on each end of conduit larger than 1 inch.

E. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

F. Install pull wire in empty conduits.
G. Conduits at Roof Decks: Conduit installed within 1.5 inches of the nearest surface of metal corrugated roof decks and conduit concealed within roofing systems on top of roof decks shall be RGS or IMC conduit.

H. Install flexible conduit thru oversized bushed sleeve or cored opening where conduit crosses building wall expansion or seismic joints. Provide up to 54 inches of flexible wiring with 6 inches minimum of conduit slack each side of the wall assembly to allow for free movement across the joint.

I. Do not install conduit in direct contact with underside of roof deck.

3.05 CONDUIT PENETRATIONS

A. Interior Walls and Partitions: Cut one size larger than conduit diameter. Seal all openings at each penetration with low VOC level general purpose interior sealant as specified in Section 07900.

B. Fire Rated Construction: Comply with requirements of paragraph, FIRE RATED CONSTRUCTION, this specification.

3.06 SURFACE METAL RACEWAY (SMR)

A. Provide SMR in lieu of conduit in finished spaces where exposed raceway is approved.

B. Install parallel to building surface in least conspicuous location. Verify routing with Architect and make directed adjustments prior to installation.

C. Where multiple-compartment SMR is used for both signal and power, identify compartments per NEC 386.70.

3.07 CONDUCTOR INSTALLATION

A. Minimum Conductor Size: #12 AWG, except #10 AWG minimum for outdoor and exterior building lighting circuits and #14 AWG minimum for control circuits and for lighting fixture taps not to exceed 72 inches.

B. Splice conductors only in junction or outlet boxes.

C. Arrange conductors neatly at termination such that a clamp-on ammeter may be used.

D. Clean conduit free of debris before conductor installation; install conductors using pulling lubricant.

3.08 CONDUCTOR IDENTIFICATION

A. Provide non-metallic wire markers on each conductor in panelboards and in junction boxes having more than 6 conductors. Identify branch circuit or feeder number for power and lighting circuits.

B. Color Coding of Insulated Equipment Ground: Solid green.

C. Color Coding of 208/120 Volt System: Phase A - black, Phase B - red, Phase C - blue, Neutral - white.
D. Color Coding of 480/277 Volt System: Phase A - brown, Phase B - orange Phase C - yellow, Neutral - gray.

E. Color Coding of Switch Legs: Pink

F. Provide color tracers on neutrals to differentiate circuits on multi-wire branch circuits with separate neutrals.

3.09 BOX LOCATIONS

A. Provide electrical boxes for outlets, junctions and equipment connections as shown and as required for splices, taps, wire pulling, and code compliance.

B. Electrical box locations shown are approximate unless dimensioned. Obtain equipment outlet locations from equipment manufacturer prior to rough-in. Coordinate outlet and wall switch locations with casework and finish elements shown on Architectural drawings. Install to fit conditions or as directed.

C. Verify location of wall outlets, wall switches, signal systems and lighting outlets with Architect prior to installation.

D. Height of outlets unless otherwise directed: 18” above finished floor.

3.10 BOX INSTALLATION

A. Set wall outlet and wall switch boxes vertically.

B. Support boxes independently of conduit, piping, and ductwork; securely fasten in place.

C. Provide recessed outlet boxes in finished areas. Flush front edge of box or plaster ring even with finished surface.

D. Provide blank cover plate over all boxes that do not contain devices or are not covered by equipment.

E. Do not install flush boxes on opposite sides of a wall within the same stud space. Maintain 24 inch minimum box separation in fire rated wall assemblies.

3.11 WIRING DEVICES

A. Ground Fault Circuit Interrupter (GFCI) Protection: Provide for receptacles located outdoors, within 6 feet of sinks, in bathrooms, kitchens, indoor wet locations, locker rooms with associated shower facilities, elevator pits, elevator machine rooms, crawl spaces, garages, service bays, rooftops, at counters and work surfaces where food and/or beverage preparation occurs, and as otherwise indicated. GFCI receptacles are not required where branch circuit is protected by GFCI circuit breaker.

3.12 CABLE TRAY FOR COMMUNICATIONS CIRCUITS

A. Install in accordance with requirements of NEMA VE 2 and manufacturer’s instructions. Provide shop drawings for installation of cable trays showing layout, supports, connectors, accessories, and installation details.

B. Unless otherwise indicated support cable tray from building structure with center support using ⅝ inch threaded rod. Provide supports at each end, each connection point, and
other points required to maintain maximum support spacing of 12 feet on center for ladder type tray and 6 feet on center for wire basket type tray.

C. Install warning signs 50 feet on center along cable tray to read "WARNING! DO NOT USE CABLE TRAY AS WALKWAY, LADDER, OR SUPPORT. USE ONLY AS MECHANICAL SUPPORT FOR CABLES."

D. Seismic Restraint: Provide seismic bracing of suspended cable tray. Comply with product manufacturer's standard installation details and recommendations for Seismic Design Category F.

F. Coordinate cable tray layout and installation with HVAC and Plumbing requirements. Locate supports to clear ducts, equipment and piping. Allow for offsets to share space at three locations minimum.

G. Provide wall sleeve wherever cable tray passes through a wall or other permanent partition. Do not install cable through fire rated construction.

3.13 FIRE RATED CONSTRUCTION

A. Verify location of fire rated walls and ceilings with Architectural plans prior to rough-in.

B. Installation of boxes, rough-in cans, conduits, and sleeves that result in membrane or through penetrations shall comply with IBC 712.1 through 712.4 as required to maintain fire rating of construction assembly. Coordinate locations and construction requirements with General Contractor.

C. Provide approved conduit and/or pathway sleeve kits for installation of open cable through fire rated construction.

3.14 LABELING

A. Outlets: Identify panel and circuit number on faceplate of convenience and special purpose outlets. Use self-adhesive, polyester or vinyl laminated labels with machine generated alpha-numeric circuit identification, 1/4 inch high black letters on clear background. Exception: Use white letters on black or brown color device plates.

B. Junction Boxes: Label or mark cover with panel and circuit number. Locate on inside of cover except locate on outside of junction box cover in attics, crawl spaces, equipment rooms and above accessible ceilings.

3.15 TESTS

A. Perform continuity test on all feeder and branch circuit conductors. Verify proper phasing and that no short circuits or accidental grounds exist.

B. Check all convenience outlets for correct wiring connections using a polarity circuit tester. Test AFCI and GFCI circuits for proper operation with an approved tester.

C. Torque test conductor lug terminations to manufacturers recommended values.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Electrical equipment and raceway grounding.

B. Communication system grounding.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Ground & Bonding Conductors: Bare, soft drawn copper; stranded for 8 AWG and larger, unless otherwise indicated or specified.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Equipment Grounding Conductor: Provide separate insulated green equipment grounding conductor in feeders and in branch circuits to plug-in outlets. Provide equipment grounding conductor in non-metallic conduits and flexible conduit. Size equipment grounding conductors per NEC 250.122 unless larger size is shown or specified.

B. Ground exposed non-current carrying metal parts of equipment fastened in place or connected by permanent wiring and likely to become energized per Code. In MDF and in IDF rooms, bond cable trays and equipment racks to terminal board ground bus using #6 minimum AWG conductor.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Interior luminaires and accessories.

1.02 COORDINATION
A. Confirm luminaire type, mounting, and recessed depth prior to ordering. Coordinate with architectural drawings.
B. Determine final luminaire locations according to architectural elevations.
C. Coordinate dimensions and mounting of under-cabinet and other casework lighting with the cabinet and/or casework product vendor(s) prior to ordering light fixtures.

1.03 SUBMITTALS
A. Submit product data for all items specified under Part 2 of this section and scheduled on the drawings. Include in submittal and in Operations and Maintenance Manual a coversheet listing each fixture type with corresponding lamp and ballast data.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS
A. Luminaires & Accessories: Identified in Fixture Schedule.

2.02 LED FIXTURES
A. Indoor Lighting: Color temperature as indicated, integral surge protection, rated L70 at 50,000 hours or better per IESNA LM-80, with 5 year minimum manufacturer warranty. Provide LED fixtures with dimmable drivers unless otherwise approved, suitable for 0-10 volt control.

2.03 FIXTURE WHIPS
A. 3/8 inch flexible conduit or approved MC cable assembly with circuit and equipment ground conductors; 72 inch maximum length.
B. Where fixtures are provided with pre-installed whips, verify wiring arrangement, termination location, and installation clearances prior to ordering.

2.04 FIXTURE ACCESSORIES
A. Provide necessary hangers, brackets, plates, anchors, and other mounting accessories required by construction features and ceiling conditions. Comply with requirements of Section 26 05 00, Basic Materials and Methods.

2.05 LIGHTING FIXTURE SCHEDULE
A. See Drawings.
PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide lamps in lighting fixtures and lamp holders provided under this Section.

B. Set lighting fixtures plumb, square, and level; measure mounting heights to center of fixture for wall mounted and to bottom of fixture for pendant hung.

C. Support lighting fixtures from building structural members; provide metal channels or additional blocking and framing as required for fixture support between structural members or to avoid interference from mechanical pipes and ducts. Conceal supports within building construction in finished spaces.

D. Recessed and surface mounted lighting fixtures weighing less than 56 lbs (25.4 kg) may be supported from metal ceiling suspension systems when auxiliary support from structural members using two #12 AWG wire hangers at diagonal corners are provided (hangers may be slack). Fixtures weighing 56 lbs or more must be supported directly from the structure by approved hangers.

E. Mounting height for wall mounted fixtures and for hanging fixtures supported by pendants, cable, chain, conduit, rods, or other means shall be determined by the architect/engineer during construction unless otherwise indicated in the construction documents.

3.02 FAILED LUMINAIRES

A. Replace luminaires which have failed LEDs at completion of work.

3.03 ADJUSTING AND CLEANING

A. Align and tighten luminaires and clean reflectors, lenses and diffusers at completion of work. Clean paint splatters, dirt, and debris from installed luminaires.

B. Make final aiming adjustment of directional luminaires as directed by Architect/Engineer at completion of work.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Conduit, raceway, and outlet rough-in for low voltage and structure cabling systems supporting:
   1. Voice (Telephone)
   2. Data (Computer)
   3. Monitor Video

B. Sleeves, Risers, and Horizontal Pathway

1.02 RELATED SECTIONS

A. Section 26 01 00, Electrical General Requirements
B. Section 26 04 00, Existing Systems
C. Section 26 05 00, Basic Materials & Methods
D. Section 26 05 26, Grounding & Bonding
E. Section 27 10 00, Structured Cabling

PART 2 - PRODUCTS

2.01 OUTLETS

A. General: 4-11/16-inch square x 2-1/8-inch deep outlet box with single gang plaster ring. Provide blank device plates on unused outlets. Provide multi-gang box and/or plaster ring where otherwise indicated on plans.

B. Two-piece Surface Metal Raceway: Provide single gang or combination power/signal device mounting bracket and cover plate for indicated outlets as required. Provide blank device plate on unused outlets.

C. Work Station Outlets: Comply with requirements of Section 26 05 00.

2.02 MATERIALS

A. Boxes, Conduit, Raceway, Device Plates, Cable Tray: Comply with Section 26 05 00.

B. Fire Rated Sleeves: Comply with section 26 05 00.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Comply with Section 26 05 00.

B. Outlets:
1. Mounting height unless otherwise directed: 18” above finished floor.

2. Do not install signal outlets on same side of wall stud common with electrical outlets or vertical power wiring.

3. Conduit: Comply with requirements of Section 26 05 00. Unless otherwise indicated, provide conduit concealed inside wall or casework from each outlet up to nearest accessible ceiling space of same floor or homerun under floor to nearest terminal. Terminate conduit with plastic bushing. Install maximum two 90 degree equivalent bends between raceway terminations. Minimum conduit sizes unless otherwise indicated:

   Voice and/or Data        1 inch diameter  
   All Other Systems        \( \frac{3}{4} \) inch diameter

C. Risers and Horizontal Pathway: Provide conduit for signal pathway between floors and as otherwise indicated. At MDF, IDF’s, and equipment head ends, tag or otherwise label with permanent marker each conduit termination to identify its destination.

D. Install nylon pull cord in each conduit longer than 20 feet. Leave 18 inches of slack minimum each end. Tag end of pull cord at conduit termination to identify outlet location at other end.

E. Sleeves: Provide conduit sleeves for installing open signal cables through draft stops and partition walls in attics, crawl spaces, and accessible ceiling spaces. Use specified fire rated sleeves through fire rated construction. Locate and size sleeves per approved shop drawings provided under related sections and as otherwise indicated.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Cable and Accessories
B. Station Outlets
C. Cross-Connect Components
D. Equipment Mounting
E. Structured Cabling System Design

1.02 RELATED SECTIONS

A. Section 26 01 00, Electrical General Requirements
B. Section 26 04 00, Existing Systems
C. Section 26 05 00, Basic Materials & Methods
D. Section 26 05 26, Grounding & Bonding
E. Section 27 05 33, Raceways and Boxes for Communications Systems

1.03 REGULATORY REQUIREMENTS

A. Conform to requirements of the latest revisions of the following standards:
   - TIA/EIA-569 Commercial Building Standard for Telecommunications Pathways and Spaces.
   - TIA/EIA-568-B-1,2,3 Commercial Building Telecommunication Standard, including all addendums.
   - TIA/EIA-455-61 FOTP-61, Measurement of Fiber or Cable Attenuation Using An OTDR
   - EIA/TIA-606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
   - EIA/TIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications

1.04 SYSTEM DESCRIPTION

A. Provide design and installation of a structured cabling system consisting of horizontal station wiring using unshielded twisted pair (UTP) cabling, with UTP backbone for voice PDS and fiber optic backbone for data PDS. Locations of outlets as indicated on drawings. Contractor is responsible to identify locations of existing telecommunications racks and provide all cabling, terminations, raceway, patch panels, supports and accessories as required for a complete operating system.

B. Voice (telephone) Network: Conform to TIA/EIA Category 6 requirements or match existing system. Connect each station voice jack to wiring terminal blocks at the nearest Distribution Frame or wiring closet located on same floor unless otherwise indicated.

C. Data (computer) Network: Conform to TIA/EIA Category 6 requirements or match existing system. Terminate each station data jack to a patch panel at the nearest Distribution Frame or wiring closet located on same floor unless otherwise indicated.

1.05 SUBMITTALS

A. Submit product data for all items specified under Part 2 of this section.
B. Submit shop drawings showing floor plans with room numbers, station outlet locations, horizontal station cable routing, and alpha numeric identification of terminals and jacks. Include elevation plans showing layout of cross-connect and wire management hardware. Show location and size of conduit sleeves for open cable routing.

C. Submit terminal labeling plan.

D. Submit documentation for tests required under Part 3 of this section.

1.06 OPERATION & MAINTENANCE DATA

A. Include data for complete structured cabling system in Operation and Maintenance Manual.

B. Include cable certification test results for each UTP cable.

1.07 QUALIFICATIONS

A. Company: Contractor specializing in the design, installation, and testing of high speed data and voice network systems for a minimum of five years.

B. Installers: Trained and experienced technicians of the company, certified by the product manufacturer and by Building Industry Consulting Service International (BICSI) for the PDS cabling, hardware, and accessories being installed, shall perform the work.

1.08 WARRANTY

A. Provide 5 year minimum product warranty and 15 year minimum link/channel transmission warranty.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. UTP Cable: Systimax, Bert-Tek, CommScope, AMP.

B. UTP Station Outlets and Cross-Connect Components: Systimax, AMP, Ortronics.

C. Fiber Optic Cable, Equipment, and Accessories: Siecor, CommScope, AMP, Ortronics.

2.02 GENERAL REQUIREMENTS

A. All products provided under Part 2 shall meet or exceed TIA/EIA-568-B.2-1 Category 6, unless specifically indicated otherwise.

2.03 CABLE

A. Station Cable, Voice / Data: UL type CMP or CMR (field verify), Category 6, 24 AWG solid copper, 4-pair unshielded twisted pair, jacket overall, color coded, listed for use in ducts, plenums, and other air handling spaces.

2.04 CABLE ACCESSORIES
A. **Cable Support:** Extra wide base J hooks, with plenum rated tie wraps. Caddy cable cat system or equal. Staples, straps, bridle rings, and similar supports are prohibited.

B. **Wire Management:** Provide vertical wire management channels each side of equipment racks for strain relief, bend radius, and cable routing. Include cable trough for station cable routing and front mounted wire management rings for patch cords.

### 2.05 STATION OUTLETS

A. **Voice / Data Jacks:** TIA/EIA - T568A RJ45, 8-position/8-conductor, keyed modular jack, with symbol or color code to identify use.

B. **Faceplates:** Thermoplastic with identification strip top and bottom; 3 module/6 port capacity; color to match wiring devices. Provide blank modules for unused plate opening.

C. **Floor Box Outlets:** Standard duplex mounting strap with modular snap-in outlet jacks. Provide blank insert where ever jack is not installed.

D. **Outlets in Two-Piece Surface Metal Raceway:** Decorator (rectangular) style duplex mounting strap with modular snap-in outlet jacks. Provide blank insert where ever jack is not installed.

### 2.06 CROSS-CONNECT COMPONENTS

A. **Data:** Printed circuit board patch panels, 6-port modular construction with RJ45 keyed 8-position jacks, AT&T 110 connector system, match existing wiring style, identification strips, and 19 inch rack mounting, unless otherwise indicated. Provide sufficient panels and quantity of ports equal to the number of terminated stations cables.

B. **Data Patch Cords:** UL type CM, 4-pair cable with RJ45 plug each end, length not to exceed 4 meters, quantity equal to total installed station jacks, match existing color.

### 2.07 EQUIPMENT MOUNTING AND ACCESSORIES

A. **Existing to remain.**

### PART 3 - EXECUTION

#### 3.01 PREPARATION

A. **Provide location and size of conduit sleeves for routing open cables thru fire rated construction, draft stops, and partition walls in attics, crawl spaces, and accessible ceiling spaces. Size sleeves with 25% minimum space capacity. Indicate on shop drawings for coordination with Section 27 05 28.**

#### 3.02 INSTALLATION

A. **Comply with product manufacturer installation instructions. Conform to requirements of TIA/EIA 568 and TIA/EIA 569 for specified Category.**

B. **Label cross connect terminals sequentially using an numeric or alpha-numeric identification plan submitted for approval. Label cable at each end with a permanent cable marker to match the corresponding terminal number. Label each station jack using polyester film adhesive pre-labeled markers to indicate corresponding terminal number.**
C. Conceal wiring in suspended ceiling spaces, attic spaces, crawl spaces, and in wall construction. Utilize conduit rough-in specified in Section 27 05 28. Install cable in neat parallel runs within cable trays and down to cross-connect hardware without rolls, twists, or loops.

D. Install cables continuous without splicing. Install open cable above accessible ceilings, parallel and perpendicular to building lines. Bundle cables with nylon tie wraps and support cable in tray, conduit sleeves, or from structure using specified J hooks at intervals not to exceed 4 1/2 feet. Where bundled cable exceeds 6 cables, provide separate voice and data bundles, 48 cables maximum per bundle.

E. Leave 10 feet of cable slack at MDF/IDF. Leave 12 inch cable slack at outlets.

F. Seal conduit sleeves thru fire rated construction using silicone foam system, Chase-Foam CTC PR-855, 3M CP 25, or Dow Corning RTV.

G. Maintain a minimum 6 inch separation from parallel power wiring. Do not share bore or knock out holes thru wall studs and other structural members with power wiring.

H. Provide termination of each station cable to a single 8-position /8-conductor data jack. Color coding and pin number termination sequence for each PDS shall conform to established standards approved by Architect/Engineer.

3.03 TESTING

A. UTP Cabling

1. Perform continuity test on each wire/pair prior to cover. Verify no open circuits, short circuits, or accidental grounds exist.

2. The system shall be certified to meet or exceed the specifications as set forth in TIA/EIA TSB40 and TIA/EIA 606-A for specified Category compliance. Certifications shall include the following parameters for each pair of each cable installed:
   a. Wire map (pin to pin connectivity)
   b. Length (in feet)
   c. Attenuation to Crosstalk Ratio (ACR)
   d. DC Loop Resistance
   e. Ambient noise
   f. Near-End Crosstalk (NEXT)
   g. Equal-Level Far-End Crosstalk (ELFEXT)
   h. Return Loss (RL)

3. Use test equipment such as the Ideal LANTEK 6 or approved equal to measure all essential cable parameters specified by TIA/EIA and UL thru Category 6. Provide a written record of these tests.
4. Correct malfunctions when detected and proceed with testing. Record test results on a "UTP Cable Test Results" form showing frequency tested and PASS/FAIL results.

3.04 DOCUMENTATION

A. Documentation includes the following and shall be delivered to the Architect within 20 working days after the wiring is completed.

1. Certification documents and test results
2. Record drawings
3. Permanent ID record at each MDF and IDF location.

END OF SECTION