CONTRACT WORK
RFP NO. H16-0020

STROGER HOSPITAL 4th FLOOR RENOVATIONS

JOHN H. STROGER, JR. HOSPITAL OF COOK COUNTY
1901 WEST HARRISON STREET
CHICAGO, ILLINOIS  60612

VOLUME 2 OF 3

ARCHITECTURAL SPECIFICATIONS

BOARD OF COMMISSIONERS
COUNTY OF COOK
TONI PRECKWINKLE, PRESIDENT

FOR THE
COOK COUNTY HEALTH AND HOSPITALS SYSTEM
JOHN JAY SHANNON, MD, CHIEF EXECUTIVE OFFICER

 ISSUED BY THE
OFFICE OF SUPPLY CHAIN MANAGEMENT
CHARLES A. JONES, DIRECTOR STRATEGIC SOURCING & CONTRACT MANAGEMENT
THOMAS NEWMAN, SUPPLY CHAIN POINT OF CONTACT

PREPARED BY:
DESIGN ARCHITECT: TILTON, KELLY + BELL, LLC
ARCHITECT OF RECORD: WOLD ARCHITECTS AND ENGINEERS
ENGINEER OF RECORD: RTM ENGINEERING CONSULTANTS
SECTION 00 01 01
PROJECT IDENTIFICATION PAGE

PROJECT MANUAL

PROJECT IDENTIFICATION
BIDDING REQUIREMENTS
CONDITIONS OF THE CONTRACT
GENERAL REQUIREMENTS
AND SPECIFICATIONS FOR:

STROGER HOSPITAL 4th FLOOR RENOVATION
JOHN H. STROGER, JR. HOSPITAL OF COOK COUNTY
1901 WEST HARRISON STREET
CHICAGO, ILLINOIS 60612

COOK COUNTY HEALTH & HOSPITALS SYSTEM
1900 W. POLK STREET
CHICAGO, ILLINOIS 60612
SECTION 00 01 03
TITLE PAGE

PROJECT TITLE AND LOCATION:
STROGER HOSPITAL 4th FLOOR RENOVATION
JOHN H. STROGER, JR. HOSPITAL OF COOK COUNTY
1901 WEST HARRISON STREET
CHICAGO, ILLINOIS 60612

OWNER:
COOK COUNTY HEALTH & HOSPITALS SYSTEM

ARCHITECT OF RECORD:
Wold Architects and Engineers
110 North Brockway Street, Suite 220
Palatine, Illinois 60067

DESIGN ARCHITECTS:
Tilton. Kelly + Bell, LLC
55 West Monroe Street, Suite 1975
Chicago, Illinois 60603

MECHANICAL ENGINEER:
RTM
250 South Wacker Drive, Suite 400
Chicago, Illinois 60606

ELECTRICAL ENGINEER:
RTM
250 South Wacker Drive, Suite 400
Chicago, Illinois 60606

DATE:
June 16, 2016
PROFESSIONAL CERTIFICATIONS

STROGER HOSPITAL 4TH FLOOR RENOVATION

COOK COUNTY HEALTH & HOSPITALS SYSTEM

Wold Architects and Engineers

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Architect under the laws of the State of Illinois.

June 16, 2016

Signature  Date  Registration

RTM
Mechanical Engineer

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.

June 16, 2016

Signature  Date  Registration

RTM
Electrical Engineer

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.

June 16, 2016

Signature  Date  Registration
## SECTION 00 01 10

### PROJECT MANUAL TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Division 01</strong></td>
<td>General Requirements</td>
</tr>
<tr>
<td>01 11 00</td>
<td>Summary of the Work</td>
</tr>
<tr>
<td>01 11 01</td>
<td>ID Badge Staff Procedures</td>
</tr>
<tr>
<td>01 21 00</td>
<td>Allowances</td>
</tr>
<tr>
<td>01 25 00</td>
<td>Substitutions and Product Options</td>
</tr>
<tr>
<td>01 26 63</td>
<td>Change Orders</td>
</tr>
<tr>
<td>01 31 19</td>
<td>Project Meetings</td>
</tr>
<tr>
<td>01 32 00</td>
<td>Construction Scheduling</td>
</tr>
<tr>
<td>01 33 00</td>
<td>Submittals</td>
</tr>
<tr>
<td>01 50 00</td>
<td>Temporary Facilities</td>
</tr>
<tr>
<td>01 50 10</td>
<td>Interim Life Safety Measures</td>
</tr>
<tr>
<td>01 50 16</td>
<td>Infection Control Risk Assessment</td>
</tr>
<tr>
<td>01 56 00</td>
<td>Construction Dust Control</td>
</tr>
<tr>
<td>01 73 29</td>
<td>Cutting and Patching</td>
</tr>
<tr>
<td>01 74 00</td>
<td>Final Cleaning</td>
</tr>
<tr>
<td>01 77 00</td>
<td>Project Closeout</td>
</tr>
<tr>
<td>01 78 23</td>
<td>Operating, Maintenance and Warranty Data</td>
</tr>
<tr>
<td>01 78 39</td>
<td>Project Record Documents</td>
</tr>
<tr>
<td>01 79 00</td>
<td>Demonstration and Training</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 02</th>
<th>Existing Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 41 19</td>
<td>Selective Demolition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 03</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 54 13</td>
<td>Gypsum Cement Underlayment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 04</th>
<th>Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 50 00</td>
<td>Metal Fabrications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 05</th>
<th>Wood, Plastics and Composites</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 10 00</td>
<td>Rough Carpentry</td>
</tr>
<tr>
<td>06 41 00</td>
<td>Architectural Woodwork</td>
</tr>
<tr>
<td>06 65 10</td>
<td>Solid Surface Fabrications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 06</th>
<th>Thermal and Moisture Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 21 00</td>
<td>Insulation</td>
</tr>
<tr>
<td>07 84 00</td>
<td>Firestopping</td>
</tr>
<tr>
<td>07 92 00</td>
<td>Sealants and Caulking</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 07</th>
<th>Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>08 10 00</td>
<td>Steel Doors and Frames</td>
</tr>
<tr>
<td>08 14 00</td>
<td>Wood Doors</td>
</tr>
<tr>
<td>08 31 00</td>
<td>Access Panels</td>
</tr>
<tr>
<td>08 33 00</td>
<td>Coiling Doors</td>
</tr>
<tr>
<td>08 42 43</td>
<td>Intensive Care Unit-Critical Care Unit (ICU-CCU) Entrances</td>
</tr>
<tr>
<td>08 71 00</td>
<td>Finish Hardware</td>
</tr>
<tr>
<td>08 80 00</td>
<td>Glazing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 08</th>
<th>Finishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>09 21 16</td>
<td>Gypsum Board</td>
</tr>
<tr>
<td>09 50 00</td>
<td>Tile</td>
</tr>
<tr>
<td>09 51 00</td>
<td>Acoustical Ceilings</td>
</tr>
<tr>
<td>Section No.</td>
<td>Title</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>09 65 00</td>
<td>Resilient Flooring</td>
</tr>
<tr>
<td>09 65 43</td>
<td>Resilient Linoleum Flooring</td>
</tr>
<tr>
<td>09 77 20</td>
<td>Decorative FRP Wall Panels</td>
</tr>
<tr>
<td>09 91 00</td>
<td>Painting</td>
</tr>
</tbody>
</table>

**Division 10**

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 21 23</td>
<td>Cubicle Curtains</td>
</tr>
<tr>
<td>10 25 13</td>
<td>Patient Bed Service Walls</td>
</tr>
<tr>
<td>10 26 13</td>
<td>Wall Surface Protection Systems</td>
</tr>
<tr>
<td>10 28 13</td>
<td>Toilet Accessories</td>
</tr>
</tbody>
</table>

**Division 11-20**

Not Used

**Division 21**

**Fire Suppression** (See Mechanical Specifications)

**Division 22**

**Plumbing** (See Mechanical Specifications)

**Division 23**

**Heating, Ventilating and Air Conditioning** (See Mechanical Specifications)

**Division 24-25**

Not Used

**Division 26**

**Electrical** (See Electrical Specifications)

**Division 27**

**Communications** (See Electrical Specifications)

**Division 28**

**Electronic Safety and Security** (See Electrical Specifications)

**Division 29-49**

Not Used
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Work phases.
3. Work under other contracts.
4. Owner-furnished products.
5. Use of premises.
6. Owner’s occupancy requirements.
7. Punchlist Completion.
8. Work restrictions.

B. Related Sections include the following:

1. Division 1 Section “Temporary Facilities and Controls” for limitations and procedures governing temporary use of Owner’s facilities.

1.03 PROJECT IDENTIFICATION

A. Project Name: Stroger Hospital 4th Floor Renovation
1901 W. Harrison Street
Chicago, Illinois 60612

B. Owner: Cook County Health & Hospitals System
1900 W. Polk Street
Chicago, Illinois 60612

C. Architect of Record: Wold Architects and Engineers
110 N. Brockway Street, Suite 220
Palatine, Illinois 60067

D. Design Architect: Tilton. Kelly + Bell, LLC
55 W. Monroe Street, Suite 1975
Chicago, Illinois 60603

E. Mechanical Engineer: RTM
250 S. Wacker Drive, Suite 400
Chicago, Illinois 60606

F. Electrical Engineer: RTM
250 S. Wacker Drive, Suite 400
Chicago, Illinois 60606
1.04 SUMMARY OF THE WORK

Briefly and without force and effect upon the Contract Documents, the Work of this single prime Contract can be summarized as follows:

A. Work under this Contract includes:

1. Interior Finishes
   a. Insulated gypsum board/metal stud partitions.
   b. Floor finishes of luxury vinyl tile.
   c. Wall finishes of paint.
   d. Ceiling finishes of acoustical lay-in tile.
   e. Plastic laminate casework, solid surface counter tops, HM doors and frames, access panels, hardware, and miscellaneous specialties.

2. Mechanical Systems
   a. Heating including piping, piping insulation.
   b. Ventilation to include ductwork, duct insulation, piping.

3. Electrical Systems
   a. Interior Lighting and lighting controls.
   b. Receptacles, junction boxes, conduit and wiring.
   c. Communications including telephone, data, paging system, and AV.
   d. Fire alarm including magnetic door holds, audio/visual devices, and smoke detectors.
   e. Security system including door hardware, card readers and alarms.


1.05 WORK PHASES

A. Start work immediately upon contract award by the Board.

1. The Owner’s ID Badge Staff Procedures (“Purple Form”) and associated requirements must be completed by all on-site personnel prior to start of work. A copy of the “Purple Form” is included in Section 01 11 01.

1.06 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at Project site. Those operations will may be conducted simultaneously with work under this Contract.

1. 3rd Floor Renovations
2. 1st Floor Central Registration  
3. 1st Floor Renovation  
4. Basement/2nd Floor Radiology Renovation  

C. Future Work: Owner will award separate contract(s) for the following additional work to be performed at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.  
   1. Furnishings and movable equipment  

1.07 USE OF PREMISES  

A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.  
   1. Contractor is to visit site and be familiar with existing conditions. Contractor will be required to accept existing conditions on site prior to mobilizing.  

B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.  
   1. Allow for Owner occupancy of Project site and use by the public.  
   2. Contractor shall provide 24-hour fire watch whenever modifications are underway to existing fire rated partitions.  
   3. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.  
      a. Coordinate schedule of deliveries with Owner.  
      b. Schedule deliveries to minimize use of driveways and entrances.  
      c. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.  
   4. Public Streets: Maintain clear of automobile parking, equipment or material storage unless arrangements have been made with the appropriate jurisdiction.  
   5. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.  

C. Do not allow construction waste and debris to accumulate; remove debris as it accumulates and, unless specified otherwise, dispose of legally off-site.  

D. Conform to Owner's noise control regulations, including limited hours of construction operations.  

E. Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.
1.08 LAYING OUT WORK

A. Locate all general reference points. Where dimensions or observed scope of work differ substantially from Drawings, notify Architect for decision.

B. Lay out Work from the reference points furnished and be responsible for all lines, elevations, and measurements inside workspace. Exercise proper precaution to verify figures shown on Drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.

C. Hire the services of a locator company to locate all privately owned utilities that may be disturbed by construction operations.

D. Coordinate utility connections with municipality/utility company in which project is being constructed.

1.09 OWNER’S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy portions of the site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner’s day-to-day operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

2. Provide not less than 72 hours’ notice to Owner of activities that will affect Owner’s operations.

B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a punchlist for each specific portion of the Work to be occupied before Owner move in.

2. Obtain a temporary Certificate of Occupancy if required from authorities having jurisdiction before Owner occupancy to install furnishings and equipment.

1.10 WORK RESTRICTIONS

A. The Contractor’s access to and use of the site/facility for completion of work shall be subject to coordinate with the Owner’s designated building representative.

1. Contractor shall provide 24-hour fire watch whenever modifications are underway to existing fire rated partitions.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than seven (7) days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Architect’s or Owner’s permission.
1.11 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Division and Sections using the 49-division format and CSI/CSC’s “Master Format” numbering system.

1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

   a. The words “shall,” “shall be,” or “shall comply with,” depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 11 00
SECTION 01 11 01

ID BADGE STAFF PROCEDURES

Prior to arriving at the project site, all contractor and subcontractor employees that will be engaged with work on the site must complete the Owner’s ID Badge Staff Procedures (“Purple Form”) and associated requirements. Costs associated with completion of the required procedures shall be borne by the Contractor.

A copy of the Purple Form is attached for reference.

END OF SECTION 01 11 01
MEMORANDUM

DATE: November 16, 2015 (Revised)

TO: All Non-Hospital Staff

FROM: Paris I. Partee, Paris I. Partee
       Director, Human Resources

SUBJECT: STAFFING PROCEDURES

In an effort to make your on-boarding process as efficient as possible, I have outlined below the documents you will need in order to be given a start date, approved for orientation and issued a Hospital identification card. All items must be submitted at the same time so that your processing does not take longer than necessary. Orientation is held every two (2) weeks on Monday starting at 12 Noon. All participants must be on time or will be rescheduled for the next available orientation. Due to the number of participants that attend orientation, we cannot guarantee that you will be placed in the upcoming session which means that you will be scheduled for the next available session and you will not be able to start until you have completed the orientation requirement. If a holiday falls on a scheduled orientation Monday, orientation will be held on Tuesday, the day after the Holiday.

1. A current letter signed and dated by the Chairman (clinical departments) or Director (non-clinical departments) of the department you are requesting to work in. Letter must include your name, number, duration of stay, and level of patient contact. This document cannot be more than thirty (30) days old and is required for new staff and annual renewals.

2. A completed “Certificate of Compliance” form (Purple Form). This document must be completed in its entirety – front and back – with the required attached labs, stamp or seal of the institution or agency performing the tests, and all required signatures. This document is required for all new staff and annual renewals. You will need to complete the “Annual Purple Form” for all renewals.

3. A current (within the year) fingerprint background check issued by the State of Illinois is required for all individuals with direct patient contact and/or those working in a patient contact area. This document is required for all new staff and annual renewals.

4. A certified copy of a current drug test performed by a licensed laboratory. The drug test cannot be more than thirty (30) days old from your approval start and/or renewal date. A current drug test is required for all new staff and annual renewals.

5. A copy of current State license and/or certification is required for all clinical and technical positions and must relate to the area you are assigned to work in. This document is required for all new staff and annual renewals and/or when a license is re-issued and/or renewed.

6. A completed “Security Access” form completed and signed by the Chairman (clinical departments) or Director (non-clinical departments) will be required in order for a Hospital identification card to be issued. This document is required for all new staff and annual renewals.

All documents must be presented three (3) weeks prior to the assigned orientation date you are requesting to attend. Example, if you wish to attend the Monday, July 30, 2012 orientation, all completed and required documentation must be received no later than Monday, July 9, 2012. All paperwork will be reviewed by the Human Resources and Employee Health Services Departments. In the event additional information/tests are required due to incomplete submissions, all paperwork will be returned and will not be considered until all required documents are re-submitted and approved. You or the individual designated on your form as the contact person will be notified by phone when your paperwork has been approved and the date you have been scheduled for orientation (or to pick-up your annual ID renewal).

If you have any questions or need additional information please contact the Department of Human Resources at 312.864.1810 for assistance. Thank you in advance for your cooperation and compliance with our policies and procedures and welcome!

purplecover/revised071615
“Purple Form” (Pink for renewal) process requires:

1. A memo from the CCHHS Senior Leader who is managing the work to be performed
   a. The memo must include:
      i. Scope of work to be performed
      ii. Name of the organization
      iii. Name of the individual
      iv. Job Description for the position
      v. Anticipated duration of the assignment
2. Completed Purple form for Employee Health Screening. Required labs must be attached.
3. Criminal background check (within 1 year)
4. Certified drug test performed by a licensed lab. Drug test cannot be more than thirty (30) days old.
5. A job description of the position / role each person will be functioning as.
6. Security Access Form
CCHHS Infection Control Policies apply to all personnel: Employees, Trainees, Contractors, Vendors and Volunteers. Requirements follow CDC guidelines for Infection Control in Healthcare Personnel. Annual updates are required. Information needs to be legible.

Other Academic Medical Center Screening: If you participate in an Annual Infection Control Screening Program at another Institution, please forward the results with this form. We will review the information forwarded and notify you if further information is necessary.

Test Result Documentation: Copies of all pertinent laboratory results and radiological reports must be attached.

Infection Control/Public Health Concerns: CCHHS will respond to CCHHS Infection Control and Public Health concerns and, if indicated, additional testing/treatment, or instruction to remain away from work may be required.

INFLUENZA VACCINATION: Vaccine program compliance is required for all personnel and documentation must be reviewed prior to work. Remote work may not require documentation of vaccine, as per Human Resources and Infection Control review.

TUBERCULOSIS
• Latent Tuberculosis Infection: Provide results of Interferon Gamma Release Assays (IGRA, incl. Quantiferon) OR Tuberculin Skin Tests (TST). For further TST instructions, see below.
• If history of positive Quantiferon or Tuberculin Skin Test(TST): provide documentation of further evaluation by personal physician. A baseline Chest X ray, performed within the past year, is required. Further medical testing/information may be required.

Tuberculin Skin Test Standards: Per CDC Guidelines. Individuals with two-step TST done in past, with continuous annual screening following the two-step TST, should provide documentation of this and continue annual screening. Include date TST placed, date TST read, number of millimeters.

• If positive (≥ 10 mm induration), a chest x-ray is obtained.
• If the initial TST is negative, a second TST, performed at least one week after the first negative TST, is required. The TSTs must be from within the past 12 months, with the recent TST from within the past 60 days.

RUBELLA (German Measles) RUBEOLA (Measles)
Evidence of immunity must be documented by antibody titer prior to work at CCHHS.

MUMPS VARICELLA
It is advised that all healthcare personnel have immunity and documentation of immunity status must be reviewed.

HEPATITIS B
Hepatitis B Surface antibody status is required.

TETANUS DIPHTHERIA PERTUSSIS VACCINE (Tdap) – 1 Tdap Booster Vaccination or Tetanus booster within 10 years of previous Tetanus Vaccine is recommended
Infection Control

**Categories**

1, 2, 3

**NO work if feeling ill or have signs/symptoms of illness such as fever.**

**Annual Influenza Vaccination (mandatory):**

- Flu Vaccine received CC/CCHHS
- Flu Vaccine received elsewhere (documentation included)
- Medical Contraindication/Religious Exemption (documentation included).

**TB Testing:**

<table>
<thead>
<tr>
<th>Quantiferon</th>
<th>Date</th>
<th>Result</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TST Step 1</th>
<th>Date Placed</th>
<th>Date Read/Result</th>
<th>TST Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Read/Result</td>
<td>mm induration</td>
<td>Date Placed</td>
<td>Date Read/Result</td>
</tr>
<tr>
<td>Chest X-ray (if required)</td>
<td>Date</td>
<td>Result (ATTACHED):</td>
<td>mm induration</td>
</tr>
</tbody>
</table>

**Measles (Rubeola), Mumps, Rubella, Varicella, Hep B Surface Antibody**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Immune</th>
<th>Not Immune</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEASLES (RUBEOLA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUMPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUBELLA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VARICELLA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEP B SURFACE ANTIBODY</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CERTIFICATION OF RESULTS**

*I certify that the information herein is complete and correct to the best of my knowledge.*

Signature and Title of Health Provider

Name of Institution or Agency**

Phone Number

Printed Name

Address

Date

**OFFICIAL STAMP OR SEAL OF INSTITUTION OR AGENCY IS REQUIRED**
SECURITY CARD ACCESS INFORMATION FORM

PLEASE PRINT – USE BLACK INK

<table>
<thead>
<tr>
<th>NAME</th>
<th>LAST</th>
<th>FIRST</th>
<th>MI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>EXTENSION/PAGER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOSPITAL I.D. NO.</th>
<th>TITLE / CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DO NOT FILL IN

<table>
<thead>
<tr>
<th>CARD NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCESS LEVELS (LOCATION)</th>
<th>DAYS</th>
<th>TIME RESTRICTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>/</td>
<td></td>
</tr>
</tbody>
</table>

I ACKNOWLEDGE THE RECEIPT OF THIS SECURITY ACCESS CARD AND ACKNOWLEDGE ALL RULES AND REGULATIONS REGARDING ITS USE. NO ACCESS IS TO BE GIVEN TO UNAUTHORIZED PERSONNEL. I WILL BE HELD RESPONSIBLE FOR REPORTING THE LOSS, THEFT OR MISUSE OF THIS CARD. THE REPLACEMENT COST OF THE CARD IS TO BE PAID TO THE CASHIER PRIOR TO RECEIVING A NEW CARD. A NEW FORM MUST BE COMPLETED AND SIGNED BY THE DEPARTMENT HEAD / DESIGNEE OF MY WORK AREA AND A REPORT MADE WITH THE HOSPITAL POLICE. MISUSE OF THIS CARD WILL BE IN ACCORDANCE WITH THE COUNTY BOARD’S RULES AND REGULATIONS GOVERNING EMPLOYEE CONDUCT.

Employee Signature / Date
Department Head / Date

REVISED 11/2015
SECTION 01 21 00
ALLOWANCES

PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. This Section includes administrative and procedural requirements governing allowances.
   1. Certain materials and / or labor are specified in the Contract Documents by lump sum allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and / or labor to a later date when additional information is available for evaluation.

1.03 SELECTION AND PURCHASE
A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
B. The Architect will issue a Proposal Request for pricing on each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
C. Purchase products and systems selected by Architect from the designated supplier.

PART TWO: PRODUCTS (Not Applicable)

PART THREE: EXECUTION

3.01 SCHEDULE OF ALLOWANCES
A. Allowance No. 1: Owner’s Contingency
   1. The Contractor shall include in their Base Bid an amount equal to seven percent (7.0%) of the subtotal of all general conditions and trade work as an Owner’s Contingency. Refer to Proposal Execution Form 1b.

END OF SECTION 01 21 00
SECTION 01 25 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1: GENERAL

1.01 DESCRIPTION

A. This Section defines procedures to be followed to gain acceptance of products in the Work which are not listed in the individual specification sections. A two step process is required.

B. Requests for acceptance for bidding purposes of alternative manufacturers is encouraged except where specifically prohibited by this Project Manual.

C. Submit Prior Approval request via email to mbickel@woldae.com with the following information in the subject line: Prior Approval 42204.004 XX XX XX (Specification Section).

1.02 PRODUCT OPTIONS NOT REQUIRING PRE-BID SUBMITTAL

A. Where a single manufacture is specified and acceptable manufacturer are also listed, acceptable manufacturers must provide an identical product or accept responsibility for all design implications when providing a product other than the specified product.

B. Where products are specified by reference standards, any product established by a material testing agency to meet these standards is acceptable.

C. Where multiple manufacturers and associated models are specified, select any one named.

D. Where manufacturer(s) alone are specified, select any manufacturer and the product recommended in writing by the manufacturer as most suited to the application shown on the Drawings and Specifications.

E. Where the phrase "or equal" follows the name of a manufacturer, any product which meets the performance and appearance standards established by the specified manufacturer may be selected, subject to the Architect's acceptance.

F. Where a manufacturer is listed in both a technical specification section and the Material Finish/Color Schedule, an Architectural Drawings and a color is provided.

1.03 PRODUCT SUBSTITUTIONS REQUIRING PRE-BID SUBMITTALS

A. Step One - Manufacturers Acceptance

1. Individual specification sections may be amended by the Architect during the bid period to include additional names of manufacturers determined to be capable of providing acceptable materials.

2. The Architectural Drawings or Specifications may be amended by the Architect during the bid period to include colors by manufacturers listed in technical sections, but not noted on the Architectural Drawings or Specifications.

3. To propose the names of specific manufacturers, submit, or arrange for suppliers to submit, written requests to Architect or appropriate Architect's Consultant. Requests received ten (10) calendar days prior to bid date will be considered.

   a. Provide sufficient review data. Include specified manufacturer's model numbers and proposed manufacturer's product literature, noting product numbers for proposed substitutions, and where appropriate, samples and data relating to construction details. If the product is not identical to specified product, submit letter stating proposed manufacturer will custom make products to meet specified product.
b. Architect's acceptance is based upon his determination that a manufacturer is capable of supplying acceptable materials. Approval is not assured or implied for a specific material, item of equipment, color or finish.

c. Official notification will be by addendum to the Contract Documents. However, in addition, if letters of request are delivered in duplicate with accompanying stamped self addressed envelopes, copies may be returned with Architect's decision in advance.

B. Step Two - Product Acceptance

1. Upon award of a construction contract, accepted manufacturers may submit for review to the Architect through the General Contractor or Construction Manager, specific products, materials or equipment items as substitutes for those specified. Contractor to provide letter stating they will reimburse Architect to review substitutions.

2. Architect will review substitute products for performance, appearance, color, finish, size and suitability for inclusion in the work. If a substitute product is not accepted, submit another product by the same or other accepted manufacturer or provide the specified product.

3. Match specified colors and dimensions exactly, whether or not they are standard with the substitute product, unless a minor variation is accepted by the Architect.

4. If a substitute product is accepted, coordinate any necessary changes in other related work and pay for these changes. Pay cost of architectural or engineering services, if any, required to incorporate substitute products in the Work.

1.04 SUBSTITUTIONS BY CHANGE ORDER

A. A substitution for a specified product may be permitted by "change order" at no additional cost to the Owner if product proposed is determined to be equivalent in performance and suitability, and if at least one of the following conditions apply:

1. Owner is given a credit for the work.

2. Product is of superior quality than product specified.

3. Product color or finish selection is preferable.

4. Products specified and upon which building is designed have been discontinued by manufacturer.

B. Provide Architect, through Owner, reasonable compensation for product evaluation.

END OF SECTION 01 25 00
SECTION 01 26 63

CHANGE ORDERS

1.01 CHANGE ORDER PROCEDURES

A. Changes in the Project scope of work affecting the project cost can be made only through AIA Document G701 - Change Order.

B. The procedures for processing changes in the scope of Work are listed as follows:

1. The Architect prepares one of the following documents to modify the scope of work. Documents and attachments revising the drawings and specifications will be distributed electronically and the Contractor will be responsible for printing.

   a. Supplemental Instructions (SI) which are used for no cost changes.

   b. Proposal Request (PR) to be used for proposed changes that need written approval on cost prior to proceeding.

   c. Construction Change Directive AIA Document G714 (CCD) which is used when the work must proceed immediately and time and material cost submitted as soon as possible for review by the Architect.

2. The Contractor reviews and responds as follows:

   a. Supplemental Instructions (SI): This no cost change is to be carried out in accordance with the following modifications to the contract documents described herein. If this change effects cost, do not proceed with this change. Notify the Architect in writing within 10 days of receipt that an itemized (labor and material) quotation will be submitted within 21 days of initial receipt of this Supplemental Instruction. If a cost is not submitted within 21 days, this Supplemental Instruction will be accepted at no additional cost.

   b. Proposal Request (PR): Submit an itemized (labor and material) quotation for the proposed modifications to the contract documents as described herein within 21 days of receipt. If a cost is not submitted within 21 days, this Proposal Request can be accepted at no additional cost. Written approval is required prior to proceeding with this change.

   c. Construction Change Directive AIA Document G714 (CCD): Proceed immediately to carry out this change in the contract documents as described herein. If this revision effects cost, submit an itemized (labor and material) quotation within 21 days of receipt. If a cost is not submitted within 21 days this Change Directive will be accepted at no additional cost.

3. The Architect will review the Contractor’s labor and material itemized quotation and respond in writing whether it is acceptable or needs revision. When all pricing is accepted by the Architect and Owner, a Change Order will be processed. Change Orders will be processed at increments determined by the Architect throughout the construction schedule.

C. See General Conditions and Supplementary Conditions of the Work for methods of determining cost or credit, mark-up and schedule on submitting claims.

END OF SECTION 01 26 63
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections.

1.02 SUMMARY

A. The Architect will provide the Contractor with one (1) electronic copy of the contract documents relevant to their request. Requested files will be provided via email to the Contractor in AutoCAD format, unless otherwise requested.

B. The terms and conditions on the attached form “Agreement Between Architect and Contractor for Transfer of Computer Aided Drafting (CAD) Files on Electronic Media” apply to all Electronic Documents issued by Wold Architects and Engineers or its consultants for the project.

C. See attached form “Attachment A – Agreement Between Architect and Contractor for Transfer of Computer Aided Drafting (CAD) Files on Electronic Media.”

PART 2: PRODUCTS – (Not Applicable)

PART 3: EXECUTION – (Not Applicable)

END OF SECTION 01 11 19
ATTACHMENT A – AGREEMENT BETWEEN ARCHITECT AND CONTRACTOR FOR THE TRANSFER OF COMPUTER AIDED DRAFTING (CAD) FILES ON ELECTRONIC MEDIA

The purpose of this agreement is to grant permission from the Transmitting Party (Architect and/or Engineer) to the Receiving Party for the Receiving Party’s use of electronic media on the Project, and to set forth the terms. All data transmitted is defined as the electronic media and is considered confidential and containing business proprietary information. Wold Architects and Engineers and its consultants grant Bidders and Contractors a limited license to use Electronic Media issued by Wold Architects and Engineers exclusively for this project. The terms are set forth as follows:

1. The files are transmitted for the Receiving Party’s convenience and remain the sole property of Wold Architects and Engineers. No warranty, expressed or implied, is made respecting this electronic data.
2. The Architect and/or Engineer makes no representation regarding the accuracy, completeness, or permanence of Electronic Media files (ie CAD files). Addenda information or revisions made after the date indicated on the files may not have been incorporated. In the event of a conflict between the Architect and/or Engineers sealed Contract Drawings and Electronic Media files, the sealed Contract Drawings shall govern. It is the Owner, Contractor, or Third Party’s responsibility to determine if any conflicts exist.
3. The information contained in the Electronic Media may not included final data or represent exact as-built conditions. The accuracy of the information is not guaranteed and the recipient shall be solely responsible to verify and check all field conditions against the information and to make all adjustments necessary to utilize such information for its work.
4. The Electronic Media files shall not be considered to be Contract Documents as defined by the General Conditions of the Contract for Construction.
5. Wold Architects and Engineers and their consultants shall not be responsible for any decline in accuracy or readability due to the medium on which the Electronic Media are stored, or for any unintentional transmission of computer viruses.
6. Information contained in the Electronic Media shall not be used by Contractor (Receiving Party) for any purpose other than as a convenience in the preparation of Shop Drawings, layout, and other purposes related to the Project. Any other use or reuse by the Receiving Party or others, will be at the Receiving Party’s sole risk and without liability or legal exposure to the Architect, Engineers, or their consultants.
7. This Agreement is entered into as of the day and year written below and will terminate upon Substantial Completion of the Project, as defined in the General Conditions of the Contract for Construction, unless otherwise agreed by the parties and set forth below.
8. The Architect reserves the right to determine what content will be distributed to the Receiving Party.

By signing below, the Receiving Party agrees to the terms set forth by this Agreement.

AUTHORIZED ACCEPTANCE:

By Receiving Party/Contractor of Record          By Architect or Engineer of Record:

________________________________________    ______________________________
Signature                                                                 Signature

________________________________________    ______________________________
Print Name and Title                          Print Name and Title

________________________________________    ______________________________
Print Name of Company                         Print Name of Company

________________________________________    ______________________________
Date                                           Date
SECTION 01 31 19

PROJECT MEETINGS

PART 1: GENERAL

1.01 DESCRIPTION

A. Schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work.
   2. Prepare agenda for meetings.
   3. Make physical arrangements for meetings.
   4. Preside at meetings.

B. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. Architect may attend meetings to ascertain that Work is expedited consistent with Contract Documents and the construction schedules.

1.02 PRE-CONSTRUCTION MEETING

A. Schedule within 15 days after date of Notice to Proceed.

B. Location: A central site, convenient for all parties, designated by Contractor.

C. Attendance:
   1. Owner's representatives, including Owner’s Infection Control Risk Assessment (ICRA) coordinator
   2. Architect and their professional consultants
   3. Contractor's project manager and superintendent
   4. Major subcontractors
   5. Others as appropriate

D. Suggested Agenda:
   1. Distribution and discussion of:
      a. List of major subcontractors and suppliers
      b. Projected construction schedules Refer to Section 01 32 00
         • Critical Path Method. Schedule for entire construction period.
         • Submittal Schedule
         • Schedule pre-scheduling conf.
   2. Critical work sequencing.
3. Major equipment deliveries and priorities.

4. Project coordination and scheduling:
   a. Designation of responsible personnel.
   b. Pre-installation conferences as required by the specifications, including but not limited to:
      - Finish Hardware
      - Tile
      - Floor finishes (carpet, tile, etc.)
      - Dust control
   c. Mock-up panels.

5. Procedures and processing of:
   a. Field decisions
   b. Proposal Requests/Supplemental Instructions
   c. Submittals
      1) Mechanical Electrical Coordination drawings
   d. 21 day time limit on claims
   e. Change orders
   f. Applications for payment


7. Procedures for maintaining Record Documents.

8. Use of premises:
   a. Office, work and storage areas
   b. Owner’s requirements

   a. Construction Dust Control.
   b. Interim life safety and infection control measure, construction dust control, and housekeeping procedures.
      - Review plan prepared by Owner’s ICRA coordinator.
   c. Temporary utilities.
   d. Safety and first-aid procedures
   e. Security procedures
10. Final Cleaning Refer to Spec 01 74 00
   
   - Schedule in time for Owner to complete furniture installation, required clean (i.e. floors)
   - Any cleaning done by Owner due to unacceptable cleaning by Contractor, or to and contractor in completing cleaning on schedule will be back charged to Contractor.

1.03 PROGRESS MEETINGS

A. Schedule regular periodic meetings, as required.

B. Hold called meetings as required by progress of the work.

C. Location of the meetings: Meeting location to be coordinator by Owner’s representative.

D. Attendance:
   
   1. Architect and his professional consultants may attend as needed.
   2. Subcontractors as appropriate to the agenda.
   3. Suppliers as appropriate to the agenda.
   4. Others

E. Suggested Agenda:
   
   1. Review, approval of minutes of previous meeting.
   2. Review of work progress since previous meeting.
   3. Field observations, problems, conflicts.
   4. Problems which impede Construction Schedule.
   5. Review of off-site fabrication, delivery schedules.
   6. Corrective measures and procedures to regain projected schedule.
   7. Revisions to Construction Schedule.
   8. Plan progress, schedule, during succeeding work period.
   9. Coordination of schedules.
   10. Review submittal schedules; expedite as required.
   12. Review proposed changes for:
       a. Effect on Construction Schedule and on completion date.
       b. Effect on other contracts of the Project.
   13. Other business

END OF SECTION 01 31 19
SECTION 01 32 00
CONSTRUCTION SCHEDULING

PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Contractor’s Construction (CPM) Schedule.
   2. Shop Drawing Submittals Schedule
   3. CPM Reports

1.03 DEFINITIONS
A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
   2. Predecessor activity is an activity that must be completed before a given activity can be started.
B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
D. Event: The starting or ending point of an activity.
E. Float: The measure of leeway in starting and completing an activity.
   1. Float time is for the exclusive use or benefit of the Contractor to meet schedule milestones and Contract completion date.
   2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
   3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
G. Major Area: A story of construction, a separate building, or a similar significant construction element.
H. Milestone: A key or critical point in time for reference or measurement.
I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
1.04 SUBMITTALS

A. Submittals Schedule: Submit six copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect’s final release or approval. (Assume 15 working day turnaround.)
7. Identify submittals that effect critical path.

B. Contractor’s Construction (CPM) Schedule: Submit two printed copies of initial schedule large enough to show entire schedule for entire construction period.

C. CPM Reports: Concurrent with CPM schedule, submit three printed copies of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, early start date, early finish date, late start date, late finish date, and total float.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

1.05 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to review methods and procedures related to the Contractor’s Construction (CPM) Schedule, including, but not limited to, the following:

1. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
2. Review delivery dates for Owner-furnished products.
3. Review schedule for work of Owner’s separate contracts.
4. Review time required for review of submittals and resubmittals.
5. Review requirements for tests and inspections by independent testing and inspecting agencies.
6. Review time required for completion and startup procedures.
7. Review and finalize list of construction activities to be included in schedule.
8. Review submittal requirements and procedures.
9. Review procedures for updating schedule.

1.06 COORDINATION

A. Coordinate requirements in this Article with “Submittals Schedule” Article in Part 2. If a submittal review sequence policy governs, revise this Article to comply with requirements. See Evaluations for discussion on submittal review sequence policies.

PART 2: PRODUCTS

2.01 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates. Identify items that affect critical path.
2.02 CONTRACTOR’S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using CPM (critical path method) format.

B. Preliminary Network Diagram: Submit diagram within 14 days from the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor’s Construction Schedule using a CPM network analysis diagram.

   1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted prior to first pay request.
   2. Establish procedures for monitoring monthly and updating CPM schedule if work is not on schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
   3. Use “one workday” as the unit of time. Activities should not be shorter than 2 work days or longer than 10 work days for projects with a construction period over 6 months and/or longer than 5 work days for projects with a construction period under 6 months.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

   1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
      a. Preparation and processing of submittals.
      b. Purchase of materials.
      c. Delivery.
      d. Fabrication.
      e. Installation.
   2. Processing: Process data to produce output data or a computer-drawn, logic network diagram. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

PART 3: EXECUTION

3.01 CONTRACTOR’S CONSTRUCTION SCHEDULE

A. Contractor’s Construction Schedule Updating:

   1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00
SECTION 01 33 00

SUBMITTALS

PART 1: GENERAL

1.01 DESCRIPTION

A. This Section defines procedures for the following submittals required by the Contract Documents.

B. Provide submittals as noted in each Section.

C. Allow for two weeks review of submittals to avoid delay of Work.

D. Include with submittal preparation, field verifications of measurements, field construction criteria, verification of catalog numbers and similar data, and coordination of Work requirements and Contract Documents.

E. Submit all color samples within 45 days of contract award for Architect's use in color selections. The Architect will not start the color schedule until all samples are received.

PART 2: REQUIRED SUBMITTALS

2.01 SHOP DRAWINGS AND SAMPLES

A. Submit shop drawings in accordance with Article 3 of the General Conditions and the following.

B. Prepare clearly identified shop drawings or schedules to this specific project, containing only data applicable. Include with the shop drawings or schedules a letter of transmittal listing and dating the submitted drawings in sets.

C. Contractor to review all submittals prior to submittal to Architect, and indicate such review with a stamp and signature. Review submittals for conformance to Drawings, Specifications, coordination with other trades and adjacent construction and verification of field dimensions. Failure of Contractor to adequately review submittals shall be cause for rejection.

D. Prepare and submit electronically (with exception for color charts and samples) to Architect for review, all shop drawings and manufacturers catalog sheets showing illustrated cuts of items to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, weights and arrangements. Each submittal to include a transmittal on contractor letterhead. Submittal to be in the form of one combined PDF, professionally assembled so all documents are facing the same way.

1. The Contractor will provide submittals labeled as follows:

   a. 42204.004, 4th Floor Renovation, XX-XX-XX-X [SPECIFICATION # AND CONSECUTIVELY NUMBERED SUBMITTAL], ______________________[SPECIFICATION NAME], ______________________[SUBMITTAL NAME].

   [Example: 42204.004, 4th Floor Renovation, 06 41 00-1, Architectural Woodwork – Casework Shop Drawings]

E. The Architect will take one of the following actions on submittals:

1. “Reviewed”: Contractor shall proceed with ordering and/or fabrication.

2. “Review Comments”: Contractor shall proceed with ordering and/or fabrication after taking into account noted comments.
3. “Rejected”: Contractor shall provide a submittal that meets the intent of the specifications.

4. “Revise and Resubmit”: Contractor shall modify submittal to address comments and resubmit.

F. If equipment other than that used in the design of this project is proposed to be used, the Contractor and/or supplier shall verify electrical differences, dimension variations and weight increases. The Contractor shall be responsible for any extra costs incurred as a result of equipment substitutions.

G. Information submittals and submittals that are not required shall be for Architects’ and Engineers’ use and be available for the design team’s review at the jobsite. Quantity of submittals will be the same for Architect as noted under shop drawings. These submittals will not be reviewed, stamped or returned to the Contractor.

H. Unless otherwise specified, submit to the Architect's office samples of size, and nature representing typical qualities. Where required, submit a sufficient number of samples to demonstrate the complete range of variations of the material or quality. Written acceptance of the Architect is required prior to ordering any item for which samples are required.

I. Submit samples to Architect's office, securely packaged, with the name of the Project clearly indicated on the package exterior. Each physical sample shall have a label or tag, firmly attached to the sample, bearing the following information: (a) Name of Project, (b) Name of Supplier, (c) Name of Contractor, and (d) Product information such as manufacturer's designation, finish, type, class, grade, etc. as is appropriate. The Architect will retain one copy of each sample.

2.02 LIST OF MATERIALS

A. Within 7 days after the award of the Contract (notice to proceed or letter of intent), submit 4 copies of a complete list of all material, products, and equipment proposed to be used in construction to the Architect for acceptance. Do not order materials until the proposed listed materials, products and equipment to be used in construction are accepted by the Architect.

B. Where two or more makes or kinds of items are named in the specifications (or additional names are called for in addenda), the Contractor shall state which particular make or kind of each item he proposes to provide. If the Contractor fails to state a preference, the Owner shall have the right to select any of the makes or kinds named without change in price.

C. This list shall be arranged generally in order of specification sections. The items listed shall fully conform to project requirements and specifications. All materials are subject to the Architect's acceptance. After acceptance, changes or substitutions will not be permitted.

D. Clearly identify or list the material, product or equipment by manufacturer and brand by listing the names for all items, including those where only one material or product is specified. Each and every material, product and equipment shall be specifically named, not listed "as specified".

2.03 LIST OF SUBCONTRACTORS

A. Refer to the General Conditions of the Contract for Construction.

B. Propose use of subcontractors or sub-subcontractors who are established, reputable firms of recognized standing with a record of successful and satisfactory past performance. Include the following information: specification section, item of work, subcontractor or supplier, material/manufacturer (as specified will not be allowed), project manager, phone and facsimile numbers. List major sub-subcontractors for mechanical and electrical work. Use only those subcontractors (and sub-sub-contractors, when appropriate) who are acceptable to the Architect and Owner on the Work.
2.04 SCHEDULE OF VALUES

A. Requirements

1. Submit separate Schedule of Values for each building or phase to Architect ten (10) days prior to first Application For Payment (AIA Form G702, G702a).

2. Use Schedule of Values only as basis for Contractor's Application For Payment.

B. Form of Submittal

1. Base format on Sections listed in Section 00 01 10 Table of Contents, as well as, the Mechanical and Electrical Table of Contents. Break down labor and material separately.

2. Round off amounts to nearest ten dollars.

2.05 PROGRESS SCHEDULE

A. Refer to the General Conditions of the Contract for Construction and Section 01 32 00 Construction Scheduling for submittal requirements.

2.06 COORDINATION DRAWINGS

A. Refer to Common Work Results in Mechanical and Electrical Specifications.

B. Prior to construction occurring above ceiling, submit Mechanical/Electrical Coordination Drawings for design team review.

END OF SECTION 01 33 00
SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Support facilities include, but are not limited to, the following:
   1. Project identification and temporary signs.
   2. Housekeeping and waste disposal facilities.
   3. Field offices.
   4. Lifts and hoists.
   5. Temporary elevator usage.
   6. Construction aids and miscellaneous services and facilities.
   7. Temporary heating, cooling, and ventilation.
   8. Temporary power and lighting.

C. Security and protection facilities include, but are not limited to, the following:
   2. Barricades, warning signs, and lights.
   3. Temporary enclosures.
   4. Temporary partitions.
   5. Fire protection.

D. Related Sections include the following:

   1. Division 1 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
   2. Division 1 Section "Execution Requirements" for progress cleaning requirements.
   3. Division 1 Section “Construction Dust Control” for partitions and procedures for control of construction dust.
   4. Divisions 3 through 49 for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.03 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weather-tight; exterior walls are insulated and weather-tight; and all openings are closed with permanent construction or substantial temporary closures.
1.04 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Occupants of Project.
3. Architect.
4. Testing agencies.
5. Personnel of authorities having jurisdiction.

B. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.

1. Pay for pumps, pipe, hoses, and backflow preventors as required to distribute water.

C. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

PART 2: PRODUCTS

2.01 MATERIALS

A. General: Provide new materials or undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

B. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.

C. Lumber and Plywood: Comply with requirements in Division 6 Section "Carpentry."

D. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36.

E. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively.

F. Paint: Comply with requirements in Division 9 Section "Painting."

G. Tarpaulins: Fire-resistant labeled with flame-spread rating of 15 or less.

H. Water: Potable.

I. Wood Walkways: ¾" Plywood, framed with 2x__ joists (size as required to support span), with wood rails to contain occupants.

J. Poly Film Guard: 3 mil. self adhering clear poly film utilizing tack water-based adhesive.

2.02 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Prefabricated with lockable entrances, insulated, weather-tight; heated and air conditioned. Provide stairs with handrails as required for accessibility.
C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3: EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.

3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

1. Provide rubber hoses as necessary to serve Project site.

2. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

3. Provide pumps if required due to low static pressure on-site. Equip pumps with surge and storage tanks and automatic controls to supply water uniformly at reasonable pressures.

4. Provide backflow prevention devices to protect Owner’s water system.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

2. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel as required by government jurisdictions.
3. Toilets: Use of Owner's existing toilet facilities (as designated by Owner’s representative) will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Heating and Cooling: Utilize existing building systems.

1. Maintain a minimum temperature of 50 deg F (10 deg C) in permanently enclosed portions of building for normal construction activities, and 65 deg F (18.3 deg C) for finishing activities and areas where finished Work has been installed.

D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

F. Power is available on-site.

1. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations and to maintain schedule.

2. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and to meet government regulations.
   a. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Provide incombustible construction for support facilities located within construction area or within 30 feet of building lines. Comply with NFPA 241.

3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

C. Project Identification and Temporary Signs: Prepare Project identification and other signs as defined by Owner to properly identify the construction limits and direct facility users. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

1. Prepare temporary signs to provide directional information to construction personnel, facility staff and visitors.

2. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood in sizes and thicknesses indicated. Support on posts or framing of preservative-treated wood or steel.

3. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
   a. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.
D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section for progress cleaning requirements.

1. Coordinate locations for waste disposal containers with Owner, as well as scheduling of container removal and/or exchange. The Owner retains the right to direct moving of disposal containers at their discretion to maintain their unimpeded use of the site.

2. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

3. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

E. Housekeeping

1. Do not allow debris to accumulate on-site or within the building work areas. The contractor shall implement and provide the following cleaning services:

   a. Debris shall be removed from the construction site and police exterior project site area on a weekly basis at a minimum to clean-up any wind-blown or excess construction materials or debris and dispose of in construction dumpsters to maintain a clean project site.

   b. Debris shall be removed from interior of the buildings on a daily basis and disposed of in construction dumpsters.

   c. Lower waste materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

   d. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

   e. Once floor slabs are in place, walk-off mats shall be provided at all exterior entrances that are utilized by the workers. Mats shall be cleaned on a daily basis and change out mats on a monthly basis.

   f. Areas without final floor finish in place shall be cleaned of debris and swept on a daily basis.

   g. Areas that workers have access to with final floor finish in place shall be vacuumed on a daily basis. Carpeted major circulation paths shall be covered with poly film guard. Replace poly film guard when it develops holes or tears as they occur. Poly film guard to be replaced if left in place over 45 days. Horizontal and vertical surfaces shall be wiped down as construction dust has accumulated.

   h. Where Contractor has periodic access to ancillary spaces occupied by Owner, thoroughly clean after each use, so as to not disrupt Owner’s ongoing operations.

   i. Failure to maintain a clean construction area may result in the Owner cleaning the site and back-charging the Contractor.

   j. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner’s property.

F. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
G. Existing Elevator Usage: Use of Owner's existing (as designated by Owner’s representative) will be permitted, as long as elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

H. Existing Stair Usage: Use of Owner's existing stairs (as designated by Owner’s representative) will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas so no evidence remains of correction work.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons near Project area.

B. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

C. Contractor shall provide 24-hour fire watch whenever modifications are underway to existing fire rated partitions.

D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

1. For safety barriers, sidewalk bridges, and similar uses, provide minimum ¾-inch thick exterior plywood and appropriate 2x___ framing for support.

E. Food Consumption: Limit food and soft drink consumption to designated areas within the facility. No food or soft drink consumption shall occur within the Project area.

F. Building Environmental Protection:

1. When operating equipment adjacent to occupied areas of the building:
   a. Coordinate in advance temporary shutdown of building air supply systems.
   b. Close all windows and cover other openings with poly securely taped whenever equipment or vehicle exhaust fumes are present.
   c. Reactivate air supply systems when exhaust emitting activities have been completed.

G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
H. Temporary Dust Control Partitions: Refer to Construction Dust Control Section 01 56 00.

I. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses as required by the local fire marshal.

3.05 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section “Closeout Procedures.”

END OF SECTION 01 50 00
SECTION 01 50 13
INTERIM LIFE SAFETY MEASURES

PART 1 - GENERAL
1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section is designed to ensure that when Life Safety Features are impaired during the course of construction, renovation or alternation activities, they are done so in a manner that will reduce the potential adverse impact on the overall Building Life Safety System.

1. Contractor shall provide 24-hour fire watch whenever modifications are underway to existing fire rated partitions.

1.03 AUDIENCE

A. This policy applies to all individuals involved with construction, renovation, repair and alteration activities at John H. Stroger, Jr. Hospital of Cook County. The primary audiences are Owner’s representatives/management and the Contractor.

1.04 DEFINITIONS.


B. Life Safety Feature: A single component of the Building Life Safety System. May include but is not limited to, exits, doors, fire alarm system and automatic sprinkler system.

C. Risk Assessment: An evaluation of the effect any construction, renovation or alternation activities will have on the Building Life Safety System and the required measures to insure continued and equivalent protection to the building occupants during such activities.

D. Interim Life Safety Measures (ILSM): Measures implemented to ensure an equivalent level of protection is provided to the building occupants when construction, alternation, or renovation activities temporarily impair a Life Safety Feature.

E. Construction, Renovation or Alteration Activities: Activities inside of or around buildings which affect the building Life Safety System. This may include small projects of one room or less to larger renovation areas of two rooms to the entire building.

F. Deactivations: The advance approval to temporarily impair part or all of a Building Fire Protection System or utility service to perform require work. Deactivations must be approved by Owner’s representative before impairment of systems may occur.

G. Hot Work Permits: Permits requested by the project representative allowing work activities in buildings involving the use of possible ignition sources (i.e. welding, cutting, soldering etc.). Permits must be obtained before the work starts and shall be posted at the site work.

H. Fire Watch: A method used to monitor an area for excessive combustible or flammable material build-up and for early detection of fires and potential ignition sources. A person (Owner’s staff) may be specifically assigned to provide a fire watch by observing ongoing hot work or perform a periodic visual check of the work site, floor, or entire building during periods where a Life Safety Feature is impaired.

1.05 ROLES AND RESPONSIBILITIES.

A. Owner’s Staff shall:

1. Process deactivation requests received and forward approvals to Owner’s representative.
2. Establish any ILSM required for approval of a deactivation and forward the requirements to the Contractor.

3. Perform and document all initial and follow up Risk Assessments for any construction, alternation, or renovation activities.

4. Communicate required ILSM to project personnel before construction, alternation, or renovation activities begin.

5. Walk the area prior to work being performed, when appropriate.

6. Provide direction for duration and location of a required Fire Watch.

7. Ensure appropriate Hot Work permits are issued and located at the site of work requiring the permit.

8. Audit areas with active Hot Work permits and ensure all required safety precautions are being followed.

9. Regularly evaluate construction sites for additional ILSM which might be required as the construction process.

10. Initiate requests for Fire Protection System deactivations.

11. Provide acceptable route changes, and notification of ILSM to occupants.

   a. Contractor shall provide temporary signage where egress pathways are affected by construction activities.

12. Ensure persons performing work implement and maintain the required ILSM procedures and inspections or suspend work until such items can be maintained.

13. Establish a Fire Watch during the entire time required to comply with an issued Hot Work permit or suspend work if the Fire Watch cannot be maintained.

1.06 POLICY

A. Persons performing any construction, alteration, or renovation project occurring on the John H. Stroger, Jr. Hospital of Cook County campus must comply with the following before and during such activities:

1. Request and document a Risk Assessment.

2. Implement required ILSM.

3. Issued Hot Work permits as required by the project activities.

4. Request deactivations as required by the project activities.

5. Ensure all the above components, when required, are maintained and appropriately implemented.

1.07 POLICY COMPONENTS

A. Risk Assessment will be performed:

1. Before construction, renovation or alteration activities which may adversely affect the Life Safety Features of a building.

2. Every time a building's fire suppression or detection system is out of service for more than four consecutive hours in any 24-hour period.

3. Any time there is another significant compromise of one or more Life Safety protection features of a building.
4. Will determine which ILSM are required for an area.
5. Will outline the necessary steps for the person performing work to take to comply with the requirements set during the risk assessment.

B. ILSM: Applied as required by the Risk Assessment (any duration) and may include but are not limited to the following:

1. Daily surveillance to ensure unobstructed exits.
2. Daily surveillance to ensure emergency forces access.
3. Daily surveillance to ensure that the appropriate type and quantities of fire suppression devices are on hand.
4. Dust partitions are to be constructed smoke tight and of non-combustible or limited combustible materials (i.e. drywall, fire resistant plywood, or metal partitions).
5. Requiring storage and housekeeping practices which require the prompt removal or accumulations of combustible/flammable debris and supplies.
6. Compliance with Hot Work practices.
7. Monthly testing of temporary fire alarm, detection and suppression systems.
8. Fire exit drills conducted twice quarterly.
9. Any other appropriate measures as determined by Sanford Canby Medical Center.

C. Fire Watch:

1. May be required when any of the following systems have been impaired for more than four hours:
   a. The fire alarm system.
   b. Automatic sprinkler system.
   c. Any suppression system.
2. A Fire Watch shall survey the construction and will:
   a. Follow the established surveillance schedule.
   b. Survey every room in the affected area for:
      1) Excessive build-up of combustibles (e.g. trash).
      2) Potential ignition sources.
      3) Improper work practices which may result in a fire.

1.08 FORMS

A. Worksheet A ILSM Requirement (refer to the following two pages attached to this Section):
1. Used for evaluating the effects on Life Safety Features caused by construction.
2. Will be utilized by the John H. Stroger, Jr. Hospital of Cook County employee responsible for the direct supervision of the work to be performed (work supervisor).
   a. Submitted for review at least three days in advance of work start.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section is intended to identify Contractor’s responsibility for partnering with the Owner to ensure infection control risk is minimized during the course of construction and renovation activities. The Owner will issue final requirements to the Contractor prior to the start of construction.

1.3 AUDIENCE

A. This policy applies to all individuals involved with construction, renovation, repair and alteration activities at John H. Stroger, Jr. Hospital of Cook County. The primary audiences are John H. Stroger, Jr. Hospital of Cook County facility management and Contractor.

1.4 POLICY

A. The Contractor shall evaluate the infection control risk of various construction activities and complete the infection control construction permit included at the end of this Section before beginning construction.

1.5 INFECTION CONTROL RISK ASSESSMENT CHART OF PRECAUTIONS FOR CONSTRUCTION & RENOVATION

A. The following pages are provided as example ICRA plan. Final ICRA plan for the project shall be provided by the Owner’s ICRA coordinator.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 50 16
Step One: Using the following table, identify the Type of Construction Project Activity (Type A – D)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type A: Inspection and Non-Invasive Activities</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes, but is not limited to:</td>
</tr>
<tr>
<td></td>
<td>• removal of ceiling tiles for visual inspection only, e.g., limited to one tile per 50 sq.ft.</td>
</tr>
<tr>
<td></td>
<td>• painting (but not sanding)</td>
</tr>
<tr>
<td></td>
<td>• wallcovering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection</td>
</tr>
<tr>
<td><strong>Type B: Small scale, short duration activities which create minimal dust</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes, but is not limited to:</td>
</tr>
<tr>
<td></td>
<td>• installation of telephone and computer cabling</td>
</tr>
<tr>
<td></td>
<td>• access to chase spaces</td>
</tr>
<tr>
<td></td>
<td>• cutting for walls or ceiling where dust migration can be controlled</td>
</tr>
<tr>
<td><strong>Type C: Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes, but is not limited to:</td>
</tr>
<tr>
<td></td>
<td>• sanding of walls for painting or wall covering</td>
</tr>
<tr>
<td></td>
<td>• removal of floor coverings, ceiling tiles and casework</td>
</tr>
<tr>
<td></td>
<td>• new wall construction</td>
</tr>
<tr>
<td></td>
<td>• minor ductwork or electrical work above ceilings</td>
</tr>
<tr>
<td></td>
<td>• major cabling activities</td>
</tr>
<tr>
<td></td>
<td>• any activity which cannot be completed within a single work shift</td>
</tr>
<tr>
<td><strong>Type D: Major demolition and construction projects</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes, but is not limited to:</td>
</tr>
<tr>
<td></td>
<td>• activities which require consecutive work shifts</td>
</tr>
<tr>
<td></td>
<td>• requires heavy demolition or removal of a complete cabling system</td>
</tr>
<tr>
<td></td>
<td>• new construction</td>
</tr>
</tbody>
</table>
Step Two: Using the following table, identify the **Patient Risk Groups** that will be affected. If more than one risk group will be affected, select the higher risk group.

<table>
<thead>
<tr>
<th>Low Risk</th>
<th>Medium Risk</th>
<th>High Risk</th>
<th>Highest Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Office areas</td>
<td>• Cardiology</td>
<td>• CCU</td>
<td>• Any area caring for immunocompromised patients</td>
</tr>
<tr>
<td></td>
<td>• Echocardiography</td>
<td>• Emergency Room</td>
<td>• Burn Unit</td>
</tr>
<tr>
<td></td>
<td>• Endoscopy</td>
<td>• Labor &amp; Delivery</td>
<td>• Cardiac Cath Lab</td>
</tr>
<tr>
<td></td>
<td>• Nuclear Medicine</td>
<td>• Laboratories (specimen)</td>
<td>• Central Sterile Supply</td>
</tr>
<tr>
<td></td>
<td>• Physical Therapy</td>
<td>• Newborn Nursery</td>
<td>• Intensive Care Units</td>
</tr>
<tr>
<td></td>
<td>• Radiology/MRI</td>
<td>• Outpatient Surgery</td>
<td>• Medical Unit</td>
</tr>
<tr>
<td></td>
<td>• Respiratory Therapy</td>
<td>• Pediatrics</td>
<td>• Negative pressure isolation rooms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Post-Anesthesia Care Unit</td>
<td>• Operating rooms including C-section rooms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Surgical Units</td>
<td></td>
</tr>
</tbody>
</table>

Step Three: **Match** the:

**Patient Risk Group (Low, Medium, High, Highest)** with the planned ...
**Construction Project type (A, B, C, D)** on the following chart, to find the ...
**Class of Precautions (I, II, III, or IV)** or level of infection control activities required.

*Class I – IV Precautions are delineated on the following page.*

<table>
<thead>
<tr>
<th>Construction Project Type</th>
<th>Class of Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Risk Group</td>
<td>Type A</td>
</tr>
<tr>
<td>LOW Risk Group</td>
<td></td>
</tr>
<tr>
<td>MEDIUM Risk Group</td>
<td></td>
</tr>
<tr>
<td>HIGH Risk Group</td>
<td>I</td>
</tr>
<tr>
<td>HIGHEST Risk Group</td>
<td>III</td>
</tr>
</tbody>
</table>

**Note:** Infection Control approval will be required when the Construction Activity and Risk Level indicate that **Class III** or **Class IV** control procedures are necessary.
### Description of Required Control Precautions by Class

#### During Construction Project

<table>
<thead>
<tr>
<th>Class I</th>
<th>Upon Completion of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Execute work by methods to minimize raising dust from construction operations.</td>
<td>1. Clean work area upon completion of task.</td>
</tr>
<tr>
<td>2. Immediately replace a ceiling tile displaced for visual inspection.</td>
<td></td>
</tr>
</tbody>
</table>

**Class II**

| 1. Provide active means to prevent airborne dust from dispersing into atmosphere.             | 1. Wipe work surfaces with disinfectant.                                                      |
| 2. Water mist work surfaces to control dust while cutting.                                   | 2. Contain construction waste before transport in tightly covered containers.                 |
| 3. Seal unused doors with duct tape.                                                        | 3. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area.                  |
| 4. Block off and seal air vents.                                                            | 4. Upon completion restore HVAC system where work was performed.                              |
| 5. Place dust mat at entrance and exit of work area.                                        |                                                                                               |
| 6. Remove or isolate HVAC system in areas where work is being performed.                    |                                                                                               |

**Class III**

| 1. Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system. | 1. Do not remove barriers from work area until completed project is inspected by the owner’s Safety Department and Infection Control Department and thoroughly cleaned by the owner’s Environmental Services Department. |
| 2. 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. | 2. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. |
| 3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. | 3. Vacuum work area with HEPA filtered vacuums.                                               |
| 4. Contain construction waste before transport in tightly covered containers.                | 4. Wet mop area with disinfectant.                                                            |
| 5. Cover transport receptacles or carts. Tape covering unless solid lid.                    | 5. Upon completion restore HVAC system where work was performed.                              |

**Class IV**

| 1. Isolate HVAC system in area where work is being done to prevent contamination of duct system. | 1. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction. |
| 2. 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. | 2. Contain construction water before transport in tightly covered containers.                   |
| 3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. | 3. Cover transport receptacles or carts. Tape covering unless solid lid.                       |
| 4. Seal holes, pipes, conduits, and punctures appropriately.                                 | 4. Vacuum work area with HEPA filtered vacuums.                                               |
| 5. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site. | 5. Wet mop area with disinfectant.                                                            |
| 6. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area. | 6. Upon completion restore HVAC system where work was performed.                              |
| 7. Do not remove barriers from work area until completed project is inspected by the owner’s Safety Department and Infection Control Department and thoroughly cleaned by the owner’s Environmental Services Department. |                                                                                               |
Step Four: Identify the areas surrounding the project area, assessing potential impact

<table>
<thead>
<tr>
<th>Unit Below</th>
<th>Unit Above</th>
<th>Lateral</th>
<th>Lateral</th>
<th>Behind</th>
<th>Front</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Group</td>
<td>Risk Group</td>
<td>Risk Group</td>
<td>Risk Group</td>
<td>Risk Group</td>
<td>Risk Group</td>
</tr>
</tbody>
</table>

Step Five: Identify specific site of activity (e.g., patient rooms, medication rooms, etc.).

____________________________________________________________________

____________________________________________________________________

Step Six: Identify issues related to: ventilation, plumbing, electrical in terms of the occurrence of probable outages.

____________________________________________________________________

____________________________________________________________________

Step Seven: Identify containment measures, using prior assessment. What types of barriers? (e.g., solids wall barriers); Will HEPA filtration be required?

____________________________________________________________________

(Note: Renovation/Construction area shall be isolated from the occupied areas during construction and shall be negative with respect to surrounding areas.)

Step Eight: Consider potential risk of water damage. Is there a risk due to compromising structural integrity? (e.g., wall, ceiling, roof)

____________________________________________________________________

Step Nine: Work hours: Can or will the work be done during non-patient care hours?

____________________________________________________________________

Step Ten: Plan to discuss the following containment issues with Red Lake Hospital’s facility management staff. e.g., traffic flow, housekeeping, debris removal (how and when)
**Infection Control Construction Permit**

<table>
<thead>
<tr>
<th>Location of Construction:</th>
<th>Project Start Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Coordinator:</td>
<td>Estimated Duration:</td>
</tr>
<tr>
<td>Contractor Performing Work:</td>
<td>Permit Expiration Date:</td>
</tr>
<tr>
<td>Supervisor:</td>
<td>Telephone:</td>
</tr>
</tbody>
</table>

**Location of Construction:**

**Project Start Date:**

**YES** | **NO**

<table>
<thead>
<tr>
<th>CONSTRUCTION ACTIVITY</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A: Inspection, non-invasive activity</td>
<td>GROUP 1: Low Risk</td>
<td></td>
</tr>
<tr>
<td>Type B: Small scale, short duration, moderate to high levels</td>
<td>GROUP 2: Medium Risk</td>
<td></td>
</tr>
<tr>
<td>Type C: Activity generates moderate to high levels of dust, requires greater 1 work shift for completion</td>
<td>GROUP 3: Medium/High Risk</td>
<td></td>
</tr>
<tr>
<td>Type D: Major duration and construction activities requiring consecutive work shifts</td>
<td>GROUP 4: Highest Risk</td>
<td></td>
</tr>
</tbody>
</table>

**CLASS I**

1. Execute work by methods to minimize raising dust from construction operations.
2. Immediately replace any ceiling tile displaced for visual inspection.
3. Minor demolition for remodeling.

**CLASS II**

1. Provide active means to prevent air-borne dust from dispersing into atmosphere.
2. Water mist work surfaces to control dust while cutting.
3. Seal unused doors with duct tape.
4. Block off and seal air vents.
5. Wipe surfaces with disinfectant.
6. Contain construction waste before transport in tightly covered containers.
7. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area.
8. Place dust mat at entrance and exit of work area.
9. Isolate HVAC system in areas where work is being performed; restore when work is completed.

**CLASS III**

1. Obtain infection control permit before construction begins.
2. Isolate HVAC system in area where work is being done to prevent contamination of the duct system.
3. Complete all critical barriers or implement control cube method before construction begins.
4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.
5. Seal holes, pipes, conduits, and punctures appropriately.
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 the work site.
7. All personnel entering work site are required to wear shoe covers.
8. Do not remove barriers from work area until completed project is thoroughly cleaned by Environ. Serv. Dept.
9. Vacuum work area with HEPA filtered vacuums.
10. Wet mop with disinfectant.
11. Upon completion restore HVAC system where work was performed.

**CLASS IV**

1. Obtain infection control permit before construction begins.
2. Isolate HVAC system in area where work is being done to prevent contamination of duct system.
3. Complete all critical barriers or implement control cube method before construction begins.
4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.
5. Seal holes, pipes, conduits, and punctures appropriately.
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 the work site.
7. All personnel entering work site are required to wear shoe covers.
8. Do not remove barriers from work area until completed project is thoroughly cleaned by the Environ. Serv. Dept.
9. Vacuum work area with HEPA filtered vacuums.
10. Wet mop with disinfectant.
11. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.
12. Contain construction waste before transport in tightly covered containers.
13. Cover transport receptacles or carts. Tape covering.
14. Upon completion restore HVAC system where work was performed.

**Additional Requirements**

<table>
<thead>
<tr>
<th>Date</th>
<th>Initials</th>
</tr>
</thead>
</table>

**Exceptions/Additions to this permit are noted by attached memoranda**

**Permit Request by:**

**Permit Authorized by:**

**Date:**
SECTION 01 56 00
CONSTRUCTION DUST CONTROL

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section Includes:

1. Airborne construction dust/containment control in:
   b. Finished spaces that are unoccupied and construction dust/airborne containments are still being generated (i.e. punchlist completion).

B. Related Sections:

1. Section 01 73 29-Cutting, Drilling and Patching: Removal of debris.
2. Section 01 33 00-Submittals: Work and procedures for containment of construction dust/airborne contaminants.
3. Section 01 50 00-Temporary Facilities: Temporary barriers/chutes; cleaning.
4. Section 02 41 19-Selective Demolition

1.03 POLICY

A. Airborne contaminants control is critical in all areas noted in Paragraph 1.02A. Contractor shall limit dissemination of airborne contaminants produced by construction-related activities, including dust, chalk, powders, aerosols, fumes, fibers and other similar materials, in order to provide protection of persons and equipment.

1. Construction activities causing disturbance of existing dust, or creating new dust, or other airborne contaminants, must be conducted in tight enclosures cutting off any flow of particles into occupied areas.

2. Ceilings, walls in Project area must be secure at all times.

1.04 SUBMITTALS

A. Progress Schedules: Submit work areas and procedure schedules for containment of construction dust/airborne contaminants.

B. Work Plan: Drawings and details of extent of enclosures, construction of necessary temporary barriers and exhaust fans, and description of procedures to be used to achieve and maintain control of construction-related airborne contaminants.

1.05 GENERAL ACCESS PROCEDURES

A. Contractor shall notify Architect each time that work requiring access to occupied areas within two weeks of when work is about to begin.
B. Dust Control Preconstruction Meeting: Before any construction on site begins, Contractor and workers are required to attend a mandatory dust control preconstruction orientation session held by Owner’s Representative/Architect for training and instruction on precautions to be taken.

1. Conditions in construction area may be presumed to be in a condition similar to other existing surfaces or a survey of work area to record pre-existing damage may occur at this time.

C. Notification: Contractor shall notify Architect a minimum of 48 hours prior to starting construction activity which might be expected to produce excessive construction dust and airborne contaminants in occupied areas so that additional precautions may be taken.

1.06 TESTING

A. The Owner may provide the following tests and observations:

1. Air Samples: Baseline particle counts and conduct periodic air sampling of Project Areas during construction to monitor effectiveness of containment procedures.

2. Air Pressure: Using visual indicators, the maintenance of negative air pressure in Containment Area relative to Project Areas will be verified on a daily basis.

1.07 DEFINITIONS

A. Containment producing activities include, but are not limited to:

1. Demolition and removal of walls, floors, ceilings, and other finish materials.
2. Demolition of plumbing, mechanical and electrical systems and equipment.
3. Finish operations such as sawcutting, shotblasting/grinding, sanding, painting, and application of special surface coatings.

B. Containment Areas: As determined by Architect and Owner’s Representative and shown within entire construction limits of project area. Includes area of construction, adjacent staging and storage areas, and passage areas for workers, supplies, and waste; includes ceiling spaces above and adjacent to construction, if shown.

C. Project Areas: As determined by Architect and Owner’s Representative and shown within entire construction limits of project area. Includes occupied areas adjacent to Project Area, either occupied or used for passage, as well as areas connected to construction area by mechanical system air intake, exhaust and ductwork.

PART 2: PRODUCTS

2.01 MATERIALS

A. Carpet or Mats: Provide carpets or mats at containment entrances, vacuumed or changed as often as necessary (minimum daily) to prevent accumulation of dust. All vacuuming outside areas not under negative pressure shall be with a certified HEPA-filtered vacuum.

B. Dust Caps: Block off all existing ventilation ducts within the construction area. Method of capping ducts shall be dust tight, withstand airflow and potential damage from construction activities.

C. Portable Enclosures: Whenever work is done outside existing barricaded work areas, provide 4 mil portable polyethylene enclosure capable of sealing off opening fitted tight to ceiling, or provide prefabricated unit.

D. Polyethylene: Polyethylene shall be fire retardant type listed by Fire Underwriter’s Laboratories, Griffolyn #T55R with Griffolyn fire retardant tape, or equal.

E. Exhaust fans: Maintain continuous uninterrupted operation.
PART 3: EXECUTION

3.01 INSPECTION

A. Before any demolition or construction begins, a complete field review of all Project Areas (airborne contaminant control areas) and policies will be conducted and work plan revised if required. Initial work plan shall be presented at dust control preconstruction meeting.

3.02 CONTAINMENT, ENCLOSURES AND BARRIERS

A. Air Quality Contaminant Control: Fasten windows shut, ventilate barricaded construction areas by use of fans to the outside of building.
   1. Maintain a minimum negative airflow of 100 +/- 10 FPM with door fully open at barricade entrance openings and during window replacement by use of fans vented to outside of building.
   2. Secure operable exterior windows and doors/windows not required for construction access as required to maintain negative airflow.
   3. Provide additional local exhaust during welding.

B. Contractor shall install dustproof enclosures for work as submitted on work plan and when required to protect areas occupied by the Owner from dust, debris and damage.
   1. Construction must be conducted in tight enclosures cutting off any flow of dust particles into occupied areas.
   2. The Contractor shall provide additional dustproof enclosures as requested by the Owner when enclosure locations are not adequately containing the dust.
   3. Provide all barricades, warning signs and warning lights to protect the public, the existing building, storage areas and materials or equipment.

C. Enclosure Barricades: Full height, noncombustible construction, with minimum ½ inch gypsum board both sides with 3-1/2 inch R-11 insulation batts to reduce noise. Use 3-inch wide masking tape to tightly seal top, bottom, and all seams to prevent spread of dust to occupied areas, including above ceiling.
   1. Barricade Doors: 3’-0” minimum width (pair of 3’-0” wide doors as required by plans), solid core wood with metal frame and hardware, including closer, tightly weather-stripped to prevent flow of dust. Locate as directed and swing out of construction area (unless directed otherwise by fire marshal). Keep barriers locked outside of working hours. Provide signage at each door “Keep Door Closed.” Three keys for emergency access shall be furnished to the Owner.
   2. Seal all ductwork, piping, conduit, structure and miscellaneous penetrations in enclosure barricades.
   3. Materials for barricade shall be precut in unoccupied areas.

D. Enclosure outside of work area (including spaces above ceilings): Whenever work is necessary outside of the construction barricades the space where work is being done, including ladders, shall be contained within full height enclosure. Contractor may use prefabricated unit.
   1. All work performed outside the construction barricade shown on drawings including all work in corridors and lobbies shall be performed outside of normal working hours and shall be scheduled in advance with Owner except where specified otherwise.
   2. At no time shall any construction equipment or material be stored outside the construction barricade.
E. Furniture and Equipment Protection:

1. Cover all furniture and equipment remaining in the space with polyethylene. Seal with tape to prevent dust/dirt from reaching the furniture and equipment.

3.03 PROCEDURES

A. General: Contractor shall provide and maintain all barriers, filters, ventilation, walk-off mats and cleaning and removal procedures as detailed in work plan.

1. Traffic between barricaded areas and open areas shall be kept to a minimum. Instruct workers to refrain from tracking dust into adjacent occupied areas or opening windows or doors allowing construction dust/airborne contaminants into adjacent occupied or finished areas. Any dust tracked outside of construction area shall be cleaned up immediately. Contractor shall have the necessary manpower and equipment (HEPA vacuum cleaners, dust and wet mops, brooms, buckets and clean wiping rags) to keep adjacent occupied areas clean at all times. Keep door to such areas closed at all times. Transport materials and refuse into an area from an external site without violating occupied areas by transporting in covered containers.

2. Provide negative pressure in construction area by use of fans to the outside of the building. Block supply and return ventilation as to not recirculate air from construction area to air handlers supplying occupied areas. Rebalance air handling equipment to maintain correct airflow to occupied areas.

   a. Provide adequate forced ventilation of enclosed areas to cure installed materials, to prevent excessive humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases in the building.

   b. Direct exhaust from equipment away from building air intakes and operable windows; assure that filters on building air intakes are operational and protected from excessive amounts of airborne contaminants. Cover intakes of air handling equipment not in operation in proximity to exhaust locations.

B. Sealing of Openings: Use tape or other impenetrable sealant to seal barrier wall seams, cracks around window and door frames, exhaust system ductwork, pipes, floor penetrations, joints and ducts. Seal or filter all open return and exhaust ductwork.

C. Dust Control: The Contractor shall take appropriate steps throughout the term of the Project to prevent airborne dust due to work under this contract. Water shall be applied wherever practical to settle and hold dust to a minimum, particularly during demolition and moving of materials. No chemical palliatives shall be used without permission of the Owner’s Representative.

1. Spray surfaces with water mist during dust-producing interior demolition activities. Hard surface floors in work area, adjacent hallways and passage areas require vacuuming with HEPA-filtered vacuum cleaners and frequent wet-mopping during demolition and construction; protect adjacent carpeted areas with plastic and plywood and vacuum with HEPA-filtered vacuum cleaners.

2. Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.

D. Whenever access panels are opened in occupied areas, for work above ceilings, provide portable enclosure ladder and sealing off opening, fitted tight to ceiling.

E. Provide thorough cleaning of existing surfaces which become exposed to dust, before start of Owner’s occupancy.

3.04 FINAL CLEANING

A. Removal of construction barriers shall be done carefully, and when necessary, outside of normal work hours. Remove all tape residue from existing/new surfaces. HEPA vacuum and clean all surfaces free of dust after the removal prior to Owner’s occupancy.
B. Rebalance existing HVAC systems to restore modified systems back to the original design intent.

3.05 ENFORCEMENT

A. Failure to maintain containment areas will result in issuance of written warning; if situation is not corrected within eight (8) hours of receipt of warning, Owner will have cause to stop the work as provided in Article 2.3 of A201 General Conditions of the Contract for Construction. All costs associated with Owner’s written order to stop the Work and remobilization shall be borne by the Contractor.

END OF SECTION 01 56 00
PART 1: GENERAL

1.01 DESCRIPTION

A. Execute cutting, fitting or patching of Work, required to:
   1. Make several parts fit properly.
   2. Uncover Work to provide for installation of ill-timed Work.
   3. Remove and replace defective Work.
   4. Remove and replace Work not conforming to requirements of Contract Documents.
   5. Install specified Work in existing construction.
   6. Provide finished surfaces (to match adjacent existing surfaces) to fill in voids caused by removal or replacement of materials.

B. Pay for costs caused by ill-timed or defective Work, or Work not conforming to Contract Documents, including costs for additional services of Architect/Engineer.

PART 2: PRODUCTS

2.01 MATERIALS

A. Replacement of Work Removed: Comply with specifications for type of Work to be done.

B. Placement of Work to fill Voids caused by Removal: Comply with latest industry standards for type of Work to be done.

PART 3: EXECUTION

3.01 INSPECTION

A. Inspect existing conditions of Work, including elements subject to movement or damage during:
   1. Cutting and patching.

B. After uncovering Work, inspect conditions affecting installation of new products.

3.02 PREPARATION PRIOR TO CUTTING

A. Provide shoring, bracing and support as required to maintain structural integrity of Project.

B. Provide protection for other portions of Project.

C. Provide protection from elements.
3.03 PERFORMANCE

A. Contractor shall provide 24-hour fire watch whenever modifications are underway to existing fire rated partitions.

B. Neatly cut or demolish along straight, true, square lines.

C. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.

D. Restore Work which has been cut or removed; install new products to provide complete Work in accordance with requirements of Contract Documents.

E. Refinish entire surfaces as necessary to provide an even finish.
   1. Continuous Surfaces: To nearest intersections.

END OF SECTION 01 73 29
SECTION 01 74 00

FINAL CLEANING

PART 1: GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Cleaning required for specified work is specified in sections pertaining to that work.

B. Cleaning during construction and prior to substantial completion – Section 01 50 00 Temporary Facilities and Controls.

PART 2: PRODUCTS

2.01 CLEANING MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3: EXECUTION

3.01 FINAL CLEANING

A. Employ experienced workers or professional cleaners for final cleaning.

B. At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.

C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces.

D. Repair, patch and touch up marred surfaces to match adjacent finishes.

E. Maintain cleaning until the Building or portion thereof, is occupied by the Owner.

END OF SECTION 01 74 00
SECTION 01 77 00
PROJECT CLOSEOUT

1.01 GENERAL

A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

B. Related requirements in other parts of the Project Manual

   1. Fiscal provisions, legal submittals and additional administrative requirements: Conditions of the Contract.

C. Related requirements specified in other sections

   1. Closeout Submittals Required: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION

A. Refer to the General Conditions of the Contract for Construction.

B. When the Project is determined by the Architect to be sufficiently complete to permit utilization for the intended use, the Architect will issue a Certificate of Substantial Completion.

C. To receive the Certificate of Substantial Completion, perform the following:

   1. Submit to the Architect a notice declaring that work is believed to be substantially complete.

   2. Submit a list of work items that remain to be completed or corrected and the date this work will be accomplished.

   3. Obtain Occupancy certificate when required from governing municipality.

   4. Submit documentation of Functional Performance Test deficiency list and completion schedule from temperature control contractor.

D. Architect will visit the project to evaluate the request for issuance of a Certificate of Substantial Completion.

   1. If the Architect concurs that the Project is substantially complete, the Architect will deliver a Certificate of Substantial Completion and a list of work items necessary for completion or correction prior to request for inspection for final completion.

   2. If the Architect determines that the work is not substantially complete, the Architect will deliver to the Contractor a written statement including reasons.

   3. Complete work on the items required by the Architect for achieving substantial completion and make additional written requests for issuance of a Certificate of Substantial Completion until the Architect determines that sufficient Work has been performed.
1.03 FINAL INSPECTION

A. When the Work is considered complete, submit written certification that:

1. Contract Documents have been reviewed.
2. Work has been completed and inspected by the Contractor for compliance with Contract Documents and is ready for final inspection.
3. Building Permit Final has been submitted.

B. Architect will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Architect consider that the Work is incomplete or defective:

1. Architect will notify the Contractor in writing, listing the incomplete or defective work.
2. Take immediate steps to remedy the stated deficiencies, and send a second written certification to Architect that the Work is complete.
3. Architect will reinspect the Work.

D. When the Architect finds that the Work is acceptable under the Contract Documents, he will request preparation of closeout submittals.

1.04 REINSPECTION FEES

A. Should Architect perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:

1. Owner will compensate Architect for such additional services.
2. Owner will deduct the amount of such compensation from the final payment.

1.05 CLOSEOUT SUBMITTALS TO ARCHITECT

A. When the Architect has determined that the Construction Work is acceptable under the Contract Documents and the Contract fully performed, prepare and submit final Application for Payment to the Architect together with one original and one copy of the following:

1. A letter recommending acceptance of the Project and indicating all punch list items are complete.
2. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G706, with bonds for any exceptions.
3. Consent of Surety to Final Payment on Consent of Surety Company to Final Payment, AIA Document G707.
5. Project Record Documents, if required.
6. Warranties and Bonds.
7. Documentation from Building Official that building permit has been closed out.
1.06 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to Architect.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.

2. Additions and deductions resulting from:
   a. Previous Change Orders
   b. Allowances
   c. Unit Prices
   d. Deductions for uncorrected Work
   e. Penalties and Bonuses
   f. Deductions for liquidated damages
   g. Deductions for reinspecktion payments and costs incurred by Architect or Architect’s Consultants if project is not closed out within sixty (60) days of Substantial Completion.
   h. Other adjustments

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

C. Architect will prepare a final Change Order, reflecting approved adjustments to the Contract Sums which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

A. Submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

END OF SECTION 01 77 00
SECTION 01 78 23

OPERATING, MAINTENANCE AND WARRANTY DATA

1.01 GENERAL

A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.

B. Prepare operating, maintenance and warranty data as specified in this Section and as referenced in other pertinent section of Project Manual.

C. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.

D. Related requirements specified in other sections:
   1. Shop drawings, product data and samples: Section 01 33 00.
   2. Project Closeout: Section 01 77 00.
   3. Project Record Documents: Section 01 78 39.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel with the following qualifications:
   1. Trained and experienced in maintenance and operation of the described products.
   2. Completely familiar with requirements of this Section.
   3. Skilled as a technical writer to the extent required to communicate essential data.
   4. Skilled as a draftsman competent to prepare required drawings.

1.03 FORM OF SUBMITTALS

A. Prepare data in the form of an instructional manual for use by the Owner's personnel.

B. Format shall conform to the following:
   1. Size: 8½" x 11".
   2. Paper: 20 pound minimum, white, for typed pages.
   3. Text: Manufacturer's printed data, or neatly typewritten.
   4. Drawings
      a. Provide reinforced punched binder tab, bind in with text.
      b. Fold larger drawings to the size of the text pages.
5. Provide fly-leaf for each separate product, or each piece of operating equipment.
   a. Provide typed description of product, and major component parts of equipment.
   b. Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title "OPERATING, MAINTENANCE AND WARRANTY INSTRUCTIONS". List:
   a. Title of Project
   b. Identity of separate structure as applicable.
   c. Identity of general subject matter covered in the manual.

C. Binders
   1. Commercial quality three-ring binders with durable and cleanable plastic cover.
   2. Maximum ring size: 2 inch.
   3. When multiple binders are used, correlate the data into related consistent groupings.

D. Digital Format: Submit one PDF copy of the O&M Manual on a DVD Disk.

1.04 CONTENT OF MANUAL

A. Arrange neatly typewritten table of contents for each volume, in the following systematic order.
   1. Contractor, name of responsible principal, address and telephone number.
   2. A list of each product required to be included, indexed to the content of volume.
   3. List, with each product, the name, address and telephone number of:
      a. Contractor or installer.
      b. Maintenance contractor, as appropriate.
      c. Identify the area of responsibility of each.
      d. Local source of supply for parts and replacement.
      e. Include warranty information as specified.
   4. Identify each product by product name and other identifying symbols such as set in Contract Documents.

B. Product Data
   1. Include only those sheets which are pertinent to the specific product.
   2. Annotate each sheet to:
      a. Clearly identify the specific product or part installed.
C. Content, for moisture-protection and weather-exposed products:
   1. Manufacturer's data, giving full information on products.
      a. Applicable standards
      b. Chemical composition
      c. Details of installation
   2. Instructions for inspection, maintenance and repair.

D. Additional requirements for maintenance data: The respective section of the Project Manual.

1.05 SUBMITTAL SCHEDULE

A. Submit one copy of completed data in final form within thirty days of substantial completion. Copy will be returned with comments.

B. Submit two copies of approved data in final form ten (10) days after comments are received.

END OF SECTION 01 78 23
SECTION 01 78 39

PROJECT RECORD DOCUMENTS

1.01 GENERAL

A. Fully cooperate with the Architect to accomplish the following.

B. These requirements supplement the requirements set forth in the General Conditions.

C. Maintain at each site one record copy, as applicable, of:
   1. Drawings and Details with addenda marked in.
   2. Specifications with addenda marked in.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Architect/Engineer Supplemental Instructions, Proposal Requests or written instructions.
   6. Approved shop drawings, product data and samples.
   7. Field test records.

1.02 MAINTENANCE OF RECORD DOCUMENTS AND SAMPLES

A. Store record documents and samples in Contractor's field office in files and racks. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with the Construction Specifications Institute MASTERFORMAT.

C. Maintain record documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

D. Make record documents and samples available at all times for inspection by Architect or Owner.

1.03 RECORDING

A. Label each document "PROJECT RECORD" in neat large printed letters.

B. Continuously record information and changes.

C. Drawings: Legibly mark to record actual construction.
   1. Depths of various elements of foundation in relation to finish first floor datum.
   2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
   4. Field changes of dimension and detail.
5. Changes made by Field Order or by Change Order.

6. Details not on original contract drawings.

D. Specifications and Addenda - Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

E. Shop Drawings – Label each set by corresponding specification section. At the completion of the project, provide the Owner with one complete set, reviewed and stamped by architect, organized by specification section in the following formats:

1. Paper (various sizes) folded to 8 1/2” x 11” and boxed with project name and completion date clearly labeled on exterior.

2. Scanned PDF copy on a compact disk, ordered by specification section.

**1.04 SUBMITTAL**

A. Deliver Record Documents to the Owner at contract close-out.

B. Accompany submittal with transmittal letter in duplicate, containing:

1. Date

2. Project title

3. Title and number of each Record Document

END OF SECTION 01 78 39
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Recording of training sessions.

B. Related Sections:

1. Division 1-14 – Individual sections with training requirements.
2. Divisions 21-25 – Mechanical sections with training requirements.
3. Divisions 26-28 – Electrical sections with training requirements.

1.03 SUBMITTALS

A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. At completion of training, submit one complete training manual for Owner's use.

B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

E. Demonstration and Training DVD: Submit one copy at end of each training module.

1.04 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
1.05 COORDINATION

A. Coordinate instruction schedule with Owner’s operations. Adjust schedule as required to minimize disrupting Owner’s operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 – PRODUCTS

2.01 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
   a. System, subsystem, and equipment descriptions.
   b. Performance and design criteria if Contractor is delegated design responsibility.
   c. Operating standards.
   d. Regulatory requirements.
   e. Equipment function.
   f. Operating characteristics.
   g. Limiting conditions.
   h. Performance curves.

2. Documentation: Review the following items in detail:
   a. Emergency manuals.
   b. Operations manuals.
   c. Maintenance manuals.
   d. Project Record Documents.
   e. Identification systems.
   f. Warranties and bonds.
   g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:
   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. Required sequences for electric or electronic systems.
   m. Special operating instructions and procedures.

5. Adjustments: Include the following:
   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:
   a. Diagnostic instructions.
   b. Test and inspection procedures.

7. Maintenance: Include the following:
   a. Inspection procedures.
   b. Types of cleaning agents to be used and methods of cleaning.
   c. List of cleaning agents and methods of cleaning detrimental to product.
   d. Procedures for routine cleaning
   e. Procedures for preventive maintenance.
   f. Procedures for routine maintenance.
   g. Instruction on use of special tools.

8. Repairs: Include the following:
   a. Diagnosis instructions.
   b. Repair instructions.
   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d. Instructions for identifying parts and components.
   e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.01 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

B. Set up instructional equipment at instruction location.
3.02 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training through Architect with at least seven days' advance notice.

D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

E. Demonstration and Training Recording: Record each training module separately on digital, window’s compatible DVD media. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.03 DEMONSTRATION

A. Manufacturer’s onsite field technician shall demonstrate the operation of the doors to the Owner. A video outlining the operation of the item or system, scheduled maintenance, basic troubleshooting and care of the item or system shall be provided to the Owner by the door manufacturer. Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 01 79 00
SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section requires the selective removal of the following:
   1. Portions of existing building indicated on drawings and as required, to be removed and disposed of off site, to accommodate new construction.
   2. Removal and protection of existing fixtures, materials, and equipment items indicated “salvage.”

B. Related work specified elsewhere:
   1. Remodeling construction work and patching are included within the respective sections of specifications.
   2. Construction Dust Control: Section 01 56 00.
   3. Removal of mechanical and electrical systems and equipment is specified in Divisions 23 and 26.
   4. Cutting or drilling nonstructural concrete floors and masonry walls for piping, ducts, and conduits is specified in Divisions 23 and 26.

C. Related work by others:
   1. Removal of movable furnishings and equipment is by Owner.

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative/Construction Manager for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control.
   1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
   2. Coordinate with Owner’s continuing occupation of portions of existing building and with Owner’s partial occupancy of completed new construction areas.

C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner’s Representative/Construction Manager prior to start of work.

D. Product data and Material Safety Data Sheets for any hazardous, highly odoriferous, or high volatile materials to be used, along with procedure and safeguards to be followed during the use of each.
1.04 JOB CONDITIONS

A. Occupancy: Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner’s normal operations. Provide minimum of 72 hours advance notice to Owner’s Representative of demolition activities that will affect Owner’s normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

D. Protection: Provide temporary barricades and other forms of protection to protect Owner’s personnel, students and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner’s personnel and general public to occupied portions of building.

2. Erect temporary covered passageways as required by authorities having jurisdiction.

3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.

4. Protect from damage existing finish work that is to remain in place and which becomes exposed during demolition operations.

5. Protect floors with suitable coverings when necessary.

6. Construct temporary insulated dustproof partitions where required to separate areas where noisy, dirty or dusty operations are performed. Construct partitions out of metal stud, poly and gypsum board and provide dustproof doors and security locks.

7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, flame cutting will not be allowed. Maintain portable fire suppression devices during flame-cutting operations.
H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities or spaces, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner.

2. Maintain fire protection services during selective demolition operations.

3. Maintain HVAC functions in occupied spaces, in so far as possible. Provide temporary heating and ventilation as required to maintain acceptable working conditions. Do not interrupt functions to occupied spaces, except as shown on the demolition plans or when authorized in writing by the Owner.

I. Environmental Controls: Use temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution, or damage to finishes or occupied spaces.

J. Do not use highly odoriferous, hazardous or highly volatile chemicals during demolition without the approval of the Owner. Provide appropriate safeguards during the use of such approved materials.

K. Lead Containing Materials: The existing building may contain lead-containing materials, including lead paint. It is the Contractor's responsibility to meet all governmental regulations when dealing with and disposing of lead containing materials.

PART 2: PRODUCTS  (Not Applicable)

PART 3: EXECUTION

3.01 PREPARATION

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

2. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.

3. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

   a. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 3-5/8" metal studs, 5/8-inch drywall (joints taped) on occupied side, 1/2-inch fire-retardant plywood on demolition side. Fill partition cavity with insulation. Provide lockable dustproof doors.

   b. Provide similar weatherproof closures for exterior openings resulting from or immediately adjacent to demolition work.
4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
   a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.02 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
   1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools.
   2. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
   3. Completely fill below-grade areas and voids resulting from demolition work. Use compacted backfill as specified in Section 31 00 00.
   4. Provide for effective air and water pollution controls as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extend of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

C. Leave all surfaces and work ready and acceptable to the next trade. Use only materials and techniques that are acceptable to subsequent trades to remove materials from surfaces to remain.
   1. Remove adhesive and other materials where wall and floor coverings are removed.
   2. Patch or repair demolition in excess of that shown on drawings.

3.03 SALVAGED MATERIALS

A. Salvaged Items: Where indicated on Drawings as “Salvage”, carefully remove indicated items, clean and store.
   1. Furniture/building contents, not scheduled for reuse, remain property of Owner. Notify Architect if such items are encountered and obtain approval regarding method of removal and salvage for the Owner.
   2. Store salvaged items to be reused off the ground in a clean, dry location, away from uncured concrete or masonry. Cover with waterproof material in a manner that permits air circulation within covering.
   3. For items to be reused, inventory, label with previous location and new location.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose of off site.
   1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
   2. Burning of removed materials is not permitted on project site.
3.05 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Leave interior areas broom clean.

1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

2. Remove protection when no longer required by demolition and remodeling work.

END OF SECTION 02 41 19
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes gypsum-cement-based, self-leveling underlayment for application below interior floor coverings.

B. Related Sections:

1. Division 09 Sections for patching and leveling compounds applied with floor coverings.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.

B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.

1. Place gypsum-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

1.07 COORDINATION

A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, specified in Division 09 Sections, to ensure compatibility of products.
PART 2 - PRODUCTS

2.01 GYPSUM-CEM-BENT-BASED UNDERLAYMENTS

A. Underlayment: Gypsum-cement-based, self-leveling product that can be applied in minimum uniform thickness of 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Products: Subject to compliance with requirements, provide one of the following:
   c. USG Corporation; Levelrock 2500.

2. Cement Binder: Gypsum or blended gypsum cement as defined by ASTM C 219.
3. Compressive Strength: Not less than 2000 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Water: Potable and at a temperature of not more than 70 deg F.

C. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, with Installer present, for conditions affecting performance.

1. Proceed with application only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions.

1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
2. Fill substrate voids to prevent underlayment from leaking.

B. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.03 APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written instructions.

1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
C. Apply underlayment to produce uniform, level surface.
   1. Apply a final layer without aggregate to product surface.
   2. Feather edges to match adjacent floor elevations.

D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.

E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.

F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.04 PROTECTION

A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03 54 13
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes: All labor, material necessary to complete all items of miscellaneous metal as listed on the schedule in Part 2 and shown on the Drawings.

1. The design, fabrication, transportation to the project site, and associated operations required to complete miscellaneous metals, including all the various metal items manufactured to more or less standard details in sizes conforming to specific requirements of the project.

B. Related work specified in other sections:

1. Steel support brackets for countertops - Section 06 40 00 / 06 65 10.
2. Coiling Doors – Section 08 33 00.

1.03 REFERENCE STANDARDS

A. The following specifications and standards are incorporated by reference. Materials and operations shall comply with requirements of the specified issue of published reference. Where provisions of these Project Specifications are at variance with those reference specifications, the maximum criteria or requirements shall govern.

1. ASTM A36-03a, "Carbon Structural Steel"
2. ASTM A53-02, "Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless"
3. ASTM A123-02, "Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products"
4. ASTM A307-02, "Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength"
5. ASTM A325-02, "Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength"
6. ASTM A500-03, "Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes"
7. ASTM A563-00, "Carbon and Alloy Steel Nuts"
8. ASTM A666-00, "Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar"
9. ASTM A992-02, "Steel for Structural Shapes for Use in Building Framing"
10. ASTM F1554-99, "Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength"
1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Shop drawings required for all items. Show all work to be fabricated with all construction details shown in appropriate scale, methods of attachment to other materials, finished dimensions, shop welds and grinding of welds, field assembly joints, etc. Indicate welded connections, including net weld lengths, using standard AWS welding symbols.

2. Calculations: Accompany shop drawings with a complete structural design and analysis prepared and certified by a Professional Engineer (P.E.) licensed in the State in which the project is located. The design and analysis shall show all design loads, reactions, forces or stresses, and structural characteristics of members and connections for the items listed in section 2.01.B. Include a certified letter stating that shop drawings as submitted conform to the requirements on the design calculations.

3. Coordinate work with other suppliers and subcontractors; obtain their approved shop drawing where necessary, or obtain any necessary additional detail information regarding mounting conditions or other aspects of related work.

1.05 PRODUCT PROTECTION

A. Package, handle, deliver and store at the job site in a manner that will avoid damage or deformation. Damaged material will be rejected.

B. Furnish items to be built into concrete, masonry, carpentry, etc. as the work progresses.

1.06 JOB CONDITIONS

A. Verify dimensions in field, as required, for pre-cut or prefabricated items.

B. Examine job conditions and adjoining construction which may affect the acceptability of the work.

PART 2: PRODUCTS

2.01 DESIGN

A. All materials shall be free from defects impairing strength, durability, appearance, and shall be of the best commercial quality for the purposes indicated. Structural properties shall be such to withstand safely all strains and stresses to which they will be normally subjected.

2.02 MATERIALS

A. Structural Steel: ASTM A36 or A992.

B. Fastenings: Bolts, welds, rivets or other fastenings as required.

C. Anchor Bolts, Nuts: ASTM F1554, Grade 36.

D. Steel Pipe: ASTM A53, Grade B.

E. Steel Tubing: ASTM A500 Grade B.

F. Shop Paint Primer: Manufacturer's standard rust inhibiting primer.
G. Galvanizing: ASTM A123.

H. Expansion and Adhesive Anchors.
   1. Wedge Anchors: Hilti "Kwik Bolt II" or Ramset/Redhead "Trubolt" or equal.
   2. Heavy Duty Sleeve Anchors: Hilti "HSL" or equal.
   3. Adhesive Anchors: Hilti "HVA" or "HIT", Ramset/Redhead "EPCON" or equal.

2.03 GENERAL REQUIREMENTS FOR FABRICATION

A. Weld permanent connections wherever possible; use continuous welds where exposed and grind smooth, straighten members after welding.

B. Perform welding in accordance with AWS D1.1.

C. Perform shop cutting, drilling, fitting and assembly wherever possible. Take field measurements before fabrication when required.

D. Provide all supporting members, fasteners, framing, hangers, bracing, brackets, straps, bolts, angles, etc. required to set, connect the work rigidly and properly to other construction.

E. Install welded end caps at all handrail terminations.

2.04 SHOP COATS PROTECTIVE TREATMENT

A. Clean free of all mill scale, rust and foreign matter by wire brushing, scraping, sandblasting or flame cleaning. Remove grease, oil with solvent. Dust, dirt: Remove with air blast or brush.

B. Apply one shop coat of specified primer to all ferrous metal products, except galvanized. Provide primer for field touch up. Be responsible for quality and adhesion of shop prime finish.

C. Hot-dip galvanize all ferrous metal items exposed to weather in the finish work and shop prime with primer recommended for use on galvanized metal.

2.05 SCHEDULE OF MISCELLANEOUS METAL ITEMS

A. Items listed in this Section are intended only as a guide, but do not relieve responsibility for verifying quantities and inclusion of all similar items. Thoroughly examine all Drawings for items of miscellaneous metal fabrications.
   1. Miscellaneous metal items shown on Drawings.
   2. Coiling door jambs.
   3. Knee wall supports.

PART 3: EXECUTION

3.01 INSTALLATION GENERAL REQUIREMENTS

A. Anchor to concrete and masonry with expansion or adhesive anchors where built-in anchorage is not provided; do not fasten to wood plugs set in masonry.

B. Vertical members set into concrete or masonry: As shown.

C. Bolts, screws, etc., for field connections: Same material, finish as base material.
3.02 FIELD SPLICES, WELDS

A. Perform field welding in accordance with AWS D1.1.

B. Welders shall be certified by AWS.

C. Continuously weld field splices and grind smooth where exposed to view.

D. Fill exposed splice joints with body filler and sand smooth.

E. Touch-up joints, welds with specified primer.

F. Touch-up damaged hot dipped galvanizing with Galvanizing Repair Compound per manufacturer’s requirements.

END OF SECTION 05 50 00
SECTION 06 10 00
ROUGH CARPENTRY

PART 1  GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Structural dimension lumber framing.
B. Non-structural dimension lumber framing.
C. Rough opening framing for doors and openings, including ICU/CCU entrances.
D. Miscellaneous framing.
E. Concealed wood blocking, nailers, and supports.

1.03 REFERENCE STANDARDS

A. ANSI/ASME Standard B18.2.1 - Square and Hex Bolts and Screws (Inch Series); 1981
B. ANSI/ASME Standard B18.6.1 - Wood Screws (Inch Series); 1981
H. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength; 2002
I. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007
M. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.
N. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.
P. ICC-ES NER 272 - Power-Driven Staples and Nails for Use in All Types of Building Construction; ICC Evaluation Service, Inc.; 2004
Q. PS 2 - Wood-Based Structural Use Panels; National Institute of Standards and Technology (Department of Commerce); 2004
R. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide technical data on metal framing connectors, power-driven fasteners, rim boards, and laminated veneer lumber.
1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species as indicated below for each use.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2x4 and 2x6) used in a vertical position in bearing walls:
   1. Grade: No. 2.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E 84.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M or stainless steel for high humidity and preservative-treated wood locations and to match finish on metal connectors, unfinished steel elsewhere.
   2. Nails: ASTM F1667, common wire nails, unless otherwise specified.
   4. Lag Screws: ANSI/ASME Standard B18.2.1
B. Metal Framing Connectors: Includes hangers, post bases, post caps, tension ties, hold-downs, and framing angles. Hot dipped galvanized steel, sized to suit framing conditions.

1. Drawings show Simpson Strong-Tie products. Alternate products shall have equal or greater strength.
2. All products to have current ICC approval.
3. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing per ASTM A 653/A 653M, hot-dipped galvanizing per ASTM A123, or stainless steel, grade 316L.

2.05 SOURCE QUALITY CONTROL

A. Provide dimension lumber with each piece factory marked with grade stamp of an accredited grading agency identifying grade, species, and moisture content at time of surfacing.

B. Provide APA-rated panels with each piece factory marked with grade stamp of APA identifying type, exposure durability classification, span rating, and thickness.

C. Provide APA-rated rim boards and LVL with APA EWS trademark.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION – GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Specifically, provide the following non-structural framing and blocking:

1. Cabinets and shelf supports.
2. Wall brackets.
3. Handrails.
4. Grab bars.
5. Towel and bath accessories.
6. Wall-mounted door stops.
7. Wall paneling, guardrails, chair rail and/or trim.
3.04 INSTALLATION OF CONSTRUCTION PANELS

A. General

1. Install sheathing with panel continuous over two or more spans.
2. Provide 1/8” space at ends and edges of panels unless otherwise indicated by the panel supplier.
3. Apply adhesives in strict accordance with manufacturer’s instructions. Apply continuous glue line on joists and a spaced glue line in groove of tongue and groove panels.

B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.

1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
3. Install adjacent boards without gaps.
4. Size and Location: As indicated on drawings.

3.05 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 CLEANING

A. After erection and attachment of lumber, remove clay, mud, or other foreign materials from all members.

B. Waste Disposal: Comply with the requirements of Section 01 7419.

1. Comply with applicable regulations.
2. Do not burn scrap on project site.
3. Do not burn scraps that have been pressure treated.
4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

C. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

D. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION 06 10 00
SECTION 06 41 00

ARCHITECTURAL WOODWORK

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section specifies custom architectural woodwork requiring expert craftsmanship and joinery, including the following:

1. Plastic laminate cabinets.
2. Cabinet hardware.

B. Related work specified in other sections:

1. Section 05 50 00 "Metal Fabrications" for brackets and other supports associated with architectural woodwork.
2. Section 06 10 00 "Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.
3. Section 06 65 10 “Solid Surface Fabrications” for solid surface countertops as shown on Drawings.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Product data for each type of product and process specified in this section and incorporated into items of architectural woodwork during fabrication, finishing, and installation.

2. Shop drawings showing location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
   a. Casework: Elevations and locations of each assembly. Indicate dimensions, thicknesses, surfacing materials, drawers, doors and door swings, sections of typical and special cases. Indicate core materials, edge treatments and construction.

3. Submit manufacturer's product data for stock items.

4. Provide samples of base cabinet, wall cabinet, hardware, plastic laminate and edging if requested by Architect.

5. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.

6. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.
1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work. Member in good standing of the Architectural Woodwork Institute.

B. Single-Source Responsibility: Arrange for production by a single firm of architectural woodwork with sequence matched wood veneers.

C. Installer Qualifications: Arrange for installation of architectural woodwork by a firm that can demonstrate successful experience in installing architectural woodwork items similar in type and quality to those required for this project.

D. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.

B. Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

1.06 PROJECT CONDITIONS

A. Environmental Conditions: Obtain and comply with Woodwork Manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with manufacture of woodwork without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer’s who are members of Architectural Woodwork Institute are acceptable.

2.02 MATERIALS

A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated:

1. Hardboard: ANSI/AHA A135.4
6. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of each voluntary standard referenced below:
   c. Hardwood Plywood: HPMA FE.

B. Fire-Retardant Particleboard: Where indicated, provide panels complying with the following requirements that have fire-retardant chemicals bonded to softwood particles at time of panel manufacture to achieve products identical to those tested for flame spread of 20 or less and for smoke developed of 25 or less per ASTM E 84 by UL or other testing and inspecting organization acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

1. For 45-lb-density panels and thicknesses of 3/4 inch and less, comply with ANSI A208.1 for Grade 1-M-1 except that minimums for modulus of elasticity and screw-holding capacity on face and edge shall be 300,000 psi, 250 lb., and 225 lb., respectively.

2. For 44-lb-density panels and thicknesses of 13/16 inch to 1-1/4 inch, comply with ANSI A208.1 for Grade 1-M-1 except that minimums for modulus of rupture, modulus of elasticity, internal bond, linear expansion, and screw-holding capacity on face and edge shall be 1,300 psi, 250,000 psi, 60 psi, 0.50 percent, 250 lb., and 175 lb., respectively.

3. Product: Subject to compliance with requirements, provide "Duraflake FR" by Duraflake Div.; Willamette Industries, Inc.

C. Plastic Laminate:

1. Plastic laminate manufacturers listed below are approved under the following conditions:
   a. The basis of design (manufacturer, product line/color) listed in the specification is not required to submit a pre-bid approval.
   b. Equivalent products from manufacturers listed in this specification shall submit color samples for pre-bid approval by addendum. Refer to Section 01 25 00.

2. Basis of Design: Wilsonart and Formica products are specified. Equivalent products by Wilsonart, Formica, Westinghouse, Pionite and Nevamar are acceptable.

3. Color:
   a. PL-1: Wilsonart “Gray Mesh” 4877-38
   b. PL-2: Formica “Otter” 3202-58
   c. PL-3: Wilsonart “Linen” D427-60
   d. PL-4: Wilsonart “Persian Blue” D26-60

4. Exposed vertical cabinet surfaces, cabinet bottoms, shelving and other storage surfaces: High-pressure plastic laminate, 0.030” thick, Wilsonart Vertical Surface Type 335, matte textured finish.

5. Balancing sheet: High-pressure plastic laminate, 0.020” thick, Wilsonart Cabinet Liner Type 726, color: manufacturer's standard.

2.03 FABRICATION, GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.

B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
   1. Corners of cabinets and edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.
   2. Edges of rails and similar members more than 1 inch in nominal thickness: 1/8 inch.

C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

D. Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

2.04 PLASTIC LAMINATE CASEWORK

A. Quality standard: AWI Division 400B, custom grade, flush overlay.

B. Laminate Cladding: High pressure decorative laminate complying with the following requirements:
   1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
      a. Match color, pattern, and finish indicated by reference to laminate manufacturer's standard designations for this these characteristics.
   2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.
      a. Horizontal Surfaces Other Than Tops: GP-50 (0.050-inch nominal thickness).
      b. Vertical Surfaces: FP-50 (0.050-inch nominal thickness).
      c. Edges: GP-50 (0.050-inch nominal thickness), or hardwood lumber as shown on drawings.
   3. Semi-exposed Surfaces: Provide surface materials indicated below:

2.05 HARDWARE

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

B. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for BHMA code number indicated.

C. For concealed hardware provide manufacturer's standard finish that complies with product class requirements of ANSI/BHMA A156.9.
D. Adjustable Shelf Hardware:


2. Wall mounted shelves: Knape & Vogt #87 heavy-duty standards with #187 brackets, 7/8" wide, 2" slot adjustment.

3. Finish: Satin chrome plated typical, special stain brass electroplated finish at exposed cherry (WD-1) shelving.

E. Closet Hardware: Coat rod: Knape & Vogt #770 heavy wall tubing, 1-1/16" O.D. by 0.120" wall thickness. Provide matching flanges as required.

F. Cabinet Hardware:

1. Cabinet door hinges: Hafele H-series hinges or equal.
   a. Provide hinges for special applications as shown on drawings.

2. Drawer slides:
   a. Pencil and box drawers: Grant #511 or 512, 75 lbs. minimum load capacity.
   b. File drawers: Grant #555, 150 lbs. minimum load capacity, full extension.

3. Cabinet latch: Stanley #SP45 or SP46.

   a. Provide one lock at each file drawer, keyed the same at each room.
   b. Provide other cabinet locks as indicated.
   c. Provide two keys per lock.

5. Pulls:

2.06 FASTENERS AND ANCHORS

A. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

1. For metal framing supports, provide screws as recommended by metal framing manufacturer.

B. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.
PART 3: EXECUTION

3.01 PREPARATION
A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
B. Deliver concrete inserts and similar anchoring devices to be built into substrates well in advance of time substrates are to be built.
C. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.

3.02 INSTALLATION
A. Quality Standard: Install woodwork to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.
B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with recommendations of chemical treatment manufacturer including those for adhesives where are used to install woodwork.
E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
F. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
G. Complete the finishing work specified in this section to whatever extent not completed at shop or before installation of woodwork.

3.03 ADJUSTMENT AND CLEANING
A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
B. Clean, lubricate, and adjust hardware.
C. Clean woodwork on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.04 PROTECTION
A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensures that woodwork is being without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 41 00
SECTION 06 65 10

SOLID SURFACE FABRICATIONS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes: Labor, materials, equipment and accessories to provide the following:

1. Solid surface countertops, integral sinks and vertical panels associated with architectural woodwork.

B. Related work specified in other sections:

1. Wood Blocking - Section 06 10 53.


1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Shop Drawings: Drawings shall indicate sizes, color, details of fabrications, cutouts for mech/elec, furring and blocking required, and installation instructions.

2. Product Data: Submit manufacturer's product data indicating compliance with specifications and maintenance, repair and cleaning recommendations.

   a. Include maintenance kit for each color/finish.

3. Samples: Submit 12" x 12" x 1/2" material samples for color selection.

4. Manufacturer’s qualification certification of installer.

1.04 QUALITY ASSURANCE

A. Work of this section shall be by a certified fabricator/installer recommended by manufacturer and the distributor. Any project for food service applications or wall cladding shall be by a certified fabricator/installer recommended by manufacturer and the distributor and trained by the manufacturer and the distributor specifically for the application.

1.05 DELIVERY, STORAGE AND HANDLING

A. Delivery: Do not deliver product to site before product is to be installed. Product shall be delivered in protective wrapping. Wrapping shall remain in place until product is ready to be installed.
PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Solid surface manufacturers listed below are approved under the following conditions:

1. The basis of design (manufacturer, product line/color) listed in the specification is not required to submit a pre-bid approval.
2. Equivalent products from manufacturers listed in this specification shall submit color samples for pre-bid approval by addendum. Refer to Section 01 25 00.

B. Basis of Design: Corian is specified. Equivalent products by Staron, DuPont Company, Wilmington, and Formica are acceptable.

C. Color.

1. SS-1: Corian Glacier Ice

2.02 MATERIALS

A. Solid polymer components

1. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.
2. Superficial damage to a depth or 0.010 inch shall be repairable by sanding and/or polishing.

B. Thickness:

1. Horizontal surfaces and backsplashes: ½”
2. Vertical surfaces: ¼”

C. Edge treatment: As detailed.


1. Finish and touch up to uniform appearance.

E. Performance Characteristics:

<table>
<thead>
<tr>
<th>Property</th>
<th>Typical Result</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tensile Strength</td>
<td>6,000 psi</td>
<td>ASTM D 638</td>
</tr>
<tr>
<td>2. Tensile Modulus</td>
<td>1.5 x 10^6 psi</td>
<td>ASTM D 638</td>
</tr>
<tr>
<td>3. Tensile Elongation</td>
<td>0.4% min.</td>
<td>ASTM D 638</td>
</tr>
<tr>
<td>4. Flexural Strength</td>
<td>10,000 psi</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>5. Flexural Modulus</td>
<td>1.2 x 10^6 psi</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>6. Hardness</td>
<td>&gt;85</td>
<td>Rockwell “M” Scale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASTM D 785</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barcol Impresor</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>ASTM D 2583</td>
</tr>
<tr>
<td>7. Thermal Expansion</td>
<td>1.80 x 10^{-5} in./in./ºF</td>
<td>ASTM D 696</td>
</tr>
<tr>
<td>8. Gloss (60º Gardner)</td>
<td>5–75 (matte–highly polished)</td>
<td>ANSI Z124</td>
</tr>
<tr>
<td>9. Light Resistance</td>
<td>(Xenon Arc) No effect</td>
<td>NEMA LD 3-2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method 3.3</td>
</tr>
<tr>
<td>10. Wear and Cleanability</td>
<td>Passes</td>
<td>ANSI Z124.3 &amp; Z124.6</td>
</tr>
<tr>
<td>No.</td>
<td>Property</td>
<td>Test/Standard</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>11.</td>
<td>Stain Resistance: Sheets</td>
<td>Passes ANSI Z124.3 &amp; Z124.6</td>
</tr>
<tr>
<td>12.</td>
<td>Fungus and Bacteria Resistance</td>
<td>Does not support microbial growth ASTM G21 &amp; G22</td>
</tr>
<tr>
<td>15.</td>
<td>Izod Impact (Notched Specimen)</td>
<td>0.28 ft.-lbs./in. of notch ASTM D 256 (Method A)</td>
</tr>
<tr>
<td>17.</td>
<td>Weatherability</td>
<td>ΔE*&lt;5 in 1,000 hrs. ASTM G 155</td>
</tr>
<tr>
<td>18.</td>
<td>Specific Gravity (Approximate weight per square foot: ¼” 2.2 lbs., ½” 4.4 lbs.)</td>
<td>1.7 ASTM D 570</td>
</tr>
<tr>
<td>19.</td>
<td>Water Absorption</td>
<td>Long-term 0.4% (3/4”) 0.6% (1/2”) 0.8% (1/4”) ASTM D 570</td>
</tr>
<tr>
<td>20.</td>
<td>Toxicity</td>
<td>99 (solid colors) Pittsburgh Protocol Test (“LC50” Test)</td>
</tr>
<tr>
<td>21.</td>
<td>Flammability</td>
<td>66 (patterned colors) ASTM E 84, NFPA 255 &amp; UL 723</td>
</tr>
<tr>
<td>22.</td>
<td>Flame Spread Index</td>
<td>&lt;25</td>
</tr>
<tr>
<td>23.</td>
<td>Smoke Developed Index</td>
<td>&lt;25</td>
</tr>
</tbody>
</table>

F. Joint adhesive:

1. Manufacturer’s standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.

G. Panel adhesive:

1. Manufacturer’s standard neoprene-based panel adhesive complying with ANSI A136.1-1967, UL listed.

H. Sealant:

1. Manufacturer’s standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone – any type), UL-listed silicone sealant in colors matching components.

2.03 FACTORY FABRICATION

A. Shop assembly:

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer’s printed instructions and technical bulletins.

2. Form joints between components using manufacturer’s standard joint adhesive without conspicuous joints.

3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.

4. Rout and finish component edges with clean, sharp returns.
   a. Rout cutouts, radii and contours to template.
   b. Smooth edges.
   c. Repair or reject defective and inaccurate work.
B. Vertical surfaces with hard seams:
   1. ¼-inch thick, with butt joints between sheets made with manufacturer’s joint adhesive matching color of solid polymer material; adhesively applied to solid substrates; 1/8” expansion joints filled with color-matching silicone every 10’-15’ with matching color.

2.04 FINISHES
A. Finish: Provide surfaces with a uniform matte finish; gloss range of 5-20.

PART 3: EXECUTION

3.01 EXAMINATION
A. Verification of Conditions: Verify that surfaces and supports to receive cast plastic material as suitable for installation in accordance with Shop Drawings. Beginning of installation shall indicate acceptance of conditions.

3.02 INSTALLATION
A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
   1. Provide product in the largest pieces available.
   2. Form field joints using manufacturer’s recommended adhesive, with joints inconspicuous in finished work.
      a. Exposed joints/seams shall not be allowed.
   3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
   4. Cut and finish component edges with clean, sharp returns.
   5. Rout radii and contours to template.
   6. Anchor securely to base cabinets or other supports.
   7. Align adjacent countertops and form seams to comply with manufacturer’s written recommendations using adhesive in color to match countertop.
   8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
   9. Install countertops with no more than 1/8-inch sag, bow or other variation from a straight line.
B. Applied backsplashes and sidesplashes:
   1. Install applied sidesplashes using manufacturer’s standard color-matched silicone sealant.
   2. Adhere applied sidesplashes to countertops using manufacturer’s standard color-matched silicone sealant.

3.03 REPAIR
A. Repair or replace damaged work which cannot be repaired to architect’s satisfaction.
3.04 CLEANING AND PROTECTION

A. Keep components clean during installation.

B. Remove adhesives, sealants and other stains.

3.05 DEMONSTRATION AND TRAINING

A. Engage a factory-authorized representative to train Owner’s maintenance personnel on using maintenance kit for repair of surfaces. Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 06 65 10
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes product specification of the following:
   1. Sound batt insulation used to control sound transfer in stud wall construction.
   2. Expanding foam insulation as shown on drawings.

B. Installation of insulation specified in other sections:
   1. Rough Carpentry – Section 06 10 00
   2. Gypsum Board – Section 09 21 16

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):
   1. ASTM D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.

1.04 SUBMITTALS

A. Submit in accordance to Section 01 33 00 Submittals.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver material to the site in unopened packages, with identification labels intact.

B. Store under water-resistant cover and protect from weather and direct sunlight.

C. Remove damaged materials from site.

1.06 SCHEDULING

A. Coordinate installation with other trades whose work may be affected or have effect.

PART 2: PRODUCTS

2.01 MATERIALS

A. Sound Batt Insulation: ASTM C665, type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag, wool or rock wool. Fiberglass batts are not considered an equal.
   1. Fire resistance-rated assemblies: Comply with mineral-fiber requirements of assembly.
2. Use 2" thick batts at stud cavities, 3" thick elsewhere.

B. Expanding Foam Insulation: Dow Chemical Great Stuff Pro or equal one part polyurethane foam sealant.

1. Conform to ASTM C557-93, D6464, CA25-4 and is UL Class 1 (Flame Spread of 15, Smoke of 20).
2. Application temperature range of 25°F to 120°F.
3. Paintable, stainable and sandable.
5. Minimum R.Value of 4 per inch.

PART 3: EXECUTION

3.01 INSTALLATION

A. Refer to specific specification sections for installation.

END OF SECTION 07 21 00
SECTION 07 84 00
FIRESTOPPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 DEFINITIONS

A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or construction joints between, fire rated wall and floor assemblies.

1.03 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

A. Firestopping for all Work installed under this contract shall be included in the base bid.

1. Contractor shall also provide firestopping at existing penetrations through fire rated partitions within the construction area and as noted on the Drawings. Refer to Section 01 21 00 “Allowances”.

B. Only tested firestop systems shall be used in specific locations as follows:

1. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

3. Openings between structurally separate sections of wall or floors.

4. Gaps between the top of walls and ceilings or roof assemblies.

5. Expansion joints in walls and floors.

6. Openings and penetrations in fire-rated partitions or walls containing fire doors.

7. Openings around structural members which penetrate floors or walls.

1.04 RELATED WORK OF OTHER SECTIONS

A. Coordinate work of this section with work of other sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work of other sections, including:

1. Section 01 21 00 - Allowances
2. Section 07 92 00 - Joint Sealers
3. Section 09 21 16 - Gypsum Drywall Systems
4. Division 23 - HVAC
5. Division 21 - Fire Protection
6. Division 22 - Plumbing
7. Division 26 – Electrical
8. Division 27 – Communications
9. Division 28 – Electronic Safety and Security
1.05 REFERENCES

A. Test Requirements: ASTM E 814, "Standard Method of Fire Tests of Through Penetration Fire Stops"

B. Test Requirements: UL 1479, “Fire Tests of Through-Penetration Firestops”


D. Underwriters Laboratories (UL) of Northbrook, IL publishes tested systems in their "FIRE RESISTANCE DIRECTORY” that is updated annually.

1. UL Fire Resistance Directory:
   a. Firestop Devices (XHJI)
   b. Fire Resistance Ratings (BXRH)
   c. Through-Penetration Firestop Systems (XHEZ)
   d. Fill, Voids, or Cavity Material (XHHW)
   e. Forming Materials (XHKU)
   f. Joint Systems (XHBN)
   g. Perimeter Fire Containment Systems (XHDG)


I. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments

J. Chicago Building Code.


L. NFPA 70 - National Electric Code

1.06 QUALITY ASSURANCE

A. A manufacturer's direct representative to be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

B. Firestop System installation must meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.

C. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.

D. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

E. For those firestop applications that exist for which no UL tested system is available through a manufacturer, an engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment drawings must follow requirements set forth by the International Firestop Council.
1.07 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

1. Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions.

2. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment must include both project name and contractor's name who will install firestop system as described in the assembly drawing.

3. Material safety data sheets provided with product delivered to job-site.

4. Documentation from manufacturer that all firestopping installations on-site meet their requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.

B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.

C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.

D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.

E. Do not use damaged or expired materials.

1.09 PROJECT CONDITIONS

A. Do not use materials that contain flammable solvents.

B. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.

D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.

E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

PART 2 - PRODUCTS

2.01 FIRESTOPPING, GENERAL

A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

C. Firestopping Materials are either “cast-in-place” (integral with concrete placement) or “post installed.” Provide cast-in-place firestop devices prior to concrete placement.

2.02 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with through penetration firestop systems (XHEZ), joint systems (XHBN), and perimeter firestop systems (XHDG) listed in Volume 2 of the UL Fire Resistance Directory: Products specified are by Hilti, Inc., Tulsa, Oklahoma, 800-879-8000/www.us.hilti.com

1. Manufacturers with products which conform to requirements specified herein are acceptable.

2.03 MATERIALS

A. Use only firestop products that have been UL 1479, ASTM E 814 or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

B. L-Rated Systems: Where through-penetration firestop systems are indicated in smoke barriers, provide through-penetration firestop systems with L-ratings of not more than 5.0 cfm/sq. ft. at both ambient temperatures and 400 deg F.

C. Cast-in place firestop devices for use with noncombustible and combustible pipes (closed and open systems), conduit, and cable bundles penetrating concrete floors, the following products are acceptable:

1. HILTI
   a. CP 680 Cast-In Place Firestop Device
      1) Add Aerator adaptor when used in conjunction with aerator (“sovent”) system.
   b. CP 682 Cast-In Place Firestop Device for use with noncombustible penetrants

D. Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:

1. HILTI
   a. FS-ONE Intumescent Firestop Sealant
   b. CP 604 Self-leveling Firestop Sealant
   c. CP 620 Fire Foam
   d. CP 606 Flexible Firestop Sealant
   e. CP 601s Elastomeric Firestop Sealant

E. Sealants or caulking materials for use with sheet metal ducts, the following products are acceptable:

1. HILTI
   a. CP 601s Elastomeric Firestop Sealant
   b. CP 606 Flexible Firestop Sealant
   c. FS-ONE Intumescent Firestop Sealant
F. Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:

1. HILTI
   a. CP CFS-SP WB Joint Spray
   b. CP 601s Elastomeric Firestop Sealant
   c. CP 606 Flexible Firestop Sealant
   d. CP 604 Self-leveling Firestop Sealant

G. Pre-formed mineral wool designed to fit flutes of metal profile deck and gap between top of wall and metal profile deck; as a backer for spray material.

1. HILTI
   a. CP 777 Speed Plugs
   b. CP 767 Speed Strips

H. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe, the following products are acceptable:

1. HILTI
   a. FS-ONE Intumescent Firestop Sealant

I. Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles, the following products are acceptable:

1. HILTI
   a. FS-ONE Intumescent Firestop Sealant
   b. CP 620 Fire Foam
   c. CP 601s Elastomeric Firestop Sealant
   d. CP 606 Flexible Firestop Sealant

J. Non-curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles, the following products are acceptable:

1. HILTI
   a. CP 618 Firestop Putty Stick
   b. CP 658T Firestop Plug

K. Wall opening protective materials for use with U.L. listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:

1. HILTI
   a. CP 617 Firestop Putty Pad

L. Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems), the following products are acceptable:

1. HILTI
   a. CP 643N Firestop Collar
   b. CP 644 Firestop Collar
   c. CP 645/648 Wrap Strips
M. Materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

1. HILTI
   a. CP 637 Firestop Mortar
   b. FS 657 FIRE BLOCK
   c. CP 620 Fire Foam
   d. CP 675T Firestop Board

N. Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

1. HILTI
   a. FS 657 FIRE BLOCK
   b. CP 675T Firestop Board

O. Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:

1. HILTI
   a. CP CFS-SP WB Joint Spray
   b. CP 601s Elastomeric Firestop Sealant
   c. CP 606 Flexible Firestop Sealant
   d. CP 604 Self-Leveling Firestop Sealant

P. For blank openings made in fire-rated wall or floor assemblies, where future penetration of pipes, conduits, or cables is expected, the following products are acceptable:

1. HILTI
   a. FS 657 FIRE BLOCK
   b. CP 658T Firestop Plug

Q. For data and communication penetrations in fire and smoke rated assemblies. (Similar products by other manufacturers that allows for ease of re-penetration without the use of sealants or caulking are acceptable.)

1. HILTI
   a. CP 653 2” Speed Sleeve
   b. CP 653 4” Speed Sleeve.

R. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.

S. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction joint assembly.

T. Identification Labels

1. Pressure-sensitive, self adhesive, preprinted vinyl labels with the following verbiage:
   b. Installing Contractor’s name, address and phone number.
   c. Date of installation.
   d. Fireblocking/Stopping product manufacturer’s name.
PART 3 - EXECUTION

3.01 PREPARATION

A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

1. Verify penetrations are properly sized and in suitable condition for application of materials.

2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.

3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.

4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

5. Do not proceed until unsatisfactory conditions have been corrected.

3.02 COORDINATION

A. Coordinate location and proper selection of cast-in-place Firestop Devices with trade responsible for the work. Ensure device is installed before placement of concrete.

B. Responsible trades to provide adequate spacing of field run pipes to allow for installation of cast-in-place firestop devices without interferences.

3.03 INSTALLATION

A. Regulatory Requirements: Install firestop materials in accordance with UL Fire Resistance Directory or Omega Point Laboratories Directory.

B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration and construction joint materials.

1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.

2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.

3. Protect materials from damage on surfaces subjected to traffic.

C. Identification: Install identification labels no greater than 6 feet from penetration or 6 feet on center on continuous firestopping applications.

3.04 FIELD QUALITY CONTROL

A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by applicable code authorities.

C. Inspection of through-penetration firestopping shall be performed in accordance with ASTM E 2174, “Standard Practice for On-Site Inspection of Installed Fire Stops” or other recognized standard.
D. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.

E. Manufacturer to inspect sealed penetrations for conformance with appropriate product data information for each contractor installing firestopping on site.

3.05 ADJUSTING AND CLEANING

A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION 07 84 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Interior colored sealants:
   1. Note: Sealant on materials to be painted will be installed after painting is completed and shall match paint color. A “sacrificial” backer rod shall be installed prior to painting to protect joints from paint over spray. This backer rod may be pushed into the joint or removed prior to installation of final backer rod and sealant.
   2. Interior joints around hollow metal, including joint between hollow metal and hard surface flooring.
   3. Miscellaneous joints where “sealants” or “caulk/caulking” is indicated on Drawings.

B. Sealant replacement:
   1. Removal of existing sealants and prepping of joints prior to placement of new sealants.

C. Related work specified in other sections:
   1. Sealant for firestopping – Section 07 84 00.
   2. Glazing – Section 08 80 00.
   3. Sealing at mechanical penetrations through rated walls – Division 21-25.

1.03 REFERENCES


1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

B. Product Data: Manufacturer’s data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods including joint design, surface preparation, and application instructions.
   4. Submit manufacturer’s test reports indicating test results of adhesion and/or compatibility testing of samples of substrates which either come in contact with or are in close proximity to sealants.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer’s full range of available colors or samples of custom color matches for Architect’s acceptance.
D. Samples of Warranty.

E. Manufactures approval of installer.

1.06 QUALITY ASSURANCE

A. Applicator Qualifications

1. Company specializing in performing work of this section with minimum three years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
2. Designate one individual as project foreman who shall be on site at all times during installation.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1. Store materials in a clean, dry area indoors in accordance with manufacturer’s instructions.
2. Store sealants within temperature range in accordance with manufacturer’s instructions.
4. Do not use materials after manufacturer’s use-before date.

1.08 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer’s absolute limits.

1. Do not apply sealants to surfaces that are wet, damp, or contain frost.
2. Do not apply sealants when air or surface temperature is below 40 degrees F.
3. Use caution when applying sealants when air or surface temperature is above 120 degrees F.

1.09 WARRANTY

A. Special Installer’s Warranty: Installer’s standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2: PRODUCTS

2.01 INTERIOR SEALANTS

A. Polyurethane Sealant: Multi-component, high-performance polyurethane sealant conforming to ASTM C 920, Type M, Grade NS, Class 25. Maximum VOC: 25 g/L.

1. Manufacturers/product:
   a. Pecora, Dynatrol II
   b. SIKA, SIKAFLEX 2-C
   c. BASF MaterSeal NP2

No. 42204.004  07 92 00-2  Sealants and Caulking
d. Tremco, Dymeric 240/240FC

2. Colors: Custom colors to match material or finish sealant occurs in.

2.02 ACCESSORIES

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3: EXECUTION

3.01 EXAMINATION

A. Inspect joints for compliance with requirements for joint configuration, installation tolerance, and other conditions affecting joint sealant performance. Correct unsatisfactory conditions before proceeding.

3.02 PREPARATION

A. Prepare joints in accordance with ASTM C 1193 and manufacturer’s instructions.

B. Clean out joints immediately before installing joint sealants (within 1 to 2 hours of sealant application), in accordance with joint sealant manufacturer's recommendations and the following requirements:

1. Remove from joint substrates foreign material which could interfere with adhesion of joint sealant, including paints other than permanent protective coating tested and approved for sealant adhesion and compatibility by sealant manufacturer, oil, grease, waterproofing, water repellants, water dirt, and frost.

2. Clean porous joint substrates using approved methods such as brushing, grinding, blast cleaning, mechanical abrading, and acid washing as appropriate, or a combination of these methods, to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form-release agents from concrete.

4. Clean metal and other nonporous substrates by using chemical cleaners or other means that neither are harmful to substrates nor leave residues capable of interfering with adhesion of joint sealants.

C. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to area of joint sealer bond; do not allow spillage or migration onto adjoining surfaces. Allow primer to dry before applying sealant.

D. Masking Tape: Use masking tape where required to prevent contamination of adjacent surfaces; remove tape immediately after tooling and before sealants begin to cure without disturbing seal.
3.03 EXISTING WORK
A. Mechanically remove existing sealants.
B. Clean joint surfaces of residual sealant and other contaminates capable of affecting sealant bond to joint surface by mechanical means.
C. Allow joint surfaces to dry before installing new sealant.

3.04 SEALANT INSTALLATION
D. Comply with joint sealant manufacturer's printed installation instructions.
E. Installation of Sealant Backings:
   1. Install joint filler to provide support of sealant during application and at position required to produce the cross-sectional shape and depth of installed sealant relative to joint width that allows optimum sealant movement capability.
      a. Do not leave gaps between ends of joint fillers.
      b. Do not stretch, twist, puncture, or tear joint fillers.
      c. Remove fillers which have become wet prior to sealant application and replace with dry materials.
   2. Install bond breaker tape when joint depth is to shallow to allow backer rod.
F. Installation of Sealant:
   1. Install sealants by proven techniques that result in direct contact with and full wetting of joint substrates by joint sealant, completely filling recesses provided and providing uniform cross-sectional shapes and depths relative to joint widths. Sealant depth to be ½ the width of the joint and 1/3 the width at the center, creating an hourglass shape. Maximum depth of caulk at center to be 3/8”. Air pockets or voids are not acceptable.
   2. Immediately after sealant application and prior to the skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agents which discolor sealants or adjacent surfaces or which are not approved by sealant manufacturer.

3.05 PROTECTION AND CLEANING
A. Protect joint sealers, during and after curing, from contamination or damage. Cut out and remove damaged or deteriorated sealers and replace with new materials.
B. Clean excess sealants or sealant smears adjacent to joints as work progresses.

3.06 FIELD QUALITY CONTROL
A. Perform adhesion tests on exterior sealant in accordance with manufacturer’s instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.
   1. Perform 5 tests for first 1,000 linear feet of applied exterior sealant and 1 test for each 1,000 feet of seal thereafter. If there is less than 1,000 feet, perform 1 test per floor per building elevation minimum.
   2. For sealant applied between dissimilar materials, test both sides of joint.
B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.
C. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

END OF SECTION 07 92 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes:
   1. Hollow metal doors.
   2. Hollow metal door frames with terminated (hospital) stops.
   3. Hollow metal borrowed light frames.
   4. Rated doors and frames as scheduled and/or noted on Drawings.
   5. Conduits and boxes in frames for powered hardware.
   6. Modifications to existing frames as noted on drawings or for hardware changes.
B. Related work specified in other sections:
   1. Finish hardware – Section 08 71 00.
   2. Glazing – Section 08 80 00.
   3. Painting – Section 09 91 00.

1.03 QUALITY ASSURANCE
A. Provide doors and frames complying with the SDI Standard 100-“Recommended Specifications Standard Steel Doors and Frames” and as herein specified.
B. Obtain hardware templates from hardware supplier (Section 08 71 00) and obtain necessary hardware for factory application.
C. Where noted on Door Schedule, provide nationally recognized testing agency label of proper classification. Label requirements take precedence over conflicting details. Advise the Architect of any conflict before fabricating work on that item is started.

1.04 SUBMITTALS
A. Submit in accordance with Section 01 33 00.
   1. Coordinate with any special conditions of anchorage. Submit door/opening schedule on shop drawings indicating relationship of door, number of room, number and function of door, such as Corridor A-13 to Lavatory A-14.
2. Shop Drawings: Include the following:
   a. Elevations of each door design.
   b. Details of doors, including vertical and horizontal edge details and metal thicknesses.
   c. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
   d. Locations of reinforcement and preparations for hardware.
   e. Details of each different wall opening condition.
   f. Details of anchorages, joints, field splices, and connections.
   g. Details of accessories.
   h. Details of molding, removable stops, and glazing.
   i. Detail of conduit and preparations for power, signal, and control systems.
   j. Rating of doors and frames as noted on door/opening schedule and/or Code Plan.

3. Submit documentation for UL 10C or other approved testing agency stating doors have passed UBC Standard 7-2.

1.06 PRODUCT PROTECTION

A. Deliver doors and frames in suitable crating or packaging to prevent damage in transit and storage.

B. Storage at jobsite:
   1. Store frames on plywood and block at least 4” above plywood, under waterproof cover.
   2. Store doors under cover in a dry area with doors set upright with ¼ inch spacers between doors. Keep doors at least 4” above ground.
   3. Do not store HM material in a manner that traps excess humidity.
   4. Materials that are rusted prior to installation may be rejected.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Approved Manufacturer(s): Steelcraft, Pioneer, Ceco, Curries.

B. Accompany any request for acceptance of alternative manufacturers by descriptive details or brochures demonstrating compliance with specifications, and sample frame corner.

2.02 MATERIALS

A. Steel: Commercial quality, level, cold rolled steel conforming to ASTM A366, free of scale and surface defects. Commercial quality hot rolled and pickled steel conforming to ASTM A569 may be used at contractor’s option for interior frames. Where noted, form frames of galvanized steel conforming to ASTM A526 or A527, A60 zinc coating. Gauges are as follows unless otherwise noted:
   1. Interior Frames: 16 gauge.
   2. Exterior Frames: 14 gauge, galvanized.
   3. Flush Doors: 16 gauge galvanized (exterior), 18 gauge (interior).
   4. Rough Bucks and Stiffeners: 12 gauge.
   5. Miscellaneous Trim: 16 gauge.
B. Rust-Inhibitive Primer

1. Manufacturer's standard rust inhibitive baked-on primer. Provide additional primer for touch-up.

2. Pretreat galvanized metal in accordance with paint manufacturer's recommendations.

2.03 FABRICATION

A. Make hardware mortises and reinforcements according to templates. Provide hinge, lock, door holder and closer hardware reinforcements. Mortise, drill tap for hardware; fabricate grooves, rabbets as necessary for weatherstripping, soundstripping.

B. Fabricate doors to a maximum tolerance of 1/16 inch from a straight edge when laid on face of door in any direction, including diagonal.

C. Attach proper testing agency's labels as indicated on the Drawings. Provide equal labeled frames for labeled doors. Frames with glazing in rated walls must conform to UBC Standard 7.4 (hose stream test). Provide intumescent fire and smoke material for fire rated openings as required by door and frame manufacturer to comply with UL 10C, UBC Test 7-2.

D. Clearances: Edge clearances shall be provided as follows:

1. Between doors and frame, at head and jambs - 1/8"

2. At door sills: where no threshold is used 5/8" maximum to finish floor surface
   where threshold is used 1/4" maximum between door and threshold
   where required for hardware operation as recommended by hardware manufacturer

3. Between meeting edges of pairs of doors - 1/8"

2.04 METAL FRAMES

A. Provide custom metal frames of the types and styles indicated on the drawings or schedules and complying with SDI 100 for materials and construction requirements.

B. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, as shown on the drawings. Provide thermally broken frames at exterior wall.

C. Miter corners on face of all frames, internally weld face and grind smooth exterior. Die coped frames at mullions and stops. Provide with floor anchors.

D. Provide one removable and one fixed stop at perimeter of openings for glazed frames. Removable stop on secure side.

E. Provide closed metal covers over all hardware cutouts to protect against mortar.

F. Provide integral channel frames, subframes and stiffeners to structure where indicated or required for fastening and stiffening frames.

G. In masonry walls, provide three (3) - 16 gauge corrugated, adjustable, slip type standard frame anchors up to 7'-6" height jamb; frames 7'-6" to 8'-0" - 4 anchors; frames over 8'-0" - 1 anchor for each 2' or fraction thereof in height. In labeled frames, anchors shall be non-removable.

H. Provide steel spreader temporarily attached to feet of both jambs for welded frames.
I. Provide three factory installed silencers on single door frames at strike jamb; four (two at each head) silencers on double door frames.

J. Hinge reinforcements to have 10 gauge straps welded directly above and below each hinge pocket.

K. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26.

2.05 **FLUSH HOLLOW METAL DOOR**

A. Provide custom metal doors for the types and styles indicated on the Drawings or schedules and complying with SDI 100 for materials and construction requirements. Fully insulate exterior doors.

B. Close top and bottom edges of all doors with a continuous recessed steel channel not less than 16 ga., full width spot welded to both faces. Provide an additional flush closing channel at top edge for exterior doors. Provide openings to bottom closure of exterior door to permit escape of moisture.

C. Edge profiles to be 1/8" bevel in 2".

D. Provide glass light openings as indicated complete with one fixed stop and one removable stop fastened with flat head Phillips screws not over 10 inches o.c.

E. For 60 minute and greater rated doors installed in enclosed stairways, conform to maximum transmitted temperature end point of 450° as specified in UBC Standard No. 43-2.

F. All doors to have minimum 16-gauge lock reinforcement and either continuous 14-gauge hinge rail or minimum 8-gauge plate hinge reinforcement.

G. All faced edge seams to be continuously wire welded, finished smooth.

2.06 **HARDWARE LOCATION**

A. Prepare for hardware at mounting heights and locations as recommended by the Builder's Hardware Manufacturing Association.

2.07 **HOLLOW METAL PANELS**

A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal frames.

2.08 **SHOP PAINTING**

A. Completely clean all frames by degreasing process, followed by one coat rust inhibitive primer equal to a salt spray test (5% solution) of 70 hours. Thoroughly prime all surfaces without runs, smears, or bare spots, and under and inside all removable stops.

B. Completely clean all doors of impurities and pressure sand to a smooth surface and correct all irregularities with metallic putty sanded smooth. Provide one (1) spray coat of primer, baked on. Thoroughly paint unexposed inside surfaces of exterior doors, fire doors, and other doors occurring in excessive moisture area.

C. Provide vinyl wash pre-treatment of galvanized steel as recommended by shop primer manufacturer.

D. Provide primer for field touch up of rusted areas, splices, connections, welds and abrasions.
2.09 MODIFICATIONS TO EXISTING HOLLOW METAL

A. Where modifications to existing doors or frames are required to accept new doors or hardware, neatly make modifications in field per hardware templates. Provide flush metal blank off plates, welded in place, ground smooth, filled with body putty, where existing hardware is removed. Or, provide new door or frame conforming to project requirements.

PART 3: EXECUTION

3.01 INSTALLATION

A. Prime-Coat Touchup: Prior to erection sand smooth rusted, damaged, connection points and welded areas of prime coat and apply touchup primer.

B. Securely fasten Work in place, without twists, warps, bulges or other unsatisfactory defacing of workmanship. Set plumb, level square to proper elevation true to line and eye. Set clips and other anchors with piston driven fasteners equal to Ramset or drilled-in anchors as approved. Fasten units and trim together with neat, uniform and tight joints.

C. As masonry is being laid fill jambs solid with mortar and provide accurately cut wood spreaders temporarily at mid-section of frames, install jamb anchors.

D. At steel columns and/or concrete surfaces, install sub-frame or rough bucks as specified. At steel columns use 5/16" diameter self-tapping metal screws and at concrete use expansion bolts of the same diameter. Install frame to sub-frame and/or rough buck with countersunk self-tapping metal screws. Fill screw holes with a suitable metallic filler, sand and prime.

E. Where field installed hardware is required, provide wood or other suitable filler to avoid drilling and tapping into mortar inside frames.

F. For all attachments including removable stops, use flat head self-tapping screws. Drill and tap in the field for surface mounted closers, brackets, rim exit devices, door holders, and other surface hardware. At horizontal exterior surfaces, set screws with neoprene gaskets or set with caulking compound under screw head and wipe clean.

G. All field splices to be welded and filled with body putty and ground smooth, no exposed screw heads will be accepted. Locate splices where shown on final reviewed shop drawings.

3.02 PROTECTION

A. Protect installed hollow metal work against damage from other construction.

B. Repair or replace all damaged work at no extra cost to Owner.

END OF SECTION 08 10 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes:
   1. Solid core flush wood doors.
   2. Rated doors as noted on schedule and/or Drawings.
   3. Factory finishing of wood doors.
   4. Factory fitting to frames (prefitting).
   5. Factory preparation for hardware (premachining).
B. Related sections:
   1. Metal doorframes: Section 08 10 00.
   2. Finish hardware: Section 08 71 00.
   3. Glazing: Section 08 80 00.

1.03 REFERENCES
A. Most current printing of the noted standards apply.
B. Window and Door Manufacturers Association (WDMA) Industry Standard: WDMA I.S.1A.
F. How to Store, Handle, Finish, Install and Maintain Wood Doors; National Wood Window and Door Association (NWWDA); undated.
G. Chicago Building Code.
1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

   1. Product Data: Submit door manufacturer's product data for each type of wood door, including details of core and edge construction, and trim for openings.

   2. Shop Drawings:
      a. Location and size of each door.
      b. Elevation of each kind of door.
      c. Details of construction.
      d. Location and extent of hardware blocking.
      e. Fire ratings of doors as noted on door/opening schedule and/or Code Plan.
      f. Requirements for factory finishing.
      g. Documentation for UL 10C or other approved testing agency stating doors have passed UBC Standard 7-2.

   3. Samples:
      a. Beads for glazed openings: Submit 6-inch-long sections of glazing beads for each material, type, and finish required.

1.05 QUALITY ASSURANCE

A. Quality Standards: Provide flush doors complying with the following standards:

   1. Manufacturer must be an approved WDMA Door Manufacturer in accordance with WDMA I.S.1A.

B. Fire-Rated Wood Doors:

   1. Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per NFPA 252.

   2. Acceptable testing and inspection agencies include:
      a. Underwriters Laboratories, Inc.
      b. Warnock Hersey International, Inc.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standard and recommendations of NWWDA I.S. 1, Appendix, "How to Store, Handle, Finish, Install, and Maintain Wood Doors," as well as with manufacturer's instructions.

   1. Package doors at factory prior to shipping, using manufacturer's standard method.

B. Identify each door with individual opening numbers using temporary, removable, or concealed markings.

   1. Correlate door identification with designation system used on shop drawings.
1.07 WARRANTIES

A. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, installer, and contractor, agreeing to repair or replace defective doors which warp (bow, cup, or twist), which show telegraphing of core construction in face veneers, or which do not conform to tolerance limitations of specified quality standards. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the contractor under the contract documents.

1. Include reinstallation which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.

2. Warranty shall be in effect during the following period of time after date of substantial completion:
   a. Solid core flush interior doors: Life of installation.

3. Submit per Section 01 78 23.

PART 2: PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Manufacturer:

1. Provide products complying with requirements of the contract documents and made by one of the following:
   a. Algoma Hardwoods, Inc.
   b. Marshfield DoorSystems Inc.
   c. Eggers Industries.
   d. VT Industries

B. Flush Doors: comply with requirements of WDMA I.S.1A.

C. Fire Rated Doors:

1. Construction: Manufacturer's standard core construction in accordance with testing agency requirements for fire rating indicated, and as specified herein.

2. Edges: Provide manufacturer's standard laminated edge (stile) construction for use with mortise hinges and for indicated fire resistance ratings.

3. Labels: Permanently affixed to hinge stile and in compliance with NFPA 80. For doors with continuous hinges or other hardware which may obscure the label install label at top edge of door.

2.02 SOLID CORE WOOD FACED DOORS

A. Solid Core Door (non-rated):

1. PC-5 WDMA Premium

3. Faces:
   a. Wood Veneer: Species and cut as selected by Architect from manufacturer’s full line of standard materials.

4. Construction: 5-ply Standard construction is per WDMA Extra Heavy Duty Performance Levels.

5. Core: Extra heavy duty wood based particleboard, PC. Meet WDMA performance criteria without additional blocking.

B. Solid Core Door (rated):
   1. FD-5 WDMA Premium
   2. Application: Labeled fire door.
   3. Faces and Construction: Same as non-rated door.
   4. Core: High-density mineral core laminated to both sides of 3/4” fire retardant plywood.
   5. Reinforcing for Hardware: Fire retardant treated top rail and lockblocks for secure anchorage of hardware, without thru bolts as noted in NWWDA I.S. I-A.
   6. For 60 minute and greater rated doors installed in interior exit stairways, ramp and exit passageways, conform to maximum transmitted temperature end point of 450° when tested in accordance with ASTM 252.
   7. Provide factory primed rated astragals or metal edges as required by listing agency.
   8. Provide intumescent fire and smoke material for fire rated openings as required by door and frame manufacturer to comply with testing requirements of ASTM 252/UL 10C.
      a. Positive Pressure Category “A” type doors required.
   9. Door assemblies installed in fire-rated corridor walls or smoke barrier walls shall meet IBC requirements for smoke and draft control as tested in accordance with UL 1784. These door assemblies shall be installed in accordance with NFPA 105.

2.03 GLAZING

A. Glazing Stops:
   1. Non-Rated and 20 minute
      a. Wood, of the same species/compatible with door species.
   2. Fire-Rated 45 minute or above, manufacturers options:
      a. Flush, wood veneer clad PVC, of same species/compatible to door facing.
      b. Veneer wrapped rolled steel, of same species/compatible to door facing.
      c. Manufacturer to verify compatibility of glazing system with positive pressure requirements.

2.04 FABRICATION

A. Openings: Cut, trim, and seal openings in doors at the factory.
B. Prefitting: Fabricate and trim doors to size at factory to conform to hollow metal frames as shown on approved frame shop drawings and floor finishes as indicated in the finish schedule.

C. Premachining: Make all mortises and cutouts required for hardware at the factory to conform to approved hardware schedules, hardware templates, and door frame shop drawings.

2.05 FACTORY FINISHING

A. Doors to be factory finished to meet or exceed WDMA I.S. 1A TR-6.

B. Transparent Finish:
   1. Type: Factory finish to be water-based stain and ultraviolet (UV) cured polyurethane sealer to comply with EPA Title 5 guidelines for Volatile Organic Compound (VOC) emissions limitations.
   2. Stain color/finishing: Standard or custom color/finish to match existing.
   5. Grade: Premium.

PART 3: EXECUTION

3.01 INSPECTION

A. Require installer to examine door frames after their installation, and doors prior to their hanging, for the following purposes:
   1. To verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
   2. To verify that doors are free of defects.

B. Obtain installer's written report listing conditions detrimental to compliance with requirements of this section.

C. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Condition doors to average prevailing humidity in installation area prior to hanging.

B. Hardware Installation: Section 08 71 00.

C. Install wood doors in accordance with manufacturer's instructions and referenced standards.
   1. Installation of the wood doors, and labeled wood doors shall comply with WDMA I.S.1A-04, Installation and NFPA 80.
   2. Dimensional tolerances for hardware cutouts, undercuts, meeting edges, heights and width shall comply with WDMA I.S.1A-04

D. Prefit Doors: Fit to frames and machine for hardware to whatever extent not previously worked at factory as required for fit and uniform clearance at each edge.
E. Shop-Finished Doors: Restore finish on edges of shop-finished doors before installation, if fitting or machining is required at the project site. Touch up any scratched doors to satisfaction of Architect prior to substantial completion or replace doors.

3.03 CLEANING AND ADJUSTMENT

A. Replace doors that are warped, twisted, show through or not true in plane and that do not follow the warranty.

B. Operation: Rehang or replace doors which do not swing or operate freely, as directed by the Architect.

C. Refinish or replace doors damaged during installation, as directed by the Architect.

D. Institute protective measures as recommended and accepted by door manufacturer to ensure that wood doors will be without damage or deterioration at time of substantial completion.

END OF SECTION 08 14 00
SECTION 08 31 00
ACCESS PANELS

PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes: Wall and ceiling access and fire rated panels as noted on Drawings and specified herein.
B. Provide and install one additional access panel for each type over quantities shown on drawings.
C. Related work specified elsewhere:
   1. Openings in gypsum board - Section 09 21 16.

1.03 SUBMITTALS
A. Submit in accordance with Section 01 33 00.
   1. Shop Drawings

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Package, handle, deliver and store at the job site in a manner that will avoid damage.

PART 2: PRODUCTS

2.01 MANUFACTURERS
A. Nystrom Products are specified, comparable products by others who meet the specification are acceptable.

2.02 UNITS
A. Access panels in dry wall.
   1. Size: 20” x 20”
   2. Flange: Drywall bead
   3. Door: 14 gauge cold rolled galvanized steel
   4. Frame: 16 gauge cold rolled galvanized steel
   5. Pan depth: ½”
   6. Hinge; Concealed spring button. Concealed pin at fire rated.
   8. Finish: Gray powdered primer
PART 3: EXECUTION

3.01 INSPECTION

A. Verify that openings are correctly dimensioned to receive doors.

3.02 INSTALLATION

A. Install in accordance with manufacturer’s current printed recommendations, in locations indicated on architectural reflected ceiling plans and architectural floor plans.

B. Coordinate exact locations to access mechanical/electrical equipment.

C. Attach double layer of gypsum board to recessed ceiling panels in gypsum board ceilings and a single layer of gypsum board and a layer of acoustical tile in areas with acoustical tile glued to gypsum board.

3.03 ADJUST AND CLEAN

A. Adjust latching mechanism to operate smoothly.

B. Leave work area clean and free of debris.

END OF SECTION 08 31 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:
   1. Motorized Coiling Counter Shutters, identified as “MCSF” on drawings.

B. Related work specified in other sections:
   1. Doorframe - Section 05 50 00.
   2. Painting - Section 09 91 00.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

   1. Shop Drawings
      a. Product Data
      b. Shop Drawings: Show field verified dimensions, components, details, and connections to other construction.
      c. Field verify existing or coordinate with proposed electrical feeder voltage/phase and adjust submittal so motors are compatible.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Package, handle, deliver and store at the job site in a manner that will avoid damage or deformation.

PART 2: PRODUCTS

2.01 MANUFACTURER


B. Products by other manufacturers that meet the requirements of the specification are acceptable.
2.02 COUNTER SHUTTER –FACE OF WALL (CSF) (MCSF)

A. Model ESC10 (non-rated) or ERC10 (rated), face of wall mounting.

1. Size as noted on door schedule. Scheduled size is for finished opening and may not account for additional width and height required to conceal guides and hood. Refer to information provided on details to size shutter.

2. Fire Rating: As noted on door schedule.

3. Construction:
   a. Curtain:
      1) Slats: No. 1F interlocked flat faced slats 1 ½ inches x ½ inch deep 22 gauge ASTM A 653, Commercial Quality, galvanized steel with plain steel bottom bar, and vinyl astragal.
      2) Finish of Slats and Bottom Bar: Baked-on polyester powder coat, minimum 2.5 mils DFT.
         a) Color: As selected by Architect from manufacturer’s full line of available colors.
   b. Guides:
      1) Hot dipped galvanized steel: 12 gauge formed shapes.
      2) Finish: Same as curtain.
   c. Counterbalanced Shaft Assembly
      1) Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot of width.
      2) Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs. Provide wheel for applying and adjusting spring torque.
   d. Brackets: Fabricate from reinforced steel plate with bearings at rotating support points to support counterbalanced shaft assembly and form end closures.
      1) Finish: ASTM A 123, Grade 85 zinc coating, hot dip galvanized after fabrication.
   e. Hood: 24 gauge galvanized steel with reinforced top and bottom edges. Provide minimum ¼ inch galvanized steel intermediate support brackets as required to prevent excessive sag.

4. Operation: Motorized, rated.
   a. M100 Series Motor Operated: Model FS, UL listed and FM approved, NEMA 1 enclosure rating, ½ horsepower 115V single phase electrical power.
      1) Provide open drop-proof motor, removable without affecting setting of limit switches; UL listed thermal overload protection; solenoid brake; planetary reduction gearing and rotary limit switches; transformer with 24 V control secondary; and all integral electrical components prewired to terminal blocks.
      2) Fire Activation:
         a) Automatic closure shall be activated by coiling shutter manufacturer provided local photoelectric smoke/heat detector. Doors shall not require a releasing device when activated by an alarm signal.
b) Doors shall maintain an average closing speed of not more than 9” per second during automatic closing. When automatic closure is activated, electric sensing edge and push button are inoperable.

c) Doors shall be fail-safe and close upon power failure.

d) Resetting of spring tension or mechanical dropouts shall not be required. Upon restoration of power, replacement of fusible link or clearing of the alarm signal, doors shall immediately reset by opening with the push button.

PART 3: EXECUTION

3.01 INSPECTION

A. Verify that openings are prepared with headers level, jambs plumb, floor levels without projection, and are correctly dimensioned to receive doors.

B. Coordinate with installers of finish materials such as gypsum board and acoustic ceilings, to insure proper support, clearances and access to door operators and hardware.

C. Coordinate wiring and controls with Division 26.

3.02 INSTALLATION

A. Install per approved shop drawings, with all necessary hardware, anchors, inserts, hangers, and supports.

B. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.03 FIELD QUALITY CONTROL

A. Site Test: Test rated fire doors for normal operation and automatic closing. Coordinate with authorities having jurisdiction to witness and approve test.

3.04 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.

B. Remove surplus materials and debris from the site.

3.05 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner’s maintenance personnel to adjust, operate, and maintain overhead coiling doors. Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 08 33 00
SECTION 08 42 43
INTENSIVE CARE UNIT/Critical Care Unit (ICU/CCU) ENTRANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY
A. Section includes manually operated sliding and swinging intensive care unit/critical care unit (ICU/CCU) entrances and all associated hardware for individual special-care rooms as shown on Drawings.
B. Related Requirements:
   1. Section 06 10 00 “Rough Carpentry” for blocking and other carpentry associated with installation.
   2. Section 07 92 00 “Sealant and Caulking.”

1.03 COORDINATION
A. Templates: Distribute for doors, frames, and other work specified to be factory prepared for installing ICU/CCU entrances.

1.04 PREINSTALLATION MEETINGS
A. Preinstallation Conference: Conduct conference at the project site.

1.05 ACTION SUBMITTALS
A. Product Data: For each configuration of ICU/CCU entrance indicated.
   1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
B. Shop Drawings: For each ICU/CCU installation.
   1. Include plans, elevations, sections, hardware mounting heights, and attachment details.
C. Samples for Initial Selection: For units with factory-applied color and metal-cladding finishes.
D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranties: For manufacturer's warranties.

1.07 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.08 FIELD CONDITIONS

A. Field Measurements: Verify actual dimensions of openings to receive ICU/CCU entrances by field measurements before fabrication.

1.09 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of ICU/CCU entrances that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including, but not limited to, excessive deflection.
   b. Faulty operation of hardware.
   c. Deterioration of metals, metal finishes, and other materials beyond normal use.

2. Warranty Period: Two (2) years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer agrees to repair finishes or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS, GENERAL

A. Products by Besam Entrance Solutions, Horton Automatics, Stanley Access Technologies or Record-USA are acceptable, subject to compliance with requirements. Source products from single manufacturers.
2.02 PERFORMANCE REQUIREMENTS

A. Opening Force: Not more than 5 lbf to fully open door.

B. Air Leakage: Entrance assemblies for pressurized rooms shall be listed and labeled for smoke and draft control by qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and having maximum air leakage according to NFPA 105 unless otherwise indicated.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.03 SLIDING ICU/CCU ENTRANCE ASSEMBLIES

A. General: Provide manufacturer's standard factory-glazed ICU/CCU entrances including door leaves, sidelites, framing, headers, carrier assemblies, roller tracks, and accessories required for a complete installation as indicated.

B. Breakaway Hardware: Release hardware that allows indicated panels to swing out in direction of egress to full 90 degrees from closed door position.

1. Maximum Force to Open Panel: 50 lbf

C. Sliding ICU/CCU Entrances (ICU-2):

1. Performance: Pressurized-entrance assembly.
2. Configuration: Single-telescoping three-panel door, with two operable leaves and one sidelite; with breakaway hardware for sliding leaves and sidelite.
4. Floor Track Configuration: No track across sliding-door opening and at sidelites (trackless).
5. Stile Design: Narrow stile; 2-1/8-inch nominal width.
6. Rail Design: 3-1/2-inch nominal height.
7. Muntin Bars: None.
11. Finish: Finish framing, door(s), sidelite(s), and header with Class I, color anodic finish.

   a. Color: As selected by Architect from full range of industry colors and color densities.

2.04 SWINGING ICU/CCU ENTRANCE ASSEMBLIES

A. General: Provide manufacturer's standard factory-glazed ICU/CCU entrances including door leaves, framing, and accessories required for a complete installation as indicated.

B. Swinging ICU/CCU Entrances (ICU-1):

1. Performance: Pressurized-entrance assembly.
2. Configuration: Single panel.
5. Top Rail Design: 3-1/2-inch nominal height.
7. Muntin Bars: None.
11. Finish: Finish framing and door(s) with Class I, color anodic finish.
   a. Color: As selected by Architect from full range of industry colors and color densities.

2.05 COMPONENTS

A. Framing Members: Extruded aluminum, minimum 0.125 inch thick and reinforced as required to support imposed loads.
   1. Nominal Size: 1-3/4 by 4-1/2 inches.
   2. Extruded Glazing Stops and Applied Trim: Minimum 0.062-inch wall thickness.

B. Stile and Rail Doors: 1-3/4-inch-thick glazed doors with minimum 0.125-inch-thick, extruded-aluminum tubular stile and rail members. Mechanically fasten corners with reinforcing brackets that are welded, or incorporate concealed tie rods that span full length of top and bottom rails.
   1. Glazing Stops and Gaskets: Snap-on, extruded-aluminum stops and preformed gaskets for glazing indicated.
   2. Muntin Bars: Horizontal tubular rail member for each door; match stile design.

C. Sidelites: 1-3/4-inch-deep sidelites with minimum 0.125-inch-thick, extruded-aluminum tubular stile and rail members matching door design and finish.
   1. Glazing Stops and Gaskets: Same materials and design as for stile and rail door.
   2. Muntin Bars: Horizontal tubular rail member for each sidelite; match stile design.

D. Glazing: As specified in Section 08 80 00 "Glazing."

E. Miniblind Glazing: ASTM E 2190.
   1. Glass: ASTM C 1036, Type 1, Class 1, q3.
      a. Tint: Clear.
   2. Integral Miniblinds: Manufacturer's standard, horizontal louver blinds with aluminum slats and polyester-fiber cords; located in space between glass lites and operated by hardware located on inside face of glass panel.
      a. Operation: Tilt, raising, and lowering.
      b. Color: As selected by Architect from manufacturer's full range.

F. Headers: Fabricated from minimum 0.125-inch-thick extruded aluminum, and extending full width of ICU/CCU entrance units to conceal carrier assemblies and roller tracks. Provide hinged or removable access panels for service and adjustment. Secure panels to prevent unauthorized access.
   1. Capacity: Capable of supporting doors up to 100 lb per leaf over spans up to 14 feet without intermediate supports.
2. Provide sag rods for spans exceeding 14 feet.

G. Carrier Assemblies and Overhead Roller Tracks: Assembly that allows vertical adjustment; consisting of nylon- or delrin-covered, ball-bearing-center steel wheels operating on a continuous roller track or of ball-bearing-center steel wheels operating on a nylon- or delrin-covered, continuous roller track. Support doors from carrier assembly by cantilever and pivot assembly. Provide minimum of two ball-bearing roller wheels and two antirise rollers for each active leaf.

H. Brackets and Reinforcements: High-strength aluminum with nonstaining, nonferrous shims for aligning system components.

I. Fasteners and Accessories: Corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

2.06 HARDWARE

A. General: Provide units in sizes and types recommended by ICU/CCU entrance and hardware manufacturers for entrances and uses indicated. Finish exposed parts to match door finish.

B. Limit Arm: Provide to control doors and panels in the swing mode.

C. Pulls: Recessed units on both sides of each operable door and surface-mounted, D-shaped pull for each swing-out panel.

D. Manual Flush Bolts: BHMA A156.16, Grade 1, edge mortised, lever-extension type; located at bottom of each swing-out sidelite.

E. Deadlocks: Operated by exterior cylinder and interior thumb turn.
   1. Deadbolts: Laminated-steel hook, mortise type, BHMA A156.5, Grade 1.
   2. Cylinders: As specified in Section 08 71 00 "Door Hardware."
      a. Keying: Integrate into building master key system, and key all cylinders alike.
      b. Keys: Three for each cylinder.

F. Weather Stripping: Replaceable components.
   1. Compression Type: ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
   2. Sliding Type: AAMA 701/702, wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

G. Weather Sweeps: Nylon brush sweep mounted to underside of door bottom.

2.07 FABRICATION

A. General: Factory fabricate ICU/CCU entrance components to designs, sizes, and thicknesses indicated and to comply with indicated standards.
   1. Fabricate aluminum components before finishing.
   2. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
3. Use concealed fasteners to greatest extent possible. Where exposed fasteners are required, use countersunk Phillips flat-head machine screws, finished to match framing.
   a. Where fasteners are subject to loosening or turning out from structural movements or vibration, use self-locking devices.
   b. Reinforce members as required to receive fastener threads.

4. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

B. Framing: Provide ICU/CCU entrances as prefabricated assemblies. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to Project site.

   1. Fabricate tubular and channel frame assemblies with welded or mechanical joints. Provide subframes and reinforcement as required for a complete system to support required loads.
   2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
   3. Form profiles that are straight and free of defects or deformations.
   4. Provide components with concealed fasteners and anchor and connection devices.
   5. Fabricate components with accurately fitted joints, with ends coped or mitered to produce hairline joints free of burrs and distortion.
   6. Provide anchorage and alignment brackets for concealed support of assembly from the building structure.

C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

D. Metal Cladding: Factory-fabricated and -installed metal cladding, completely covering all visible surfaces as part of prefabricated entrance assembly before shipment to Project site.

   1. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
   2. Form profiles that are sharp, straight, and free of defects or deformations.
   3. Provide components with concealed fasteners and anchor and connection devices.
   4. Fabricate components with accurately fitted joints, with ends coped or mitered to produce hairline joints free of burrs and distortion.

E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated, according to GANA's "Glazing Manual."

F. Factory Glazing: Install miniblind glazing at the factory.

G. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site. Cut, drill, and tap for factory-installed hardware before applying finishes.

   1. Provide sliding weather stripping, mortised into door, at perimeter of sliding surfaces and breakaway sidelites.

H. Electrical Grounding: Fabricate ICU/CCU entrances to be internally grounded, complying with requirements of authorities having jurisdiction.

2.08 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

   1. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
2. Sheet and Plate: ASTM B 209.

B. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, stretcher-leveled standard of flatness, in manufacturer's standard thickness.

C. Brass Sheet: ASTM B 36/B 36M, Alloy UNS No. C26000 (cartridge brass, 70 percent copper), in manufacturer's standard thickness.

D. Bronze Sheet: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper) or Alloy UNS No. C23000 (red brass, 85 percent copper), in manufacturer's standard thickness.

E. Sealants and Joint Fillers: As specified in Section 07 92 00 "Joint Sealants."

F. Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout complying with ASTM C 1107/C 1107M; of consistency suitable for application.

G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.09 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM/NOMMA's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.

C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.10 ALUMINUM FINISHES

A. Color Anodic Finish: AAMA 611, [AA-M12C22A42/A44, Class I, 0.018 mm] [AA-M12C22A32/A34, Class II, 0.010 mm] or thicker.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of the Work.

B. Examine roughing-in for grounding systems to verify actual locations of electrical connections before automatic entrance installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install automatic entrances according to manufacturer's written instructions.
1. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.
2. Where aluminum contacts dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
3. Where aluminum contacts concrete or masonry, protect against corrosion by painting contact surfaces with bituminous coating.

B. Install ICU/CCU entrances plumb, true in alignment with established lines and grades, and without warp or rack of framing members and doors. Anchor securely in place.

1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
3. Level recesses for recessed floor tracks using shrinkage-resistant grout.
4. Air Leakage: Install entrance assemblies for [smoke-control] [and] [pressurized rooms] according to NFPA 105 and as indicated.

C. Field Glazing: Install glazing as specified in [Section 08 80 00 "Glazing."] [Section 08 88 53 "Security Glazing."] [Section 08801 "Security Glazing."]

D. Sealants: Comply with requirements in Section 07 92 00 "Joint Sealants" for installing sealants, fillers, and gaskets.

1. Set framing members, floor tracks, and flashings in full sealant bed.
2. Seal perimeter of framing members with sealant.

E. Grounding: Connect ICU/CCU entrance, electrical grounding systems to building grounding system as specified in Section 26 05 26 "Grounding and Bonding for Electrical Systems."

3.03 ADJUSTING

A. Adjust operating hardware and moving parts to function smoothly; lubricate as recommended by manufacturer.

B. Adjust force to open door panels.

C. Test grounding system for compliance with requirements of authorities having jurisdiction.

D. Adjust smoke-control and pressurized-entrance doors for tight closure.

E. Test and adjust miniblinds to operate properly.

3.04 CLEANING AND PROTECTION

A. Clean glass and metal surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish.

B. Comply with requirements in Section 08 80 00 "Glazing" for cleaning and protecting glass.

END OF SECTION 08 42 43
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. This Section includes the furnishing and installing of all finish hardware material specified herein, listed in the hardware schedule, or required by the Drawings.

B. Cylinders for:
   1. Intensive Care Unit Entrances – Section 08 42 43.
   2. Electrical switches as required by Divisions 26-28.

C. Items of hardware include:
   1. Finish hardware

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Divisions 6 - Cabinet Hardware.

B. Section 08 10 00 - Hollow Metal Doors and Frames.

C. Section 08 14 00 - Wood Doors.

D. Division 10 - Toilet Partitions: Hardware.

F. Division 28 - Electromagnetic Holders.

1.04 REFERENCES

A. Builders' Hardware Manufacturers Assoc., Inc. (BHMA), 60 E. 42nd St., New York, NY 10017.
   1. Recommended locations for builders' hardware.

B. American National Standards Institute, Inc. (ANSI), 1430 Broadway, New York, NY 10018.
   1. A115.2 - Specifications for standard steel door and frame preparations for bored cylindrical locks for 1-3/8" and 1-3/4" doors.

C. National Fire Protection Association, Inc. (NFPA), Battery March Park, Quincy, MA 02269.
   1. NFPA 80 - Standard for fire doors and windows.
   2. NFPA 101 - Code for safety to life from fire in buildings and structures.
D. Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062.

E. Builders' Hardware Manufacturers Assoc., Inc. (BHMA), 60 E. 42nd Street, New York, NY 10017.
   1. Recommended locations for builders’ hardware.

   1. Include State amendments modifying model codes in jurisdiction where project is constructed.

1.05 QUALITY ASSURANCE

A. Except where specified in the hardware schedule, furnish products of only one manufacturer for each type of hardware.

B. Supplier: Company specializing in the builders’ hardware industry.

C. Provide hardware for fire-rated openings conforming to UBC Standard 7-2.


1.06 REGULATORY REQUIREMENTS

A. Furnish hardware listed by UL testing agency for all rated openings in conformance with requirements for the class of opening scheduled.

B. Rating requirements have precedence over this specification where conflict exists.

C. Furnish and install hardware that is in compliance with American with Disabilities Act of 1990 (ADA) technical standards, and current State Building Code.

1.07 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

   1. Schedules

      a. Immediately after award of the hardware contract, submit a detailed, vertical type hardware schedule and cut sheets for each type of hardware for approval. On existing buildings field verify existing swings and functions prior to submitting schedule.

      b. Itemize hardware in the sequence and format established by this specification.

         1. List and describe each opening separately; include door number, room designations, degree of swing, and hand.

         2. List related details; include dimensions, door and frame material, and other conditions affecting hardware.

         3. List all hardware items; include manufacturer's name, quantity, product name, catalog number, size, finish, attachments, and related details where applicable.

      c. Submit manufactures cut sheets on each type of hardware proposed.
d. Resubmit the corrected schedule when required.

e. Determine keying requirements by meeting with the Owner coordinated through the Architect, and submit a detailed keying schedule for review; resubmit the corrected schedule when required.

3. Samples: Submit samples of hardware items as may be required by the Architect; identify each sample and indicate the location of subsequent installation in the project.

4. Templates: Furnish a copy of the approved hardware schedule and all pertinent templates or template information to each fabricator of material factory-prepared for the installation of hardware.

5. Include documentation for UL 10C or other approved testing agency stating hardware has passed UBC Standard 7-2.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver hardware to the job site in the manufacturer's original containers that have been marked to correspond with the approved hardware schedule for installation location.

B. Store hardware in dry surroundings and protect against loss and damage.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS/MATERIALS

A. The following is from the Owner’s building standards for door hardware:

<table>
<thead>
<tr>
<th>MANUFACTURERS LIST</th>
<th>Item</th>
<th>Item</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butt Hinges</td>
<td>McKinney</td>
<td>McKinney</td>
<td>Stanley</td>
</tr>
<tr>
<td>Continuous Hinges</td>
<td>Markar</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Pivots Sets</td>
<td>Rixson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor Closers</td>
<td>Not Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flush Bolts</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Door Coordinators</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Key System</td>
<td>Best</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Key System – secondary Pharmacy</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lockets – Mortise</td>
<td>Sargent 8200 Series</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Locksets – Cylindrical</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Latches</td>
<td>Sargent ALP</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Exit Devices</td>
<td>Sargent 80 Series</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Door Closers</td>
<td>Sargent 281 Series</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Life Safety Door Closers</td>
<td>Sargent</td>
<td>Norton</td>
<td></td>
</tr>
<tr>
<td>Operators – High Energy</td>
<td>Besam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operators – Low Energy</td>
<td>Besam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Push Plates and Pulls</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Protection Plates</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Edge Guards</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Misc. Door Protection</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Frame Protection</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Wall and Floor Stops</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Overhead Stops/holders</td>
<td>Rixson</td>
<td>Sargent</td>
<td></td>
</tr>
<tr>
<td>Weather-stripping products</td>
<td>Penko</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Coat Hooks</td>
<td>Rockwood</td>
<td>McKinney</td>
<td></td>
</tr>
<tr>
<td>Electro-magnetic locks</td>
<td>Securitron</td>
<td>Locknetics</td>
<td></td>
</tr>
<tr>
<td>Magnetic Holders</td>
<td>Rixson</td>
<td>No Substitution</td>
<td></td>
</tr>
<tr>
<td>Stand alone Access Control</td>
<td>Best Access V</td>
<td>Sargent Profile</td>
<td></td>
</tr>
<tr>
<td>Network Access Control</td>
<td>Consult Facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric Strike</td>
<td>High Tower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>Securitron</td>
<td>Sargent</td>
<td></td>
</tr>
</tbody>
</table>

B. Hinges

1. Butt hinges:
   a) Provide three (3) hinges for doors up to 90” high. Add one hinge for every 30” of additional door height.
   b) Interior doors up to 36” wide – McKinney T4A3786 (Concealed Bearing?) 5.0 x 4.5 ball bearing, steel base hinge
   c) Exterior doors up to 36” wide – McKinney T4A3386 (Concealed Bearing?)5.0 x 4.5 x NRP, ball bearing, stainless steel base, non removable pin hinge
   d) Interior doors over 36” wide – McKinney or T4A3786 (Concealed Bearing?)5.0 x 4.5 heavy weight ball bearing steel base hinge
   e) X-ray Room Doors – McKinney T4A3786 8” x 6” Heavy Weight ball bearing steel base hinge.
   f) Exterior doors or interior high use doors or doors prone to abuse – continuous hinge are an acceptable option but not required.
   g) Electric transfer hinges – coordinate number of wires required per application.

2. Continuous hinges:
   a) Interior doors – Markar, McKinney - Pin and Barrel
   b) Exterior doors – Markar, McKinney – Pin and Barrel
   c) Aluminum Geared hinges are NOT allowed.

3. When hinges are specified on the hardware schedule, furnish:
   a. Interior openings through 36 inches wide and 60 inches high without a door closer: Two (2) standard-weight, plain bearing hinges per leaf.
   b. Interior openings through 36 inches wide and 90 inches high without a door closer: Three (3) standard-weight, plain bearing hinges per leaf.
   c. Interior openings through 36 inches wide and 60 inches high with a door closer: Two (2) standard-weight, ball bearing hinges per leaf.
d. Interior openings through 36 inches wide and 90 inches high with a door closer: Three (3) standard-weight, ball bearing hinges per leaf.

e. Interior openings over 36 inches in width and/or 90 inches in height: One (1) continuous hinge per leaf.

f. Exterior hollow metal or stainless steel openings: One (1) continuous hinge per leaf.

g. Exterior aluminum openings through 36 inch wide and 90 inches high: Four (4) heavyweight ball bearing hinges per leaf.

h. Exterior aluminum openings over 36 inches wide in width and/or 90 inches in height: One (1) continuous hinge per leaf.

C. Pivot sets:

1. Not allowed.

D. Floor closers:

1. Not allowed.

E. Flush bolts and associated accessories:


2. Dustproof strikes – Rockwood, McKinney


4. Automatic flush bolts – Hollow metal doors – Rockwood, McKinney

5. Door coordinators – Rockwood, McKinney

F. Locksets:

1. Mortise: 8200 Series

   Common Mortise lockset functions: Provide all keyed locks with 70- prefix for small format IC Core.

   Passage 8215
   Apt restroom/Public restroom 8216
   Dormity Exit 8225
   Storeroom Double Cylinder 8226
   Privacy 8265
   Office 8255
   Classroom 8237
   Storeroom no Outside trim 8206 – with 90 pull by Rockwood
   Storeroom 8204
   Fail Safe 8270
   Fail Secure 8271
   Keypad Locks 8278
   Single Dummy 8293

H. Hospital latches:
   1. Sargent – HP Series - Down/Down mounting; engraved “NO”; 5” backset
      
      Passage  HPU15 ALP  
      Privacy  HPU65 ALP

I. Exit Devices: Sargent 80 Series - Provide all keyed exits with 70- prefix for small format IC Core.
   1. Interior pairs of doors: PP8600 x PR8600 Devices
   2. Exterior single doors: Rim type

I. Door Closers: Sargent 281 Series
   1. Interior doors – 281-O (pull side), 351-P9 (push side)
   2. Exterior doors – 281-P10 with Drop bracket to allow for OH Stop

J. Electromechanical Door Closers: Use only when Wall magnet.

K. Automatic operators:
   1. Low energy – Besam
   2. High energy - Besam

L. Push plates, pull plates and door protection plates:
   1. Push plates – Rockwood - 70F (8”x 16”)
   2. Pull plates – Rockwood – 126 x 70C
      a) Kick plates – 16“ high x 2” less door width for single doors and 1” less door width for pairs of doors
      b) Mop plates – 4” high x 1” less door width
      c) Armor plates – coordinate with other hardware x 2” less door width for single doors and 1” less door width for pairs of doors
      d) Stretcher plates – 6” high x width required
   4. Edge guards – Match armor plate height. Provide at hinge edge of all doors where abuse by wheel chairs or hospital equipment is likely AND all lock/strike edge of wood doors AND where exit devices are required.
   5. Exit device push bar protection – provide where necessary to reduce damage to exit devices due to cart traffic or other equipment passage through opening.
   6. Inactive leaf of pairs provide – Sugatsune AG-A405

M. Wall and Floor Stops:
   1. Wall stop – Rockwood - 400/403 use only on masonry walls and new construction with proper blocking.
   2. Floor stop – Rockwood – 441CU- use in existing hospital where there is no wall blocking.
N. Overhead stops and holders:
   1. Rixson 9 Series (surface) – Heavy Duty
   2. Rixson 10 Series (surface) - Medium Duty

O. Weather-stripping and thresholds: Pemko Manufacturing
   1. Thresholds – 171A (1/2” high saddle), 271A (1/4” high saddle), 2005AV (integral stop/seal).
   2. Weather-strip – 303AS.
   3. Door sweep – 315CN or 18061CNB (brush type).
   4. Smoke/sound gasketing – S88*
   5. Rain drip cap – 346C
   6. Exterior Doors provide Stainless steel anti skid ½” high thermally broken.

P. Electrified hardware:
   1. General – All electrified hinges, lock sets, exit devices and electric strikes to be provided with “ElectroLynx” option.
   2. Electric strikes – Folger Adam 300 series for use with exit devices and 700 series for use with locksets. HES 8000 Series
   4. Stand alone access control – Best Access V, Sargent Profile
   5. Networked access control system – Consult Facility
   6. Electro-magnetic locks – Securitron – Double egress Securitron IMXDA or Locknetics
   7. Power transfer – Hinge preferred
   8. Power supplies – Provide from same manufacturer of product being electrified.
   9. Touchless Wall switch – Norton, or BEA.
   10. Voltage for electrified hardware: 24 VDC
   11. ElectroLynx - All electrified hinges, pivots, lock sets, exit devices and electric strikes to be provided with standard “Molex” connectors similar to ASSA ABLOY “ElectroLynx” option.

Q. Miscellaneous hardware:
   2. Coat/Robe Hooks
2.02 ACCESSORIES AND ATTACHMENTS

A. Furnish all necessary hardware accessories such as wood or machine screws, bolts, nuts, anchors, toggle bolts, and other fasteners, each of the type, size, material and finish for its intended purpose and each according to the material to which the hardware is being applied.

2.03 FINISH AND BASE METALS

A. Finish and Base Metal:

1. Locksets – 626/US26D/Satin Chrome
2. Exit devices – 630/US32D/Satin Stainless Steel
3. Door closers – 689/US28/EN/Painted Alum
4. Other hardware – to match lockset finish

2.04 KEYING

A. Key System Requirements

1. Must tie into existing Stanley Best Small format IC core cylinders.
2. Contact Owner’s locksmith (Jim Cain) for keying information; Phone: 312-864-2823
   a. Keying shall be coordinated with Owner.
3. Small format IC Core
4. Bitting list maintained by - factory and facility.
5. Furnish cylinders with plastic temporary cores for use during construction.
6. Quantity of keys required for new construction
   a) Change Keys - 2 per lock
   b) Master Keys - 0
   c) Grand Master keys - 0
   d) Emergency keys - 0
   e) Permanent Control Keys - 0
   f) Construction Master Keys - 0
   g) Construction Control Keys - 0

PART 3: EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's recommendations / instructions, and the adopted Building Code.
B. Install hardware on UL labeled openings in accordance with manufacturer's requirements, so as to maintain the label.

C. Install hardware mountable weatherstripping continuous throughout opening prior to installation of other hardware.

D. Mortise and cut to close tolerance and conceal evidence of cutting in the finished work.

E. Remove, cover or protect hardware after fitting until paint or other finish is applied; permanently install hardware after finishing operations are complete.

F. Install closers on the room side of corridor doors, stair side of stairways, and interior side of exterior doors.

G. Mounting heights:
   1. Install hardware at mounting heights conforming to the recommended mounting locations of the Builders' Hardware Manufacturing Association, and the adopted Building Code.
   2. Install wall stops WS11X, wall holders WS20X, and magnetic holders to strike near top of doors, but not more than 78" from the finished floor line; install wall stops WS407CVX to engage knobs, levers or pulls.

H. Install pulls at 40" to top of pull and push bars at 36" above finished floor. Off set pull on exterior door rails to allow access to cylinders.

I. Deliver to the Owner one complete set of installation and adjustment instructions, and tools as furnished with the hardware.

J. Before hardware installation, general contractor/construction manager shall coordinate a hardware installation seminar to be conducted on the rough-in of electrical boxes for hardware and the installation of hardware, specifically of locksets, closers/accessibility closers, exit devices, hardware, mountable weatherstrip and overhead stops. Manufacturer's representative of the above products to present seminar. Seminar to be held at the job site and attended by installers of hardware (including low voltage hardware) for aluminum, hollow metal and wood doors. Training to include use of installation manuals, hardware schedule, templates and physical product samples. The architect needs to be informed of the meeting and contractor is to distribute meeting minutes on issues raised at seminar.

K. Install per door and/or frame manufacturer's supplemental "S" label instructions on fire rated openings.

3.02 ADJUSTING AND CLEANING

A. At final completion, adjust and test all hardware for function, performance, building code compliance and leave in good operating condition. Panic Hardware device manufacturer’s representative to inspect panic hardware installation and provide a report to contractor and architect on items that need correction.

B. Clean all hardware to restore the original finish.

3.03 PROTECTION

A. Protect the finished installation until acceptance of the project.

B. Provide final adjustment or cleaning where necessary.
3.04 DEMONSTRATION

A. Engage a factory-authorized service representative(s) to train Owner’s maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. At a minimum, provide the following training:

1. Miscellaneous hardware 1 hour
2. Exit devices 2 hours
3. Locks 1 hour
4. Closers 1 hour
5. Electromagnetic locks 2 hours
6. Accessibility closers 2 hours

Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 08 71 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Interior Glazing
   a. Safety glass in locations indentified in Part 3.
   b. Clear glass in HM doors and frames.
   c. Clear glass in wood doors.
   d. Glazing for Intensive Care Unit Entrances.

B. Related work specified in other sections:

1. Steel doors and frames - Section 08 10 00.
2. Wood doors - Section 08 14 00.
3. Intensive Care Unit Entrances – Section 08 42 43.

1.03 QUALITY ASSURANCE


C. Insulating glass units to be CBA rated with the Insulating Glass Certification Council (IGCC) in accordance with ASTM Specifications E-773 and E-774.

1.04 SUBMITTALS

A. Submit per Section 01 33 00.

1. Manufacturer’s recommended installation instructions.
2. Samples for each type glass specified.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Package, handle, deliver and store at the job site in a manner that will avoid damage. Reject scratched glass.

1.06 WARRANTY

A. Manufacturer’s Special Warranty for Coated-Glass Products: Manufacturer’s standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer’s written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.
B. Manufacturer’s Special Warranty on Insulating Glass: Manufacturer’s standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer’s written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Submit per Section 01 78 23.

PART 2: PRODUCTS

2.01 MANUFACTURERS/FABRICATORS


D. Glass Product Fabricators: As certified by glass manufacturers and/or coating manufacturers.

2.02 INTERIOR GLAZING

A. Clear:

1. Clear Float Glass, ¼” thick.

B. Safety:

1. Clear heat-tempered float glass, ¼” thick.

C. Fire Rated:

1. Square pattern clear wire glass, ¼” thick, conforming to CPSC 16 CFR 1201, CAT II as manufactured by SAFTI First (SuperLite I-W) or equal and tested by UL or Intertek Warnock/Hersey. Equivalent products by Technical Glass Products (FireLite, NT, Premium Grade); Vetrotech Saint-Gobain (Keralite Select F) are acceptable.

2.03 ACCESSORIES

A. Glazing Sealant: Two-part silicone similar to Dow Corning 982 Insulating Glass Sealant. Glazer is responsible to verify compatibility to primary seal material.

B. Setting Blocks: 70-90 Shore "A" durometer, sized to accommodate size of glass used, compatible with glazing sealant.

C. Spacers: Warm edge spacer, compatible with sealant used. Maximum “U” value at glass edge: 0.272.

D. Primer - Sealers, Cleaners: As recommended by glass manufacturer.
PART 3: EXECUTION

3.01 INSPECTION

A. Check that glazing channels are free of burrs, irregularities, and debris.

B. Check that glass is free of edge damage or face imperfections.

C. Do not proceed with installation until conditions are satisfactory.

3.02 PREPARATION

A. Field Measurements:
   
   1. Measure size of frame to receive glass.
   2. Compute actual glass size, allowing for edge clearances.

B. Preparation of Surfaces:
   
   1. Remove protective coatings from surfaces to be glazed.
   2. Clean glass and glazing surfaces, to remove dust, oil and contaminants. Wipe dry.

3.03 SAFETY GLAZING

A. Install safety glazing at the following locations and/or as required by local building codes.

1. Doors and adjacent glazing.
   
   a. In doors when glass is wider than 2 15/16”.
   b. Glass within 24” of vertical door edges and to a point 60” above the floor.

2. Individual fixed or operable panels when any of the following conditions are met:
   
   a. Individual panes 9 square feet and greater.
   b. Glass within 18” of the floor.
   c. When exposed individual pane is greater than 36” above the floor, except when a horizontal mullion is detailed between 34” and 38” above the floor.
   d. Walking surfaces within 36 inches horizontally of the pane of glazing.

3.04 INSTALLATION

A. Install glass in accordance with glass manufacturer's current printed instructions.

3.05 CLEANING

A. Remove excess glazing compound from installed glass.

B. Remove labels from glass surface as soon as installed.

C. Wash and polish both faces of glass.

D. Remove debris from work site.

3.06 PROTECTION OF COMPLETED WORK

A. Attach crossed streamers away from glass face.

B. Do not apply markers to glass surface.

C. Replace damaged glass.

END OF SECTION 08 80 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:
   1. Non load bearing interior metal stud framing for drywall.
   2. Gypsum wallboard and joint system.
   3. Installation of acoustic spray system at top of walls and penetrations (sealing of mech/elec penetrations is specified in Div 21-28) as noted on drawing.
   4. Mold and moisture resistant gypsum board at inside face of exterior walls.
   5. Sound batt insulation and acoustic sealant at gypsum board.
   6. Gypsum tile backer board as a substrate for porcelain or ceramic wall tile.

B. Related work specified in other sections:
   1. Load bearing, exterior and structural stud framing - Section 05 40 00.
   2. Priming and fabric for tackwalls - Section 09 91 00 and 09 72 00.
   3. Insulation - Section 07 21 00.
   4. Spray Polyurethane Foam Insulation Section 07 21 29.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00.
   1. UL listings for gypsum board partitions for proposed products.
   2. UL listings for shaft wall assemblies proposed.
   3. Samples of mold and moisture resistant gypsum board.
   4. Samples of gypsum tile backer board.

1.04 QUALITY ASSURANCE

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery and Handling

1. Deliver materials to the project site with manufacturer's labels intact and legible.
2. Handle materials with care to prevent damage.
3. Deliver fire-rated materials bearing testing agency label and required fire classification numbers.
4. The plastic packaging used to wrap gypsum panel products for shipment is intended to provide temporary protection from moisture exposure during transit only and is not intended to provide protection during storage after delivery. Such plastic packaging shall be removed immediately upon receipt of the shipment.
   a. Failure to remove protective plastic shipping covers can result in condensation which can lead to damage, including mold.

B. Storage

1. Store materials inside under cover, stack flat, properly supported on a level surface, all in same direction, off of floor. Gypsum panel products to be fully protected from weather, direct sunlight exposure and condensation.
2. Avoid overloading floor system
3. Store adhesives in dry area; provide protection against freezing at all times.
4. Steel framing and related accessories shall be stored and handled in accordance with AISI’s “Code of Standard Practice”.

1.06 JOB CONDITIONS

A. Environmental Conditions

1. Do not install gypsum board products at temperatures below 40°F for mechanical installation and 50°F for adhesive installation, unless approved by manufacturer.
2. Measure temperature and humidity on a daily basis during taping operations. Re-application of taping compound shall not occur sooner than shown on the table in Gypsum Association Brochure GA-236.
3. Temperature: During cold weather, in areas receiving wallboard installation, maintain temperature range between 55°F to 90°F for 48 hours before, and during gypsum board and joint treatment application. Maintain specified temperature range until joint treatment is completely dry.
4. Ventilation
   a. Provide ventilation during and following adhesives and joint treatment applications.
   b. Use temporary air circulators in enclosed areas lacking natural ventilation.
   c. Under slow drying conditions, allow additional drying time between coats of joint treatment.
   d. Protect installed materials from drafts during hot, dry weather.

B. Protect adjacent surfaces against damage and stains.
1.07 JOB COORDINATION

A. Coordinate Work with installation of metal framing and electrical work.

B. Coordinate framing and blocking for wall mounted accessories with Section 06 10 53.

PART 2: PRODUCTS

2.01 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

B. General: Complying with ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

2.02 GYPSUM BOARD

A. Standard

1. Panel Physical Characteristics.
   a. Core: Regular
   b. Surface Paper: 100% recycled content paper on front, back and long edges.
   c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   d. Thickness: As noted on drawings.
   e. Panel shall comply with requirements of ASTM C 1396 Standard Specification for Gypsum Board.

B. Fire-Resistance Rated.

1. Type X, Panel Physical Characteristics
   a. Core: Fire-resistant rated gypsum core.
   b. Surface Paper: 100% recycled content paper on front, back and long edges.
   c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   d. Thickness: 5/8”
   e. Panel shall comply with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board.

2. Type C, Panel Physical Characteristics
   a. Core: Fire-resistant rated gypsum core.
   b. Surface Paper: 100% recycled content paper on front, back and long edges.
   c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   d. Thickness: 1/2”
   e. Panel shall comply with Type C requirements of ASTM C 1396 Standard Specification for Gypsum Board.

C. Mold and Moisture Resistant

1. Panel Physical Characteristics
   a. Core: Moisture resistant (moisture and fire-resistant rated at Type X).
   b. Surface Paper: Coated fiberglass mat on face, back and long edges.
   c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
d. Thickness: As noted on drawings. (5/8” at fire-resistant applications)
e. Humidified Deflection: Not more than ¼” when tested in accordance with ASTM C473 and C1658.
f. Water Absorption: Less than 5% of weight when tested in accordance with C1396M and C1658.
g. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273

D. Gypsum Tile Backer Board:

1. Panel Physical Characteristics
   a. Core: Moisture resistant (moisture and fire-resistant rated at Type X).
   b. Surface Paper: Coated fiberglass mat on face, back and long edges.
   c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   d. Thickness: As noted on drawings. (5/8” at fire-resistant applications)
   e. Humidified Deflection: Not more than ¼” when tested in accordance with ASTM C473 and C1178.
   f. Water Absorption: Less than 5% of weight when tested in accordance with C1396M and C1178.
   g. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273
   h. Permeance: Not more than 1.0 perms when tested in accordance with ASTM E96.

E. Metal Framing:

1. Protective Coating: ASTM C 645/C, 645M G40 (Z120) or equivalent corrosion resistance.
   a. Metal studs and runners.
      1) Metal Thickness
         a) 20 gauge or ProSTUD 20 gauge equivalent.
         b) 25 gauge or ProSTUD 25 gauge equivalent.
      2) Size: 1 5/8”, 2 ¼”, 3 5/8”, 4” or 6” deep as noted on drawings.
   b. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
   c. Fire Stop Track: Top runner designed to allow partition head to move while maintaining integrity of assembly fire-resistance rating. Thickness not less than indicated for studs, and of width to accommodate depth of studs.
   d. Hat-Shaped, Rigid Furring Channels
      1) Base Metal Thickness: 0.0179 inch.
      2) Depth: 7/8” or 1 ½” as noted on drawings.
   e. Resilient Furring Channels: ½” deep, steel members designed to reduce sound transmission.
   f. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1 ¼”, wall attachment flange of 7/8”, minimum bare metal thickness of 0.0179 inch and depth required to fit insulation thickness.
   g. Radius Framing: Steel sheet runner for non-structural curves, bends, variable radii and arches. Design to provide higher strength capacity than conventional lighter gauge material by using a work-hardened steel base strip.
      1) Base Metal Thickness and Size: Match studs.
   h. Flat Strap and Backing Plate Sheet: For blocking or bracing.
      1) Base Metal Thickness: 20 gauge.
      2) Width: 6 inch.
i. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring member securely to substrates involved; comply with recommendations of gypsum board manufacturers for application indicated.

j. Ceiling Suspension Systems. Use one of the following systems:
   1) Metal studs with depth required to handle span.
   2) 1 ½” cold rolled steel channels, 8 gauge annealed hanger wire and furring channels.
   3) Direct-hung system composed of 8 gauge hanger wire, main beams and interlocking cross furring members as manufactured by:
      b) Chicago Metallic Corp. “Drywall Furring 640/Drywall Furring 660”.
      c) USG Interiors, Inc. “Drywall Suspension Systems”.

F. Accessories:

   a. Material: Galvanized or aluminum-coated steel sheet, rolled zinc.
   b. Shapes:
      1) Corner bead.
      2) L-C Bead: J-shaped; exposed long flange receives joint compound.
      3) L-Bead: L-shaped; exposed long flange receives joint compound.
      4) Off-angle or splayed corner bead.
      5) V-shaped Control Joint protected with plastic tape.


3. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
   a. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
   b. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

4. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
   a. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR, 59, Subpart D (EPA Method 24).

5. Sound Batt Insulation: Conform to requirements of Section 07 21 00.

6. Joint Treatment Materials:
   a. General: Comply with ASTM C 475/C 475M.
   b. Joint Tape:
      1) Interior Gypsum Wallboard: 2 1/16” wide paper reinforcing tape.
      2) Glass-Mat Gypsum Wallboard: 2” wide self adhering fiberglass tape.
      3) Tile Backing Panels: As recommended by panel manufacturer.
   c. Joint Compound for Interior Gypsum Wallboard: Drying type pre-mixed vinyl base compound and/or drying type pre-mixed vinyl base topping compound.
   d. Joint compound for glass-mat gypsum wallboard: As recommended by wallboard manufacturer.

7. Acoustic spray system: Conform to the requirements of Section 07 21 00 Insulation.
PART 3: EXECUTION

3.01 EXAMINATION

A. Examine substrates to which gypsum board construction attaches or abuts, installed hollow metal frames, cast-in anchors and structural framing with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board assemblies specified in this section.

1. Do not proceed with installation until satisfactory conditions have been corrected.

3.02 INSTALLATION OF STEEL FRAMING, GENERAL

A. Steel framing installation standard: Comply with ASTM C 754.

B. Metal Stud Schedule

1. Use 25 gauge metal studs or equivalent on partitions up to 12'-0" high and soffits.
2. Use 20 gauge or equivalent metal studs on:
   a. Metal stud partitions over 12'-0" high.
   b. Metal stud ceilings.
   c. Double studs at each door and borrowed light jamb and head.

C. Install supplementary framing, blocking and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, door bumpers, furnishings and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer.

D. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement, at location indicated below to comply with details shown on drawings.

1. Where suspended ceiling assemblies abut building structure horizontally at ceiling perimeters or penetrations of ceiling.

2. Where partitions and wall framing abut overhead structure.
   a. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.

E. Do not bridge building expansion and control joints with steel framing or furring members, independently frame both sides of joints with framing or furring members or as indicated.

3.03 INSTALLATION OF STEEL FRAMING FOR CEILINGS AND SOFFITS

A. Suspend ceiling hangers from building structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum not part of supporting structural or ceiling suspension system.
   a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter splaying or other equally effective means.

2. Where widths of ducts and other construction within ceiling plenum produce hanger spacing that interfere with the location of hangers at spacing required to support standard suspension system members, install supplemental suspension system members and hangers in form of trapezes or equivalent devices.
   a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
3. Secure wire hangers to structure, by looping or wire tying, directly to supporting structure, including intermediate framing members. Attach to inserts, eye screws, or other devices appropriate for structure to which hangers are attached as well as for type of hanger involved in manner that will not cause deterioration or failure, due to age, corrosion or elevated temperatures.

4. Do not attach hangers to metal roof deck or metal deck tabs.

5. Do not connect or suspend steel framing from ducts, pipes or conduits.

B. Keep hangers and braces 2 inches clear of ducts, pipes and conduits.

C. Wire-tie or clip furring members to main runners and to other structural supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension system abuts vertical surfaces. Mechanically join main beam and cross furring members to each other and butt cut to fit wall track.

3.04 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings and structural walls and columns where gypsum board stud system abuts other construction.

1. Use proprietary tracks for non-rated and fire rated walls and partitions.
2. Install studs full height for all partitions unless noted otherwise.
3. Where studs are installed directly against masonry or concrete walls, set studs in acoustical sealant.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surface does not vary more than 1/8” from plane of faces of adjacent framing.

C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at or just above suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.

1. Cut studs ½ inch short of full height to provide perimeter relief.
2. For STC-rated or fire-resistance rated partitions that extend full height, install framing around structural members, as required to support gypsum board closures needed to make partitions continuous from floor to underside of structure above.
3. Install bridging/spacing bar.

D. Brace partition framing, not extending full height to structure above, with studs same size and thickness as partition framing. Provide bracing at:

1. 6’-0” o.c. intervals along length of partitions.
2. Not less than 6’-0” from partition ends and corners.
3. Door and window openings.

E. Terminate partition framing at suspended ceiling where indicated.

F. Install metal studs and furring in sizes and at spacings indicated.

1. Single and Multi Layer Construction: Space studs 16 inches o.c., unless otherwise indicated.

G. Install metal studs with flanges in same direction and leading edge or end of gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
H. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

I. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

   1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

3.05 APPLICATION OF GYPSUM BOARD

A. Install the following gypsum board types as follows:

   1. Regular type: All non-rated areas unless noted differently below.
   2. Type X or C: As required to meet fire-resistant rated assemblies.
   3. Mold and Moisture Resistant: All gypsum board on the interior face of an insulated stud exterior wall. (Note: Gypsum Board on furred masonry walls can be regular type.)
   4. Gypsum tile backer board: As a substrate for walls covered with porcelain or ceramic tile.

B. Gypsum Board Application and Finishing Standards: Comply with ASTM C 480 and GA-216.

C. Install sound attenuation insulation blankets where indicated, prior to gypsum board, unless readily installed after board has been installed on one side.

D. Single-Layer Application: Install gypsum wallboard as follows:

   1. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
   2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated or required by fire resistance rated assembly, and provide sheet lengths which will minimize end joints.
      a. On partitions/walls 8'-1” or less in height, apply gypsum board horizontally (perpendicular to framing); use maximum length sheets possible to minimize end joints.
      b. At stairwells and other high walls, install gypsum board horizontal, unless otherwise indicated or required for fire resistance rating.
      c. On Z-furring, apply gypsum panels vertically (parallel to framing). Locate edge joints over furring member.

E. Double-Layer Application: Install gypsum backing board for base layer and exposed gypsum board for face layer.

   1. On ceilings apply base layer prior to application of base layer on walls/partitions; apply face layer in same sequence. Offset joints between layers minimum one stud space. Apply base layers at right angles to supports, unless otherwise indicated.
   2. On partitions/walls apply base layer and face layer vertically (parallel to framing) with joints of base layer over supports and face layer joints offset minimum one stud space with base layer joints.

F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for light at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.

G. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints.

   1. Position boards so like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends.
   2. Do not place tapered edges against cut edges or ends.
3. Gypsum panel product joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.
4. Joints on opposite sides of a partition shall not occur on the same stud.
5. In single layer gypsum panel products systems, end joints parallel to and on the same side of framing members shall be staggered between alternate courses of gypsum panel products and from joints on the opposite side of the framing members.
6. In multi-layer gypsum panel product systems, end joints parallel to and on the same side of framing members shall be staggered between alternate courses of gypsum panel products.
7. Base layer end joints parallel to and on one side of framing shall be staggered from base layer end joints on the opposite side of the framing members.
8. Install ceiling boards across framing in manner to minimize end-butt joints, and avoid end joints in central area of each ceiling. Stagger end joints at least 24 inches.

H. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide except where full grout is shown. Apply spot grout at each jamb anchor clip just before inserting board into frame.

I. Form control joints and expansion joints at locations indicated or as recommended, with space between edges of boards, prepared to receive trim accessories.
   1. Where a control joints occurs in an acoustical or fire-rated system, blocking shall be provide behind the control joint by using a backing material such as 5/8” type X gypsum panel product, or other tested equivalent.

J. Cover both faces of metal stud partition framing with gypsum board in concealed spaces (above ceiling, etc.), except in chase walls which are braced internally.
   1. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq.ft. area, and may be limited to not less than 75 percent of full coverage.
   2. Fit gypsum board around ducts, pipes and conduits.

K. Isolate perimeters of non-load-bearing drywall partitions at structural abutments. Provide ¼ to ½ inch space to accept trim edge.

L. Where STC-rated gypsum board assemblies are indicated or drawings indicate acoustical sealant, seal construction at perimeters, behind control and expansion joints, openings, and other penetrations with a continuous bead of acoustical sealant. Include a bead of sealant at both faces of partitions.
   1. Comply with ASTM C 919 and manufacturer’s recommendations for location of edge trim and closing off sound flanking paths around or through gypsum board assemblies, including partitions extending above ceilings.
   2. Where resilient furring channels are used over steel framing, the screws used to attach the gypsum panel product to the furring channels shall not contact the framing.

M. Gypsum panel products applied to walls shall be applied with the bottom edge spaced a minimum of 1/8 inch and maximum of ¼ inch above the floor.

N. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer’s written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

O. Wall Tile Substrates: For substrates scheduled to receive ceramic or porcelain tile, comply with the following:
   1. Install gypsum tile backer board panels to comply with manufacturer’s installation instructions at locations scheduled to receive wall tile. Install with ¼” open space where panels abut other construction.
3.06 METHODS OF GYPSUM BOARD FASTENING

A. Fastener lengths shall be at least 1 1/8" long for ½" gypsum panels and 1 ¼" long for 5/8" gypsum panels used for metal framing.

B. Screws shall be spaced not more than 12 in. o.c. for ceilings and 16 in. o.c. for walls where the framing members are 16 in. o.c. Screws shall be spaced not more than 12 in. o.c. for both ceilings and walls where framing members are 24 in. o.c.

C. Fasteners at gypsum panel product edges or ends shall be located not less than 3/8" from the edge or end. Fasteners at edges or ends in a perpendicular application shall be located not more than 1 in. from the edge or end. Perimeter attachment into partition top and bottom plates is neither required nor recommended except where fire ratings, structural performance requirements, or other special conditions require such attachment.

D. While diving fasteners, gypsum panel products shall be held in firm contact with framing members or underlaying support. Application of fasteners shall proceed from the center or field of the gypsum panel product toward the ends and edges, or shall begin along one edge and proceed toward the other edge.

E. To provide a more flat surface at joints, attach gypsum board to steel studs so leading edge or end of each board is attached to open (unsupported) edge of stud flanges first.

F. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

G. Screws shall be driven so that screw heads are slightly below the gypsum panel product surface without breaking the face paper, fracturing the core, or stripping the framing member around the screw shank.

H. Double-Layer Fastening Methods: Apply base layer of gypsum board and face layer to base layer as follows:
   1. Fasten base layer with screws and face layer with adhesive and supplementary fasteners, except where otherwise required for fire-resistance rated assemblies.

3.07 INSTALLATION OF DRYWALL TRIM ACCESSORIES

A. General: Where feasible, use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports. Otherwise, fasten flanges to comply with manufacturer’s recommendations.

B. Install corner beads at external corners.

C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound except where “U” bead (semi-finishing type) is indicated.
   1. Install “J” bead where drywall construction is tightly butted to other construction and back flange can be attached to framing or supporting substrate.
   2. Install “L” bead where edge trim can only be installed after gypsum board is installed.

D. Install control joints at locations as follows:
   1. At ceilings, 50'-0" o.c. each way maximum and/or where shown on drawings. At corners and at tee intersections of soffits that change directions.
   2. At walls, 30'-0" o.c. maximum, and/or where shown on drawings.
   3. Full height door frames shall be considered equivalent to a control joint.
3.08 FINISHING OF GYPSUM WALL BOARD

A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.

B. Prefill open joints using setting-type joint compound.

C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.

D. Glass-Mat Water Resistant Backer Board: Comply with glass mat backer board manufacturer’s recommendations.

E. Water or additive shall not be added to joint compound unless recommended by manufacturer. See quality assurance for application temperature and drying times.

F. Levels of Gypsum Board Finishing per Gypsum Association GA-214 and as note herein:

1. Level 1/Fire Taping: All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Tape and fasteners need not be covered.
   a. For use in plenum areas above ceilings, gypsum board not scheduled for paint or wallcovering, gypsum board concealed from view in the finished work, except as noted in level 2.

2. Level 2: All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
   a. For use on areas that are a substrate for tile or wood paneling.

3. Level 3: All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free to tool marks and ridges.
   a. For use on surfaces of mechanical and electrical spaces scheduled to receive paint.

4. Level 4: All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. When necessary, sand between coats and following final coat to provide smooth surface ready for decoration.
   a. For use on all walls scheduled for paint or wallcovering except those areas noted under Level 3 and 5.

5. Level 5: All joints and interior angles shall have tape embedded in joint compound and two separate coats for joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer’s recommendations, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. When necessary, sand between coats and following final coat to provide smooth surface ready for decoration.
   a. For use on all ceilings; walls and/or soffits under skylights and clerestories, and as noted on drawings. Note: when Level 5 finish is used, it shall extend to nearest inside or outside corner.
3.09 FINISHING ADJUSTMENT

A. Screw Pop
   1. Repair nail pop by driving new screw approximately 1-1/2 inches away and reseat screw.
   2. When face paper is punctured drive new screw approximately 1-1/2 inches from defective fastening and remove defective fastening.
   3. Fill damaged surface with compound in coats specified by required finish level.

B. Ridging
   1. Sand ridges to reinforcing tape without cutting through tape.
   2. Fill concave areas on both sides of ridge with topping compound.
   3. After fill is dry, blend in topping compound over repaired area.

C. Fill cracks with compound and finish smooth and flush.

D. Application of acoustic spray system
   1. Install mineral wood backing at depth required per manufacturer’s details.
   2. Apply acoustic spray to required thickness and overlap onto adjacent surfaces as recommended by manufacturer to achieve specified sound transmission classification.

3.10 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.

B. Protect installed products from damage from weather, condensation, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, or mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 21 16
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:
   1. Ceramic tile on walls and floors.
   2. Caulking of joints in tile on inside corners of tiled rooms and sealing of joints in tile.

B. Related work specified in other sections:
   1. Drywall substrates - Section 09 21 16.

1.03 SUBMITTALS

A. Submit in accordance to Section 01 33 00:
   1. Submit samples for colors on 12” x 12” panels in duplicate for each tile specified for Architect's selection and approval.
   2. Submit two (2) samples each for each different trim piece required for this project.
   3. Furnish Master Grade Certificates to Architect for all tile, indicating compliance with TCA 137.1-76.
   4. Submit product information on grout and samples indicating color range anticipated, texture.
   5. Submit samples of sealant that match grout color.
   6. Submit installation system manufacturer qualifications, installer qualifications, and laboratory confirmation of installation materials as outlined in Quality Assurance.

1.05 REFERENCE SPECIFICATIONS

A. The latest edition of following specifications and standards are incorporated by reference.

B. Maintain a copy of publications in the Contractor's office, available for reference.
1.06 QUALITY ASSURANCE

A. Installation System Manufacturer (single source responsibility): Company specializing in adhesives, mortars, grouts and other installation materials with ten (10) years minimum experience and ISO 9001 certification. Obtain installation materials from single source manufacturer to insure consistent quality and full compatibility.

B. Submit laboratory confirmation of adhesives, mortars, grouts and other installation materials:

1. Identify proper usage of specified materials using positive analytical method.
2. Identify compatibility of specified materials using positive analytical method.
3. Identify proper color matching of specified materials using a positive analytical method.

C. Installer qualifications: company specializing in installation of ceramic tile, mosaics, pavers, trim units and thresholds with five (5) years documented experience with installations of similar scope, materials and design.

1.07 MOCK-UPS

A. Provide mock-up of each type/style/finish/size/color of ceramic tile, mosaics, pavers, trim unit and threshold, along with respective installation adhesives, mortars, grouts and other installation materials. Mock may be part of final installation if accepted.

1.08 PRE-INSTALLATION CONFERENCE

A. Pre-installation conference: at least three weeks prior to commencing the work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions. Representatives of Owner, Architect, General Contractor or Construction Manager, Tile Subcontractor, Tile Manufacturer, Installation System Manufacturer and any other parties who are involved in the scope of this installation must attend the meeting.

1.09 WARRANTY

A. The manufacturer of adhesives, mortars, grouts, and other installation materials shall provide a written twenty-five (25) year warranty, which covers materials and labor; reference Manufacturer Warranty Data Sheet for complete details and requirements.

B. For exterior facades over steel or wood framing, the manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written ten (10) year warranty, which covers replacement of Manufacturer products only – reference Warranty Data Sheet for complete details and requirements.

1.10 PRODUCT HANDLING, DELIVERY AND STORAGE

A. Package, handle, deliver and store at the job site in original unbroken containers in a manner that will avoid damage or contamination. All containers shall bear grade seals, manufacturer's name, size, color and quantity.

B. Reject any tiles that are cracked or broken.

1.11 JOB CONDITIONS

A. Set and grout tile when ambient temperature is at least 50°F. and rising.
PART 2: PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Manufacturers listed in this specification are approved under the following conditions:

1. The basis of design (manufacture, product/color) listed in both the specification is not required to submit a pre-bid approval.
2. Equivalent manufacturers listed in this specification shall submit color samples for pre-bid approval by addendum. Refer to Section 01 25 00.

2.02 CERAMIC FLOOR TILE

A. Manufacturers: Products by Florim USA are specified.

1. Contact: Randi Carletti, Virginia Tile Company, 630-818-7849, CarlettiR@VirginiaTile.com

B. Products by Crossville, Dal-Tile, American Olean and Florida Tile are acceptable subject to prior approval by architect prior to bidding.

C. 2” x 2” floor tile and cove base.

1. Color: Stratos Silver TCA STSI

2.03 CERAMIC WALL TILE

A. Manufacturer: Products by Crossville are specified.


B. Products by Florim USA, Dal-Tile, American Olean and Florida Tile are acceptable subject to prior approval by architect prior to bidding.

C. 4” x 8” wall tile.

1. Color: Crossville Color by Numbers WT02 Satin Finish with matching trim pieces.

2. Patterns: Provide as shown on drawings.

2.04 SETTING MATERIALS

1. Manufacturers: Products and systems by Bostik Construction Products are specified. Equivalent products and systems by Ardex, Mapei, Bonsal, H.B. Fuller, Laticrete, Custom Building Products, and American Olean are acceptable subject to approval of submittals.

2. Tile Setting Systems:

a. Setting bed for tile on floors of showers, toilet rooms and locker rooms on above grade locations: Waterproofing membrane and setting adhesive, Bostik “UltraSet Advanced” or “Gold Plus” single step application.


c. Setting bed for tile on fiberglass faced or tile backer board: Bostik “ReFlex” at dry areas or “ReFlex” with “Gold Plus” at wet areas such as showers, toilet rooms, locker rooms (TCNA W242).
d. Setting tile over existing glazed tile/painted concrete block: Bostik “Tile Mate Premium” mixed with Flex Elastic (TCNA TR713)

1. Dry Areas: Organic adhesive OR non-sag mortar (ANSI 118.4) “Stonewall”.
2. Wet Areas: Only non-sag (ANSI 118.4) “Stonewall”.

3. Mortar Bed: Mixture of portland cement and sand, roughly in proportions of 1:5 with latex polymer as the liquid portion of the mixture.
   a. Cleavage Membrane: Asphalt felt, ASTM D 226, Type I (No. 15); or polyethylene sheeting, ASTM D 4397, 4.0 mils thick.
   b. Reinforcing: Galvanized, welded wire fabric, 2 by 2 inches by 0.062 inch diameter; comply with ASTM A 185 and ASTM A82 except for minimum wire size.

4. Grout
   a. For glazed ceramic and mosaic tile: Acrylic latex modified grout meeting ANSI A118.7, “Bostik Ceramic Tile Grout” mixed with Bostik "Multi-Purpose Acrylic Latex Grout Additive”.
      1) Color: As selected by Architect from manufacturer’s full line of available colors.

2.05 MISCELLANEOUS MATERIALS

A. Sealant: One component silicone, color to match tile grout.

B. Silicone sealer for tile joints: “Grout Sealer” at manufactured by Aqua Mix, Inc.

C. Cleaners: As manufactured by Hillyard Chemical Company or American Olean.

D. Crack/Joint isolation and waterproofing membrane: Laticrete Hydroban. Waterproofing membrane shall be used for tile on floors in toilet rooms, locker rooms and showers in above grade locations.

E. Provide leveling system for tiles over 24” in any dimension as recommended by tile manufacturer.

F. Thresholds: Solid polymer made from homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI Z124.3, for Type 5 or Type 6, without precoated finish. Colors as selected by Architect to match field color of tile. Threshold must comply with accessibility constraints.

G. Metal Trim for Tile: As manufactured by Schluter Systems, LP or equal. Material: Brushed Aluminum.
   1. CT Corner Trim: (For use at outside corners of tile to tile and terminations of ceramic/porcelain tile to other materials), RONDEC profile RO x tile height x AE.
      a. Provide, splice connectors, end caps, inside and outside corners as warranted by application.

   3. CT Transition Strip:
      a. Carpet to Ceramic/Porcelain Tile Transition: RENO-ETK x Tile Height.
      b. Resilient Tile to Ceramic/Porcelain Tile Transition: RENO-EBU x Tile Height.

2.06 EXTRA STOCK

A. Furnish 1% of each type/shape/color of tile used on this project to Owner as maintenance stock.
PART 3: EXECUTION

3.01 EXAMINATION OF SURFACES
A. Inspect surfaces to which tile is to be applied. Commencement of work implies acceptance of surface and assumption of responsibility for satisfactory results.

3.02 MORTAR BEDS
A. Mix and install mortar, cleavage membrane and reinforcing per ANSI A108.B, sloping top of mortar bed with a constant slope from walls to floor drains.
B. Allow mortar bed to fully cure prior to commencing with tile work.

3.03 SETTING BEDS
A. Use systems identified in “Setting Materials” in Part 2 of this specification.

3.04 TILE INSTALLATION
A. General
1. Installation and workmanship shall be in accordance with ANSI Specifications and as specified here. The printed instructions of the tile manufacturer and the manufacturer of proprietary mortars and grouts shall be followed where applicable.
2. Before commencing work, establish field pattern and border line locations and center the work symmetrically so that no tile need be cut to less than half size. Cut tile at base so top of base is level around entire room. Joints in wall tile shall be aligned vertically and horizontally; staggered joints will not be accepted. Rub exposed edges smooth.
3. Do not install any cracked or chipped tiles.
B. Movement Joints
1. Install joints to control the effects of substrate movement on tile finishes.
2. Construct joints in tile work according to movement joint details” EJ171” as published in TCNA “Handbook for Ceramic Tile Installation.”
3. Locate movement joints at the following locations:
   a. Interior: 20’ to 25’ maximum in each direction.
   b. Exterior and Interior tile work exposed to direct sunlight or moisture: 8’ to 12’ maximum in each direction.
   c. Where tile work abuts restraining surfaces including but not limited to perimeter walls, dissimilar floors, curbs, columns, pipes, ceilings, inside corners of abutting walls, and where changes occur in backing materials.
   d. All expansion, control, construction, cold and seismic joints in the structure. Expansion joints in tile work must match width of joint in building structure.
C. Crack isolation membrane: Install over minor cracks and non-structural slab joints to prevent transmission of cracking to tile. Strictly follow membrane and mortar manufacturers' printed instructions.
D. Waterproofing membrane: Install per manufacturers printed instructions, including two wet on wet applications @ 20-30 mils thick. Full bonding to metal and PVC.
   1. Perform 24-hour flood testing. Repeat application as required until flood test passes.
E. Install thresholds at transition from ceramic tile floors to other flooring materials and as shown on drawings.

F. Remove concrete curing compound with shot blasting or other appropriate mechanical means and vacuum floor on installations without mortar bed.

G. Existing Surface Preparation: Completely remove all paint, soap scum, wax, coatings, oil, etc. from existing surfaces to receive tile. Perform mechanical abrasion with a carborundum disk followed by a clear water wash. Use other cleaning methods of soapless detergents, commercial tile cleaners or solvents or acids if required to adequately prep surfaces. Substrate must be thoroughly rinsed and dry before setting the new tile.

3.05 CLEANING, PATCHING, PROTECTION, SEALING

A. After completion, clean all work, point open joints and replace defective work.

B. Cleaning and Sealing

1. Ceramic Porcelain Tile Walls, Floors and Base: Clean with water, rinse and allow to dry. Apply one coat of silicone sealer. Wipe excess sealer from face of tile.

C. Protection

1. Floors: Close off workspaces to traffic during installation and at least 48 hours after completion of work.

2. Finished tile floors: Covered with clean building paper before foot traffic is permitted on them. Place board walkways on floors that are to be continuously used as passageways by workmen. Protect tiled vertical outside corners with board corner strips in areas used as passageways by workmen.

3. Remove protection just prior to substantial completion and re-clean tile as necessary.

END OF SECTION 09 30 00
SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary
   Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:
   1. Lay-in acoustic ceilings.

B. Related work specified in other sections:
   1. Mechanical penetration of ceilings - Divisions 21-25.

1.03 SUBMITTALS

A. Submit Shop Drawings indicating installation layouts in accordance with Section 01 33 00.

B. Submit samples of all acoustical and suspension materials to Architect for approval.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original, unopened, protective packaging, with manufacturer's labels indicating brand name,
   pattern, size, thickness and fire rating as applicable, legible and intact.

B. Store materials in original protective packaging to prevent soiling, physical damage or wetting.

C. Store cartons open at each end to stabilize moisture content and temperature.

D. Do not begin installation until sufficient materials to complete a room are received.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Complete installation of dampening materials before beginning work.

B. Maintain humidity of 65% - 75% in area where acoustical materials are to be installed, 25 hours before, during, and
   after installation.

C. Maintain a uniform temperature in the range of 55 F. to 70 F. prior to, during, and after installation of materials.

PART 2: PRODUCTS

2.01 ACOUSTICAL MATERIALS

A. Product by Armstrong are specified. Equivalent products by USG are acceptable subject to prior approval by
   Architect prior to bidding.
B. ACT-1: Armstrong GR574B “Cirrus” square edge lay-in with HumiGuard Plus, 3/4” thick, sag and abuse resistant, anti-microbial, low VOC, lay-in tile. Provide 24” x 24” or 24” x 48” tiles as shown on Drawings.

1. Minimum NRC: 0.70
2. Minimum CAC: 35
3. Flame Spread: 25
4. Smoke Develop: 50

C. Furnish extra materials equal to 1% of each type of acoustical material supplied. Provide materials in new, unopened cartons labeled as to contents.

2.02 SUSPENSION SYSTEMS

A. Systems specified are by Chicago Metallic. Equivalent systems by USG or Armstrong are acceptable.


C. Systems for use in kitchens, kitchen serving areas, toilets and locker rooms to be 1830 intermediate duty hot dipped galvanized capped with white aluminum capping.

D. Perimeter treatment components for all systems to be 0.020 inch thick hot dipped galvanized steel, 15/16” wide x ¾” high. Edges to be hemmed. Finished identical to main runners and cross tees.

PART 3: EXECUTION

3.01 CONDITION OF SURFACES

A. Examine surfaces scheduled to receive suspended or directly attached acoustical units for unevenness, irregularities, and dampness that would affect quality and execution of work.

B. Mark access provisions as to size and location before beginning installation.

3.02 REQUIREMENTS FOR ALL MECHANICAL SUSPENSION SYSTEMS

A. Grid layout in each space, area located symmetrically in room, space. Coordinate work with other trades so that lighting fixtures, grilles, other ceiling fixtures work to grid layout.

B. Do not use universal splices or other types whose use would obstruct passage of recessed lighting fixtures through grid openings, or make untenable their reposition upon flanges of beams.

C. Support suspension system from structure above, not from ductwork, equipment or piping.

D. Space hangers not more than 6” from ends, not more than 4’-0” o.c. Between ends of main runners, provide extra hangers as required to support other work resting in or on ceiling.

E. Provide additional tee supports, hangers and cut tiles to support and fit to all sides of light fixtures, linear diffusers and other ceiling penetrations. Coordinate with mechanical and electrical drawings.

3.03 ACOUSTICAL MATERIALS

A. Install ceiling panels and tiles using clean gloves, to avoid soiling materials.

B. Install lay-in panels snugly against support system without damaging panels.
C. Field rabbit edges of panels where field-cut to match shadow-line profile.

D. Adjust any sags or twists which develop in the ceiling systems and replace any part which is damaged or faulty.

E. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members; comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

F. Replace any damaged tile just prior to substantial completion.

END OF SECTION 09 51 00
SECTION 09 65 00
RESILIENT FLOORING

PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes:
   1. Vinyl composition tile (VCT).
   2. Sheet Vinyl (SV).
   3. Luxury Vinyl Tile (LVT).
   4. Vinyl base and accessories.
   5. Vinyl base at freestanding island casework.
   6. Transitions to existing/new adjacent floor finishes (terrazzo, linoleum, VCT, ceramic tile).

1.03 SUBMITTALS
A. Submit per Section 01 78 23.
   1. Submit full line of color samples for materials to be furnished for Architect's review and selection.
   2. Provide manufacturer's recommended maintenance data and instructions prior to completion of work.
B. Specified warranties from manufacturer. Submit per Section 01 78 23.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.
B. Do not open containers or remove markings until materials are inspected and accepted.
C. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.
D. Unless otherwise directed, store materials in original containers at not less than 70°F for not less than 24 hours immediately before installation.

1.05 ENVIRONMENTAL REQUIREMENTS
A. Maintain temperature in space to receive tile between 70°F and 90°F for not less than 48 hours before and 48 hours after installation.
B. Maintain minimum temperature of 65°F thereafter.
1.06 WARRANTY

A. Luxury Vinyl Tile (LVT):
   1. 10 year manufacturing and installation integrity.

PART 2: PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Manufacturers listed in this specification are approved under the following conditions:
   1. Manufacturer listed in specification as basis of design is not required to submit a pre-bid approval.
   2. Manufacturers listed in this specification, but not identified as basis of design, shall submit color samples for pre-bid approval by addendum. Refer to Section 01 25 00.

2.02 VINYL COMPOSITION TILE (VCT)

A. Manufacturer: Products specified (basis of design) are by Mannington and Armstrong. Equivalent products by Armstrong, Mannington and Tarkett are acceptable. Products identified as “to match existing” shall not be substituted.

B. Tile: 12” x 12” x 1/8”.

C. Colors/Textures:
   1. VCT-1: Mannington “Oyster White” #131 (to match existing)
   2. VCT-2: Mannington “Warm Beige” #127 (to match existing)
   3. VCT-3: Armstrong Standard Excelon Imperial texture “Pearl White” #51803
   4. VCT-4: Armstrong Standard Excelon Imperial texture “Field Gray” #51927
   5. VCT-5: Armstrong Standard Excelon Imperial texture “Charcoal” #51915

B. Patterns as shown on drawings.

2.03 SHEET VINYL

A. Manufacturer: Products specified are manufactured by Armstrong as specified (basis of design).

B. Colors/Textures:
   1. SV-1: Armstrong Medintech #88416 “Almond”
   2. SV-2: Armstrong Medintone #H8350 “Indigo Mid”
2.04 LUXURY VINYL TILE (LVT)

A. Product specified are manufactured by Mohawk Group are specified (basis of design). Contact Bob Gramm at 312-590-1745, bob-gramm@mohawkgroup.com. Other manufacturers that meet the requirements of this specification are acceptable.

1. Resilient Flooring consisting of clear, unfilled, polyurethane-coated, 0.020 inch thick wear layer composed of polyvinyl chloride resins, plasticizers, stabilizers, and processing aids over a printed film on an intermediate layer over a filled vinyl backing. “Standard Specification for Solid Vinyl Tile”, Class III, Type B, Embossed Surface.
2. Color.

3. Standards: Meet or exceed requirements of ASTM F 1700.

4. Wear layer: 20 mil (0.5mm), embossed surface

5. Overall gauge: .118” (3mm)

6. Size: 6” x 48”

7. Flammability: Provide materials with 0.45 CRF (critical radiant flux) or higher when tested in accordance with ASTM E 648, Flooring Radiant Panel Test.

8. Smoke Density: Provide materials with smoke density of less than 450 when tested in accordance with ASTM E662.

9. Static Load: Provide materials with static load limit of 250 psi or higher.

10. Patterns: as indicated on Drawings.

B. Adhesives:

1. M950 Acrylic, MS160 Spray, M700 Pressure Sensitive Adhesive

2.09 VINYL BASE

A. Manufacturer: Products by Johnsonite are specified. VPI, Armstrong, Mercer, Roppe, Tarkett are acceptable subject to prior approval by Architect. Products identified as “to match existing” shall not be substituted.

B. Base: 1/8” thick x 4” high, solid vinyl. Straight base at carpet, coved base at other surfaces.

C. Colors:
   1. VB-1: Johnsonite #09 “Clay (to match existing)
   2. VB-2: Johnsonite #20 “Charcoal” (to match existing)
   3. VB-3: Johnsonite #121 “Cement”

2.10 ACCESSORIES

A. Adhesives, Other Application Material: As recommended specifically by flooring manufacturer.
B. Subfloor Filler: Hydraulic/Portland cement based material designed for providing thin solid surface for leveling and for minor ramping of subsurface to adjacent floor finishes.

1. Use material capable of being applied and feathered out to adjacent floor without spalling.

C. Crack and Joint Treatment: ARDEX ARDIFIX or equal (dormant cracks), two part, low viscosity rigid polyurethane and/or ARDEX ARDISEAL or equal (moving joints and cracks), rapid plus fast setting semi-rigid joint sealant.

D. Substrate Prep: ARDEX MRP or equal, moisture resistant patch.

E. Self Leveling Topping (Underlayment): ARDEX K15 or equal, Portland Cement-based, self leveling topping.

F. Sealant for non-slip flooring: Altro “Gunseal”.

2.11 EXTRA STOCK

A. Furnish 1% of each type/color of flooring, trim used in this project to Owner as maintenance stock.

PART 3: EXECUTION

3.01 PREPARATION

A. Surfaces to receive resilient finishes: Dry, clean, smooth. Fill defects or grind smooth as required. Sand subfloors to remove mortar, paint, other surface irregularities.

B. Buff out the concrete curing compound with a scouring pad on a buffer or other recommended procedure prior to installing adhesives for flooring.

C. Correct adverse conditions of any type before starting any flooring installation.

D. Where filling, patching, leveling is required of thickness exceeding 1/8” apply latex type underlayment in two or more applications. Apply compound in accordance with Manufacturer's printed instructions. Achieve a substrate that is flat to within 1/8” in 10’.

1. On remodeling projects, assume 33% of area will require filling, patching or leveling.

E. Beginning of installation means installer has accepted substrate as acceptable.

F. Install flooring only after finishing operation has been completed and permanent heating system is in operation. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by flooring manufacturer.

G. Terminate resilient flooring at centerline of door openings where adjacent floor finish is dissimilar.

3.02 LUXURY VINYL TILE (LVT)

A. Install flooring in strict accordance with the latest edition of “Armstrong Guaranteed Installation System, F-5061”.

3.03 SHEET VINYL

A. Verify conditions of substrate are suitable for installation of resilient tile in accordance with manufacturer recommendations.

B. Comply with manufacturer’s recommendations and installation instructions.
C. Open floor tile cartons, enough to cover each area, and mix tile to ensure shade variations do not occur within any one area.

D. Apply adhesive over clean substrate.

E. Fit flooring to walls, columns, floor outlets and other appurtenances, to produce net joints.

3.04 VINYL COMPOSITION TILE (VCT)

A. Place tile units with adhesive cement in strict compliance with the manufacturer's recommendations. Butt tile units tightly to vertical surfaces, thresholds, nosings and edgings. Scribe as necessary around obstructions and to produce neat points, laid tight, even and in straight, parallel lines. Extend tile units into toe spaces, door reveals, and into closet and similar openings.

B. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on the finished tile marked in the subfloor. Use chalk or other non-permanent marking device.

C. Lay tile from center marks established with principal walls discounting minor offsets so that tile at opposite edges of the room are of equal width. Adjust as necessary to avoid use of cut widths less than 3" at room perimeters.

D. Match tiles for color and pattern by using tile from cartons in the same sequence as manufactured and packaged. Broken, cracked, chipped or deformed tile are not acceptable.

C. Tightly cement tile to sub-floor without open cracks, voids, ridging and puckering at joints, telegraphing of adhesive spreader marks through tile, or other surface imperfections.

3.05 ACCESSORIES

A. Place resilient reducer strips tightly butted to resilient flooring and secure with adhesive. Provide edging strips or cap strips at all unprotected edges of flooring.

B. Apply coved base at resilient and carpeted floors.

3.06 CLEANING, WAXING AND PROTECTION

A. VCT

1. Remove excess adhesive from floor, base, and wall surfaces without causing damage to surfaces due to cleaning operations, and repair damage to adjacent materials caused by resilient tile installation using methods recommended by adjacent material manufacturers.

2. Just prior to substantial completion, strip factory applied wax from floor tile with cleaner (do not flood floor), and apply two (2) coats of sealer and three (3) coats of wax.

3.07 DEMONSTRATION

A. Engage factory-authorized representatives to train Owner’s maintenance personnel on proper waxing and cleaning procedures for each floor product. Refer to Section 01 79 00 Demonstration and Training.
SECTION 09 65 43

RESILIENT LINOLEUM FLOORING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

B. Related Documents
   1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

C. Related Sections:
   1. Other Division 9 sections for floor finishes related to this section but not the work of this section
   2. Division 3 Concrete; not the work of this section
   3. Division 7 Thermal and Moisture Protection; not the work of this section

1.02 REFERENCES

A. Armstrong Technical Manuals
   1. Armstrong Guaranteed Installation Systems manual, F-5061

B. ASTM International:
   2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
   3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
   5. ASTM F 1861 Standard Specification for Resilient Wall Base
   6. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
   7. ASTM F 2034 Standard Specification for Sheet Linoleum Floor Covering

C. National Fire Protection Association (NFPA):
   2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:
   1. Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.

B. Administrative Requirements
   1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

2. Pre-installation Testing: Conduct pre-installation testing as follows: moisture tests, bond test, and pH test.

C. Test Installations/ Mock-ups: Install at the project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing. Obtain Owner's and Consultant's acceptance of finish color, texture and pattern, and workmanship standards.

1. Mock-Up Size: 6’x6’ minimum.
2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
3. Incorporation: Mock-up may be incorporated into the final construction with Owner's approval.

D. Sequencing and Scheduling
1. Close spaces to traffic during the installation of the flooring.
2. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.04 SUBMITTALS


B. Submit the manufacturer's standard samples showing the required colors for flooring, welding rods, and applicable accessories.

C. Submit Material Safety Data Sheets (MSDS) available for flooring products, adhesives, weld rod, patching/leveling compounds, floor finishes(polishes) and cleaning agents.

D. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.

E. Closeout Submittals: Submit the following:
1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
2. Warranty: Warranty documents specified herein

1.05 QUALITY ASSURANCE

A. Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.

B. Select an installer who is competent in the installation of Armstrong linoleum sheet flooring using heat-welded seams.
1. Engage installers certified as Armstrong Commercial Certified Installers
2. Confirm installer's certification by requesting their credentials

C. Fire Performance Characteristics: Provide resilient linoleum sheet flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency acceptable to authorities having jurisdiction:
1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I
2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less
1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with Division 1 Product Requirements Sections

B. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.

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

1.07 PROJECT CONDITIONS

A. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 85°F (29°C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to the Armstrong Guaranteed Installations Systems manual, F-5061 for a complete guide on project conditions.

1.08 WARRANTY

A. Resilient Linoleum Flooring. Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.

B. Warranty Period: 5 years

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

D. For the Warranty to be valid, this product is required to be installed using the appropriate Armstrong Guaranteed Installation System. Product installed not using the specific instructions from the Guaranteed Installation System will void the warranty.

1.09 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

B. Material Specifics
   1. Quantity: Furnish quantity of flooring units equal to five percent (5.0%) of amount installed.
   2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

PART 2- PRODUCTS

2.01 MANUFACTURER

A. Resilient linoleum flooring, wall base, adhesives and accessories:
2. Manufacturer must have a headquarters in the United States of America.

2.02 RESILIENT LINOLEUM FLOORING MATERIALS

A. Products: Linoleum Sheet Flooring: LinoArt™ and Marmorette™ with NATURCote™ II manufactured by Armstrong World Industries, Inc.

1. Description: The product shall consist of a polyurethane-coated homogeneous mixture of linoleum cement (linseed oil, natural tree resins, drying oil catalysts), wood flour, limestone, color pigments mixed and calendered onto a jute fabric backing. Colors and pattern detail shall be dispersed throughout the thickness of the wear layer.

2. Linoleum sheet shall conform to the requirements of ASTM F 2034, Type I, "Standard Specification for Sheet Linoleum Floor Covering Without Backing"

   a. LN-1: LinoArt Marmorette Sheet - Deep Dive - 98.4 x 6.5 x 0.100
   b. LN-2: LinoArt Colorette Sheet - Lemon - 98.4 x 6.5 x 0.100
   c. LN-3: LinoArt Colorette Sheet - Parakeet - 98.4 x 6.5 x 0.100

B. Linoleum Weld Rod

1. Provide solid color linoleum weld rod as produced by Armstrong World Industries, Inc., and intended for heat welding of seams. Color shall be compatible with field color of flooring or as selected by Architect to contrast with field color of flooring. Color selected from the range currently available from Armstrong World Industries, Inc.

C. Seam Adhesive: Provide Armstrong S-761 Seam Adhesive at seams as recommended by the resilient flooring manufacturer.

2.03 PRODUCT SUBSTITUTION

A. Substitutions: No substitutions permitted because of the specific attributes listed in Section 2.02.

2.04 ADHESIVES

A. Provide Armstrong S-780 Linoleum Adhesive for field areas as recommended by the flooring manufacturer.

B. Provide Armstrong S-761 Seam Adhesive at seams as recommended by the resilient flooring manufacturer.

2.05 ACCESSORIES

A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Armstrong S-194 Cement-Based Patch, Underlayment and Embossing Leveler / S-195 Underlayment Additive.

B. Provide a fillet support strip for integral cove base with a minimum radius of 1 in. (2.54 cm) of wood or plastic.

C. Provide transition/reducing strips tapered to meet abutting materials.

D. Provide threshold of thickness and width as shown on the drawings.

E. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

F. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal
edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 – EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).

B. Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.

C. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.

D. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.

E. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

F. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

A. Subfloor Preparation: Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Armstrong S-194 Cement-Based Patch, Underlayment and Embossing Leveler / S-195 Underlayment Additive as recommended by the flooring manufacturer. Refer to Armstrong Guaranteed Installation Systems manual, F-5061 and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

B. Subfloor Cleaning: Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents. Refer to the Armstrong Guaranteed Installation Systems manual, F-5061 and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

C. Perform subfloor moisture testing in accordance with [ASTM F 2170, 'Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes'] [ASTM F 1869, 'Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride'] and Bond Tests as described in publication Armstrong Guaranteed Installation Systems manual, F-5061 to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. [Relative humidity shall not exceed 80% (when using S-240 Epoxy)] [Relative humidity shall not exceed 85%]. [MVER shall not exceed 5 lbs./1000 sq. ft./24 hrs.] On installations where both the Percent
Relative Humidity and the Moisture Vapor Emission Rate tests are conducted; results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.

D. Concrete pH Testing: Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained.

E. Surface Cleaning: Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.04 INSTALLATION OF FLOORING

A. Install flooring in strict accordance with the latest edition of Armstrong Guaranteed Installation Systems manual, F-5061. Failure to comply may result in voiding the manufacturer's warranty listed in Section 1.08

B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.

C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.

D. Scribe, cut, and fit or flash cove to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

E. Adhere flooring to the subfloor without cracks, voids, raising and puckering at the seams. Roll with a 100-pound (45.36 kilogram) roller in the field areas. Hand-roll flooring at the perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.

F. Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.

G. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

H. Prepare heat-welded seams with special routing tool supplied for this purpose and heat weld with linoleum welding rod in seams. Use methods and sequence of work in conformance with written instructions of the flooring manufacturer. Finish all seams flush and free from voids, recesses, and raised areas.

3.05 INSTALLATION OF ACCESSORIES

A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.

B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.

C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

3.06 CLEANING

A. Perform initial and on-going maintenance according to the latest edition of Armstrong Guaranteed Installation Systems manual, F-5061.
3.07 PROTECTION

A. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings. (See Finishing The Job in the latest edition of Armstrong Guaranteed Installation Systems manual, F-5061.)

END OF SECTION 09 65 43
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section Includes: Prefinished polyester glass reinforced plastic sheets and adhered to unfinished gypsum or cementitious wallboard.
   1. Aluminum or PVC trim.
   2. Stainless outside corners.

B. Products Not Furnished or Installed under This Section:
   1. Gypsum/Cementitious substrate board.
   2. Resilient base.

1.03 RELATED SECTIONS

A. Section 09 21 16 – Gypsum or Cementitious substrate board.

1.04 REFERENCES

A. American Society for Testing and Materials: Standard Specifications (ASTM)
   1. ASTM D 256 - Izod Impact Strengths (ft #/in)
   2. ASTM D 570 - Water Absorption (%)
   3. ASTM D 638 - Tensile Strengths (psi) & Tensile Modulus (psi)
   4. ASTM D 790 - Flexural Strengths (psi) & Flexural Modulus (psi)
   5. ASTM D 2583- Barcol Hardness

1.05 SUBMITTALS

A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications, including:
1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

B. Shop Drawings: Submit elevations of each wall showing location of paneling and trim members with respect to all discontinuities in the wall elevation.

C. Selection Samples: Submit manufacturer’s standard color pattern selection samples representing manufacturer's full range of available colors and patterns.

D. Samples for Verification: Submit appropriate section of panel for each finish selected indicating the color, texture, and pattern required.
   1. Submit complete with specified applied finish.
   2. For selected patterns show complete pattern repeat.
   3. Exposed Molding and Trim: Provide samples of each type, finish, and color.

E. Manufacturers Material Safety Data Sheets (MSDS) for adhesives and sealants prior to their delivery to the site.

1.06 QUALITY ASSURANCE

F. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:
   1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)
      a. Wall Required Rating – Class C.

G. Sanitary Standards: System components and finishes to comply with:
   1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver materials factory packaged on strong pallets.

B. Store panels and trim lying flat, under cover and protected from the elements. Allow panels to acclimate to room temperature (70°) for 48 hours prior to installation.

1.08 PROJECT CONDITIONS

A. Environmental Limitations: Building are to be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
1. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

PART 2 - PRODUCTS

2.01 PANELS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.

1. Coating: Multi layer print, primer and finish coats.

2. Dimensions:
   a. Thickness – 0.090 inch nominal
   b. Width - 4'-0” nominal
   c. Length –As indicated on the drawings nominal

3. Tolerance:
   a. Length and Width: +/-1/8 inch (3.175mm)
   b. Square - Not to exceed 1/8 inch for 8 foot panels or 5/32 inch for 10 foot (2.4m) panels

B. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.

1. Flexural Strength - 1.0 x 104 psi per ASTM D 790.
2. Flexural Modulus - 3.1 x 105 psi per ASTM D 790.
3. Tensile Strength - 7.0 x 103 psi per ASTM D 638.
4. Tensile Modulus - 1.6 x 105 psi per ASTM D 638.
5. Water Absorption - 0.72% per ASTM D 570.
6. Barcol Hardness (scratch resistance) of 35 55 as per ASTM D 2583.
7. Izod Impact Strength of 72 ft. lbs./in ASTM D 256

C. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.

D. Front Finish: Pebbled.

E. Color: As selected from manufacturer’s full line of available colors/finishes.

F. Fire Rating: Class C

2.02 MOLDINGS

A. PVC: Extruded PVC Trim Profiles for .090 inch thick panels.

1. Inside Corner, Division and edges as required to make a complete installation.

2. Color: To match panels.
B. Outside Corner Guard:
   1. F 560 Stainless Steel
      a. Finish: #4 satin

2.03 ACCESSORIES

A. Fasteners: Non-staining nylon drive rivets.
   1. Match panel colors.
   2. Length to suit project conditions.

B. Adhesive: Either of the following construction adhesives complying with ASTM C 557.
   1. Construction adhesive flexible, water-resistant, solvent based adhesive formulated for fast, easy application as approved by manufacturer.

C. Sealant:
   1. 100% Clear Silicone Sealant

PART 3 - EXECUTION

3.01 PREPARATION

A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
   1. Verify that stud spacing does not exceed 24 inch on-center.

B. Repair defects prior to installation.
   1. Level wall surfaces to panel manufacturer’s requirements. Remove protrusions and fill indentations.

3.02 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Cut sheets to meet supports allowing 1/8” inch clearance for every 8 foot of panel.
   1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
   2. Pre-drill fastener holes 1/8 inch oversize with high speed drill bit.
      a. Space at 8 inches maximum on center at perimeter, approximately 1 inch from panel edge.
      b. Space at in field in rows 16 inches on center, with fasteners spaced at 12 inches maximum on center.
C. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.

1. Install panels with manufacturer's recommended gap for panel field and corner joints.
   a. Adhesive trowel and application method to conform to adhesive manufacturer’s recommendations.
   b. Drive fasteners for snug fit. Do not over-tighten.

D. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.

1. All moldings must provide for a minimum 1/8 inch of panel expansion at joints and edges, to insure proper installation.

2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

3.03 CLEANING

A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.

B. Refer to manufacturer's specific cleaning recommendations. Do not use abrasive cleaners.

END OF SECTION 09 77 20
PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes:

1. Field finish all materials scheduled and/or specified for paint, trim, stain or seal. Including but not limited to:
   a. Existing doors and frames
   b. Gypsum board
   c. Rated partition identification.

B. Related work specified in other sections:


4. Colored sealants – Section 07 92 00

1.03 SUBMITTALS

A. Provide three (3) copies of a schedule detailing each substrate in the same order as the schedules used in Part 2 of this section. Include the following:

1. The specific products to be used for each coat.

2. Documentation that the manufacturer has reviewed and approved each painting system.

3. Data pages for all products listed, highlight the following:
   a. Type of resin.
   b. Dry Film Thickness.
   c. Volume Solids.
   d. Units of Sheen.
   e. VOC content and chemical components.
   f. Other performance or descriptive data required by Part 2 of this section.
   g. If this information is not on the data page provide the information in a letter of certification from the manufacturer. Attach the letter to the appropriate data page.

B. Submit three (3) drawdowns of each product and color combination. Drawdowns shall be applied using a 4 mil WFT drawdown bar on Leneta form WD plain white coated cards size 3-7/8” x 6”.

1. Label each card with the following:
   a. Job name.
   b. Date.
   c. Product name.
d. Product number.

e. Color number as stated in the material finish/color schedule.

f. Name, address, and phone number of the supplying facility.

g. Surface material product is to be applied onto.

C. Do not deliver material to site until having received written approval of submitted information and samples.

D. Complete sample area on project as selected by Architect on each type surface and with each type of paint system specified. Do not proceed further with application until receiving acceptance of each sample area by Architect. Accepted areas will serve as standard of quality for entire project.

1.05 EXAMINATION OF DOCUMENTS

A. Examine the specifications for the work of other trade contractors and to become familiar with their work. All surfaces that are left unfinished by the requirements of other specifications to be finished by this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use, in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg. F.

1. Maintain containers in clean condition, free for foreign materials and residue.

2. Remove rags and waste from storage areas daily.

1.08 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

C. Do not apply coatings during cold, rainy or frosty weather.

D. Do not apply to surfaces, which are exposed to hot sun.

1.09 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in “MPI Approved Products List.”

2. Preparation and Workmanship: Comply with requirements in “MPI Architectural Painting Specification Manual” for products and paint systems indicated.

3. Previously Painted Surface Preparation and Workmanship: Comply with requirements in “MPI Maintenance and Repainting Manual” for products and paint system indicated.
PART 2: PRODUCTS

2.01 PAINTING SYSTEMS

A. Painting systems for normal applications are specified using the products of Sherwin-Williams Co. (S-W) to establish standards of quality, except as noted.

1. Other manufacturers can submit for approval through the pre-bid process defined in Section 01 25 00 Substitutions and Product options.
   a. For approval, submit data sheets for each paint type with volume solids and VOC’s highlighted to indicate they meet or exceed products specified in Part 2.

C. Use the materials of the same manufacturer for each system.

D. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Flat Paints, Coatings, and Primers VOC content of not more than 50 g/L.
2. Non-flat Paints, Coatings and Primers: VOC content of not more than 150 g/L.
3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
4. Floor Coatings: VOC not more than 100 g/L.
5. Shellacs, Clear: VOC not more than 730 g/L.
6. Shellacs, Pigmented: VOC not more than 550 g/L.

E. Colors:

1. PT-1: Benjamin Moore “Navahoe White” 957 (to match existing)
2. PT-2: Benjamin Moore “Cayman Islands” 952 (to match existing)
3. PT-3: Benjamin Moore “Cloud White” 967
4. PT-4: Pittsburg Paint “Storm’s Coming” PPG1008-2
5. PT-5: Pittsburg Paint “Greyhound” PPG1008-3
6. PT-6: Pittsburg Paint “Innuendo” PPG1165-4
7. PT-7: Pittsburg Paint “Evening Hush” PPG1165-5
8. PT-8: Pittsburg Paint “April Showers” PPG1118-2
9. PT-9: Pittsburg Paint “Jitterbug” PPG1118-4
10. PT-10: Pittsburg Paint “Always Blue” PPG1156-3
11. PT-11: Pittsburg Paint “Serene Sea” PPG1158-4
12. PT-12: Benjamin Moore “Big County Blue” 2066-30
14. PT-14: Benjamin Moore “True Blue” 2066-50
15. PT-15: Pittsburg Paint “Glow Worm” PPG1220-6
16. PT-16: Benjamin Moore “Dalila” 319
17. PT-17: Benjamin Moore “Old Pickup Blue” 2054-60
18. PT-18: Benjamin Moore “Bunny Gray” 2124-50
19. PT-19: Benjamin Moore “Little Angel” 318
20. PT-20: Benjamin Moore “Mellow Pink” 2094-70
21. PT-21: Benjamin Moore “Crystal Spring” 754
22. PT-22: Benjamin Moore “Easter Hunt” 554
23. PT-23: Benjamin Moore “Tropical Paradise” 575
2.02 PRIMERS

A. 100% Acrylic Interior Primer:
   1. Shall be certifiable for use on gypsum drywall or wood, and paint.
   2. Minimum Volume Solids: 35%.
   3. Maximum VOC: 150 g/L
      a. S-W Multi Purpose Latex Primer / Seal B51W8020
      b. GP Gripper Interior/Exterior Primer Sealer 3210-1200.
      c. PPG Seal Grip Int/Ext. Acrylic Universal Primer/Sealer, 17-921.
      d. BM Fresh Start High Hiding All Purpose Primer N046.

2.03 INTERIOR FINISH PAINTS

A. Vinyl Acrylic Interior Eggshell Finish:
   1. Minimum Volume Solids: 35%.
   2. Maximum VOC: 0 g/L
      a. S-W ProMar 200 0 VOC Interior Latex Eg-Shel, B20-2600 Series.
      b. GP No VOC Interior Eggshell, 1411.
      c. PPG Pure Performance Interior Eggshell Latex, 9-300 Series.
      d. BM Ultra Spec 500 Interior Eggshell 538.

B. Vinyl Acrylic Interior Flat Finish:
   1. Minimum Volume Solids: 32%.
   2. Maximum VOC: 0 g/L
   3. Sheen: 0-8 units at 85 degrees.
      e. GP No VOC Interior Flat 150, 1209
      b. PPG Pure Performance Interior Flat Latex, 9-100 Series.
      c. BM Ultra Spec 500 Interior Flat 536.

C. 100%, Modified Acrylic, Interior Semi-Gloss Coating:
   1. Minimum Volume Solids: 33%.
   2. Maximum VOC: 150 g/L
      a. S-W Pro Industrial Pre-Catalyzed Epoxy.
      b. DC DevFlex 4216HP Water-Borne Acrylic or
         GP Lifemaster Oil Interior/Exterior Semi-Gloss Paint 1506.
      c. PPG PITT-GLAZE WB1 Interior Semi-Gloss Pre-Catalyzed Water-Borne Acrylic Epoxy.
      d. BM Corotech WB Pre-Cat Epoxy Coating Semi-Gloss V341.

D. Two-component, Semi-Gloss Waterbased Catalyzed Epoxy:
   2. Maximum VOC: 150 g/L
   3. Sheen 20-50 units at 60 degrees.
      a. S-W Water Based Catalyzed Epoxy B70 Series/B60V25.
      b. DC Tru-Glaze-WB 4426 Waterborne Epoxy Semi Gloss Coating.
      d. BM Corotech Waterborne Amine Epoxy Gloss V440.

E. Two-component Polyamide Epoxy:
   1. Minimum Volume Solids: 50%.
2. Maximum VOC: 450 g/L
3. Sheen: 75-90 units at 60 degrees.
   b. DC Tru-Glaze 4508 HIPAC Epoxy Gloss Coating.
   c. PPG Aquapon 35 Polyamide Epoxy Gloss, 95-1.
   d. BM Corotech Polyamide Epoxy Coating Gloss V400-62.

PART 3: EXECUTION

3.01 PREPARATION OF SURFACES

A. General

1. Comply with manufacturer’s written instructions and recommendations in “MPI Architectural Painting Specification Manual” applicable to substrates indicated.
2. Do not start work until preparation specified in surface Section is completed.
3. Ensure surfaces are dry and adequately protected from dampness.
4. Thoroughly clean surfaces free of loose, rough and foreign substances which will affect adhesion or appearance of applied coats.
5. Remove mildew and neutralize surface.
6. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface applied protection before surface preparation and painting.
   a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
   b. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
7. Complete repainting or refinishing will be required if coats are applied over improperly prepared surfaces.

B. Gypsum Board:

1. Fill minor irregularities with patching material and sand to smooth level surfaces taking care not to raise nap of paper.
2. Previously painted gypsum wallboards must be completely dry, smooth-sanded, clean and free of dust, dirt, powdery residue, grease, oil, wax or any other contaminants such as flaking or peeling paint before paint application is started. Treat or remove all contaminants and correct defects. Dull glossy old paint by light sanding or with a commercial deglosser/cleaner to assure maximum adhesion of the new coating. Patch holes and cracks with a latex patching compound, sand smooth and spot prime with the paint or enamel to be used as the final coat.

C. Masonry

1. Do not paint until moisture content of surface is 15% or below except as may be required by paint manufacturer.
2. After prime coat is dry, fill remaining small holes, cracks and other defects with Swedish putty made by mixing dry spackle with prime paint.
3. Previously painted masonry surfaces must be dry, clean and free of dust, dirt and any other contaminants. Hard glossy surfaces are to be lightly sanded or dulled with deglosser/cleaner. Surfaces in poor condition must be prepared for repainting by removing loose paint and blisters by scraping, sanding or burning. Paint in these areas are to be removed at least 12 inches beyond the failing area. Patch all holes left after removal of nails, screws, and anchors. Prime before applying finish coats.

### 3.02 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   
   1. Masonry: 12 percent
   2. Gypsum Board: 12 percent

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
   
   1. Beginning coating application constitutes Contractor’s acceptance of substrates and conditions.

E. Conditions
   
   1. Do no work when surface, coating product, air temperature, humidity or dewpoint does not meet requirements of PROJECT CONDITIONS in Part 1 of this specification.
   2. Do no interior work until building is properly enclosed.
   3. Do work under adequate illumination and dust-free conditions.

### 3.03 APPLICATION

A. Methods: Paint may be applied by brush, roller or spray methods except where particular method will produce unsatisfactory results. Where spray method is used on concrete block, follow with roller to work paint into voids.

B. Materials: Do not open containers until required for use. Stir materials thoroughly and keep at uniform consistency during application.

C. Coats
   
   1. Number specified is minimum. Provide sufficient number of coats to provide even, consistent, opaque coverage of substrate.
   2. Touch up suction spots between coats.
   3. Refinish surfaces affected by refitting work.
   4. Tint prime and under coats of paint approximately 1/2 to 3/4 depth of final color.
   5. Touch up suction and "hot" spots in plaster and concrete after application or first coat and before second coat.
   6. Do not apply next coat until previous is thoroughly dry.
7. Provide final coat which is solid and even in color; free from runs, laps, sags, brush marks, air bubbles and excessive roller stipple and worked into crevices, joint and similar areas.

8. Do not paint sealant / sealant joints.

**3.05 SCHEDULE OF INTERIOR WORK**

A. General

1. Paint complete all surfaces noted with a "PT" on Room Finish Schedule.

   a. New Work: In rooms with surfaces not scheduled for paint on Room Finish Schedule, paint hollow metal doors and frames, metal stairs and railings as occur.

   b. Existing Areas:

      1) Remodeling work: In rooms with surfaces not scheduled for paint on Room Finish Schedule, paint hollow metal doors and frames, metal stairs and railings as occur.

      2) In unscheduled areas where patching has occurred, paint all walls corner to corner and floor to ceiling. Match adjacent wall color. Paint both sides of doors and frames at locations where replacement or modifications have been made.

2. Provide specified finish on exposed surfaces including, but not limited to the following:

   a. Prime coated mechanical units, piping, pipe covering, sprinkler piping, interior duct surfaces visible behind grilles, tanks without factory finish, radiation covers, cabinet unit heaters, exposed ductwork, louvers and grilles.

   b. Electrical panel box covers and surface raceways (over factory finish), conduits and boxes and all factory primed electrical equipment. (Except in maintenance, service and electrical rooms).

   c. Hollow metal doors and frames, steel stairs, ladders and railings, catwalks and safety mesh grilles, access panels, prime painted hardware, painted astragals and vision lite kits on doors, coiling grilles and doors (unless factory finished), metal supports for counters and exposed miscellaneous metals.

3. Do not paint sealant.

4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

5. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

6. Partition Identification

   a. Place identification on all partitions indicated on Code Drawings as having a required fire or smoke rating.

   b. Identification shall be as follows:

      1) Rating (i.e. 2 HR Fire Wall; Smoketight; 2 HR Fire Barrier): Same as indicated on Code Drawing Legend.

      2) Location: With-in 15 feet at the end of each wall and a maximum of 30 feet on center, both sides of partitions, above ceiling line and below access floors.

         a) Place above access panels in hard ceilings.
3) Style of Lettering: 3 inches high, Arial Bold style, painted with aid of stencils.
4) Color: Red.

B. Concrete Masonry Units and Restored Masonry (not scheduled for epoxy):
   1. 1st Coat: Vinyl Acrylic Blockfiller.
      (1st Coat Option due to schedule constraints: 100% Acrylic Exterior Masonry Primer).
      a. Minimum DFT: 8.0 mils (75-125 sq. ft./gal).
   2. 2nd and 3rd Coat: Vinyl Acrylic Interior Eggshell Finish.
      a. Minimum DFT: 1.5 per coat.

C. Gypsum Drywall – Wall (not scheduled for epoxy):
   1. 1st Coat: 100% Acrylic Interior Primer.
      a. Minimum DFT: 1.5 mils.
   2. 2nd and 3rd Coat: Vinyl Acrylic Interior Eggshell Finish.
      a. Minimum DFT: 1.5 per coat.

D. Gypsum Drywall – Soffits/Ceilings (not scheduled for epoxy):
   1. 1st Coat: 100% Acrylic Interior Primer.
      a. Minimum DFT: 1.5 mils.
   2. 2nd and 3rd Coat: Vinyl Acrylic Interior Flat Finish.
      a. Minimum DFT: 1.4 per coat.

E. Ferrous Metal (not scheduled for epoxy):
   1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer
      a. DFT: 2.0-5.0 mils.
   2. 2nd and 3rd Coat: 100% Modified Acrylic Interior Semi-Gloss Coating.
      a. Minimum DFT: 1.3 mils per coat.

F. Zinc-coated Metal:
   1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer
      a. DFT: 2.0-5.0 mils.
   2. 2nd and 3rd Coat: 100% Modified Acrylic Interior Semi-Gloss Coating.
      a. Minimum DFT: 1.3 mils per coat.

G. Gypsum Drywall – Walls (scheduled to receive epoxy except showers):
   1. 1st Coat: 100% Acrylic Interior Primer.
      a. Minimum DFT: 1.5 mils.
   2. 2nd and 3rd Coat: Two-component, Semi-Gloss Waterbased Catalyzed Epoxy.
      a. DFT: 2.0-3.0 mils per coat.

3.06 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.07 FIELD QUALITY CONTROL

A. Testing and Painting Application: Owner reserves the right to test DFT of painted surfaces.

1. If testing discovers that DFT of installed paint does not meet specification, the Contractor will pay for initial and final testing and recoat surfaces until testing agency confirms specification is met.

END OF SECTION 09 91 00
PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes: Cubicle curtains and track.
B. Related work specified in other sections:
   1. Blocking - Section 06 10 53.
   2. Ceiling Grid - Section 09 51 00.

1.03 SUBMITTALS
A. Submit brochure and samples of materials in accordance with Section 01 33 00.
B. Submit shop drawings of track layout, showing blocking requirements.
C. Coordinate support requirements with other sections/details.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING
A. Deliver items in manufacturer's original unopened protective packaging.
B. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.
C. Handle so as to prevent damage to finished surfaces.
D. Protection: Store curtains in a protected location until just before Substantial Completion.

PART 2: PRODUCTS

2.01 CUBICLE CURTAINS
A. Manufacturer: Source One.
B. Curtain: Integral mesh fabric curtain with washable finish, 100% polyester FR, 105” wide x height (track to 12” above floor). 4” fabric header, triple folded to reinforce grommets.
   1. Flammability: Passes NFPA 701-2004-1 (test 1, small scale)
   2. Fabric/color: Maharam “Bead” 511481, color 003.

2.02 TRACK
A. Manufacturer: Imperial Fastener. #IFC-98 cubicle track with #IFC-100 roller carrier.
B. Description: Surface mounted. All radii are 12". Section size is 1-3/8" x 3/4" x .058” wall thickness. Extruded of 6063-T5 aluminum alloy. Track has a 204-RI satin anodized finish. Tracks are custom fabricated to shape and size in one continuous piece wherever possible. IFC-100 carriers have virgin nylon bodies, stainless steel bead chains and hard aluminum hooks. End stops and removable snap outs furnished with all tracks.

PART 3: EXECUTION

3.01 INSPECTION

A. Inspect surfaces to receive curtain tracks, notify Architect of discrepancies which would affect levelness, security of installation.

3.02 INSTALLATION

A. Install tracks with stainless steel screws sufficiently long to penetrate ceiling and blocking.

B. Align track carefully at joints to insure smooth operation.

C. Install cubicle curtains just prior to Substantial Completion, after other cleaning operations have been completed.

END OF SECTION 10 21 23
SECTION 10 25 13

PATIENT BED SERVICE WALLS

PART 1 – GENERAL

1.1 DESCRIPTION

A. This section specifies the furnishing, installation and connection of patient headwall systems as noted on the drawings.

1.2 RELATED WORK

A. Division 22 – Requirements for air, oxygen and vacuum outlets in the patient wall units.
B. Division 26 – General electrical requirements that are common to more than one section of Division 26.
C. Section 26 05 33 – Raceways and outlet boxes for wiring.
D. Section 26 05 21 – Cables and wiring.
E. Section 26 24 16 – Panelboard requirements for patient wall units with a panelboard.
F. Section 26 27 26 – Wiring devices to be installed in the patient wall units.
G. Section 25 52 23 – Nurse Call and Code One requirements for installation in the patient wall units.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
   2. Include electrical ratings, dimensions, mounting details, front view, side view, equipment and device arrangement, wiring diagrams, material, and connection diagrams.
   3. Determine final layout of each style of patient wall system at this stage. Provide configuration drawings showing all possible device (nurse call, medical gases, electrical receptacles and switches, etc.) locations to the Resident Engineer. The Resident Engineer will provide by return of submittal the desired configuration of each style of patient wall system. Limit the number and type of devices allowed for each style of unit to the number and type of devices specified for that style below.

B. Manuals: Two weeks prior to the final inspection, deliver four copies of the following to the Resident Engineer.
   1. Complete maintenance and operating manuals including wiring diagrams, technical data sheets, and information for ordering replacement parts:
      a. Include complete "As installed" diagrams which indicate all items of equipment, their interconnecting wiring and interconnecting piping.
      b. Include complete diagrams of the internal wiring for each of the items of equipment, including "As installed" revisions of the diagrams.
      c. Identify terminals on the wiring diagrams to facilitate installation, maintenance and operation.

C. Certifications: Two weeks prior to the final inspection, deliver four copies of the following certifications to the Resident Engineer:
   1. Certification by the manufacturer that the equipment conforms to the requirements of the drawings and specifications.
   2. Certification by the Contractor that the equipment has been properly installed, adjusted, and tested in accordance with the manufacturer’s recommendations.
1.4 APPLICABLE PUBLICATIONS:

A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in text by the basic designation only.

B. National Fire Protection Association (NFPA):
   70-11 ............................................. National Electrical Code (NEC)
   99-12 ............................................. Health Care Facilities

C. Underwriters Laboratories, Inc. (UL):
   UL listed in product category SECTIONS AND UNITS (QQXX). This standard used to investigate listed products in this category is NFPA 70 (NEC).

PART 2 - PRODUCTS

2.1 PATIENT WALL SYSTEMS

A. Shall be UL listed.

B. Shall consist of a structural framework, removable panels and removable equipment console units, factory assembled to house all permanent bedside services including but not necessarily limited to fixtures, grounding jacks, power outlets, telephone outlet, nurses call patient station, medical gas outlet(s) and other fittings or devices.

C. Shall conform to the following:
   1. Applicable requirements in NFPA 70 (NEC) and NFPA 99.
   2. Assembly and all components shall be UL listed or labeled.

D. Coordinate the mounting space provisions for the nurse call equipment with Section 27 52 23, NURSE CALL.

E. Compressed Air, Oxygen and Vacuum System Equipment: Furnish, install and test the equipment in accordance with the drawings and Section 22 62 00, VACUUM SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES and Section 22 63 00, GAS SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES.
   1. Fixed medical gas outlets are permanently installed in one location and may not be moved without special tools and shutting off the gas involved.
   2. Movable medical gas outlets:
      a. Hose connected to gas manifold type:
         1) The hoses connected to gas manifold shall be UL listed and labeled for the purpose.
         2) All hoses shall be accessible at all times. Use bars or other restraining devices to control exposed hoses. A panel may cover the hoses provided it can be easily removed without the use of special tools for hose inspection.
      b. Relocatable type:
         1) Relocatable (snap-in) without the use of tools to any one of several different fixed locations.
         2) Appropriate relocatable adapter can be used to access available gases from each fixed location.
         3) Cover all unused locations with a blank (no gas) adapter plate.

F. Electrical receptacles and switches shall comply with the requirements in Section 26 27 26, WIRING DEVICES; grounding in Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS; and internal wiring in Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW).

G. Styles:
A single bed patient wall unit consisting of a horizontal unit. Horizontal units shall consist of a minimum of three rails (two rails can be used if the bed light is independently mounted). Patient bed light power must be wired through the patient wall unit. Provide a middle rail for power, nurses call and medical gases as well as a bottom rail with bed bumper and for bed motor power. The horizontal unit shall have a vertical chase connecting the rails to the above ceiling junction boxes and gas connection points. All electrical devices shall be wired in accordance with the schematic diagram shown on the drawings.

a. Provide oxygen gas outlet(s): 2-each fixed or 1-each movable.
b. Provide air outlet(s): 2-each fixed or 1-each moveable.
c. Provide vacuum outlet(s): 2-each fixed or 2-each movable.
d. Provide emergency power outlets: 2-each NEMA 20R single receptacles, self illuminated red with stainless steel or anodized aluminum cover plate, engraved "EMERGENCY POWER" with minimum 6 mm (1/4 inch) red filled letters.
e. Provide normal power outlets: 3-each NEMA 20R single white receptacles. One of which is for the bed motor. Provide stainless steel or anodized aluminum cover plates.
f. Provide Nurses Call audio-visual single bed station.
g. Provide Tele-cart jack.
h. Provide an auxiliary light (6 to 7 watts) with hood and switch. Both shall be mounted on a stainless steel or anodized aluminum face plate installed in a single gang box.
i. Provide a switch for the overhead/exam light.
j. Provide a patient wall mounted bed light fixture. Refer to Section 26 51 00, INTERIOR LIGHTING. The bed light shall be powered through the patient wall unit.

H. All units shall have the following features:

1. Basic structural framework shall be constructed of heavy gage extruded aluminum or minimum 1.9 mm (14 gage) cold-rolled steel, designed to be a self-supporting unit for above-the-floor, for close wall mounting or a freestanding installation. For freestanding units, provide the framework with a base plate and overhead structural supports.
2. Drill and tap the side frame members to permit the installation of front panel devices at modular intervals at any elevation between the top and bottom.
3. Provide removable front panels:
   - Construct panel of the following materials:
     1) Fire retarding core material surfaced with a high pressure plastic laminated facing sheet.
     2) Vinyl material heat and pressure applied over a minimum of 1.6 mm (0.060 inch) sheet aluminum back braced for rigidity and sound control.
     3) Vinyl material heat and pressure applied over sheet steel minimum 1.6 mm (0.060 inch).
     4) Vinyl material heat and pressure applied over sheet aluminum minimum 2.0 mm (0.080 inch).
   - Color and texture shall be as specified in the Section 09 06 00, SCHEDULE FOR FINISHES.
   - Bond the panel edges with an aluminum extrusion or cold-rolled steel trim designed for mounting directly to the structural framework, thus allowing the panels to be easily removed for access to internal components and for servicing of utility connections or future modifications. Secure panels with hidden screws or other means to offer an overall finished appearance. All exposed metal surfaces or trims greater than 4 mm (1/8 inch) wide shall be of anodized aluminum or stainless steel finished to resist abrasion and affects from hospital cleaning compounds.
4. Provide Style C units with enclosing back panels. Styles A1, A2, B1 and B2 need not have back panels, provided they are edge gasketed to the wall or totally and inconspicuously edge sealed to the wall with a resilient caulking material. Attach side and back panels [sheet steel, a minimum of 1.6 mm (0.060 inch)] or equivalent strength aluminum side and back panels, with flush screws to permit close wall mounting. Finish side panels to match or compliment the front panels. Match back panel for free-standing units with the finish of the front and side panels.
5. Mount patient service components in an equipment console made up of a backbox and finish fascia:
   - Use galvanized steel backbox with outlet gang openings on minimum 60 mm (2.4 inches) uniform centers to provide mounting supports of front panel devices. Provide removable metal barriers to separate voltage sources and to facilitate wiring between segregated devices within the same horizontal module.
b. Match finish, either anodized aluminum or stainless steel of all fascia and device face plates.
c. Fascia and/or face plates may be omitted for power and grounding receptacles in the consoles if the receptacles are mounted flush in the PBPU cover panel and facilities (support members, tapped holes, spacing, etc.) are provided behind the panel for future addition or relocation of receptacles.
d. Provide smooth external surfaces having a finished appearance. Maintain adequate spacing of device plates and similar items to eliminate crevices and facilitate cleaning.

6. Provide patient services as indicated in paragraphs Styles above, the schematic wiring diagram shown on drawings, and as follows:
   a. Electrical components: Factory assembled and prewired to a sectionalized junction box at the top of the unit in accordance with circuiting and switching arrangements shown on the drawings. Factory assembled prewiring may be stranded in sizes AWG #10 and #12. Provide an equipotential ground bus with lugs suitable for connecting AWG #14 to AWG #6 conductors with a minimum of 48 screw-type terminals, unless otherwise shown.
   b. Receptacles: Single Hospital Grade NEMA 5-20R, unless otherwise specified.
   c. Provide medical gas components compatible with those installed elsewhere in the project that are factory assembled, manifolded and pre-piped, using medical grade copper pipe, to single point connections of each service at the top of the units.
   d. Provide nurse call services consisting of provisions for adequate space and matching face plates for the equipment and empty conduit to the sectionalized junction box at the top of the unit.
   e. Provide internal power and signal wiring in separate EMT, flexible metal conduits or approved raceway. Separate normal power circuits from emergency power circuits. Also, provide adequate supports for conduits and piping within the structural frame.
   f. Telephone outlets/jacks: Plug-in type as approved by the VAMC.
   g. Except for anodized aluminum and galvanized or stainless steel surfaces, clean and paint all other metal surfaces at the factory with primer and not less than two coats of baked enamel.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Installation shall be in accordance with NFPA 70 (NEC), NFPA 99, and as shown on the drawings.

B. Compressed Air, Oxygen and Vacuum System Equipment:

1. Install and test the equipment and piping system in accordance with the drawings and Section 22 62 00, VACUUM SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES and Section 22 63 00, GAS SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES.

2. Install and make connections as required for a complete and operational patient wall system for each unit.

END OF SECTION
PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes:
   1. The furnishing and installing of corner guards and handrails as indicated on the drawings.
B. Related Sections: Blocking in Walls for Fasteners – Section 09 21 16.

1.03 SUBMITTALS
A. Product for each system component specified.
B. Shop drawings indicating mounting details with the appropriate fasteners for specific project substrates.
C. Samples for verification purposes of corner guard and handrail, 8” minimum (203.20 mm) long, in full size profiles of each type and color indicated.
D. Manufacturer’s Standard Limited Warranty against material and manufacturing defects for a period of five years. Submit per Section 01 78 23.

PART 2: PRODUCTS

2.01 MANUFACTURER
A. Product: Acrovyn SM-20 Full Height Corner Guard Profile: 3”x 3”; 90°. Products by Korogard and InPro Corporation are acceptable.
   1. Snap-on covers of .080” thickness to be extruded from chemical and stain resistant polyvinyl chloride with the addition of impact modifiers. Surface to have an embossed texture.
   2. Corner guards to be of the height shown on the drawings measured from the top of the base to the top of the corner guard at areas with vinyl base and from the floor to the top of the corner guard at areas with wall tile.
   3. Colors: As selected by Architect from manufacturer’s standard colors.
   4. Top and bottom caps to be made of injection molded thermoplastics of color matching that of the corner guards. Continuous aluminum retainer of .070” thickness to be fabricated from 6063-T5 aluminum, with a mill finish.
   5. All mounting systems accessories appropriate for substrates indicated on the drawings to be provided.
B. Product: Acrovyn HRB-20N Handrails. Products by Korogard and InPro Corporation are acceptable.

1. Engineered PETG: Extruded material should be high impact Acrovyn 4000 with shadowgrain texture, nominal .078” (1.98mm) thickness. Chemical and stain resistance should be per ASTM D543 standards as established by the manufacturer. Colors to be indicated in the finish schedule from one of manufacturer’s standard color range.

2. Aluminum: Extruded aluminum should be 6063-T6 alloy, nominal .075” (1.90mm) thick retainer. Minimum strength and durability properties as specified in ASTM B221.

3. Fasteners: All fasteners to be non-corrosive and compatible with aluminum retainers. All necessary fasteners to be supplied by the manufacturer.

4. Engineered PETG Handrails to be Acrovyn 4000 by Construction Specialties: Surface mounted assembly consisting of a continuous extruded aluminum retainer with snap-on Acrovyn 4000 cover and integral shock absorbing cushions where indicated. Color matched mounting brackets to be spaced as indicated on C/S installation instructions. Color matched end caps and corners shall be attached to allow post installation adjustment. Attachment hardware shall be appropriate for wall construction.

5. Model HRB-20N 5 5/8” h (142.9mm) combination handrail/bumper guard configuration with patented quick lock mounting system.

6. Finish to match existing solid color and finish.
   a. Color: As selected by Architect to match existing from manufacturer’s full line of available colors.

7. Fabrication: Fabricate wall protection systems to comply with requirements indicated for design, dimensions, detail, finish and member sizes.

PART 3: EXECUTION

3.01 INSTALLATION – CORNER GUARDS

A. General: Locate corner guard as indicated on drawings, using mounting methods as indicated on approved shop drawings for the appropriate substrate and in compliance with the manufacturer’s instructions. Install corner guard level, plumb and at the height indicated on drawings, with surfaces free from distortion or other defects in appearance.

B. Position the aluminum retainer against the wall, allowing 5/16” from the bottom of the aluminum to the floor (at wall tile) or vinyl base. Secure the aluminum to the wall using the provided fasteners (6 fasteners per 4’ length, 10 fasteners per 8’ length and 12 fasteners per 9’ length). All aluminum retainers are pre-slotted to ease installation.

C. Attach the top and bottom caps to the aluminum retainer using two flat head self-tapping screws per top/bottom cap.

D. Starting at the top, push the vinyl cover over the aluminum until it snaps into place and continue downhill until the entire cover is secure.

E. Cleaning: At completion of the installation, clean surfaces in accordance with manufacturer’s instruction.

3.02 INSTALLATION – HANDRAILS

A. Examination
   1. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
      a. Do not proceed until unsatisfactory conditions have been corrected.
B. Preparation

1. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer’s instructions.

2. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer’s installation instructions.

C. Installation

1. Install the work of this section in strict accordance with the manufacturer’s recommendations, using only approved mounting hardware, and locating all components firmly into position, level and plumb.

2. Temperature at the time of installation must be between 65º-75ºF (18º-24ºC) and be maintained for at least 48 hours after the installation.

3. Where splices occur in horizontal runs, splice aluminum retainer and wood rail at different locations along the run.

D. Cleaning

1. General: Immediately upon completion of installation, clean rails and accessories in accordance with manufacturer’s recommended cleaning method.

2. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

E. Protection

1. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION 10 26 13
SECTION 10 28 13

TOILET ACCESSORIES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

A. Section includes: Toilet accessories where shown on the Drawings and specified herein.

B. Related work specified in other sections:
   1. Blocking - Section 06 10 53.

1.03 SUBMITTALS

A. Brochure: Submit brochure and schedule of materials in accordance with Section 01 33 00.

B. Submit a sample of each item dispensed by each type dispensing accessory machine or accessory to Construction Manager.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver items in manufacturer's original unopened protective packaging.

B. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.

C. Handle so as to prevent damage to finished surfaces.

D. Protection:
   1. Maintain protective covers on all units until installation is complete.
   2. Remove protective covers at final clean-up of installation.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. The products of Bobrick are specified, comparable products of Bradley are acceptable. All units and trim stainless steel, #4 finish.

2.02 ACCESSORIES

A. Grab Bars
   1. Bobrick B-6806 Series. Refer to Drawings for lengths.

B. Toilet Tissue Dispenser & Sanitary Napkin Disposal: Bobrick B-3094
C. Mirrors: Bobrick B-165 2436  
D. Paper Towel Dispenser: Bobrick B-359  
E. Mop and Broom Holder, Janitor Closet: Bobrick B-223 x 36  
F. Soap Dish: Bobrick B-4380  
G. Shower Seat: Bobrick B-5191 Rectangular folding seat.  
H. Shower Curtain Rod and Shower Curtain  
  1. Shower Curtain Rod: B-207 by lengths shown.  
  2. Shower Curtain: B-204-2 with B-204-1 curtain hooks, provide quantity as needed for length of curtain.  
I. Soap Dispensers (SD): Supplied by Owner, installed by Contractor.  
J. Stainless Steel Shelf: American Specialties, Inc. (914-476-9000; www.americanspecialties.com); Model No. 20692. Provide 6” deep shelf, length as coordinated with floor plan.  
K. Coat Hooks: Sugatsune America, Inc. (310-3290673; www.sugatsune.com); Model No. DSH-01.  
L. Recessed Specimen Pass-through Cabinet: Bobrick B-505.  
M. Keys to Locked Accessories: Manufacturer's standard, keyed alike.  
N. Mounting Kits: Provided with each unit shall suit wall construction.  
O. Dispensing Accessories: Fully loaded and in operating condition at time of completion.  
P. Changing Room Mirrors: Bobrick B290 6036.  

PART 3: EXECUTION  

3.01 INSPECTION  
A. Check opening scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, preparation that would affect installation of accessories.  
B. Check areas to receive surface mounted units for conditions that would affect quality and execution of work.  
C. Verify spacing of plumbing fixtures and toilet partitions that affect installation of accessories.  
D. Coordinate blocking requirements with Section 06 10 53, prior to enclosure of walls.  
E. Do not begin installation of washroom accessories until openings and surfaces are acceptable.  

3.02 INSTALLATION  
A. Drill holes according to manufacturer's mounting templates or printed instructions.  
B. Mount recessed accessories into wall openings with wood screws through cabinet side into wood blocking, or sheet metal screws into metal frames.
C. Mount surface mounted accessories to back up with toggle bolts, plumb and align.

D. Anchor grab bars to through-wall anchor plates.

3.03 ADJUST AND CLEAN

A. Adjust accessories for proper operation.

B. After completion of installation, clean and polish all exposed surfaces.

C. Deliver keys and instruction sheets to Owner’s Representative.

END OF SECTION 10 28 13
SECTION 10 44 00
FIRE PROTECTION SPECIALTIES

PART 1: GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary
Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY
A. Section includes: All fire extinguishers and cabinets as specified and shown on drawings.

1.03 SUBMITTALS
A. Submit in accordance with Section 01 33 00.
   1. Brochure: Submit brochure of materials and installation details.
   2. Shop Drawing to indicate location and quantities of all products.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Package, handle, deliver and store at the job site in a manner that will avoid damage. Damaged equipment will be
   rejected.

PART 2: PRODUCTS

2.01 MANUFACTURER
A. All equipment is specified from the line of J. L. Industries; comparable equipment of Elkhard Brass Mfg. Co.,
   General, Noris, Larsen and Badger are acceptable.

2.02 FIRE EXTINGUISHERS AND CABINETS
A. Provide a UL rated fire extinguisher, cabinet or bracket when “FE” is shown on the drawings per the following
   table:

<table>
<thead>
<tr>
<th>Application</th>
<th>Wall Material and/or Rating</th>
<th>Cabinet or Bracket Model</th>
<th>Fire Extinguisher Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Occupied Space</td>
<td>Gypsum board, masonry &amp; concrete non-rated walls.</td>
<td>1027 V10, semi-recessed with 3” return</td>
<td>Cosmic 10E, 4A-60BC</td>
</tr>
<tr>
<td>Public Occupied Space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Preparation Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Application

<table>
<thead>
<tr>
<th>Application</th>
<th>Wall Material and/or Rating</th>
<th>Cabinet or Bracket Model</th>
<th>Fire Extinguisher Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Occupied Space</td>
<td>2 hr and under fire-rated gypsum board, masonry &amp; concrete walls (cabinet carries rating)</td>
<td>1027 V10, semi-recessed with 3” return and Fire-FX rated tub</td>
<td>Cosmic 10E, 4A-60BC</td>
</tr>
<tr>
<td>Public Occupied Space</td>
<td>Over 2 hr gypsum board, masonry &amp; concrete walls (wall carries rating)</td>
<td>1027 V10, semi-recessed with 3” return</td>
<td>Cosmic 10E, 4A-60BC</td>
</tr>
<tr>
<td>Public Occupied Wood, Metal and Auto Shops</td>
<td>All types</td>
<td>Surface mounted bracket MB818.</td>
<td>Cosmic 5E, 2A-10BC</td>
</tr>
<tr>
<td>Non-public Occupied Space (i.e., boiler rooms and mechanical rooms, electrical and data rooms, receiving areas, storage rooms, elevator equipment rooms)</td>
<td>All types</td>
<td>Surface mounted bracket MB818.</td>
<td>Cosmic 5E, 2A-10BC</td>
</tr>
</tbody>
</table>

B. Cabinets shall be clear anodized aluminum with vertical narrow acrylic glazing and black vertical letters stating “FIRE EXTINGUISHER.”

**PART 3: EXECUTION**

**3.01 INSTALLATION**

A. Install level and plumb, true to line and in accord with approved installation details.

B. Unless otherwise shown, install 40 lbs. or less extinguishers 4‘-6” from floor to top of cabinet, or to nearest horizontal masonry joint, but not higher than 5‘-0”. For extinguishers greater than 40 lbs., install top of cabinet no higher than 3‘-6”.

C. Check extinguishers for proper charge, operation.

D. Remove and replace damaged, defective or under charged units.

**END OF SECTION 10 44 00**