PROJECT MANUAL

INTERIOR KITCHEN RENOVATION

CORA KELLY ELEMENTARY SCHOOL
3600 Commonwealth Ave.
Alexandria, Virginia 22305

ALEXANDRIA CITY PUBLIC SCHOOLS
1340 Braddock Place
Alexandria, Virginia 22314

GENERAL CONDITIONS
AND SPECIFICATIONS
DIVISIONS 0-16

October 29, 2019
INTERIOR KITCHEN RENOVATION

CORA KELLY ELEMENTARY SCHOOL
3600 Commonwealth Ave.
Alexandria, Virginia 22305

Owner
Alexandria City Public Schools
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Alexandria, VA 22314
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www.mdnarch.com

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Falls Church, VA 22042
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Structural Engineers
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8346 Trafford Lane, Suite 108
Springfield, VA 22152
Tel. 703-866-7771
<table>
<thead>
<tr>
<th>Division</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>011000</td>
<td>Summary of Work</td>
</tr>
<tr>
<td>012500</td>
<td>Substitution Procedures</td>
</tr>
<tr>
<td>012600</td>
<td>Modification Procedures</td>
</tr>
<tr>
<td>012900</td>
<td>Payment Procedures</td>
</tr>
<tr>
<td>013100</td>
<td>Project Management and Coordination</td>
</tr>
<tr>
<td>013200</td>
<td>Construction Progress Documentation</td>
</tr>
<tr>
<td>013300</td>
<td>Submittal Procedures</td>
</tr>
<tr>
<td>013516</td>
<td>Alteration Project Procedures</td>
</tr>
<tr>
<td>014000</td>
<td>Quality Requirements</td>
</tr>
<tr>
<td>015000</td>
<td>Temporary Facilities and Controls</td>
</tr>
<tr>
<td>017300</td>
<td>Execution</td>
</tr>
<tr>
<td>017419</td>
<td>Construction Waste Management Disposal</td>
</tr>
<tr>
<td>017700</td>
<td>Closeout Procedures</td>
</tr>
<tr>
<td>017823</td>
<td>Operating and Maintenance Data</td>
</tr>
</tbody>
</table>

Division 2 - Site Work and Demolition

- 024119 Selective Demolition

Division 3 - Concrete

- 033053 Miscellaneous Cast in Place Concrete

Division 4 – Masonry

- 042000 Unit Masonry

Division 5 - Metals

- 055000 Metal Fabrications

Division 6 - Carpentry

- 061053 Carpentry
- 064116 Plastic-Laminate-Clad Architectural Cabinets and Counters

Division 7 - Thermal & Moisture Protections

- 072100 Thermal Insulation
- 075100 Roofing and Insulation
- 078413 Penetration Firestopping
- 079200 Sealants
## TABLE OF CONTENTS

### Division 8 - Doors and Windows
- 081213 Hollow Metal Frames
- 081416 Flush Wood Doors
- 083323 Overhead Coiling Doors and Shutters
- 084113 Aluminum-Framed Entrances and Storefronts
- 087100 Finish Hardware

### Division 9 - Finishes
- 092216 Non-Structural Metal Framing
- 092300 Gypsum Plastering
- 092900 Gypsum Board
- 093013 Ceramic Tiling
- 095113 Acoustical Panel Ceilings
- 096513 Resilient Base and Accessories
- 096516 Resilient Sheet Flooring
- 096519 Resilient Flooring
- 099123 Interior Painting

### Division 10 – Specialties
- 101400 Signage
- 102113 Plastic Toilet Compartments
- 102213 Wire Mesh Partitions
- 102800 Toilet, Bath and Laundry Accessories

### Division 11 - Equipment
- 114000 Foodservice Equipment

### Division 12 - Furnishings
- None

### Division 13 - Special Construction
- None

### Division 14 - Conveying Systems
- None

### Division 15 – Mechanical
- Refer to Specifications on MEP Drawings

### Division 16 – Electrical
- Refer to Specifications on MEP Drawings

END OF SECTION
SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Phased construction and construction time.
4. Work under Owner's separate contracts.
5. Owner-furnished/Contractor-installed (OFCI) products.
6. Contractor's use of site and premises.
7. Coordination with occupants.
8. Work restrictions.
10. Building Permits
11. Hazardous Materials
12. Health and Safety Program

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: T.C. Williams – Deli Renovation

1. Project Location: 3330 King Street, Alexandria, VA 22314

B. Owner: Alexandria City Public Schools (ACPS)

1. Owner's Representative: Azjargal E. Bartlett

Construction Program Manager
Educational Facilities | Alexandria City Public Schools
azjargal.bartlett@acps.k12.va.us
c| 571.775.9720 | 202.550.7880

C. Occupant/User: Cora Kelly School

1. Architect's Representative: H. (Skip) Maginniss AIA, LEED, BD+C
   smaginniss@mdnarch.com
   703-548-0460

E. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. MEP Engineering: Provectus, Inc.
2. Structural Engineering: Mesen & Associates, PC

1.3 PHASED CONSTRUCTION AND CONSTRUCTION TIME

A. Phasing: The work will be phased to permit some construction to begin before the end of the school year.

1. Phase 1: Includes providing a temporary barrier between the Kitchen area and Serving area. The Owner will continue to serve the Cafeteria with food prepared off of the premise.
   a. Timeframe: The beginning of Spring Break (April 6, 2019) and the end of the school year (June 16, 2019).

2. Phase 2: Includes all of the work area.
   a. Timeframe: The end of the school (June 16, 2019) until Substantial Completion.

B. Construction Time: Work on-site can begin at the beginning of Spring Break (April 6, 2019). Substantial Completion shall be on or before August 16, 2019.

C. School Calendar: All work shall be coordinated with ACPS Calendar, attached at the end of this section:

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

The work comprises interior alterations with minor work on the roof. The work includes, but is not limited to, the following:

1. Demolition of finishes, building systems, partitions, walls, and doors.
2. Temporary provisions.
3. Concrete work.
4. Masonry work.
5. Steel and steel fabrications.
6. Rough carpentry.
7. Millwork.
8. Gypsum board partitions.
10. Tiling.
11. Resilient flooring.
12. Painting.
13. Doors and frames.
15. Interior storefront and glazing.
16. Toilet partitions.
17. Accessories and equipment.
18. Food service equipment.
19. Plumbing work.
20. HVAC work.
21. Electrical power, lighting, and communication.
22. Signage
23. Rough-in and Installation of owner-furnished or salvaged/contractor-installed items.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: The Owner reserves the right to have separate contractor(s) or Alexandria City Public School forces provide items or operations at Project site. These items or operations may be conducted simultaneously with work under this Contract. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts.

B. Such work includes:

1. Installing cabling, devices, and programming of data and communication systems. Contractor shall coordinate and confirm all locations with Owner prior to rough in, and provide conduit and boxes for locations indicated on the drawings.
2. Furnishing and placing the loose furnishings, small appliances, chairs and office equipment.
3. Providing door bell and access control for exterior kitchen delivery door.
4. Providing permanent cores for locksets.
5. Mitigating hazardous materials, if encountered.

1.6 CONTRACTOR'S USE OF SITE AND PREMISES

A. Use of Site: Contractor shall have use of the area within the limits of work and reasonable access as approved by the Owner. Contractor's use of Project site is limited by Owner's right to perform work, retain other contractors on portions of Project, use the adjacent portions of the building for daily activities, and the following:

1. Confine construction operations to the area designated for construction
2. Building Driveways, Walkways, and Entrances: Keep driveways and entrances serving premises clear and available to Owner, including students and staff, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

3. Maintain portions of the building adjacent the work area in operation at all times.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a safe, secure condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Owner Occupancy: The building will be in full operation during the school year and partially occupied during holidays and the school summer vacation. The Owner reserves the right to occupy the building to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work. During schedule holidays, teacher work days and summer vacation period, school staff will continue to occupy non-work portions of the building and site when the school is in session. Owner and school Users will occupy the adjacent building during entire construction period, with the exception of areas under construction. Perform the Work so as not to interfere with Owner's operations. Maintain exits, fire and life safety systems in operation, unless otherwise indicated.

1.8 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to work hours and days permitted in Alexandria and as pre-arranged with Owner.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or Owner’s Tenant others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
   1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
   2. Obtain Architect's and Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner or User with Owner.
   1. Obtain Architect's and Owner's written permission before proceeding with disruptive operations.
E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances within the existing building is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

G. Supervision: The Contractor shall have a qualified supervisor for each shift.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. 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. Imperative mood and streamlined language are generally used in the Specifications. 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.

2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.

3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.

4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Bidding and General Conditions provide by the Owner apply to the Work of all Sections in the Specifications, and supersede any conflicting directions or provisions in this document.

1.10 BUILDING PERMIT

A. The Owner will process and pay for the general building permit. The Contractor shall provide the appropriate license and contact information and obtain the approved drawings and building permit from the City of Alexandria.

1.11 HAZARDOUS MATERIALS

A. The Owner’s representative will notify the Contractor of any known asbestos or other hazardous materials that may be encountered in this building during the course of the contract, in compliance with AHERA regulations and the Virginia Occupational Safety and Health Program Hazard Communication standard. Copies of the Alexandria City Schools Hazard Communication Program and Material Safety Data Sheets for each facility are available on site and from the Owner’s Representative. Copies of the AHERA Asbestos Management Plan for each facility are available on site and from the Owner’s Representative.
1.12 HEALTH AND SAFETY PROGRAM

A. Contractor shall comply with and meet all Alexandria City Public Schools and OSHA standards during construction. Contractor shall provide Owner with a copy of a company-wide Safety Program relating to this construction project. Periodic safety meetings will be held and all safety reports maintained at the construction site. Contractor shall provide Owner with a copy of HAZMAT Communications Program which includes labeling, MSDS, employee training and other right-to-know materials.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000
# Traditional Academic Calendar

## Approved December 20, 2018

## 2019-2020

### Alexandria City Public Schools

#### Student Days

<table>
<thead>
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<th>Week 1</th>
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### Holidays

- **January 1, 2020**: New Year's Day
- **January 17, 2020**: Martin Luther King Jr. Day
- **April 13, 2020**: Easter Monday

### Prof Development Days

- **School**: Winter Break
- **Division**: Spring Break

### Teacher Work Days

- **First Day of School**: August 19, 2019
- **Last Day of School**: June 18, 2020

### Make-Up Days

- **No Make-Up**: If 9 or more days are missed, total instructional hours will be reviewed to determine if additional minutes need to be added, or if schools have sufficient instructional time to meet state requirements.

### Key Dates

- **April 13, 2020**: MEMO
- **June 22, 2020**: MEMO
- **June 23, 2020**: MEMO

### Teacher Contract Days

- **First Day of School**: August 19, 2019
- **Last Day of School**: June 18, 2020

### Instructional Days

- **Qtr 1**: 44 days
- **Qtr 2**: 48 days
- **Qtr 3**: 43 days
- **Qtr 4**: 48 days

### School Year Dates

- **Summer**: July 1, 2019 - July 31, 2020
- **Fall**: August 19, 2019 - October 31, 2019
- **Winter**: November 1, 2019 - January 31, 2020
- **Spring**: February 1, 2020 - May 31, 2020
- **Summer**: June 1, 2020 - July 31, 2020

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*If 9 or more days are missed, total instructional hours will be reviewed to determine if additional minutes need to be added, or if schools have sufficient instructional time to meet state requirements.*
SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1  SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 0013300 "Submittal Procedures" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2  DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3  ACTION SUBMITTALS

A. Substitution Requests: Submit each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable

012500-1
Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Cost information, including a proposal of change, if any, in the Contract Sum.
j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within three days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within seven days of receipt of request, seven days of receipt of additional information or documentation, whichever is later.

b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.
1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Substitution request is fully documented and properly submitted.
   c. Requested substitution will not adversely affect Contractor's construction schedule.
   d. Requested substitution has received necessary approvals of authorities having jurisdiction.
   e. Requested substitution is compatible with other portions of the Work.
   f. Requested substitution has been coordinated with other portions of the Work.
   g. Requested substitution provides specified warranty.
   h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 14 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
   b. Requested substitution does not require extensive revisions to the Contract Documents.
   c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500
SECTION 012600 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 013300 "Submittal Procedures" for requirements for the Contractor's Construction Schedule.
2. Section 012900 "Payment Procedures" for administrative procedures governing Applications for Payment.
3. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

1.03 CHANGE ORDER PROPOSAL REQUESTS

A. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Comply with requirements in Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.
C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests or other form containing the same information acceptable to the Owner and Architect.

1.04 PROPOSED MODIFICATION (PM)

A. Architect may issue directions for a change or proposed change to the Work requested by the Owner or resulting from field conditions, using Architect’s PM form.

1. The PM will include a description of the proposed modification, reason for the modification, and referenced drawings and specification sections.

2. The PM will indicate the appropriate action to be taken by the Contractor.

1.05 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of the Contractor’s Proposed Change Order Request, the Architect will issue a Change Order for signatures of the Owner and the Contractor on AIA Form G701.

END OF SECTION 012600
SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1.03 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

   1. Correlate line items in the Schedule of Values with other required administrative schedules and forms in AIA Document G702 format.
   2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than fourteen days before the date scheduled for submittal of the initial Applications for Payment.
   3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports.
   4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
   5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
      a. Differentiate between items stored on-site and items stored off-site. No Payment will be made for equipment or materials stored off-site, unless delivery tickets and insurance certificates are provided.
   6. Submit Schedules of Values within 14 days of Notice to Proceed.

1.04 APPLICATIONS FOR PAYMENT
A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

B. Payment-Application Times: The date for each progress payment is the 10th day of each month; unless mutually agreed otherwise by the Contractor and Owner. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days prior to the date for each progress payment.

C. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.

D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Architect will return incomplete applications without action.

1. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.

F. Waivers of Mechanics Lien: Where required by the General Conditions, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.

1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
2. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
3. Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.

a. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.

G. Initial Application for Payment: Administrative actions and submittals, that must precede submittal of the first Application for Payment, include the following:

1. List of subcontractors and contact information
2. List of principal suppliers and fabricators
3. Schedule of Values
4. Contractor's Construction Schedule
5. Submittal Schedule
6. List of Contractor's staff assignments and contact information
7. Copies of authorizations and licenses from governing authorities for performance of the Work
8. Initial progress report
9. Minutes of preconstruction meeting
10. Certificates of insurance and insurance policies

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.

1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

2. Administrative actions and submittals that shall precede or coincide with this application include:

a. Inspection certificates from City
b. Warranties (guarantees) and maintenance agreements
c. Test/adjust/balance records
d. Maintenance instructions
e. Startup performance reports
f. Changeover information related to Owner's occupancy, use, operation, and maintenance
g. Final cleaning
h. Advice on shifting insurance coverages
i. List of incomplete Work (punch list), recognized as exceptions to Architect’s Certificate of Substantial Completion

I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:

1. Completion of Project closeout requirements
2. Completion of items specified for completion (punch list) after Substantial Completion.
3. Release of liens and consent of surety to final payment on appropriate AIA forms.
4. Affidavit of payment of all claims against the work on appropriate AIA forms.
5. Transmittal of required Project construction records to the Owner.
6. Proof that taxes, fees, and similar obligations were paid.
7. Transmittal of attic stock material.
8. Removal of temporary facilities and services.

END OF SECTION
SECTION 013100 – PROJECT MANAGEMENT AND COORDINATION

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. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures
2. Coordination drawings
3. RFIs
4. Project meetings

B. Related Requirements:

1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Submit with 14 days of Notice to Proceed.
1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Inspections
8. Project closeout activities.
9. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed
resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.

2. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

C. Coordination Digital Data Files: Prepare coordination digital data files according to one of the following requirements:

1. File Preparation Format: DWG, Version , operating in Microsoft Windows operating system.

2. File Submittal Format: Submit or post coordination drawing files using PDF format.

1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.

2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.

2. Project number.

3. Date.

4. Name of Contractor.

5. Name of Architect.

6. RFI number, numbered sequentially.

7. RFI subject.

8. Specification Section number and title and related paragraphs, as appropriate.

9. Drawing number and detail references, as appropriate.

10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution: If Contractor's suggested resolution impacts the Contract Time or the Contract Sum: Contractor shall state impact in the RFI.

12. Contractor's signature.

13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Modification Procedures."
   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within seven days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at each progress meeting.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's CAD drawings will be available for Contractor's use during construction.

1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 10 days after the Notice to Proceed.

1. Attendees: Authorized representatives of Owner Architect, and their consultants where necessary; Contractor and its superintendent; major subcontractors (where necessary); suppliers (where necessary); and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

   a. Responsibilities and personnel assignments.
   b. Tentative construction schedule.
   c. Phasing.
   d. Critical work sequencing and long lead items.
   e. Designation of key personnel and their duties.
   f. Lines of communications.
g. Procedures for processing field decisions, Project Modifications, and Change Orders.
h. Procedures for RFIs.
i. Procedures for testing and inspecting.
j. Procedures for processing Applications for Payment.
k. Distribution of the Contract Documents.
l. Submittal procedures.
m. Preparation of Record Documents.
n. Use of the premises.
o. Work restrictions.
p. Working hours.
q. Owner's occupancy requirements.
r. Responsibility for temporary facilities and controls.
s. Procedures for moisture and mold control.
t. Procedures for disruptions and shutdowns.
u. Construction waste management and recycling.
v. Parking availability.
w. Office, work, and storage areas.
x. Equipment and material deliveries and priorities.
y. First aid.
z. Security.
aa. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

D. Progress Meetings: Conduct progress meetings at biweekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
1) Review schedule for next two week period.

3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Construction schedule updating reports.
3. Daily construction reports.
4. Site condition reports.

1.2 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 Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

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 connected chain of interdependent 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 not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed 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 successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. PDF file.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
   1. Submit a working PDF copy of schedule, using Microsoft Project software acceptable to Architect and Owner, and labeled to comply with requirements for submittals.
   2. Provide minimum 11"x17" paper copies at each Progress Meeting.
   3. Submit within 14 days of Notice to Proceed together with Submittal Schedule.

C. Construction Schedule Updating Reports: Transmit updated Schedule bi-weekly.

D. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
   1. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
   1. Use Microsoft Project for current Windows operating system.

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each main element of the Work as a separate numbered activity. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.

2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.


4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

5. Punch List and Final Completion: Include not more than 14 days for completion of punch list items and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

   1. Phasing: Arrange list of activities on schedule by phase.
   2. Owner-Furnished Products and Existing Items to be Re-Installed: Include a separate activity for each item. Include required delivery and installation as listed in Section 011000 "Summary."
   3. Work Restrictions: Show the effect of the following items on the schedule:

       a. Coordination with the user’s (Cora Kelly School) school schedule.
       b. Phasing

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update.

F. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.

   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.

G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
H. 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 site.
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.

1.6 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 14 days of date established for the Notice to Proceed. Schedule must indicate critical path.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200
SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Submittal schedule requirements.
   2. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

   1. Submit Submittal Schedule in PDF format within 14 days of the Notice to Proceed.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

   1. Project name.
   2. Date.
   4. Name of Contractor.
   5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Paper Submittals:
   1. Submit paper submittals only if PDF copies cannot be obtained.
   2. Include a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
   3. Provide Contractor's review and approval markings and action taken by Architect.
   5. Informational Submittals: Submit unless otherwise indicated. Architect will not make a response.
   6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling.

E. Submittal Format: PDF submittals are preferred. Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number. Submit three paper copies if PDF submittal is not possible.

1.5 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
2. Paper: Prepare submittals shall be delivered to Architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 work days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination or because the submittal is extensive.
2. Resubmittal Review: Allow 10 work days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form as initial submittal.

E. Distribution: Furnish final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's product specifications.
   c. Standard color charts.
   d. Statement of compliance with specified referenced standards.
   e. Testing by recognized testing agency.
   f. Application of testing agency labels and seals.
   g. Notation of coordination requirements.
   h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams that show factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's most current digital data drawing files is otherwise permitted.

1. General: Submit shop drawings in PDF format. If PDF copies are not available, submit paper copies.
2. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.

3. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, prepare Shop Drawings on sheets at least 8-1/2 by 11 inches, and preferably no larger than 24 by 36 inches.
   a. When paper copies are to be submitted, provide three opaque (bond) copies of each submittal. Architect will return one copy(ies).
C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
   a. Project name and submittal number.
   b. Generic description of Sample.
   c. Product name and name of manufacturer.
   d. Sample source.
   e. Number and title of applicable Specification Section.
   f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.

4. Paper Transmittal: Include paper transmittal including complete submittal information indicated to include with actual sample.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal and one set with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.

2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.


H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

2. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

3. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

4. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
5. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

a. Name of evaluation organization.
b. Date of evaluation.
c. Time period when report is in effect.
d. Product and manufacturers' names.
e. Description of product.
f. Test procedures and results.
g. Limitations of use.

1.7 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return it.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

2. Paper Submittals: Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will discard submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300
SECTION 013516 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep existing items that are not to be removed or dismantled.

L. Restore: To return Work to its condition prior to disturbance.
M. Strip: To remove existing finish down to base material unless otherwise indicated.

N. Work Area: Area within temporary barriers.

1.3 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration work, Architect will conduct conference at Project site. This may be combined with the Pre Construction Conference.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, the HVAC, Electrical, Sprinkler, and Acoustical Ceiling sub-contractors, may be represented at the meeting.

2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:

   a. Fire-prevention plan.
   b. Governing regulations.
   c. Areas where existing construction is to remain and the required protection.
   d. Hauling routes.
   e. Sequence of alteration work operations.
   f. Storage, protection, and accounting for salvaged and specially fabricated items.
   g. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

3. Reporting: Contractor will record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination meetings with sub-contractors specifically for alteration work at weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1.4 MATERIALS OWNERSHIP

A. Items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.
1.5 QUALITY ASSURANCE

A. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.

B. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.


1.6 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials:
   1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
   2. Protect items after cleaning; cushion against damage during handling. Label contents of containers.
   3. Store items in a secure area until delivery to Owner.
   4. Protect items from damage during transport and storage.

B. Salvaged Materials for Reinstallation:
   1. Repair and clean items for reuse as indicated.
   2. Protect items after cleaning and repairing; cushion against damage during handling. Label contents of containers. Store on-site in area designated by Owner.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

D. Storage: Store items in a location where they are protected from moisture, weather, condensation, and freezing temperatures.
3.1 PROTECTION

A. Protect persons, surrounding surfaces of building, from harm resulting from alteration work.
   1. Use only proven protection methods, appropriate to each area and surface being protected.
   2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
   3. Erect temporary barriers to form and maintain fire-egress routes.
   4. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
   5. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
   6. Protect floors and other surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Materials to Remain:
   1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
   2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

C. Comply with each product manufacturer’s written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
   1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
   2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
3.2 PROTECTION FROM FIRE

A. General: Follow the following:

1. Comply with NFPA 241 requirements unless otherwise indicated.
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

   a. If combustible material cannot be removed, provide fire blankets to cover such materials.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

   1. Obtain Owner's approval for operations involving use of open-flame or welding or other high-heat equipment. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
   2. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.

   1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 GENERAL ALTERATION WORK

A. Notify Architect of visible changes in the integrity of material or components whether from environmental causes or from structural defects including cracks, movement, or distortion.

   1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services may be required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

   1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.

   2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities...
having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Owner.

1.3 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to
be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.6 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections.

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those
performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Engage a qualified testing agency to perform quality-control services.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.
SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

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

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Project Identification and Temporary Signs: Show location and message content.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Moisture-and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.
E. Dust- and HVAC-Control Plan: Submit narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
5. Other dust-control measures.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.


1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Contractor may designate an area within the work area to place a lockable desk and file cabinet. Other lockable containers may be provided inside or outside the work area if approved by the owner.

B. Project meetings may be held in the work area or at another location in the school.

C. Common-Use Facilities: Of sufficient size to accommodate construction personnel as follows:
   1. Drinking water.
   2. First Aid equipment.
   3. Portable toilet(s) located outside of the building in a location approved by the owner.
4. Storage containers, if required, to be portable lockable units located outside of the building in a location approved by the Owner.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment:
   1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
   2. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction, and clean HVAC system as required in Section 017700 "Closeout Procedures."

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

B. Phasing: Relocate or provide new temporary facilities as required to comply with the phasing of construction.

3.2 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 by progress of the Work. Obtain owner’s approval for the location of all facilities.

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

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Connect to existing services, where available and so as to not affect the operation of the remaining facility. Otherwise provide temporary utilities.
B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel.

C. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas. Coordinate type and location of barriers with Architect and Owner.

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

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations and inspections.

G. Telephone Service: Provide cell phone telephone service for superintendent and assistant superintendent.

H. Electronic Communication Service: Provide a mobile computer for use by the Superintendent and Assistant Superintendent to access Project electronic documents and maintain electronic communications.

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
   1. Protect existing site improvements to remain including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
   1. Temporary Signs: Provide signs as indicated and as required to inform public and individuals seeking entrance to Project. Obtain approval from owner for type and location.

E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities.
having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
   1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

F. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner or Occupant from fumes and noise.
   1. Construct dustproof partitions with gypsum wallboard or plywood with joints taped.
   2. Provide walk-off mats at each entrance through temporary partition.
   3. Relocate temporary partitions as required to comply with construction phasing.

G. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
   1. Prohibit smoking on the school property and construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
2. Indicate methods to be used to avoid trapping water in finished work.

B. Controlled Construction Period: Prior to completion of the HVAC system work, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.7 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: 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. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000
SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout
2. Installation of the Work
3. Cutting and patching
4. Progress cleaning
5. Starting and adjusting
6. Protection of installed construction

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.2 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's...
aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer and water-service piping; underground electrical; and other utilities.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

B. General: Lay out the Work using accepted practices.

1. Establish control points to set lines and levels of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

D. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

E. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Remove and replace damaged, defective, or non-conforming Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
   5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as
invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.


2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

   a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

5. Clean and keep construction barriers.

B. Site: Maintain Project site free of waste materials and debris.
C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 COMMISSIONING STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components.

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

F. Provide written summary of commissioning listing all equipment commissioned and certification that all equipment is operating as intended by the manufacturer.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300
SECTION 017419 – CONSTRUCTION WASTE MANAGEMENT DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Recycling nonhazardous demolition and construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, acceptable to authorities having jurisdiction.

C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

D. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

E. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 ACTION SUBMITTALS

A. Waste Management Plan: Provide a written description of the Waste Management Plan indicating compliance before beginning work.

1.4 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section.

B. Waste Identification: Indicate anticipated types and quantities of waste generated by the Work.
PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical or engage a certified waste disposal contractor that used single stream recycling.

1. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, remove waste materials daily.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

3.4 ATTACHMENTS

END OF SECTION 017419
SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

1. Inspection procedures
2. Project record document submittal
3. Operation and maintenance manual submittal
4. Submittal of warranties
5. Final cleaning

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16, and on the HVAC, Plumbing and Electrical Drawings.

1.03 SUBSTANTIAL COMPLETION

A. These procedures apply to substantial completion of a phase or substantial completion of the completed project.

B. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. Prepare a “pre-punch” list for each room or area for the work and distribute it to subcontractors for correction. Submit list to Architect.
2. Obtain inspections from the City of Alexandria and provide evidence of approval of the work for occupancy.
3. Obtain and submit releases enabling the Owner unrestricted use of the Work. Include occupancy permits, operating certificates, and similar releases.

C. Inspection Procedures: On receipt of a request for inspection, the Architect will
either proceed with inspection or advise the Contractor of unfilled requirements. Following inspection, the Architect will prepare the Certificate of Substantial Completion together with a list of minor corrective work (punch list) or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

D. Refer to Payment Procedures Section 012900 and Instructions to items required in conjunction with Bidders Application for Payment.

1.04 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
4. Submit consent of surety to final payment.
5. Submit a final liquidated damages settlement statement.
6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
7. Submit commissioning report and testing and balancing report.

B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.

C. Refer to Application for Payment Procedures Section 012900 and Instruction to Bidders for items required in conjunction with Application for Payment.

1.05 RECORD DOCUMENT SUBMITTALS
A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Architect’s reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
3. Note related change-order numbers where applicable.
4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
3. Note related record drawing information and Product Data.
4. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work
that cannot otherwise be readily discerned later by direct observation.

3. Upon completion of markup, submit complete set of record Product Data to the Architect for the Owner's records.

E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Architect for the Owner's records.

F. Maintenance Manuals: See Section 017823, “Operating and Maintenance Data”.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Startup
2. Shutdown
3. Emergency operations
4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments
7. Effective energy utilization

C. Ceiling Concealment Inspection.

1. General: Prior to installation of ceiling panels, an inspection shall be conducted to ascertain the quality and degree of completion of all work above the finished ceiling and to record any discrepancies in the Contract Documents. The inspection shall be conducted by representatives of the Architect, Owner and the Contractor and the results recorded in an Inspection Report prepared by the Contractor.

2. Ceiling Suspension System: Grilles, registers, diffusers, light fixtures and cut panels around fixtures may be installed prior to the inspection, however, ceiling panels shall not be laid in place until after the inspection and all discrepancies have been corrected.

3. Copies of the Inspection Report: Reports shall be prepared by the Contractor with copies to the Owner and Architect. The inspection report shall be annotated as each discrepancy is corrected and any discrepancy remaining at the time of the Final Inspection shall be included on the punch list.

3.02 CLEANING

A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Section 015000 "Temporary Facilities and Controls."

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for each phase of work.
   a. Remove labels that are not permanent labels.
   b. Replace chipped or broken glass and other damaged transparent materials.
   c. Leave tile and concrete floors broom clean. Vacuum carpeted surfaces.
   d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean light fixtures and lamps.
   e. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake
grounds that are neither paved nor planted to a smooth, even-textured surface. Remove mud and dirt from pavement.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner.

END OF SECTION 017700
SECTION 017823- OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section, with special attention to the following:

1.02 DESCRIPTION OF WORK
   A. Compile product data and related information appropriate for Owner's record, maintenance and operation of products, equipment, materials and systems furnished under the Contract.

   B. Prepare record, operating and maintenance data as specified in this Section and as referenced in other pertinent sections of Specifications.

   C. All information shall be organized into a Record and Information Booklet.

1.03 SUBMITTAL PROCEDURES
   A. Prepare one (1) complete hardcopy and one (1) PDF digital copy of the Record and Information Booklet and deliver to the Architect.

   B. The Architect shall review the booklet for compliance to the requirements specified in this section. If found to be non-complying, the booklet shall be returned to the Contractor for corrections.

   C. The Architect shall indicate approval of the booklet by review stamp on each copy and shall forward the booklet and digital copy to the Owner. The Owner shall not accept the booklets unless they have been reviewed and stamped as approved.

PART 2 - PRODUCTS

2.01 FORM OF SUBMITTALS
   A. Prepare data in the form of an instructional manual for use by Owner's personnel.
B. Format:

1. Size: 8 1/2" x 11".
2. Paper: 20 pound, minimum, white, for typed pages.
3. Text: Manufacturer's printed data, or neatly typewritten. All catalog, data, maintenance and cleaning instructions shall be on manufacturer's letterhead, or have other identification indicating the manufacturer as source of information.

C. Drawings:

1. Provide reinforced punched binder tab, bind in with text.
2. Fold larger Drawings to the size of the text pages.

D. Provide flyleaf for each separate product, or each piece of operating equipment.

1. Provide typed description of product and major component parts of equipment.
2. Provide indexed tabs.

E. Cover: Identify each volume with typed or printed title "RECORD AND INFORMATION BOOKLET", and the name of the project.

F. Identify on each volume a list of general subject matter covered in the manual.

2.02 BINDERS

A. Commercial quality three-ring binders with durable and cleanable plastic covers.

B. Maximum ring size: 3 inches

C. When multiple binders are used, correlate the data into related, consistent groupings. Mark binders in sequence.

2.03 CONTENT OF BOOKLET

A. Neatly typewritten table of contents for each volume, arranged in a systematic order by specifications divisions.

B. Indicate contractor, name of responsible principal, address and telephone number.

C. List each product material, piece of equipment, and system required to be included, indexed to the content of the volume. Include serial and/or model numbers of equipment where appropriate, in order to specifically identify such
items.

D. List with each product material, piece of equipment and system as appropriate, the name, address and telephone number of the following with the area of responsibility clearly identified for each:

1. Manufacturer.
2. Representative.
3. Subcontractor or installer.
4. Maintenance Contractor as appropriate.

E. Indicate local source of supply for parts and replacement.

F. Identify each product-by-product name and other identifying symbols a set forth in Contract Documents.

G. Include operating, cleaning and maintenance information.

H. Include copies of each warranty, bond and service contract issued.

I. Information Sheet: Provide information sheet on manufacturer's letterhead indicating the following:

1. Proper procedures in the event of equipment or systems failure.
2. Conditions that may affect the validity of warranties or bonds.

2.04 PRODUCT DATA

A. Include only those sheets that are pertinent to the specific product.

B. Annotate each sheet to:

1. Clearly identify the specific product or part installed.
2. Clearly identify the data applicable to the installation.
3. Delete references to inapplicable information.

2.05 DRAWINGS

A. Supplement product data with Drawings as necessary to clearly illustrate:

1. Relations of component parts of equipment and systems.
2. Control and flow diagrams.

B. Coordinate drawings with information in "as-built" drawings, shop submittals or other project record information to assure correct illustration of completed
C. Do not use project record information as operating and maintenance drawings.

D. Organize in a consistent format under separate headings for different procedures.

E. Provide a logical sequence of instructions for each procedure.

F. Items included in each Booklet: The Booklet shall contain a complete description of all products materials, equipment and systems as outlined in Part 3.

PART 3 - EXECUTION

3.01 PRODUCT, MATERIALS, EQUIPMENT AND SYSTEMS DESCRIPTIONS

A. Division 1 - General Requirements
   1. Warranties and Bonds: Provide a copy of each warranty specified, bond and service contract issued. Execute warranties and bonds in accordance with provisions of Section 01740.

B. Division 3 - Concrete
   1. None

C. Division 4 - Masonry
   1. None

D. Division 5 - Metals
   1. None.

E. Division 6 – Wood
   1. None.

F. Division 7 - Thermal and Moisture Protection
   1. Fire Stopping: Identify system type and system components.

G. Division 8 - Doors and Windows
1. Wood Doors: Provide manufacturer’s warranty and maintenance information.

2. Coiling Doors and Shutters: Provide manufacturer’s warranty and maintenance information.

H. Division 9 - Finishes

1. Acoustical Tile Ceilings: Identify type of grid and each type of panel.

2. Resilient Flooring, Resilient Tile and Base:
   a. Identify each type, provide manufacturer's catalog number and name of each color or pattern.
   b. Provide manufacturer's recommended maintenance and cleaning instructions.

3. Paint and Coatings: Identify each type of paint color and coating by schedule.

4. Ceramic Tile:
   a. Provide list of tile colors, shapes and sizes.
   b. Provide list of grout colors.

I. Division 10 - Specialties

1. Toilet Accessories and Partitions: Provide manufacturer’s warranty and maintenance information for each type.

J. Division 11 – Equipment

1. Food Service Equipment: Provide manufacturer’s warranty and maintenance information.

K. Division 12 - Furnishings

1. None

L. Division 14 - Conveying Systems

1. None

M. Division 15 – Mechanical

1. Plumbing
   a. Provide manufacturer’s warranty and maintenance information for each piece of equipment.
2. Heating and air conditioning systems: Include the following:
   a. Provide manufacturer’s warranty and maintenance information for each piece of equipment.
   b. List of manufacturer’s identifications of diffusers and grilles.

N. Division 16 - Electrical

1. Power, Lighting and Special Systems: Include the following:
   a. Manufacturer's catalog data and parts list for each item of electrical sub-distribution equipment, along with preventative maintenance instructions.
   b. Manufacturer's catalog data, "equipment cuts", fixture lamping schedule and parts list for all lighting fixtures; indicate installed locations.
   c. Manufacturer's catalog data, "equipment cuts", parts list and "as built" wiring diagrams for all components of all special systems: fire alarm system.

END OF SECTION 017823
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Indicate the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of selective demolition activities with starting and ending dates for each activity.

1.4 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection and life safety facilities in service during selective demolition operations.

G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey condition of area of work.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

1. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

2. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

   a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.

   b. Equipment to Be Removed: Disconnect and cap services and remove equipment.

   c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
d. Equipment to Be Removed and Salvaged by Owner: Disconnect and cap services and remove equipment and deliver to Owner.
e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and patch remaining ducts with same or compatible ductwork material.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

3. Do not use cutting torches if at all possible. If necessary, clear area of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.

4. Maintain fire watch during and after flame-cutting operations.

5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

6. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Phasing: Plan demolition activities to coordinate with indicated phasing.

C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
D. Removed and Salvaged Items:
   1. Clean salvaged items and protect.
   2. Store items in a secure area until delivery to Owner.
   3. Protect items from damage during transport and storage.

E. Removed and Reinstalled Items:
   1. Clean and repair items to functional condition adequate for intended reuse.
   2. Protect items from damage during transport and storage.
   3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 CLEANING

A. Remove demolition waste materials from Project site.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119
SECTION 033053 - MISCELLANEOUS CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY
   A. Section includes cast-in-place concrete patching, including reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS
   A. Product Data: For each type of product.
   B. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE
   A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL
   A. Comply with ACI 301.

2.2 STEEL REINFORCEMENT
   A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
   B. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 CONCRETE MATERIALS
   A. Cementitious Materials:
      1. Portland Cement: ASTM C150/C150M, Type I or Type II.
      2. Fly Ash: ASTM C618, Class C or F.
      3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
B. Normal-Weight Aggregate: ASTM C33/C33M, 1-1/2-inch nominal maximum aggregate size.

C. Air-Entraining Admixture: ASTM C260/C260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
   1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
   2. Retarding Admixture: ASTM C494/C494M, Type B.
   3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
   4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
   5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
   6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.

E. Water: ASTM C94/C94M.

2.4 FIBER REINFORCEMENT

A. Synthetic Micro-Fiber: Monofilament or fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1/2 to 1-1/2 inches long.

2.5 RELATED MATERIALS

A. Vapor Retarder: Plastic sheet, ASTM E1745, Class A or B.

B. Vapor Retarder: Polyethylene sheet, ASTM D4397, not less than 10 mils thick; or plastic sheet, ASTM E1745, Class C.

C. Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber, or ASTM D1752, cork or self-expanding cork.

2.6 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth or cotton mats.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.
Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

1. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.7 CONCRETE MIXTURES

A. Normal-Weight Concrete:
   1. Minimum Compressive Strength: 4500 psi at 28 days.
   2. Maximum W/C Ratio: 0.45.
   3. Cementitious Materials: Use fly ash, pozzolan, slag cement, and blended hydraulic cement as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
      a. Slump Limit: 4 inches plus or minus 1 inch.
   4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of trowel-finished floor slabs to exceed 3 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than a rate of 1.5 lb/cu. Yd.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M[ and ASTM C1116/C1116M], and furnish batch ticket information.
   1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
3.3 VAPOR-RETARDER INSTALLATION
A. Install, protect, and repair vapor retarders according to ASTM E1643; place sheets in position with longest dimension parallel with direction of pour.
   1. Lap joints 6 inches and seal with manufacturer's recommended adhesive or joint tape.

3.4 STEEL REINFORCEMENT INSTALLATION
A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
   1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS
A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
B. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness
C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
   1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

3.6 CONCRETE PLACEMENT
A. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
B. Do not add water to concrete during delivery, at Project site, or during placement.
C. Consolidate concrete with mechanical vibrating equipment according to ACI 301.

3.7 FINISHING FORMED SURFACES
A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections exceeding 1/2 inch.
   1. Apply to concrete surfaces not exposed to public view or scheduled to receive finishes.
B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch.

1. Apply to concrete surfaces exposed to public view, or to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING UNFORMED SURFACES

A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.

1. Do not further disturb surfaces before starting finishing operations.

C. Scratch Finish: Apply scratch finish to surfaces indicated and surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes unless otherwise indicated.

D. Float Finish: Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, fluid-applied or direct-to-deck-applied membrane roofing.

E. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

F. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

G. Slip-Resistive Broom Finish: Apply a slip-resistant finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 305.1 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.
SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete masonry units.
   2. Concrete building brick.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Verification: For each type and color of colored mortar.

1.4 INFORMATIONAL SUBMITTALS

A. Mix Designs: For each type of mortar: Include description of type and proportions of ingredients.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work and will be within 20 feet vertically and horizontally of a walking surface.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
   1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
   1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
   2. Provide bullnose edges for units at outside corners, vertical ends, or as indicated. Grinding edges of standard block is not acceptable.

B. CMUs: ASTM C90.
   1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.
   2. Density Classification: Medium weight or Normal weight.

C. Concrete Building Brick: ASTM C55.
   1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
   2. Density Classification: Normal weight.

2.3 CONCRETE LINTELS

A. Concrete Lintels: ASTM C1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated. Provide lintels with net-area compressive strength not less than that of CMUs.
2.4 BRICK
   A. Provide face brick of size, type and color to match existing exterior face brick.

2.5 MORTAR AND GROUT MATERIALS
   A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
   B. Hydrated Lime: ASTM C207, Type S.
   C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
   D. Masonry Cement: ASTM C91/C91M.
   E. Aggregate for Mortar: ASTM C144.
      1. White-Mortar Aggregates: Natural white sand or crushed white stone.
   F. Aggregate for Grout: ASTM C404.
   G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
   H. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
   I. Water: Potable.

2.6 REINFORCEMENT
   A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60.
   B. Masonry-Joint Reinforcement, General: ASTM A951/A951M.
      1. Interior Walls: Hot-dip galvanized carbon steel.
      2. Exterior Walls: Hot-dip galvanized carbon steel.
      5. Wire Size for Veneer Ties: 0.187-inch diameter.
      6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
      7. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

2.7 TIES AND ANCHORS
   A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.
B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

3. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch-diameter, hot-dip galvanized-steel wire.
2. Tie Section: Triangular-shaped wire tie made from 0.187-inch-diameter, hot-dip galvanized-steel wire.

D. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins unless otherwise indicated.

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M.

2.8 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:

1. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, 0.016 inch thick.
2. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 1/4 inch to form a stop for retaining sealant backer rod.

B. Flexible Flashing: Use one of the following unless otherwise indicated:

1. Copper-Laminated Flashing: 5-oz./sq. ft. copper sheet bonded between two layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
2. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch.

C. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
2.9 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.

B. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

C. Weep/Cavity Vent Products: Use one of the following unless otherwise indicated:

   1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.

   2. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard.

   3. Vinyl Weep Hole/Vent: Units made from flexible PVC, designed to fit into a head joint and consisting of a louvered vertical leg, flexible wings to seal against ends of masonry units, and a top flap to keep mortar out of the head joint; in color selected by Architect.

D. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

   1. Configuration: Provide one of the following:

      a. Strips, full depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep that prevent clogging with mortar droppings.

      b. Strips, not less than 1-1/2 inches thick and 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.

2.10 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.11 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

   1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime or masonry cement mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
4. Provide color to match existing.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

   1. For masonry below grade or in contact with earth, use Type M.
   2. For reinforced masonry, use Type S.
   3. For mortar parge coats, use Type S or Type N.
   4. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.

D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

   1. Pigments shall not exceed 10 percent of portland cement by weight.
   2. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
   3. Mix to match Architect's sample.
   4. Application: Use pigmented mortar for exposed mortar joints with the following units:

      a. Clay face brick.

E. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.

   1. Mix to match Architect's sample.
   2. Application: Use colored-aggregate mortar for exposed mortar joints with the following units:

      a. Clay face brick.

F. Grout for Unit Masonry: Comply with ASTM C476.

   1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
   2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
   3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143/C143M.
PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C67. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:
   1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
   2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
   3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:
   1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
   2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
   3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
   4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
   5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.

C. Joints:
   1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
   2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
   3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.
3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

E. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay brick and CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.5 CAVITY WALLS

A. Bond wythes of cavity walls together using one of the following methods as follows:

1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 4.5 sq. ft. of wall area spaced not to 16 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 36 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches o.c. vertically.
   a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes.
   b. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) reinforcement with continuous horizontal wire in facing wythe attached to ties.
   c. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable-type (two-piece-type) reinforcement with continuous horizontal wire in facing wythe attached to ties to allow for differential movement regardless of whether bed joints align.

B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

C. Parge cavity face of backup wythe in a single coat approximately 3/8 inch thick. Trowel face of parge coat smooth.

D. Installing Cavity Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.

3.6 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
   1. Space reinforcement not more than 16 inches o.c.
   2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.

3.7 FLASHING, WEEP HOLES, AND CAVITY VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B. Install flashing as follows unless otherwise indicated:
   1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
   2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches, and through inner wythe to within 1/2 inch of
the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.

3. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.

4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.

5. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.

C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vent products to form weep holes.
2. Space weep holes 24 inches o.c. unless otherwise indicated.
3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.

D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

E. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form cavity vents.

1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.8 REINFORCED UNIT MASONRY

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches.

3.9 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste that cannot be recycled, and other masonry waste, and legally dispose of off Owner's property.
SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section.

1.02 REFERENCE DOCUMENTS

A. ASTM A36 - Structural Steel.
B. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc-Coated Welded and Seamless.
C. ASTM A283 - Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
D. ASTM A501 - Hot Formed Welded and Seamless Carbon Steel Structural Tubing.
E. ASTM A512 - Cold-Drawn Buttweld Carbon Steel Mechanical Tubing.
G. "Metal Finishes Manual" Published by National Association of Architectural Metal Manufacturer's (NAAMM).

1.03 RELATED WORK

A. Section 042200 – Concrete Unit Masonry - Patching; installation of loose lintels and attachment of fabrications to masonry.
B. Section 099123 – Interior Painting; finish painting in the field.

1.04 DESCRIPTION OF WORK

A. Miscellaneous metal work shall include items fabricated from iron and steel plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems.

B. Miscellaneous metal work shall include loose lintels or other supports which are not part of building structural system.

C. Miscellaneous metal work shall include, but not be limited to:

055000-1
1. Access doors.

2. Miscellaneous loose steel lintels, individual members and fabricated built-up assemblies.

3. All miscellaneous framing and supports.

4. Priming and painting of work of this section as specified.

1.05 SUBMITTALS

A. Submit Shop Drawings for fabrication and erection of miscellaneous metal assemblies. Includes plans and elevations at not less than 1/4 inch to 1 ft.-0 in. scale, and include details of sections and connections at not less than 3 inches to 1 ft.-0 in. scale. Indicate all anchorage and accessory items.

B. Welding: Copies of certificates for welders and description of welding procedures.

PART 2 - PRODUCTS

2.01 METALS

A. Steel:


2. Steel plates to be bent or cold-formed: ASTM A283, grade C.


5. Pipe: ASTM A53, Type E, Grade E, galvanized where exposed to weather.

6. Flat Rolled Steel Sheets: ASTM A611, class I (cold rolled), or ASTM A570 (hot rolled). Galvanized steel sheets: ASTM A525 and ASTM A526; G90 coating.

7. Steel Bars: hot rolled, ASTM A575; other bars or bar shapes, ASTM A663 or ASTM A36.

B. Expansion shields: Type and size to support load imposed.

C. Stainless Steel:


2. Plates, Sheets and Strips: STM A167 or A176, type best suited for purpose.

D. Fasteners
1. General: Furnish all bolts, nuts, screws, clips, washers, and any other fastenings necessary for proper erection of items specified herein.
   
   a. For ferrous metal use stainless steel on exterior. On interior match adjacent material, or if not applicable, provide zinc coated fasteners.
   
   b. For stainless steel, AISI 300 Series Stainless Steel. Unless noted otherwise, exposed screws shall be Phillips flat head, countersunk.

2. Products:
   
   a. Toggle Bolts: FS FF-W-84.
   
   
   c. Lag Bolts: FS FF-B-561, square head.
   
   
   e. Wood Screws: Carbon Steel, FS FF-W-92, round.
   
   
   g. Expansion Shields: FS FF-S-325.
   
   h. Lock Washers: Carbon Steel, FS FF-W-84, helical spring type.
   
   i. Powder Driven Fasteners: FS FF-P-395; comply with ANSI A10.3.
   
   j. Expansion anchors: Per Structural Drawings
   
   k. Sleeve anchors: Per Structural Drawings

E. Welding Electrodes: As permitted by AWS Code D1.1.


2.02 ACCESS DOORS

A. Access doors shall be furnished and installed in accordance with requirements of Mechanical and Electrical Sections and the Drawings. Doors shall be the product of Inryco/Milcor, Karp or pre-bid approved equal. All access doors shall be from a single manufacturer. Install in accordance with the manufacturer's printed instructions as modified herein.

B. Where walls or ceilings consist of fire-resistive assemblies, doors shall be UL rated the same as the wall or ceiling in which they are installed.

C. Doors shall be as inconspicuous as possible and wherever possible located so as to be inaccessible to the public and shall receive the same finish as the material in which they are installed except use brushed stainless steel for ceramic tile or glazed structural tile. Use units with beaded flange in gypsum board assemblies. Utilize doors specifically designed for installation in the type of wall or ceiling material involved.

D. Doors located in public areas shall be furnished with cylinder locks and all locks keyed alike. Provide minimum three (3) keys.

2.03 MISCELLANEOUS FRAMING AND SUPPORTS FOR EQUIPMENT

055000-3
A. Provide steel framing and supports that are not a part of structural steel framework as necessary to complete the Work. Fabricate from structural steel of welded construction. Cut, drill, and tap units to receive hardware, hangers, and similar items.

2.04 LOOSE LINTELS AND SUPPORTS

A. Provide structural steel angles, channels, tees, plates as detailed for masonry opening lintels and other locations shown on drawings. Provide shop primed steel items at exterior locations unless otherwise noted.

B. Length, size and bearing of lintels shall be as scheduled on the Structural Drawings. Where minimum bearing cannot be obtained due to proximity of structural framing member, notify the Engineer for direction before proceeding with installation.

2.05 PAINT

A. Metal primer paint: Fabricator’s rust inhibitive primer containing less than 1 percent lead, Fed. Spec. TT-P-86, Type II or TT-P-645 (zinc chromate type)

2.06 FABRICATION

A. Use materials of size and thickness indicated, or if not indicated, of the required size and thickness to produce adequate strength and durability in the finished product for intended use. Work to dimensions indicated on drawings using industry proven details of fabrication and support.

B. Form exposed work with accurate angles and surfaces and straight sharp edges. Ease exposed edges to radius of approximately 1/32 in. unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or impairing work.

C. Weld corners and seams continuously and in accordance with recommendations of AWS. Grind exposed welds smooth and flush, to match and blend with adjoining surfaces.

D. Form exposed connections with hairline joints flush and smooth, using concealed fasteners wherever possible grind and sand exposed connections for smooth monolithic appearance. Use exposed fasteners of the type indicated, or if not indicated, use Phillips flathead, countersunk screws or bolts.

E. Provide for anchorage of type required, coordinated with supporting structure and the progress schedule. Fabricate and space anchoring devices as required to provide adequate support for intended use.

F. Cut, reinforce, drill and tap miscellaneous metal work to receive other items.

G. Shop Painting:

1. Shop paint miscellaneous metal work, except members or portions of members
embedded in concrete or masonry, surfaces and edges to be field-welded, and galvanized surfaces.

2. Remove scale, rust and other deleterious materials before shop paint is applied.

3. Clean surfaces in accordance with Steel Structures Painting Council, SP-3. Apply one shop coat of metal primer paint to fabricated metal items.

H. Fabricate miscellaneous units to the sizes, shapes and profiles indicated or, if not indicated, of the required dimensions to receive adjacent grating, plates, doors or other work to be retained by framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars of welded construction using mitered corners, welded brackets and splice plates and minimum number of joints for field connections. Equip units with integrally welded anchor strips for casting into poured concrete. Furnish inserts if units must be installed after concrete is poured; except as otherwise indicated, space anchors 2 feet 0 inch o. c.

I. For fabrication of work exposed to view, use only materials which are smooth and free of surface blemishes such as pittings, seam marks, roller marks, trade names and roughness. Remove blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes including zinc coatings.

J. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly of units at project site.

PART 3 - EXECUTION

3.01 FIELD CONDITIONS

A. Verify measurements in field for work fabricated to fit job conditions.

B. Before starting work, examine adjoining work on which miscellaneous metal work is supported, or to which it is fitted or joined.

C. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal items to in-place construction including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connections as required.

D. Perform cutting, drilling and fitting required for installation of miscellaneous metal items. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.

E. Fit exposed connections accurately together to form tight hairline joints. Weld connections, which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces for exterior units, which have been hot-dip, galvanized after fabrication, and are intended for bolted or screwed field connections.
3.02 FIELD WELDING

A. Comply with AWS Code for procedures for manual shielded metal-arc welding, the appearance and quality of welds made and the methods used in correcting welding work.

3.03 TOUCH-UP PAINTING

A. Immediately after erection, clean field welds, bolted connections and abraded areas of the shop paint, and paint-exposed areas with same materials used for shop painting.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.
SECTION 061053 - CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of contract, including General Conditions and Division One, Specification Sections, apply to the Work of this Section.

1.02 WORK INCLUDED

A. Blocking, rough framing, grounds and nailers.

1.03 REFERENCE STANDARDS


1.04 RELATED WORK

A. Bolts and other fasteners: See Section 055000, Metal Fabrications.

B. Sealants: See Section 079200, Sealants.

1.05 GRADING RULES


B. Each piece of yard, structural lumber shall bear official grade mark of appropriate inspection bureau or association.

1.06 SUBMITTAL

A. Submit manufacturer’s information for products.

1.07 WARRANTY

A. Provide manufacturer’s standard national warranty.

PART 2 - PRODUCTS

2.01 WOOD
A. Interior grounds, nailers, furring and blocking: No. 2 dimension Southern Yellow Pine, fire-retardant treated.

B. Plywood: DOCPS 1.
   

2.02 LUMBER SIZE AND MOISTURE CONTENT

A. Lumber: Surfaced 4 sides (S4S).

B. Board, dimension lumber: Either air or kiln dried with moisture content in accordance with National Grading Rule but not exceeding 19 percent for dimension lumber and board lumber 8 inch or less in width.

2.03 PRESERVATIVE TREATMENT

A. Lumber in contact with masonry, concrete, earth or roof cants: Preservative treated.

B. Preservative treat by pressure method; F.S. TT-W-571 H, table III, C.C.A. 0.40 pounds retention per cu. ft.

C. Season treat lumber after preservative treatment to moisture content specified for non-treated lumber.

D. Label treated lumber except furring and grounds with name of treater and type of preservative used.

E. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber after drying and discard damaged or defective pieces.

2.04 FIRE-RETARDANT TREATMENT

A. Fire-retardant treated lumber or plywood: AWPA standards for pressure impregnation with fire-retardant chemicals to achieve flame spread rating of not more than 25; UL Test 723, ASTM E84 or NFPA Test 355.

B. Provide UL label on each piece of fire-retardant treated item.

C. Season treat items after fire retardant treatment to moisture content specified for non-treated items.

2.05 MISCELLANEOUS MATERIALS

A. Provide fasteners and anchorages of size and type as indicated and recommended by applicable standards, complying with federal specifications for nails, screws, staples, bolts, nuts, washers and anchoring devices.
B. Fasteners for Pressure Treated Lumber: Non-corrosive, self drilling screws.

PART 3 - EXECUTION

3.01 INSTALLATION GENERAL

A. Frame, fit closely, set framing accurately to required lines levels. Secure rigidly in place. Size blocking to give true surface for finishing. Provide special blocking for construction not indicated or specified but required to complete work.

B. Provide wood grounds nailers, blocking, as indicated for screeding or attachment of other work. Form to shapes indicated and cut as required to maintain tolerances specified for work to be attached. Coordinate location with adjoining work. Secure to substrate as required to support applied loading. Counter-sink bolts and nuts flush with surface.
SECTION 064116 - PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS AND COUNTERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad architectural cabinets.
2. Plastic-laminate counters.
3. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-clad architectural cabinets that are not concealed within other construction.

1.2 ACTION SUBMITTALS

A. Shop Drawings:
   1. Include plans, elevations, sections, and attachment details.

B. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Research reports.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of cabinets indicated for construction, finishes, installation, and other requirements.

B. Architectural Woodwork Standards Grade: Premium.

C. Type of Construction: Face frame.
D. Door and Drawer-Front Style: Flush overlay.

E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Wilsonart LLC.
      b. Formica Corporation.

F. Laminate Cladding for Exposed Surfaces:
   1. Horizontal Surfaces: Grade HGS.
   2. Vertical Surfaces: Grade HGS.
   3. Edges: PVC edge banding, 3.0 mm thick, matching laminate in color, pattern, and finish.

G. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

H. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
   1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.

I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
   1. As indicated by laminate manufacturer's designations.
   2. As selected by Architect from laminate manufacturer's full range of colors.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
   1. Wood Moisture Content: 5 to 10 percent.

2.3 CABINET HARDWARE AND ACCESSORIES

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

B. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, B01602, 170 degrees of opening, self-closing.

C. Back-Mounted Pulls: ANSI/BHMA A156.9, B02011.
D. Wire Pulls: Back mounted, solid metal, 5 inches long, and 5/16 inch wide in diameter.

E. Adjustable Shelf Standards and Supports: ANSI/BHMA A156.9, B04102; with shelf brackets, B04112.

F. Shelf Rests: ANSI/BHMA A156.9, B04013; metal.

G. Drawer Slides: ANSI/BHMA A156.9.
   1. Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer.
      a. Type: Full extension.
      b. Material: Zinc-plated steel with polymer rollers.

H. Grommets for Cable Passage: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.

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

J. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

2.5 FABRICATION

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

B. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

B. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.

C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.

D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches using concealed shims.
   1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
   2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
   3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

END OF SECTION 064116
SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY
   A. Section Includes:

1.2 RELATED WORK
   A. Section 07510 – Roofing and Insulation

1.3 ACTION SUBMITTALS
   A. Product Data: For the following:

1.4 INFORMATIONAL SUBMITTALS
   A. Installer's Certification: Listing type, manufacturer, and R-value of insulation installed in each element of the building thermal envelope.

PART 2 - PRODUCTS

2.1 MINERAL-WOOL BOARD INSULATION
   A. Mineral-Wool Board Insulation, Types IA and IB, Faced: ASTM C612, Types IA and IB; faced on one side with foil-scrim or foil-scrim-polyethylene vapor retarder.
      2. Flame-Spread Index: Not more than 15 when tested in accordance with SATM E84.
      3. Smoke-Developed Index: Not more than zero when tested in accordance with ASTM E84.
      4. Labeling: Provide identification of mark indicating R-value of each piece of insulation.

2.2 ACCESSORIES
   A. Insulation for Miscellaneous Voids:
      1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.

   B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.
PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Install insulation with manufacturer's R-value label exposed after insulation is installed.

D. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

E. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.2 INSTALLATION OF CAVITY-WALL INSULATION

A. Mineral-Wool Board Insulation: Install insulation fasteners 4 inches from each corner of board insulation, at center of board, and as recommended by manufacturer.

1. Fit courses of insulation between masonry wall ties and other obstructions, with edges butted tightly in both directions, and with faces flush.
2. Press units firmly against inside substrates.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

END OF SECTION 072100
SECTION 075100 - ROOFING AND INSULATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

   A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section.

1.02 RELATED WORK

   A. Section 013516 – Alteration Project Procedures
   B. Section 055000 - Metal Fabrications
   C. Section 061053 - Carpentry

1.03 DESCRIPTION OF WORK

   A. Extent of roofing system work is indicated on drawings and by provisions of this section and is defined to include roofing, flashing, sheet metal accessories, insulation immediately under roofing and roofing accessories integrally related to roof installation.

   B. The work consists of cutting and patching of existing roofing. Refer to drawings for scope of work and nature of existing conditions.

   C. The work includes the repair of roof damage resulting from installation work by others.

   D. Any construction and modifications of existing roofing required by the work of this Contract shall be in strict accordance with the requirements of the Owner’s Warranty Agreement currently in effect for the existing roofing system. The Contractor shall obtain written approval from Owner’s manufacturer for the proposed construction details so as not to void the existing warranty as indicated on the drawings. Final inspections shall be coordinated with the Owner’s manufacturer to ensure that existing warranty is maintained.

   E. The Work includes temporary roofing or measures to maintain a weather tight building.
1.04 QUALITY ASSURANCE

A. Single Source Manufacturer: Provide primary products, including roofing, flashings, and accessories provided by a single manufacturer, or specifically approved by the primary membrane manufacturer. Provide secondary products only as recommended by manufacturer of primary products for use with roofing system specified.

B. Installer Qualifications: A single Installer ("Roofer") shall perform the work of this section; and shall be a firm with not less than ten (10) years of successful experience in installation of the existing roofing system. The roofer shall be a certified installer for the approved roofing system.

C. Pre-Roofing Conference: As soon as possible after award of roofing work, contractor shall schedule and attend a meeting with Roofer. Review requirements of Contract Documents, submittals, status of coordinating work, availability of materials and installation facilities and proposed installation schedule, requirements for inspections, testing, certifications, forecasted weather conditions, governing regulations, insurance requirements, and proposed installation procedures.

D. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

E. UL Listing:
   1. Provide built-up roofing system and component materials which have been tested for application and slopes indicated on Drawings and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.

F. Product and Application Guides: Current edition, for Commercial/Industrial Roofing Solutions is incorporated into this Section by reference.

G. Compatibility:
   1. Provide written certification that materials proposed for patching of roofing are compatible with existing system and will maintain remaining warranty on roofing.

1.05 SUBMITTALS
A. Product Data: Submit manufacturer's technical product data, installation instructions and recommendations for roofing. Include data substantiating that materials comply with requirements.

B. Shop Drawings: Provide all details including, but not limited to all terminations, roof-wall intersections, tie in to existing roofing, coordination and construction at all roof mounted equipment and penetrations, etc.

### 1.06 JOB CONDITIONS

A. Weather Condition Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

### 1.07 DELIVERY, STORAGE AND PRODUCT HANDLING

A. Deliver specified materials and accessories in unopened rolls, containers and packaging with manufacturer's original labels intact bearing name, source of product and delivery, storage date of manufacture.

B. Store and handle roofing materials in a manner which will ensure that there is no possibility of significant moisture pick-up.

C. Store in a dry, well ventilated, weather-tight place. Unless protected from weather or other moisture sources, do not leave unused materials on the roof overnight or when roofing work is not in progress. Store rolls of sheet materials on end, on pallets or other raised surface. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck.

D. Roof Loading: Do not store materials on roof decks or position installation equipment on roof decks in concentrations or locations exceeding design live loading for structural roof system.

### 1.08 WARRANTIES

A. Manufacturer's Guarantee (Project): Submit three (3) executed copies of manufacturer’s inspection of completed work and certification and guarantee that the existing roofing twenty (20) year warranty is maintained after roofing work in the contract.

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PART 2 - PRODUCTS

075100-3
2.01 MATERIALS, GENERAL

A. Insurance and Code Requirements: Provide materials complying with governing regulations and which can be installed to comply with the following:

1. Underwriters Laboratories "Fire Classified" and "Class 60" wind uplift resistance.

2.02 ROOF INSULATION

A. Furnish roof insulation and accessories recommended by the roofing membrane manufacturer.

2.03 TAPERED ROOF INSULATION PANEL

A. Tapered roof insulation for slopes, tapered edge strips and crickets as required to tie in to existing surface and maintain drainage.

B. Use tapered insulation to achieve positive drainage away from new equipment openings and cuts.

2.04 ROOF MEMBRANE AND FLASHING SYSTEM

A. Existing System: PVC sheet, use same product as the existing roofing.

B. Details shall conform with details indicated in the drawings and with manufacturer’s standard details.

2.05 SHEET METAL ACCESSORY MATERIALS

A. Material: Provide same sheet metal and accessories as the existing, or as recommended by the membrane manufacturer.

B. Galvanized Sheet Metal: ASTM A5252 and ASTM A526 Coating; minimum 24 gauge.

2.06 MISCELLANEOUS MATERIALS

A. Wood Members: Provide wood pressure treated with water-borne preservatives for above-ground use, complying with AWPB LP-2.

B. Walkway Protection Boards: Flexible walkways, heavy duty, manufactured for application on existing PVC membrane for foot traffic, and approved by roofing membrane manufacturer.
C. Mastic Sealant: Non-hardening, non-migrating, non-skinning and nondrying as recommended by the manufacturer.

D. Liquid-type: Comply with VOC limits of authorities having jurisdiction.

2.07 FABRICATION OF SHEET METAL ACCESSORIES

A. SMACNA and NRCA Details: Work shall conform with details shown, manufacturer’s details, and with applicable fabrication requirements of "Architectural Sheet Metal Manual" by SMACNA. Comply with installation details of "Roofing and Waterproofing Manual" by NRCA.

PART 3 - EXECUTION

3.01 INSPECTION OF SUBSTRATE

A. Examine substrate surfaces to receive roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer and complying with manufacturer's standards.

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Comply with manufacturer’s published specifications.

B. Cooperate with inspection agencies engaged or required to perform services in connection with system installation.

C. Protect other work from spillage of materials and prevent liquid materials from entering or clogging drains and conductors. Replace and restore other work damaged by installation of system work.

D. Insurance/Code Compliance: Install system for (and test where required to show) compliance with governing regulations and with the insurance requirements of this Section.

E. Coordinate the installation of insulation, flashing and membrane, so that insulation is not exposed to precipitation nor exposed overnight. Provide cut-offs at end of each day’s work. Remove cut-offs immediately before resuming work.

F. Substrate Joint Penetrations: Do not allow liquid materials to penetrate substrate joints and enter building or damage insulation, or other construction.
G. Thoroughly clean substrate.

H. Prepare new roof openings and close unused openings or openings left after demolition. Close opening with 24 gauge galvanized metal sheet overlapping opening by minimum 6” on all sides, and fastened 6” on center with self-tapping stainless steel screws. Install insulation to match existing.

3.03 INSTALLATION OF INSULATION

A. General: Comply with insulation manufacturer's instructions and recommendations for the handling, installation and bonding or anchorage of insulation to substrate.

B. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end on the workday.

C. Comply with membrane roofing system and insulation manufacturer’s written instructions for installing roof insulation.

D. Insulation boards shall be free of defects including but not limited to, broken corners, excessive moisture, dimensional irregularities and the like. Defective insulation boards shall be marked and immediately removed from the site.

E. Trim surface: of insulation where necessary at roof drains so completed surface is flush with ring of drain.

F. Tapered Insulation: Provide where required in conjunction with patching as recommended by manufacturer.

3.04 ROOF MEMBRANE INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer’s written instructions.

1. Install sheet according to ASTM D 5036.

B. Accurately align membrane roofing and maintain uniform 3-inch side and 6-inch end laps or as required by the manufacturer. Stagger end laps.

C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
D. In addition to adhering, mechanically fasten membrane roofing securely 6-inch center (maximum) at terminations, penetrations, and perimeter of roofing.

E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer’s written instructions to ensure a watertight seam installation. Manufacturer’s hot air welding machine will be used for seams in excess of 10 feet.

1. All seams to be hot air welded. Seam overlaps to be a minimum 2-inches wide, or as required by the membrane manufacturer. Welding equipment shall be provided or approved by the membrane manufacturer. All workers intending to use the equipment shall have completed a training course by the manufacturer’s representative prior to initiating roof replacement operations. Certification of trained welders is required. Manufacturer to supply confirmation of welder training.

2. Hand welded seams shall be completed in two stages. Warm up equipment for at least one minute prior to welding. Welded seams to be 2-inches wide.
   a. Weld the back edge of the lap with a thin, continuous weld to prevent loss of the hot air during the final weld.
   b. Insert the hot air nozzle into the lap, keeping the welding equipment at a 45-degree angle to the side lap. Once the material starts to flow, apply the 2-inch wide hand roller at a right angle to the welding gun and press lightly. For straight laps, use the 1-1/2-inch wide nozzle. Correct weld speed will complete approximately 20-inch/minute. The hot air weld equipment shall have temperature adjustments to provide this proper speed and weld.

3. All seams to be in accordance with manufacturer’s instruction. Inspect all completed seams on a daily basis. Inspection can include, but not limited to, the probing of all field welded seams with a blunted pointed instrument to assure quality of the application and ensure that any operator or equipment deficiencies are immediately resolved.
   a. One (1) inch wide cross section samples of welded seams shall be taken at least four times daily.
   b. Correct welds display failure from shearing of membrane prior to weld separation.
c. The Contractor shall patch each patch at no extra charge to the Owner.
d. Each weld will be forwarded to the Owner’s representative with approximate roof location and date labeled on each.

4. Provide T-joint covers hot air welded at side and head lap junctures (T-joints).

5. Apply lap sealant to seal cut edges of sheet membrane.

6. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

G. Spread continuous bed of water cut-off mastic over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring. Extend membrane $\frac{1}{2}$-inch minimum beyond inside face of clamping ring.

3.05 BASE FLASHING INSTALLATION

A. Install sheet flashings and performed flashing accessories and adhere to substrate according to membrane roofing system manufacturer’s written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seem areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.06 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing manufacturer’s written instructions.

B. Roof-Paver Walkways: Install walkway roof pavers according to manufacturer’s written instructions in locations indicated, to form walkways. Leave 3-inches of space between adjacent roof pavers.
3.07 TEMPORARY ROOFING AND PATCHING

A. Provide patching around new equipment or penetrations in existing roofs as required to maintain weather-tight condition, prior to time when re-roofing will take place.

B. Provide temporary roofing to maintain weather-tight condition and as required to accommodate staging plan.

3.08 CORRECTION OF DEFECTIVE OR DAMAGED WORK

A. Physical damage resulting from construction activity: Cut out damaged plies and insulation. Install new insulation and repair the cutout in accordance with the procedures outlined in paragraph A above.

B. Other defective or non-complying work discovered as a result of Manufacturer's audit for guaranty requirements shall be corrected in accordance with manufacturer's recommended procedures for each type of defect encountered.

3.09 CLEANING

A. Remove excess materials, equipment, trash and debris associated with the roofing activities from the project area and dispose of legally.

B. Repair damage to adjacent work of other trades which has resulted from roofing activities; remove stains and drippage resulting from bitumen application.

3.10 PROTECTION OF ROOFING

A. Upon completion of roofing work, including associated work, Roofer shall advise Contractor of recommended procedures for surveillance and protection of roofing during remainder of construction period. At end of Construction period, or at Contractor's option, at a time when remaining construction work will in no way affect or endanger roofing, Roofer shall make a final inspection of roofing and prepare a written report, directed to Contractor with copy to Owner describing nature and extent of deterioration of damage found in the work.

C. Roofer shall repair or replace deteriorated or defective work found at time of final inspection. Roofer shall be engaged by Contractor to repair damages to roofing which occurred subsequent to roofing installation and prior to final inspection. Repair or replace the roofing and associated work to a condition free of damage and deterioration at time of substantial completion.
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section.

1.03 DESCRIPTION OF WORK

A. Through-penetration firestopping in fire-rated construction.
B. Construction-gap firestopping at connections of the same or different materials in fire-rated construction.
C. Construction-gap firestopping occurring within fire-rated wall or floor assemblies.
D. Construction-gap firestopping occurring at the top of fire-rated walls.
E. Through-penetration smoke-stopping in smoke partitions.
F. Construction-gap smoke-stopping in smoke partitions.

1.04 REFERENCE STANDARDS

A. Underwriters Laboratories

   a. Through-penetration firestop devices (XHCR)
   b. Fire resistance ratings (BXUV)
   c. Through-penetration firestop systems (XHEZ)
   d. Fill, void, or cavity material (XHHW)


4. Warnock Hersey

B. American Society For Testing And Materials Standards:


C. CIE/DIN Age Testing

D. F-Rated Through-Penetration Firestop systems: Provide through-penetration firestop systems with F ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.

E. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent
materials in occupiable floor areas. T-rated assemblies are required where the following conditions exist:

1. Where firestop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.

2. Where firestop systems protect penetrating items larger than a 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.

F. Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

G. For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E 84.

1.05 SUBMITTALS

A. Shop drawings with details of materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop configuration for construction and penetrating items.

B. Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs) and are nontoxic to building occupants.

C. Product certificates signed by manufacturers of firestopping products certifying that their products comply with specified requirements.

D. It shall be the Contractor’s sole responsibility to submit and obtain approval of City of Alexandria for through-penetration firestop system materials and U. L. approved systems for the project specific through-penetration configurations.

1.06 GUARANTEE

A. Submit copies of written guarantee agreeing to repair or replace joint sealers which fail in joint adhesion, extrusion resistance, migration resistance, or general durability or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. The guarantee period shall be one year.

1.07 QUALITY ASSURANCE

A. Installer’s qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this project, plus the following:

1. Acceptable to or licensed by manufacturer, State or local authority where applicable.

2. At least five (5) years experience with systems.

3. Successfully completed at least 5 comparable scale projects using this system.
B. Local and State regulatory requirements: Submit forms or acceptance for proposed assemblies not conforming to specific UL Firestop System numbers, or UL classified devices.

C. Materials shall have been tested to provide fire rating at least equal to that of the construction.

1.08 SYSTEM DESCRIPTION

A. Design Requirements

1. Fire-rated construction: Maintain barrier and structural floor fire resistance ratings including resistance to cold smoke at all penetrations, connections with other surfaces or types of construction, at separations required to permit building movement and sound or vibration absorption, and at other construction gaps.

2. Smoke barrier construction: Maintain barrier and structural floor resistance to cold smoke at all penetrations, connections with other surfaces and types of construction and at all separations required to permit building movement and sound or vibration absorption, and at other construction gaps.

PART 2 - PRODUCTS

2.01 FIRESTOPPING, GENERAL

A. Through-Penetration Firestopping of Fire-Rated Construction:

1. Systems or devices listed in the U.L. Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that it conforms to the construction type, penetrant type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall applications. Systems or devices must be asbestos-free. Mortar systems shall be Warnock Hersey approved.

2. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the U.L. system or device, and designed to perform this function.

3. Acceptable manufacturers and products.

a. 3M Fire Protection Products (Basis of Design and U.L. Design numbers listed on drawings).


4. All firestopping products must be from a single manufacturer. All trades shall use products from the same manufacturer.

B. Compatibility: 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 firestopping manufacturer based on testing and field experience. Assembly shall have fire resistance rating equaling or exceeding the rating of the wall or floor assembly through which it penetrates.

C. Accessories: Provide components for each firestopping system that are needed to install
fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:
   a. Semirefractory fiber (mineral wool) insulation.
   b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
   c. Fire-rated formboard.
   d. Joint fillers for joint sealants.

2. Temporary forming material.
   a. Substrate primer.
   b. Collars
   c. Steel sleeves.

D. Application: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

1. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

2. For piping penetrations for plumbing and wet-pipe sprinkler system, provide moisture-resistant through-penetration firestop systems.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

2.02 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS


B. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents inorganic fibers, or silicone compounds.

C. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum foil on one side.

D. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

E. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant.

F. Products for through Penetration Firestop Systems: Subject to compliance with requirements, provide one of the following: Basis of Design and U. L. Design number listed on drawing are based on 3M Fire Protection Products.

1. Intumescent Latex Sealant:
2. Intumescent Putty:
   b. Pensil 500 Intumescent Putty, General Electrical Co.
   c. Flame-Safe FSP1000 Putty, International Protective Coating Corp.

3. Intumescent Wrap Strips:
   b. Dow Corning Fire Stop Intumescent Wrap Strip 2002, Dow Corning Corp.

4. Silicone Sealants:
   a. Dow corning Firestop Sealant 2000, Dow Corning Corp.
   b. Dow corning Firestop Sealant SL 2003, Dow corning Corp.
   c. Pensil 100 Firestop Sealant, General Electric Co.
   e. Metacaulk 880, the RectorSeal Corporation.
   f. Fyre-Sil, Tremco Inc.
   g. Fyre-Sil S/L, Tremco Inc.

PART 3 - EXECUTION

3.01 INSPECTION

A. Contractor shall verify that joint dimensions, physical and environmental conditions are acceptable to receive work of this Section. Contact Engineer or Owner’s representative if conditions are not acceptable.

3.02 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form release agents from concrete.

4. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer’s recommended products and methods. Confine primers to area of bond; do not allow spillage and migration onto exposed surfaces.

5. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work an the would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears form firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping’s seal with substrates.

3.03 INSTALLING THROUGH PENETRATION FIRESTOPS

078413-5
A. General: Comply with the “System Performance Requirements” article in Part 1 and the through-penetration firestop manufacturer’s installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through-penetration firestop systems by proven techniques.

D. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

E. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

F. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.04 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

A. General: Comply with the “System Performance Requirements” article in Part 1, with ASTM C 1193, and with the sealant manufacturer’s installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool non-sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.05 QUALITY CONTROL

A. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

B. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.06 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work
progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect Firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion.

If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

END OF SECTION 078413
SECTION 079200 - SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section.

1.02 RELATED WORK
A. Section 042000 – Concrete Unit Masonry Masonry
B. Section 061053 – Carpentry
C. Section 078413 – Penetration Firestopping.

1.03 REFERENCE STANDARDS
B. ASTM C834 - Latex Sealing Compounds.

1.04 SUBMITTALS
A. Submit manufacturers’ catalog data, including surface preparation and installation instructions.
B. Submit 2 samples of sealant colors.
C. Submit UL penetration assembly as part of Fire Stop Sealant Assembly data.

1.05 GUARANTEE
A. Provide a two (2) year written guarantee for materials and installation.

PART 2 - PRODUCTS

2.01 SEALANT MANUFACTURERS
A. The materials specified in 2.02 are products manufactured by Pecora Corporation, unless otherwise noted. Equivalent products by other manufacturers are acceptable, Tremco, Sonneborn, Sika, etc.

2.02 SEALANT MATERIALS
A. Type 1: "AC-20+Silicone"; one part, non-sag, acrylic latex caulk, complying with ASTM C834-86.
C. Type 2: "AC-20FTR"; one part, modified acrylic latex acoustical sealant, complying with ASTM C834-86.
D. Type 3: Sanitary SCS 1700; mildew resistant silicone rubber sealant complying with ASTM C-920, Type S, NS, Class 25.
E. Provide exterior sealant in color to match adjacent surfaces.
2.03 ACCESSORIES

A. Primer: Non-staining type, as recommended by sealant manufacturer for type of sealant, joint substrate, and size of joint.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Backer Rod: Round, closed cell polyethylene or "Denver Foam" polyurethane foam rod as required by manufacturer for type of sealant; oversize 30 to 50 percent.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: To prevent application of sealant on surfaces not scheduled to receive it. Tape shall be removable without damage to substrate.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that joint dimensions, physical and environmental conditions are acceptable to receive work of this Section.

B. Beginning of installation implies acceptance of condition of substrate and of adjacent work.

3.02 PREPARATION

A. Clean, prepare, and size joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.

B. Verify that joint shaping materials and release tapes are compatible with sealant.

C. Examine joint dimensions and size materials to achieve required width/depth ratios.

D. Use backer rod to achieve required joint depths, and to allow sealants to perform properly.

E. Use bond breaker tape where recommended by the sealant manufacturer and where indicated on the Drawings.

3.03 INSTALLATION

A. Seal exterior joints subject to moisture penetration and interior joints exposed to view with sealant.

B. Perform work in accordance with latest ASTM requirements for type of sealant and type of application.

C. Install sealant in accordance with manufacturer's instructions.

D. Apply sealant within manufacturer's recommended temperature ranges. Consult manufacturer prior to installation when sealant cannot be applied within recommended temperature ranges.
E. Tool joints to a concave profile.

F. Joints shall be free of air pockets, foreign embedded matter, ridges, and sags.

G. Installation of Elastic Expansion Joints: Clean joint with alcohol as necessary to clean joint surfaces. Install compression seal and manufacturer’s approved silicone sealant at sides of expansion joint.

3.04 SCHEDULE

A. Type 1: Interior non-moving joint applications.
   1. Extent: Provide acrylic latex sealant for all interior joints, except where silicone rubber sealant is indicated.

C. Type 2: Interior acoustical applications.

D. Type 3: Interior joints, moving.
   1. Extent: Provide silicone rubber sealant for all interior joints around plumbing fixtures, for all joints and seams between different materials or between equipment and adjacent surfaces, and control joints not on walking surfaces.

3.05 CLEAN-UP

A. Clean adjacent surfaces of excess sealant and sealant droppings as the work progresses, using solvents or cleaning agents recommended by manufacturer for surfaces to be cleaned.

B. Upon completion of sealant installation, remove all associated debris, empty containers and surplus sealant from the job site. Do not leave "attic stock" on the premises.

END OF SECTION 079200
SECTION 081213 - HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior standard steel frames.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include elevations, frame profiles, metal thicknesses, and wall opening conditions.

C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Ceco Door; ASSA ABLOY.
   2. Curries Company; ASSA ABLOY.
   3. Custom Metal Products.
2.2 STANDARD STEEL FRAMES

A. Construct hollow-metal frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Interior Frames: SDIA250.8. Level 1; SDIA250.4, Level C At locations indicated in the Door and Frame Schedule.
   1. Materials: Uncoated steel sheet, minimum thickness of 0.042 inch.
   2. Construction: Face welded.

2.3 FRAME ANCHORS

A. Jamb Anchors:
   1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
   2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.

B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch (51-mm) height adjustment. Terminate bottom of frames at top of underlayment.

D. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

2.4 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.

E. Power-Actuated Fasteners in Concrete: Fabricated from corrosion-resistant materials.
2.5 FABRICATION

A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.

1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

B. Hardware Preparation: Factory prepare hollow-metal frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to SDIA250.6, the Door Hardware Schedule, and templates.

1. Reinforce frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with BHMA A156.115 for preparing hollow-metal frames for hardware.

2.6 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.


PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install hollow-metal frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions. Comply with SDIA250.11.

B. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.

1. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
2. Install frames with removable stops located on secure side of opening.

C. Floor Anchors: Secure with postinstalled expansion anchors.

1. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
D. Solidly pack mineral-fiber insulation inside frames at interior frames.

E. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.

F. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:

1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

3.2 CLEANING AND TOUCHUP

A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 081213
SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Five-ply flush wood veneer-faced doors for transparent finish.
   2. Factory fitting flush wood doors to frames and factory machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:
   1. Door core materials and construction.
   2. Door edge construction
   3. Door face type and characteristics.
   4. Door louvers.
   5. Door trim for openings.
   6. Door frame construction.
   7. Factory-machining criteria.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
   1. Door schedule indicating door and frame location, type, size, and swing.
   2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
   3. Details of frame for each frame type, including dimensions and profile.
   4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
   5. Dimensions and locations of blocking for hardware attachment.
   6. Clearances and undercuts.
   7. Requirements for veneer matching.

C. Samples: For factory-finished doors.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with "Architectural Woodwork Standards."
2.2 SOLID-CORE, FIVE-PLY FLUSH WOOD VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Doors:

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
   a. **Eggers Industries.**
   b. **Oshkosh Door Company.**
   c. **VT Industries Inc.**

2. **Performance Grade:**
   a. **ANSI/WDMA I.S. 1A Heavy Duty:** toilets, janitor's closets, and exits.

3. **Architectural Woodwork Standards Grade:** Premium.

4. **Faces:** Single-ply wood veneer not less than 1/50 inch thick.
   a. **Species:** Red oak.
   b. **Cut:** Quarter sliced.
   c. **Match between Veneer Leaves:** Book match.
   d. **Assembly of Veneer Leaves on Door Faces:** Center-balance match.
   e. **Pair and Set Match:** Provide for doors hung in same opening or separated only by mullions.

5. **Exposed Vertical and Top Edges:** Same species as faces or a compatible species - Architectural Woodwork Standards edge Type A.

6. **Core for Non-Fire-Rated Doors:**
   a. **ANSI A208.1, Grade LD-1 particleboard.**
      1) **Blocking:** Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware. follows:
         a) 5-inch top-rail blocking, in doors indicated to have closers.
         b) 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
         c) 5-inch midrail blocking, in doors indicated to have exit devices.

7. **Construction:** Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.3 LIGHT FRAMES

A. **Wood Beads for Light Openings in Wood Doors:** Provide manufacturer's standard wood beads unless otherwise indicated.

1. **Wood Species:** Same species as door faces.
2. Profile: Flush rectangular beads.

2.4 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated.
   1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

B. Factory machine doors for hardware that is not surface applied.
   1. Locate hardware to comply with DHI-WDHS-3.
   2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
   3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.

C. Openings: Factory cut and trim openings through doors.
   1. Light Openings: Trim openings with moldings of material and profile indicated.
   2. Glazing: Provide ¼ inch clear safety glass.

2.5 FACTORY FINISHING

A. Comply with referenced quality standard for factory finishing.
   1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
   2. Finish faces, all four edges, edges of cutouts, and mortises.
   3. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

B. Factory finish doors where indicated in schedules or on Drawings as natural factory finished.

C. Transparent (Natural) Finish:
   2. Finish: Manufacturer’s standard system.
   3. Staining: As selected by Architect from manufacturer's full range.
   4. Effect: Filled finish.
   5. Sheen: Satin.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."
B. Install doors and frames to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

C. Install frames level, plumb, true, and straight.
   1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
   2. Anchor frames to anchors or blocking built in or directly attached to substrates.
      a. Secure with countersunk, concealed fasteners and blind nailing.
      b. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
         1) For factory-finished items, use filler matching finish of items being installed.

D. Job-Fitted Doors:
   1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
      a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
   3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
   4. Clearances:
      a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
      b. Provide 1/4 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.

E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 FIELD QUALITY CONTROL
A. Repair or remove and replace installations where field inspection indicate that they do not comply with specified requirements.

3.3 ADJUSTING
A. Operation: Rehang or replace doors that do not swing or operate freely.
B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416
SECTION 083323 - OVERHEAD COILING DOORS AND COUNTER DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Overhead coiling doors.
   2. Overhead counter doors.

B. Related Requirements:
   1. Section 055000 "Metal Fabrications" for miscellaneous steel supports, door-opening framing and corner guards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type and size of overhead coiling door, counter door, and accessory.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
   1. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
   2. Show locations of locking devices and other accessories.

C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Special warranty.

B. Maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.
1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of doors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DOOR ASSEMBLY

A. Coiling Door: Overhead coiling door formed with curtain of interlocking metal slats.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

   a. Overhead Door Corporation – Model 674 (Basis of Design)

B. Door Curtain Material: Aluminum.

C. Door Curtain Slats: Manufacturer’s standard profile slats .062-inch thick.

1. Perforated Slats: Approximately 22% open area, round, uniformly spaced.

D. Bottom Bar: Extruded aluminum compact bottom bar, clear anodized.

E. Curtain Jamb Guides: Aluminum with exposed finish matching curtain slats.

F. Hood: Aluminum to curtain material and finish.

1. Mounting: Between jambs.

G. Locking Devices: Equip door with locking device assembly.

1. Locking Device Assembly: locking bars, operable from inside and outside with cylinders.


1. Usage Classification: Light duty, up to 10 cycles per hour.

I. Curtain Accessories: Equip door with push/pull handles pull-down strap and poll hook.

J. Door Finish:

1. Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.

2. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face.
2.2 OVERHEAD COILING COUNTER DOOR

A. Coiling Door: Overhead coiling counter door formed with curtain of interlocking metal slats.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Overhead Door Corporation – Integral Frame Counter Door 657 (Basis of Design)

B. Door Curtain Material: Stainless-steel.

C. Door Curtain Slats: Manufacturer’s interlocking slats 22 gauge stainless-steel, #4 finish.

D. Bottom Bar: Tubular stainless-steel.

E. Integral Frame and Sill: Stainless-steel frame with a #5 finish and a stainless-steel sill. Frame consists of 16 gauge jambs and header, with a 14 gauge sill.

F. Mounting: Between the jambs.

G. Hood: Stainless-steel with a #4 finish, with intermediate brackets as required.

H. Locking Devices: Equip door with locking device assembly.
   1. Locking Device Assembly: locking bars, operable from inside.

   1. Usage Classification: Light duty, up to 10 cycles per hour.

J. Curtain Accessories: Equip door with push/pull handles pull-down strap and pull hook.
   1. Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.
   2. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face.

2.3 COUNTERBALANCE MECHANISM

A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Install overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

3.2 FIELD QUALITY CONTROL

A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION 083323
SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Storefront framing.
   3. Glazing

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
   1. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
   2. Include point-to-point wiring diagrams.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Minimum of Five years from date of Substantial Completion.

B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Warranty Period: Minimum of Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Entrances and storefronts for this Project shall perform without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

2.2 STOREFRONT SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Tubelite
2. EFCO
3. YKK
4. KAWNEER
5. TRIFAB VG 451

B. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Interior Framing Construction: Nonthermal.
2. Glazing System: Retained mechanically with gaskets on four sides.
3. Finish: Clear anodic finish.
5. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
6. Steel Reinforcement: As required by manufacturer.

C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.

D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

2.3 GLAZING

A. Glazing: Provide ¼” clear laminated safety glazing for doors, and 3/8” clear laminated safety glass for fixed units.

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

C. Glazing Sealants: As recommended by manufacturer.

2.4 MATERIALS

A. Sheet and Plate: ASTM B209.

B. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221.

C. Extruded Structural Pipe and Tubes: ASTM B429/B429M.

D. Structural Profiles: ASTM B308/B308M.

E. Steel Reinforcement:

1. Manufacturer’s standard.

2.5 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. 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.

C. Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.6 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, or thicker.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal perimeter and other joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
C. Set continuous sill members and flashing in full sealant bed, as specified in Section 079200 "Joint Sealants".

D. Install components plumb and true in alignment with established lines and grades.

E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

F. Install glazing as specified in this Section.
SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and General Provisions of the Contract, including General Conditions and
      Division One Specification Sections, apply to the Work of this Section.

1.02 REFERENCE STANDARDS
   A. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) and
   B. BHMA – Builders Hardware Manufacturers Association
   C. DHI – Door and Hardware Institute
   D. NFPA – National Fire Protection Association
      1. NFPA 80 – Fire Doors and Windows
      3. NFPA 252 – Fire Tests of Door Assemblies
   E. UL – Underwriters Laboratories
      1. UL 10C – Fire Tests of Door Assemblies (Positive Pressure)
      2. UL 305 – Panic Hardware
   F. WHI – Warnock Hersey Incorporated
   G. SDI – Steel Door Institute
   H. WDI – Wood Door Institute
   I. AWI – Architectural Woodwork Institute
   J. NAAM – National Association of Architectural Metal Manufacturers

1.03 RELATED WORK
   A. Shop Drawings, Product Data and Samples: Section 013300
   B. Hollow Metal Frames: Section 081213.
   C. Flush Wood Doors: Section 081416

1.04 WORK DESCRIPTION
   A. The work of this section includes, but is not limited to, the following:
      1. All door hardware.
   B. Contractor shall provide all labor necessary to install hardware and accessories.
C. Provide hardware for all new doors as indicated on the drawings and/or shown in the door schedule.

1.05 DESCRIPTION OF HARDWARE

A. The required types of hardware include (but are not necessarily limited to) the following:
   1. Lever lock and latch sets.
   2. Lock Cylinders and Keys
   3. Closers

1.06 QUALITY ASSURANCE

A. Qualifications of Manufacturers: Products used in the Work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect and Owner.

B. Qualifications of Hardware Supplier: Direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course work for project hardware consultation to Owner, Architect and Contractor and responsible for detailing, scheduling and ordering of finish hardware.

C. Hardware: New, free from defects, blemishes and excessive play. Each kind of hardware shall be supplied from a single manufacturer.

D. Accessibility Compliance: Comply with ANSI A117.1,

E. Departures from Approval Materials: Substitutions shall not be allowed.

1.07 SUBMITTALS

A. Submit copies of hardware schedule in accordance with Section 013300. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include the following information:
   1. Type, style, function, size, quantity and finish of hardware items. Use BHMA finish codes per ANSI A156.18.
   2. Name, part number and manufacturer of each item.
   3. Fastenings and other pertinent information.
   4. Location of hardware set coordinated with floor plans and door schedule.
   5. Explanation of abbreviations, symbols, and codes contained in schedule.
   6. Mounting locations for hardware.
   7. Door and frame sizes, materials and degrees of swing.
   8. Catalog cuts.
   9. Manufacturer’s technical data templates and installation instructions with copy of transmittal indicating applicable data has been distributed to the installer.
   10. Key control schedule for all locksets.
   11. Guarantees

1.08 PRODUCT HANDLING AND STORAGE

A. Packing and Marking: Individually package each unit of finish hardware, complete with proper fastenings and appurtenances, clearly marked on the outside to indicate the contents and specific locations in the Work.
B. Protection: Provide secure lock-up for hardware delivered to the project, but not yet installed. Contractor shall exercise care in the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation.

1. Permanent keys and cores: Provide secure delivery direct to Owner. (Keying Requirements, 2.03)

C. Replacements: In the event of damage after delivery, the Contractor shall make all repairs and replacements necessary at no additional cost to the Owner.

1.09 SEQUENCING AND COORDINATION

A. Verify proper wall reinforcement. Coordinate floor mounted hardware with finish floor materials and floor substrates. Furnish manufacturer templates to door and frame fabricators.

B. Provide door and opening frame submittals to hardware supplier to confirm that adequate provisions are made to ensure proper hardware installation.

1.10 WARRANTIES

A. Provide manufacturer’s warranties as follows:

1. Hinges: Life of installation
2. All other Hardware: Two (2) years

1.11 HARDWARE MOUNTING HEIGHTS

A. Mounting heights of hardware from standing level shall be as follows:

1. Levers: 36"

PART 2 - PRODUCTS

2.01 GENERAL

A. References to specific products are used to establish minimum standards of utility and quality. Provide the specific products as indicated or pre-approved.

B. Manufacturers: Hardware standards described in this Section shall be considered as standards of quality. Review and approval shall be based on conformity to operation, design, finish and quality of specified hardware. Furnish items for use on doors and frames that are compatible with the thickness, profile, swing and other requirements, which are critical to proper function. Numbers shall be taken from, but not necessarily limited to (except as noted), the catalogs of the following manufacturers.

1. Locksets/Latchsets: Schlage “D Series” (no substitutions)

2. Stops, Coordinators, Bumpers, & Silencers:

   a. National Guard Products (NGP)
   b. Pemko
   c. Reese Enterprises
3. Closers:
   a. LCN

4. Butts and Hinges:
   a. Hager Hinge Co.
   b. Ives-Division of Allegion, PC
   c. Stanley Hardware, Division of Stanley Works.

5. Kick, Mop, and Armor Plate:
   a. Hager Hinge Co.
   b. Builders Brass

C. All finish hardware shall be furnished and packaged with all necessary screws, bolts, and other fasteners of suitable sizes and type to anchor the hardware in position for long life under hard use.

D. Furnish fastenings where necessary using expansion shields, toggle bolts, sex bolts and other anchors approved by the Engineer, compatible with the material to which the hardware is to be applied, and in conformance with the recommendations of the hardware manufacturer.

E. All fastenings shall match the hardware material and finish.

F. Finishes: Take special care to coordinate all of the various manufactured items furnished under this Section. Where practical, ensure uniform finish of all the various hardware components.

   1. Unless noted otherwise, all hardware shall have US26 satin chrome finish.

2.02 LOCK CYLINDERS AND KEYING

A. Keying System: To be verified with Owner.

   1. Provide removeable cores and 3 keys for each lockset.

B. Lock cylinders shall be 6 pin removable core.

C. Equip locks with cylinders for interchangeable-core pin tumbler inserts. Furnish only temporary inserts for the construction period, and remove these when directed.

   4. Permanent keying to be coordinated by the Owner.

D. Equip locks with high-security cylinders that comply with performance requirements for Grade 1 cylinders as listed in ANSI/BHMA A156.5 and that have been tested for pick, and drill resistance requirements of UL 437 and are UL listed.

E. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.

F. Comply with Owner’s instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
i. Permanently inscribe each key with number of lock that identifies cylinder manufacturer’s key symbol, and notation, “DO NOT DUPLICATE.”

G. Key Material: Provide keys of nickel silver only.

2.03 KEY CONTROL SYSTEM
A. Provide a key control system including envelopes, labels, and tags.

2.04 LOCKS, LATCHES, AND BOLTS
A. Strikes: Provide manufacturer’s standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finish to match hardware set, unless otherwise indicated.
   1. Provide flat lip strikes for locks with 3-piece, antifriction latchbolts as recommended by manufacturer.
   2. Provide recess type top strikes for bolts locking into head frames, unless otherwise indicated.
   3. Provide dust-proof strikes for foot bolts, except where special threshold construction provides nonrecessed strike for bolt.

   1. Provide 1/2-inch minimum throw latch for other bored and preassembled types of locks and 3/4-inch minimum throw of latch for mortise locks. Provide 1-inch minimum throw for all dead bolts.

2.05 CLOSERS AND DOOR CONTROL DEVICES
A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer’s recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.
   1. Where parallel arms are indicated for closers, provide closer unit one size larger than recommended for use with standard arms.
   2. Provide parallel arms for all overhead closers, except as otherwise indicated.

B. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ADA provisions for door opening force and delayed action closing.

C. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and close door automatically under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.

2.06 DOOR TRIM UNITS
A. Fasteners: Provide manufacturer’s standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
B. Fabricate edge trim of stainless steel to fit door thickness in standard lengths or to match height of protection plates.

C. Fabricate protection plates not more than 1-1/2-inches less than door width on hinge side and not more than ½-inch less than door width on pull side by height indicated.

1. Metal Plate: Stainless steel, 0.050-inch (U.S. 18 gage).

PART 3 - EXECUTION

3.01 INSTALLATION

A. Coordinate hardware installation with other work. Supply information related to the approved hardware schedule, and include basic installation instructions.

B. Install hardware per manufacturer’s instructions and recommendations. Upon completion of the installation, and as a condition of its acceptance, visually inspect all finish hardware furnished under this Section and place in optimum working condition. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.

1. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.

C. Drill pilot holes for fasteners.

3.02 ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods shall be repaired or replaced at no extra cost to Owner.

3.03 PROTECTION AND CLEANING

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. until accepted by Owner. Remove covering materials and clean hardware just prior to substantial completion.

B. At completion of each segment of installation in a room or space, promptly remove all scraps, debris, and surplus materials from the work area and dispose of legally.

C. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.04 INSPECTION

A. Inspection: Conduct with hardware supplier and Owner’s Representative.
3.05 SIX-MONTH ADJUSTMENT

A. Approximately six months after the date of substantial completion, the installer shall inspect all hardware schedule items, adjust hardware as required and replace faulty items.

3.06 HARDWARE SCHEDULE

A. See drawings for hardware sets that are cross-referenced by set number to the Door/Opening Schedule.

END OF SECTION
SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Non-load-bearing steel framing systems for interior partitions.
   2. Suspension systems for interior ceilings and soffits.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of code-compliance certification for studs and tracks.

1.4 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

2.2 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
1. Steel Sheet Components: Comply with ASTM C645 requirements for steel unless otherwise indicated.


B. Studs and Tracks: ASTM C645. Use embossed, high-strength steel studs and tracks.

   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      b. MarinoWARE.

   2. Minimum Base-Steel Thickness: As required by performance requirements for horizontal deflection, minimum 0.0179 inch.
   3. Depth: As indicated on Drawings.

C. Slip-Type Head Joints: Where indicated, provide one of the following:

   1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to tracks while allowing up to 1-1/2-inch vertical movement.

   2. Single Long-Leg Track System: ASTM C645 top track with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.

   3. Deflection Track: Steel sheet top track 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.

D. Flat Strap and Backing Plate: Steel sheet for blocking.

E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-steel thickness, with minimum 1/2-inch-wide flanges.

   1. Depth: 1-1/2 inches.
   2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C645.

   1. Minimum Base-Steel Thickness: 0.0296 inch.
   2. Depth: 7/8 inch.

G. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.

   1. Depth: 3/4 inch.
   2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch.
3. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

2.3 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

B. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.

C. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.

D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch and minimum 1/2-inch-wide flanges.
   1. Depth: 1-1/2 inches.

E. Furring Channels (Furring Members):
   1. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
   2. Steel Studs and Tracks: ASTM C645. Use either conventional steel studs and tracks or embossed, high-strength steel studs and tracks.
      a. Minimum Base-Steel Thickness: 0.0179 inch.

   3. Hat-Shaped, Rigid Furring Channels: ASTM C645, 7/8 inch (22 mm) deep.
      a. Minimum Base-Steel Thickness: 0.0179 inch.

2.4 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

   1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

   2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.
PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C754.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.

   a. Install two studs at each jamb unless otherwise indicated.
   b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
   c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

   a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

E. Direct Furring:

   1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

3.3 INSTALLING CEILING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

      a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

   2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

   3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.

   4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.

   5. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216
SECTION 092300 – GYPSUM PLASTERING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior vertical plasterwork, new and patching.
   2. Preparing surfaces where plaster work is required.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Samples: For each type of factory-prepared finish coat.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: Where indicated or required to preserve existing ratings, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E 119 by a qualified testing agency.

2.2 ACCESSORIES

A. General: Comply with ASTM C 1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Metal Accessories:
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      b. MarinoWARE.

5. Casing Beads: Fabricated from zinc-coated (galvanized) steel; square-edged style; with expanded flanges.

2.3 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in cement plaster.

C. Bonding Compound: ASTM C 932.

D. Fasteners for Attaching Metal Lath to Substrates: ASTM C 1063, 26 ga. or heavier.

2.4 PLASTER MATERIALS

A. Gypsum Plaster: ASTM C 28. Neat plaster for hand application of scratch coat over metal latch, concrete, and SMU shall contain not less than 0.01 percent by weight of synthetic or vegetable fibers or not less than 0.02 percent by weight of mineral fibers.

B. Bond Compound: A plaster bonding compound having special bonding properties shall be used for application to concrete or CMU surfaces where a mechanical key can be achieved.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:


C. Plaster Crack Patching Compound: Ready mixed all-purpose joint compound.


E. Sand Aggregate: ASTM C 35 graduated for plaster.

2.5 PLASTER MIXES

A. Base-Coat Mixes for Use over Unit Masonry: Single base (scratch) coat for two-coat plasterwork on low-absorption plaster bases as follows:

B. According to ASTM C 926, mixes in "Portland Cement Mix," "Portland and Masonry Cement Mix," and "Plastic Cement Mix" subparagraphs below are suitable for use over "low-absorption" plaster bases, such as brick, concrete, and dense, smooth clay tile. Coordinate with requirements retained in "Plaster Materials" Article.
C. Mix Additives: Use accelerators and retarders, if required by Project conditions, according to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Contractor shall survey the areas requiring plaster work and verify surfaces and conditions affecting the work.

B. Prepare smooth, solid substrates for plaster according to ASTM C 926.

C. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.2 INSTALLING ACCESSORIES

A. Install according to ASTM C 841 and at locations indicated on Drawings.

B. Reinforcement for External (Outside) Corners:
   1. Install cornerbead at interior locations.

C. Control Joints: Locate as indicated on Drawings.

3.3 PLASTER APPLICATION

A. General: Comply with ASTM C 842.

B. Bonding Compound: Apply on unit masonry substrates for direct application of plaster.

C. Base-Coat Plaster:
   1. Over Expanded-Metal Lath:
      a. Scratch Coat: Gypsum neat plaster with job-mixed sand.
      b. Brown Coat: Gypsum neat plaster with job-mixed sand.
   2. Over Unit Masonry: Gypsum neat plaster with job-mixed sand.
   3. Over Monolithic Concrete: Gypsum neat plaster with job-mixed sand.

D. Finish Coats:
   1. Smooth-Troweled Finishes: Gypsum gaging plaster and lime putty or gypsum ready-mixed finish plaster.
   2. Float Finishes: Gypsum gaging plaster and lime putty.
E. Plaster Finish Coats: Apply to provide trowelled finish to match existing plaster walls.

3.4 PLASTER REPAIRS

A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 092300
SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C1396/C1396M.

   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Georgia-Pacific Gypsum LLC.
      c. USG Corporation.

   2. Thickness: 5/8” inch unless noted otherwise.

B. Gypsum Board, Type X: ASTM C1396/C1396M.

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
   
   a. Georgia-Pacific Gypsum LLC.
   c. USG Corporation.

2. Thickness: 5/8 inch.

C. Gypsum Ceiling Board: ASTM C1396/C1396M.

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
   
   a. Georgia-Pacific Gypsum LLC.
   c. USG Corporation.

2. Thickness: 1/2 inch.

D. Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
   
   a. Georgia-Pacific Gypsum LLC.
   c. USG Corporation.

2. Core: 5/8 inch, regular type.
3. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
4. Indentation: ASTM C1629/C1629M, meets or exceeds Level 1 requirements.
5. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 1 requirements.
7. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C1178M, with manufacturer’s standard edges.

1. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
a. CertainTeed Corporation.
b. Georgia-Pacific Gypsum LLC.
c. National Gypsum Company.
d. USG Corporation.

2. Core: 5/8 inch, Type X.
3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.
   1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
   2. Shapes:
      a. Cornerbead.
      b. Bullnose bead.
      c. L-Bead: L-shaped; exposed long flange receives joint compound.
      d. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.
B. Joint Tape:
   1. Interior Gypsum Board: Paper.
C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
   1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
   2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
      a. Use setting-type compound for installing paper-faced metal trim accessories.
   3. Fill Coat: For second coat, use setting-type, sandable topping compound.
   4. Finish Coat: For third coat, use setting-type, sandable topping compound.
   5. Skim Coat: For final coat of finish, use setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
   1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
   2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

B. Comply with ASTM C840.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

E. Prefill open joints and damaged surface areas.

F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
   1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
   2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
      a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.2 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Glazed wall tile.
   2. Metal tiling accessories

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Samples:
   1. Each type and composition of tile and for each color indicated in the Finish Schedule.
   2. Each type of metal accessory.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.
B. Product Data: For each type of product.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

   1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

   1. Installer is recognized regional installer with minimum five years experience.
PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

2.2 TILE PRODUCTS

A. Ceramic Tile Type CT-1: Square-edged wall tile.
   1. Manufacturers: Subject to compliance with requirements provide product by the following:
      a. Daltile – Basis-of-Design
   4. Grout Color: Master Builders Cape Gray #546

B. Ceramic Tile Type CT-2: Square-edged wall tile.
   1. Manufacturers: Subject to compliance with requirements provide product by the following:
      a. Daltile – Basis-of-Design
   3. Tile Color and Pattern: Daltile semi-gloss, Luminary Gold #0142
   4. Grout Color: Master Builders Snow White #11

C. Ceramic Tile Type C-3: Square-edged wall tile.
   1. Manufacturers: Subject to compliance with requirements provide product by the following:
      a. Walker Zanger Kaleidoscope – Basis-of-Design
   3. Tile Color and Pattern: See Drawings for pattern. Colors:
      a. Navy Matte
      b. Sky Matte
      c. White Matte
   4. Grout Color: Master Builders Snow White #11
2.3 SETTING MATERIALS

A. Improved Modified Dry-Set Mortar (Thinset): ANSI A118.15, or other approved TCNA setting method and material for proposed substrate.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Bostik, Inc.
   b. Custom Building Products
   c. MAPEI Corporation.

2. Provide prepackaged, dry-mortar mix combined with liquid-latex additive at the Project site.

2.4 GROUT MATERIALS

A. High-Performance Tile Grout: ANSI A118.7.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Bostik, Inc.
   b. Custom Building Products
   c. LATICRETE SUPERCAP, LLC
   d. MAPEI Corporation.

B. Provide prepackaged, dry-mortar mix combined with liquid-latex additive at the Project site.

2.5 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations, indicated.

B. Metal Cove and Edge Strips: Height to match tile and setting bed thickness, metallic design designed specifically for applications

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Schluter Systems, L.P.

2. Shapes: Provide appropriate shapes and trim pieces to finish corners and exposed edges of tile work.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

2. Verify that concrete substrates for tile floors installed with adhesives or thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove mastic and remove any bumps in existing concrete floors scheduled for tile by grinding.

B. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 CERAMIC TILE INSTALLATION

A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D.Provide manufacturer's standard trim shapes or metal trim pieces where necessary to eliminate exposed tile edges.

E. Jointing Pattern: Lay tile in pattern indicated on the Drawings.

F. Joint Widths: As selected by the Architect.

3.4 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Wall Installations:

1. Ceramic Tile Installation: W244C or TCNA W244F; thinset mortar.
   
   

END OF SECTION 093013
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A according to ASTM E1264.

2.2 ACOUSTICAL PANELS – CT-1 and CT-2

A. Basis of Design: Subject to compliance with requirements, provide acoustical panels equal to the following:

1. Armstrong, Optima

B. Acoustical Panel Standard: Manufacturer's standard panels according to ASTM E1264.

C. Classification: Type II, Form 2.

D. Color: White.

E. Light Reflectance (LR): .84.

G. Noise Reduction Coefficient (NRC): .90.
H. Edge/Joint Detail: Square.
I. Thickness: 5/8 inch.
J. Modular Size: CT-1, 24 x 24 inches; CT-2, 24 x 48 inches.

2.3 METAL SUSPENSION SYSTEM
A. Basis of Design: Subject to compliance with requirements, provide acoustical panels equal to the following:
   1. Armstrong, Prelude XL.
B. Metal Suspension-System Standard: Manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M.
C. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
   2. End Condition of Cross Runners: butt-edge type.
   3. Face Design: Flat, flush.
   4. Cap Material: Cold-rolled steel or aluminum.

2.4 ACCESSORIES AND TRIM
A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
B. Hold-Down Clips: Manufacturer's standard hold-down.
C. Impact Clips: Manufacturer's standard impact-clip system designed to absorb impact forces against acoustical panels.
D. Perimeter Trim: Extruded aluminum perimeter trim, as follows:
   2. Size and Color: 3 7/8” high, white color.

2.5 METAL EDGE MOLDINGS AND TRIM
A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
PART 3 - EXECUTION

3.1 PREPARATION

A. Layout ceilings as indicated on the Drawings. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated.

B. Layout openings for penetrations centered on the penetrating items.

C. Notify Architect before closing in ceilings to perform a close-in inspection.

3.2 INSTALLATION

A. Install acoustical panel ceilings according to ASTM C636/C636M and manufacturer's written instructions.

B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

3. Arrange directionally patterned acoustical panels in long direction:

3.3 FIELD QUALITY CONTROL

END OF SECTION 095113
SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

PART 2 - PRODUCTS

2.1 RUBBER BASE

A. Wall Base
   1. Manufacturer: Johnsonite

B. Product Standard: ASTM F1861, Type TP (rubber, thermoplastic).
   2. Style and Location:
      a. Style B, Cove: Provide in areas with resilient floor coverings or where scheduled.

C. Thickness: 0.125 inch.

D. Height: 6 inches.

E. Lengths: Coils in manufacturer's standard length.

F. Outside Corners: Preformed.

G. Inside Corners: Preformed.

H. Colors: Johnsonite, as indicated on the drawings.
2.2 ACCESSORIES

A. Reducer Strip:
   1. Manufacturer: Johnsonite
      1. R thieducer, RRS-XX-C, 1 inch thick to floor, Color 31 Zephyr CB

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Wall Base Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
   1. Johnsonite 960 Cove Base Adhesive
   2. Johnsonite 946 Premium Contact Bond Adhesive

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until materials are the same temperature as space where they are to be installed.

D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:
   1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
      a. Form without producing discoloration (whitening) at bends.
   2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
      a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient product installation.
   1. Remove adhesive and other blemishes from exposed surfaces.
   2. Damp-mop surfaces to remove marks and soil.

C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Unbacked vinyl sheet flooring.
   2. Vinyl sheet flooring with backing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Samples: For each exposed product and for each color, texture, and pattern specified.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for resilient sheet flooring installation and seaming method indicated.
   1. Engage an installer who employs workers for this Project who are trained or certified by resilient sheet flooring manufacturer for installation techniques required.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient sheet flooring, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
   1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 UNBACKED VINYL SHEET FLOORING

A. Manufacturer: Subject to compliance with requirements, provide product, or product meeting the following:
1. Polyflor Ltd. (Halstead Flooring Co.), Standard Pur

2. Product Standard: ASTM F 1303, ASTM E648, Class 1 and ASTM E662 Class I/A.

3. Thickness: 0.080 inch.


5. Sheet Width: 6.6 feet.


7. Colors and Patterns: Storm Blue #4560.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient sheet flooring manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by flooring and adhesive manufacturers to suit resilient sheet flooring and substrate conditions indicated.

C. Seamless-Installation Accessories:

      a. Colors: As selected by Architect from manufacturer's full range to Match flooring.

D. Integral-Flash-Cove-Base Accessories:

   1. Cove Strip: 1-inch radius provided or approved by resilient sheet flooring manufacturer.
   2. Corners: Molded resilient tile or metal inside and outside corners and end stops provided or approved by resilient sheet flooring manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to resilient sheet flooring manufacturer's written instructions to ensure adhesion of resilient sheet flooring.

B. Concrete Substrates: Prepare according to ASTM F710.

   1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
   2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by resilient sheet flooring manufacturer. Do not use solvents.
3. Alkalinity, Adhesion, and Moisture Testing: Perform tests recommended by resilient sheet flooring manufacturer to confirm conditions meet manufacturer’s standards.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient sheet flooring until materials are the same temperature as space where they are to be installed.
   1. At least 48 hours in advance of installation, move flooring and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient sheet flooring.

3.2 RESILIENT SHEET FLOORING INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient sheet flooring.

B. Unroll resilient sheet flooring and allow it to stabilize before cutting and fitting.

C. Lay out resilient sheet flooring as follows:
   1. Maintain uniformity of flooring direction.
   2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in flooring substrates.
   3. Match edges of flooring for color shading at seams.
   4. Avoid cross seams.

D. Scribe and cut resilient sheet flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend resilient sheet flooring into toe spaces, door reveals, closets, and similar openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on resilient sheet flooring as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install resilient sheet flooring on covers for and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of flooring installed on covers and adjoining flooring. Tightly adhere flooring edges to substrates that abut covers and to cover perimeters.

H. Adhere resilient sheet flooring to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

I. Seamless Installation:
1. Heat-Welded Seams: Comply with ASTM F1516. Rout joints and heat weld with welding bead to fuse sections permanently into a seamless flooring installation. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.


1. Install metal corners at inside and outside corners or provide manufacturer’s standard inside and outside corner treatment.

END OF SECTION 096516
SECTION 096519 - RESILIENT FLOORING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Conditions of Contract, including Division 1 Specification Sections, apply to the Work of this Section.

1.02 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature in space to receive tile between 70° and 90° and for not less than 24 hours before and continuously after installation.

B. Maintain minimum temperature of 70° F after flooring is installed.

1.03 WORK INCLUDED

A. New LVT.

B. Patching existing VCT.

1.04 SUBMITTALS

A. Samples: Provide samples of each type of flooring material, in manufacturer's standard range of colors and patterns.

B. Manufacturer's Literature: Include descriptive information, installation and cleaning instructions.

C. Primer and Adhesive: Type and brand which shall be used for installation and recommended by floor covering manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver flooring, adhesives and other accessories in original packaging with labels intact, and storage in a secure, dry location for a minimum of 48 hours prior to installation. Protect adhesive from freezing temperatures.

PART 2 - PRODUCTS

2.01 LUXURY VINYL TILE - LVT

A. Approved Manufacturers:

1. AVA by Novalis Innovative Flooring; distributed by Capri Cork, SPRK (basis of design)

B. LVT shall be uniform in thickness and size; edges cut accurately and square.

1. Classification: ASTM F1700, Class III, Type B.

2. 18 in. x 18 in. x 1/8 in. and 4 in. x 18 in. x 1/8 in.

3. Colors: As indicated on the drawings, and as follows:

   a. F-3A AvaSprk - Dark White (18” x 18”)

RESILIENT FLOORING

096519 - 1
b. F-3B AvaSprk - Steamed Crabs (4”x18”)
c. F-3C AvaSprk – Amber Waves (18”x18”)
d. F3D AvaSprk – Inner Harbor (18”x18”)

2.02 PATCH EXISTING VCT
A. Obtain sample of existing tile and use to match for patching of existing VCT.

2.03 APPLICATION MATERIALS
A. General: Provide type and brands of waterproof adhesive as recommended by manufacturer of covering materials for the conditions of the installation.
   1. Transitional vinyl adhesive Novalis type NFA-T226 (available from Capri) shall be used in full spread applications. Apply adhesive according to manufacturers recommendations.
   2. Provide adhesives that are solvent free and low or no VOC, as recommended by the resilient tile manufacturer for the application.
B. Primer: Type and brand recommended by floor covering manufacturer.
C. Leveling/patching compounds for floors: As recommended by flooring manufacturer; compatible with substrate and with tile adhesive.

PART 3 - EXECUTION
3.01 INSPECTION OF SURFACES
A. Examine substrate for excessive moisture content and unevenness which would prevent execution and quality of resilient flooring as specified.
B. Do not proceed with installation of resilient flooring until defects have been corrected except where correction is indicated under PREPARATION in this Section.

3.02 PREPARATION
A. Remove dirt, oil, grease, old adhesive, or other foreign matter from surfaces to receive floor covering materials.
B. Broom clean or vacuum surfaces to be covered, and inspect subfloor conditions prior to commencing work. Notify owner of any adverse conditions encountered. Do not begin until such conditions are corrected.
C. Use leveling compound as recommended by flooring manufacturer for filling unevenness, cracks and depressions in subfloors. Prepare existing resilient floored surfaces over which new resilient flooring is to be installed in strict accordance with manufacturer's printed instructions.
E. Allow all materials to acclimatize in the space for at least 48 hours.

3.03 APPLICATION OF ADHESIVES
A. Mix and apply adhesives in accordance with manufacturer's instructions.
B. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.

C. Apply uniformly over surfaces.
   1. Cover only that amount of area which can be covered by flooring material within the recommended working time of the adhesive.
   2. Remove any adhesive that dries or films over.
   3. Do not soil walls, bases or adjacent areas with adhesives.
   4. Promptly remove any spillage.

D. Apply adhesives with notched trowel or other suitable tool recommended by adhesive manufacturer.

3.04 INSTALLATION OF LVT

A. Layout tile in patterns indicated on the Drawings and receive Architect’s approval prior to installation.

B. Work toward perimeter.

C. Fit flooring material neatly and tightly into breaks and recesses, against bases, around pipes and penetrations, under saddles or thresholds, and around permanent cabinets and equipment.

3.05 FINISHING AND CLEANING

A. Upon completion of the installation of floor covering, adjacent work, and after materials have set, clean surfaces with a neutral cleaner as recommended by the manufacturer for the type of floor covering material installed.

B. Protect completed work from traffic and damage until acceptance by the Owner.

C. Remove all debris and excess material from the project site.

3.06 EXTRA STOCK

A. Deliver maintenance stock to Owner in protective packaging with appropriate identification labels. Materials shall be from same lot as installed flooring. Furnish not less than one (1) box per fifty (50) boxes of installed material or a minimum of 5 boxes for each type, pattern and size. Provide 20 feet total length of base for each color used.

B. Do not include surplus tile adhesives as part of extra stock.

END OF SECTION
SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates.

1.2 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

1.4 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
a. Vertical and Horizontal Surfaces: Provide samples of at least 16 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.
   a. If preliminary color selections are not approved, apply additional mockups of
      additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
   A. Manufacturers: Subject to compliance with requirements, provide products by one of the
      following:
      1. Sherwin-Williams Company (The).
   B. Products: Subject to compliance with requirements, available products that may be incorporated
      into the Work include, but are not limited to products listed in the Interior Painting Schedule for
      the paint category indicated.

2.2 PAINT, GENERAL
   A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its
      "MPI Approved Products Lists."
   B. Material Compatibility:
      1. Materials for use within each paint system shall be compatible with one another and
         substrates indicated, under conditions of service and application as demonstrated by
         manufacturer, based on testing and field experience.
      2. For each coat in a paint system, products shall be recommended in writing by topcoat
         manufacturers for use in paint system and on substrate indicated.
   C. Colors: As selected by Architect from manufacturer's full range and as indicated in the Finish
      Schedule on the Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine substrates and conditions, with Applicator present, for compliance with requirements
      for maximum moisture content and other conditions affecting performance of the Work.
   B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter
      as follows:
      1. Masonry (Clay and CMUs): 12 percent.
2. Wood: 15 percent.
3. Gypsum Board: 12 percent.
4. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.
   1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and 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.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 INTERIOR PAINTING SCHEDULE

A. CMU Substrates:
   1. High-Performance Architectural Latex System – Areas other than serving area:
      b. Prime Coat: Primer, alkali resistant, water based, MPI #3.
      d. Topcoat: Latex, interior, high performance architectural (MPI Gloss Level 4), MPI #140.
   2. Water-Based Light Industrial Coating System MPI INT 4.2K – Serving areas:


c. Topcoat: Light industrial coating, interior, water based, semi-gloss (MPI Gloss Level 5), MPI #153.

B. Steel Substrates:

1. High-Performance Architectural Latex System:
   a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76.
   b. Prime Coat: Shop primer specified in Section where substrate is specified.
   d. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.

C. Wood Substrates: Wood trim and miscellaneous exposed wood.

1. High-Performance Architectural Latex System:
   a. Prime Coat: Primer, latex, for interior wood, MPI #39.
   c. Topcoat: Latex, interior, high performance architectural (MPI Gloss Level 4), MPI #140.

D. Gypsum Board and Plaster Substrates:

1. Institutional Low-odor/VOC Latex System – GWB soffits and ceilings:
   a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (MPI Gloss Level 4), MPI #146.

2. High-Performance Architectural Latex System – GWB or plaster wall Surfaces:
   a. Prime Coat: Primer sealer, latex, interior, MPI #50.
c. Topcoat: Latex, interior, high performance architectural (MPI Gloss Level 4), MPI #146.
SECTION 101400 - SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Suspended signage panels.
   2. Laser-cut plastic dimensional letters and shapes.
   3. Vinyl cutouts applied to glass.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: For all signage.
   1. Include plans, elevations, sections, and attachment details.
   2. Shop drawings for vinyl cutouts.

C. Samples: For each exposed product and for each color and texture specified.
   1. Assume five colors of plastic laminate and plastic letters to be selected by the Architect from the mid-price range of color and pattern offerings.

1.3 INFORMATIONAL SUBMITTALS

A. Product certificates.

B. Quality Standard Compliance Certificates: AWI Quality Certification Program.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
1.5  WARRANTY

   A.  Warranty period: Five years.

PART 2 - PRODUCTS

2.1  PANELING, GENERAL

   A.  Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-faced wood paneling (decorative laminate surfacing) indicated for construction, finishes, installation, and other requirements.

2.2  PLASTIC-LAMINATE-FACED COMPONENTS

   A.  Grade: Premium.

   B.  Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3 and the following requirements:

   1.  Manufacturers: Subject to compliance with requirements, provide products by the following:

      a.  Wilsonart LLC.

   2.  Faces: Grade HGS.

   3.  Backs: Minimum Grade VGF.


   C.  Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed surfaces complying with the following requirements:

   1.  As indicated on the drawings and confirmed by submittals.

   D.  Panel Core: Fire-retardant particleboard or fire-retardant MDF.

   1.  Thickness: 3/4 inch.

   E.  Exposed Panel Edges: Unless noted otherwise, provide plastic laminate edges or painted edges to match surface.

   F.  Adhesives for Bonding Plastic Laminate: Resorcinol.

   G.  Assemble panels by gluing and concealed fastening.

   H.  Back laminate all plastic laminate panels.
2.3 LASER CUT LETTERS AND SHAPES (OPTION)
   A. Materials: Provide color-through plastic laser-cut letters and shapes that comply with requirements of referenced quality for signs in lieu of plastic laminate.

2.4 VINYL CUTOUTS APPLIED TO GLASS
   A. Materials: Frosted white vinyl for application on glass surface.
   B. Reverse cut for second surface install.

2.5 INSTALLATION MATERIALS
   A. Hardware: Clips, hangers, metal channels, stainless steel cables, and other installation hardware.
   B. Installation Adhesive: Product recommended by panel fabricator for each substrate for secure anchorage.

2.6 FABRICATION
   A. Field measure for all plastic-laminate wood panels. Locate cutouts or openings to accommodate existing or proposed openings.
   B. Complete fabrication, including assembly, to maximum extent possible, before shipment to Project site.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Protect panels during shipping and installation.
   B. Before installation, condition paneling to humidity conditions in installation areas.
   C. Grade: Install signage to comply with quality standard grade of paneling to be installed.
   D. Install paneling level, plumb, true in line, and without distortion. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches. Install with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.

END OF SECTION 101400
PART 1 - GENERAL

1.1 SUMMARY
   A. Section includes solid-plastic toilet compartments configured as toilet enclosures.

1.2 ACTION SUBMITTALS
   A. Product Data: For each type of product.
   B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachment details.
   C. Samples for each type of toilet compartment material indicated.

1.3 INFORMATIONAL SUBMITTALS
   A. Product certificates.

1.4 CLOSEOUT SUBMITTALS
   A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS
   A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

   1. Flame-Spread Index: 25 or less.
   2. Smoke-Developed Index: 450 or less.

   B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.
2.2 SOLID-PLASTIC TOILET COMPARTMENTS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Partition Systems, Inc.
   2. Rockville Partitions, Inc.

B. Toilet-Enclosure Style: Overhead braced.

C. Door, Panel, Screen, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch thick, seamless, with eased edges, no-sightline system, and with homogenous color and pattern throughout thickness of material.
   1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
   2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainless-steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
   3. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range.

D. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; stainless steel.

E. Brackets (Fittings):
   1. Stirrup Type: Ear or U-brackets, stainless steel.
   2. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

F. Overhead Cross Bracing for Ceiling-Hung Units: As recommended by manufacturer and fabricated from solid polymer.

2.3 HARDWARE AND ACCESSORIES

A. Hardware and Accessories: Manufacturer's heavy-duty stainless-steel operating hardware and accessories.
   1. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
   2. Provide fold down shelves, coat hook, and bumpers.
   3. Provide (1) coat hook on inside of stall and (4) coat hooks on outside of panel as indicated on the Drawings.

B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 FABRICATION

A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.

B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

C. Door Size and Swings: Unless otherwise indicated, provide 24-inch-wide, in-swinging doors for standard toilet compartments and 36-inch-wide, out-swinging doors with a minimum 32-inch-wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:
   a. Pilasters and Panels: 1/2 inch.
   b. Panels and Walls: 1 inch.

2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
   a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
   b. Align brackets at pilasters with brackets at walls.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in entrance screens to return doors to fully closed position.
END OF SECTION 102113.19
SECTION 102213 - WIRE MESH PARTITIONS

PART 1 - GENERAL

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

1.2 SUMMARY
   A. Section Includes:

   1. Standard-duty wire mesh partitions.

1.3 DEFINITIONS
   A. Intermediate Crimp: Wires pass over one and under the next adjacent wire in both directions, with wires crimped before weaving and with extra crimps between the intersections.

1.4 ACTION SUBMITTALS
   A. Product Data: For each type of product.

   B. Shop Drawings:

   1. Include plans, elevations, sections, details of panel and door construction, and hardware and fitting attachments to other work.

   C. Delegated-Design Submittal: For wire mesh partitions indicated to comply with performance requirements and design criteria.

1.5 CLOSEOUT SUBMITTALS
   A. Maintenance Data: For wire mesh partition hardware to include in maintenance manuals.

1.6 QUALITY ASSURANCE
   A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
1.7 DELIVERY, STORAGE, AND HANDLING
   
   A. Deliver wire mesh items palleted and wrapped to provide protection during transit and Project-
      site storage. Use vented plastic.
   
   B. Store wire mesh panels in a dry area out of weather and prohibit stacking other materials on top.

1.8 FIELD CONDITIONS
   
   A. Field Measurements: Verify actual dimensions of construction contiguous with wire mesh units
      by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
   
   A. Basis-of-Design Product: Subject to compliance with requirements, provide ACORN Wire &
      Iron Works; 130A, Standard Duty or comparable product by one of the following:
      
      1. Folding Guard Corporation.
      2. Indiana Wire Products, Inc.

2.2 PERFORMANCE REQUIREMENTS
   
   A. Structural Performance: Wire mesh units shall withstand the effects of gravity loads and the
      following loads and stresses within limits and under conditions indicated.
      
      1. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft. at any location on
         a panel.

2.3 MATERIALS
   
   A. Steel Wire: ASTM A510.
   
   B. Steel Plates, Channels, Angles, and Bars: ASTM A36/A36M.
   
   C. Steel Sheet: Cold-rolled steel sheet, ASTM A1008/A1008M, Commercial Steel (CS), Type B.
   
   D. Steel Tubing: ASTM A500/A500M, cold-formed structural-steel tubing or ASTM A513,
      Type 5, mandrel-drawn mechanical tubing.
   
   E. Panel-to-Panel Fasteners: Manufacturer's standard steel bolts and nuts.
   
   F. Post-Installed Anchors: Capable of sustaining, without failure, a load equal to 6 times the load
      imposed when installed in unit masonry and 4 times the load imposed when installed in
      concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a
      qualified independent testing agency.
G. Power-Driven Fasteners: ICC-ES AC70.

2.4 STANDARD-DUTY WIRE MESH PARTITIONS

A. Mesh: 0.135-inch- diameter, intermediate-crimp steel wire woven into 1-1/2-inch diamond mesh.

B. Vertical Panel Framing: 1-1/4-by-5/8-by-0.080-inch cold-rolled, C-shaped steel channels with holes for 1/4-inch- diameter bolts not more than 12 inches o.c.


D. Line Posts: 3-inch-by-3-inch steel tubes; with 5/16-inch steel base plates.

E. Swinging Doors: Fabricated from same mesh as partitions, with framing fabricated from 1-1/4-by-1/2-by-1/8-inch 12-gauge cold-rolled, U-shaped steel channels, covered with 1-1/4-by-1/8-inch flat steel bar cover plates on three sides, and with 1-1/2- by 7/8- by 1/8-inch, 12-gauge-thick angle strike bar and cover on strike jamb.
   1. Hinges: Butt type with fixed pins, 3-by-4-inch steel, three per door; bolted, riveted, or welded to door and jamb framing.
   2. Cylinder Lock: Mortise type in standard lever set with storage room function and replaceable core.

F. Finish: Powder-coated finish.
   1. Color: As selected by Architect from manufacturer's full range.

2.5 FABRICATION

A. General: Fabricate wire mesh items from components of sizes not less than those indicated. Use larger-sized components as recommended by wire mesh item manufacturer. Furnish bolts, hardware, and accessories required for complete installation with manufacturer's standard finishes.

B. Standard Duty Wire Mesh Partitions: Fabricate wire mesh partitions with cutouts for pipes, ducts, beams, and other items indicated. Finish edges of cutouts to provide a neat, protective edge.
   1. Mesh: Securely clinch mesh to framing.
   2. Framing: Fabricate framing with mortise and tenon corner construction.
      a. Provide horizontal stiffeners as indicated or, if not indicated, as required by panel height and as recommended by wire mesh partition manufacturer.
   3. Fabricate wire mesh partitions with 3 to 4 inches of clear space between finished floor and bottom horizontal framing.
   4. Doors: Align bottom of door with bottom of adjacent panels.
a. For doors that do not extend full height of partition, provide transom or header tube over door, fabricated from same mesh and framing as partition panels.

5. Hardware Preparation: Mortise, reinforce, drill, and tap doors and framing as required to install hardware.

2.6 STEEL AND IRON FINISHES

A. Powder-Coat Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-on powder-coat finish, suitable for use indicated, with a minimum dry film thickness of 2 mils.

1. Color: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine floors for suitable conditions where wire mesh items will be installed.

C. Examine walls to which wire mesh items will be attached for properly located blocking, grounds, and other solid backing for attachment of support fasteners.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 WIRE MESH PARTITIONS ERECTION

A. Anchor wire mesh partitions to floor with 3/8-inch- diameter, postinstalled expansion anchors through floor shoes located at each post and corner. Adjust wire mesh partition posts in floor shoes to achieve level and plumb installation.

1. Anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if indicated on Shop Drawings.

B. Anchor wire mesh partitions to walls at 12 inches o.c. through back corner panel framing and as follows:

1. For concrete and solid masonry anchorage, use expansion anchors.
2. For hollow masonry anchorage, use toggle bolts.

C. Secure top capping bars to top framing channels with 1/4-inch- diameter "U" bolts spaced not more than 28 inches o.c.

D. Install doors complete with door hardware.
3.3 ADJUSTING AND CLEANING

A. Adjust doors to operate smoothly and easily, without binding or warping. Adjust hardware to function smoothly. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Remove and replace defective work, including doors and framing that are warped, bowed, or otherwise unacceptable.

C. Touchup Painting: Immediately after erection, clean bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION 102213
SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Public-use washroom accessories.
   2. Custodial accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each finish specified, full size.
   1. Approved full-size Samples will be returned and may be used in the Work.

C. Delegated-Design Submittal: For grab bars.
   1. Include structural design calculations indicating compliance with specified structural-performance requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: 10 years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Design accessories and fasteners to comply with the following requirements:

1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

A. Grab Bar:

1. Basis of Design: Bobrick 6806 Series
3. Material: Stainless steel, 0.05 inch thick.
   a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin) on ends and slip-resistant texture in grip area.
5. Configuration and Length: As indicated on Drawings.

B. Mirror Unit:

1. Basis of Design: Bobrick B-16S-1830
2. Frame: Stainless steel channel.
   a. Corners: Manufacturer's standard.
3. Size: 18”x30”.
4. Shelf:
   a. Type: Integral, welded.
   b. Depth: 5 inches.
5. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

2.3 CUSTODIAL ACCESSORIES

A. Custodial Utility Shelf:

1. Basis of Design: Bobrick B 295x16
2. Description: With exposed edges turned down not less than 1/2 inch and supported by two triangular brackets welded to shelf underside.
3. Size: 16 inches long by 6 inches deep.
4. Material and Finish: Not less than nominal 0.05-inch-thick stainless steel, ASTM A480/A480M No. 4 finish (satin).
B. Custodial Mop and Broom Holder:

1. Basis of Design: Bobrick 9983
2. Description: Unit with shelf, hooks, and holders.
   a. Shelf: Not less than nominal 0.05-inch-thick stainless steel.
   b. Rod: Approximately 1/4-inch-diameter stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Remove temporary labels and protective coatings.

B. Grab Bars: Install to comply with specified structural-performance requirements.

END OF SECTION 102800
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes equipment for foodservice facilities.

B. Equipment to be salvaged and reinstalled: Where indicated, disconnect, store, and reinstall existing equipment.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For fabricated equipment. Include plans, elevations, sections, roughing-in dimensions, fabrication details, utility service requirements, and attachments to other work.

C. Samples for Initial Selection: For units with factory-applied color finishes.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For foodservice facilities.
   1. Indicate locations of foodservice equipment and connections to utilities.
   2. Key equipment using same designations as indicated on Drawings.
   3. Include plans and elevations; clearance requirements for equipment access and maintenance; details of equipment supports; and utility service characteristics.

B. Record Documents: Shop drawings, final warranties, manufacturer’s data, and maintenance instructions.

C. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.
1.6 WARRANTY

A. Refrigeration Compressor Warranty: Manufacturer agrees to repair or replace compressors that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

B. Equipment and Fabricated Items Warranty: Manufacturer agrees to repair or replace equipment or items that malfunction or fail in materials or workmanship within specified warranty period.
   1. Warranty Period Equipment: Manufacturer’s standard warranty or two years from date of Substantial Completion.
   2. Warranty Period Fabricated Items: Fabricator’s standard warranty or two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NSF Standards: Provide equipment that bears NSF Certification Mark or UL Classification Mark certifying compliance with applicable NSF standards.

B. UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.

C. Regulatory Requirements: Install equipment to comply with the following:
   3. NFPA 70, "National Electrical Code."

2.2 FABRICATED EQUIPMENT

A. Stainless Steel Sinks and Washroom Related Counters:
   1. Description: Fabricate units of welded stainless steel, sound deadened.
      a. Bowls: Stainless steel, Type 304, 0.062 inch thick.
      b. Integral Drainboards: Stainless steel, Type 304, 0.062 inch thick.
      c. Body: Stainless steel, Type 304, 0.062 inch thick.
      d. Sink and Drainboard Features:
         1) Back Splash: 10 inches
         2) Side Splash: 10 inches.
         3) Raised Edges: 1 ½” rolled edge on front (work) side.
4) Rounded internal sink corners.
5) Undershelves: Stainless steel Type 304, 0.05 inch thick.

e. Legs and Feet: Stainless steel tubing legs with adjustable bullet feet.
f. Wheels: Provide 5” lockable wheels where indicated.
g. Accessories: Provide accessories indicated and listed in the Foodservice Equipment Schedule.

2. Stainless Steel Sheet: ASTM A240/A240M, austenitic stainless steel, type as indicated.
3. Fabrication: Prepare sink for installation of the equipment or items indicated and listed in the Foodservice Equipment Schedule.
4. Stainless Steel Finish: Directional satin finish, ASTM A480/A480M, No. 4.

B. Stainless Steel Tables:

1. Description: Flat-countertop Prep and Work tables.
   
a. Tops: Stainless steel, Type 304, 0.062 inch thick, reinforced and sound deadened.
      1) Back Splash: As indicated and listed in the Foodservice Equipment Schedule.
      2) Edge: Bullnose on front and back edges, straight on sides.
   
b. Adjustable Undershelf: Stainless steel, Type 304, 0.050 inch thick.
   
c. Crossbracing: Stainless steel tubing, welded to legs.
   
d. Sink: Stainless steel as specified here.
   
e. Legs: Stainless steel tubing.
   
f. Feet: Stainless steel adjustable bullets or wheels where indicated and listed in the Foodservice Equipment Schedule.
   
g. Accessories:
      1) Control panel.
      2) Control bracket for food waste disposer controls.
      3) Aluminum pan rack slides, [six] [three] slides each.
      4) Urn trough.
      5) Spice bins.

2. Materials:

   a. Stainless Steel Sheet: ASTM A240/A240M, austenitic stainless steel, type as indicated.
   
b. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B, with minimum G90 coating.

3. Fabrication: Prepare table for installation of the following equipment items:
   
b. Knife Rack – Stainless steel knife rack with capacity for minimum 6 knives, mounted to edge of table.
d. Undercounter channel guides for storing cutting board.

4. Stainless Steel Finish: Directional satin finish, ASTM A480/A480M, No. 4.

2.3 FOODSERVICE EQUIPMENT

A. Refer to Drawings and attached Schedule.

2.4 MISCELLANEOUS MATERIALS

A. Installation Accessories, General: NSF certified for end-use application indicated.

B. Elastomeric Joint Sealant: ASTM C920; silicone. Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic) related to exposure, and Use M, G, A, or O as applicable to joint substrates indicated.

1. Public Health and Safety Requirements:
   a. Sealant is certified for compliance with NSF standards for end-use application indicated.
   b. Washed and cured sealant complies with the FDA's regulations for use in areas that come in contact with food.

2. Cylindrical Sealant Backing: ASTM C1330, Type C, closed-cell polyethylene, in diameter greater than joint width.

2.5 FINISHES

A. Stainless Steel Finishes: Remove tool and die marks and stretch lines, or blend into finish. Grind and polish surfaces to produce uniform finish, free of cross scratches.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install foodservice equipment level and plumb, according to manufacturer's written instructions.

   1. Connect equipment to utilities.
   2. Provide cutouts in equipment, neatly formed, where required to run service lines through equipment to make final connections.

B. Complete equipment assembly where field assembly is required.

   1. Provide closed butt and contact joints that do not require a filler.
2. Grind field welds on stainless steel equipment until smooth and polish to match adjacent finish.

C. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.

D. Install closure-trim strips and similar items requiring fasteners in a bed of sealant.

E. Install joint sealant in joints between equipment and abutting surfaces with continuous joint backing unless otherwise indicated. Produce airtight, watertight, vermin-proof, sanitary joints.

3.2 CLEANING AND PROTECTING

A. After completing installation of equipment, repair damaged finishes.

B. Clean and adjust equipment as required to produce ready-for-use condition.

C. Protect equipment from damage during remainder of the construction period.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain foodservice equipment.

PART 4 – FOODSERVICE EQUIPMENT SCHEDULE

ITEM NO. S-1 – MOBILE CASHIERS STAND AND FLAT COUNTER

Provide 30”W base with 44”W top X 5’-0”L X 34”H mobile serving cash register stand, single station; overall frameless construction with 16 gauge S/S formed end panels with top and bottom horizontal members of 16 gauge S/S; heavy duty 5” diameter plate casters with gray rubber tires; brakes on all casters; solid surface top; all stainless steel to be type 304 with # 4 finish; 18 ga. S/S cash drawer w/ extension slides, cylinder lock - 3"D. S/S liner; 120V, 20A electrical receptacle pre-wired to cord and plug set. Provide the following options;

1. Drawer height modified, as necessary to provide minimum 24” knee clearance. Drawer pan to be a 12” x 20” x 1-1/2” pan.
2. Front panel to be plastic laminate.
3. Side panels to be plastic laminate.
4. Solid surface top to overhang base 7” each side.
5. Interlocking device to adjacent serving unit, S-3.
6. Wire access hole in top.
7. 12” deep bottom shelf at back of knee space. Shelf located a minimum of 12” from chair end of cashiers stand.
8. Provide purse hook
ITEM NO. S-2 – MOBILE FLAT SERVING COUNTER

A. Provide mobile serving counter: 30”W base with 42”W top X 4’-0”L X 34”H flat top mobile serving stand, single station; overall frameless construction with 16 gauge S/S formed end panels with top and bottom horizontal members of 16 gauge S/S; 18 gauge S/S undershelf with 18” high ends and 4” high back. Undershelf is held back 6” from front panel forming a utility chase for plumbing and electrical services; heavy duty 5” diameter plate casters with gray rubber tires; brakes on all casters; solid surface top; all stainless steel to be type 304 with number 4 finish; 20A electrical receptacle pre-wired to cord and plug set. Provide the following options:

1. Front panel to be plastic laminate.
2. Side panels to be plastic laminate.
3. Solid surface top to overhang base 8” on back (staff) side and 4” on front (served) side.
4. Interlocking device to adjacent serving unit, S-6.
5. Open for storage on back (staff) side.

ITEM NO. S-3 – MOBILE SELF SERVE (4) WELL HOT WELL UNIT

A. Provide hot food serving unit: 30”H closed base with 44” top x 66” x 34”H. Frameless construction utilizing 16 gauge S/S formed end panels with top and bottom horizontal members of 16 gauge S/S; heavy duty 5” diameter plate casters with gray rubber tires, all with brakes; solid surface top; 18 gauge S/S undershelf with accommodation for plumbing and electrical services; top having 12” x 20” individually controlled hot foot wells rated at 1000 watts each with infinite switches. All S/S to be type 304 with number 4 finish. Provide the following options:

1. Front panel to be plastic laminate.
2. End panels to be plastic laminate.
3. Hinged side panel with latches to conceal interior bottom shelf and controls.
4. Solid surface top to overhang base 8” on back (staff) side and 4” on front (served) side.
5. Interlocking device to adjacent unit, S-1.
6. Recess top to support 18” x 26” pans over the hot wells.
7. Common Drain & Manifold, for (4) wells, 64” unit. Well drains with individual valves, manifold to staff left end with master valve.
8. Master switch for on / off control of all pre-set hot well controls.
9. Hot wells centered in length of counter top.

B. Mounted to the top, a Brass Smith Z-Guard model Z9930, non-portable, modular, adjustable breath guard system, single sided. Features; Sloped breath guard and top shelf glazing supported by inverted “U” frame comprised of (2) 1” vertical supporting tubes with horizontal 1” top tube between; breath guard on student side and One (1) top shelf glazing supported with die cast aluminum 22.5° increment adjustable angle glass supporting brackets, clamping to front vertical and horizontal supporting tubes. Clamping action does not mar, scratch or dimple tubing. No tool required bracket adjustability. All glass panels secured with Phillips head screws. Extruded and Machined parts shall be manufactured using 6063-T6 aluminum. All construction and finishes NSF listed and marked. Unit configured as follows:

1. Overall length to cover food wells.
2. Horizontal Tube Span Front to Back; centerline length post to post; 11 ¼"
3. Front glazing - 14”W. x 1/4” tempered glass front breath guard supported from vertical
front tubes. Front glazing to be used in vertical position
4. 12"W. X 3/8" tempered top glass shelf supported on horizontal top tubes.
5. All glass corners to be radiused standard 1".
6. Finish; Brushed aluminum tubes with chrome support brackets.
7. Mounting; “EZ” stainless steel top mount with post threaded into counter top narrow flange which is securely bolted thru countertop & 14 ga. S/S backing plate below top.

ITEM NO. S-4 – SILVER AND NAPKIN CART

A. Provide Caddy model T-414 with Modification.

ITEM NO. S-5 – NOT USED

ITEM NO. S-6 – MOBILE SERVE/SELF-SERVE 5-HOT WELL UNIT

A. Provide mobile serve/self-serve 5-not well unit; Overall 30"W base with 42" W top x 92"L x 34"H. Frameless construction utilizing 16 gauge S/S formed end panels with top and bottom horizontal members of 16 gauge S/S; heavy duty 5" diameter plate casters with gray rubber tires, all with brakes; solid surface top; 18 gauge S/S undershelf with 18" high ends and 4" high back. Undershelf is held back 6" from front panel forming a utility chase for plumbing and electrical services; top having 12" x 20" individually controlled hot foot wells rated at 1000 watts each with infinite switches. All S/S to be type 304 with number 4 finish. Provide the following options;

1. Front panel to be plastic laminate.
2. End panels to be plastic laminate.
3. Solid surface top to overhang base 8” on back (staff) side and 4” on front (served) side.
4. Interlocking device to adjacent serving unit, S-2.
5. Bun Pan recess over hot wells for 18 x 26 sheet pans.
6. Common Drain & Manifold, for all wells. Well drains with individual valves, manifold to staff left end with master valve.
7. Master switch for on / off control of all pre-set hot well controls.

C. Mounted to the top, a Brass Smith Z-Guard model Z9930, non-portable, modular, adjustable breath guard system, single sided. Features; Sloped breath guard and top shelf glazing supported by inverted “U” frame comprised of (2) 1” vertical supporting tubes with horizontal 1” top tube between; breath guard on student side and One (1) top shelf glazing supported with die cast aluminum 22.5E increment adjustable angle glass supporting brackets, clamping to front vertical and horizontal supporting tubes. Clamping action does not mar, scratch or dimple tubing. No tool required bracket adjustability. All glass panels secured with Phillips head screws. Extruded and Machined parts shall be manufactured using 6063-T6 aluminum. All construction and finishes NSF listed and marked. Unit configured as follows;

1. Overall length to cover food wells.
2. Horizontal Tube Span Front to Back; centerline length post to post; 11 ½"
3. Front glazing - 14"W. x 1/4" tempered glass front breath guard supported from vertical front tubes. Front glazing to be used in vertical position
4. 12"W. X 3/8" tempered top glass shelf supported on horizontal top tubes.
5. All glass corners to be radiused standard 1”.
6. Finish; Brushed aluminum tubes with chrome support brackets.
7. Mounting; “EZ” stainless steel top mount with post threaded into counter top narrow flange which is securely bolted thru countertop & 14 ga. S/S backing plate below top.

ITEM NO. S-7 – ICE CREAM FREEZER

B. Item is existing. Disconnect, store, and re-install.

ITEM NO. S-8 – MILK COOLER

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. S-9 – PASS THROUGH HOT CABINET

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. S-10 – PASS THROUGH REFRIGERATOR

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. S-11 – FREESTANDING MILK DUMP SINK

B. Provide free-standing John Boos Dump Sink Model EUBDS-1014, 10”W x 14”D x 30”H, all 18 GA. stainless-steel sink with galvanized legs and bracing, and adjustable legs. Provide also:

1. Chicago Manual Sink Faucet Model 1100-369ABCP.
2. Exposed chromed shut-off valves below sink.

ITEM NO. D-1 - HOT WATER SANITIZING DISH MACHINE

A. Provide Hobart Model AM15 Tall electric high temperature door-style dishwashing machine rated for 58 racks per hour, using .74 US gallons per rack. Dishwasher shall have 2 HP power wash motor prewired to control panel; connects to D-2 and D-4. Provide with the following:

1. Electric Booster Heater, 8.5 kw.
2. Electric Tank Heater, 8.5 kw
5. Dish Water Tempering Kit.
6. Provide with contactor/switch for control of vent fan.
7. Provide Four (4) Hobart model BUNPAN-RACK tray racks with chrome plated wire insert for supporting pans.
8. Water hammer arrestor kit.

ITEM NO. D-2 - CLEAN DISH TABLE

A. Provide clean dish table, overall approximately 6’-1”L. x 30”W. x 34”H from work top to floor. Slope dish table top to dishwasher for positive drainage; top mounted on open frame base; 10”H. x 2”W backsplash at all walls; standard 1-1/2” rolled rim at exposed sides; connects to D-1.
B. Construct top in accordance with specifications. Lip top into dishwasher in watertight manner as indicated on dishwasher shop drawings. Seal closures to box edges and face edge of dish wash machine.

C. Mount top on standard Open Frame Base. No front cross rails.

ITEM NO. D-3 – GARBAGE DISPOSER

A. Provide garbage disposer under the sink in Item No. D-4: Salvajor model 200-SA-6-ARSS-260/60/3; overall 15 13/16” H x 17” DIA, 2HP, sink mount, with automatic reversing control.

ITEM NO. D-4 – SOILED CORNER DISH TABLE WITH SINK

A. Provide “L” shaped corner soiled dish table, approximately 9’-8”L x 2’-3”D on tray receiving leg and 7’-2” x 30” on dishwasher leg x 34”H from work top to floor; 10”H. x 2”W backsplash at all walls; standard 1-1/2" rolled rim at exposed sides.; top mounted on open frame base.

B. At tray return the top shall extend through tray return opening 1” into tray return area with ¾” inverted “V” front edge and 4” turn down with 1” return to wall with closed ends. Coordinate detailing of sill with stainless steel frame around tray return opening and coiling shutter. Provide a removable undershelf below the tray return opening. Slope top to drain to dishwasher (D-1) side and to 3 compartment sink (D-6) side. Weld to D-6.

C. In dishwasher leg of “L” provide an 18” x 18” x 12”D integral stainless-steel sink and removable tray slide.

D. Centered behind the sink punch the backsplash face and provide a backsplash mount spring type pre-rinse spray; 8” centers dual valve back splash mount, flexible stainless-steel hose wrapped with stainless steel support spring with wall bracket to adjacent wall. Maximum water use of 1.4 GPM.

1. Fisher Model 13390; 1.15 GPM consumption with Ultra Spray Valve.
2. Provide the spray valve with 2949-9001 scrub brush.

D. Construct top in accordance with specifications. Lip top into dishwasher in watertight manner. extending to 1” above the dish table top. Seal closures to box edges and face edge of dish machine.

ITEM NO. D-5 - WALL MOUNT HOSE REEL

A. Mounted to the wall, where shown a stainless steel exposed hose reel rinse w/spray valve; stainless steel finish; 35 feet of 3/8” ID, 3 ply, 2 braid hose, working pressure of 200 PSI & withstands 140° F water temp., 1/2” NPT female; adjustable arm positions allow ceiling, wall, under counter mounting.
1. Fisher 29610 for wall mounting.
2. Provide with Ultra Spray Valve using 1.15 GPM @ 60 PSI in lieu of standard shower pattern spray head.

B. Provide with chrome plated riser pipe.

C. Provide 1/2" Pressure Vacuum Breaker; high hazard anti-siphon, anti-spill, pressure type vacuum breaker; rough chrome finish. Provide without Tee handle.
   1. Watts 008QT
   2. Fisher 14443

D. Provide 12 ga. S/S fixture support bracket, 8"W. x 6"H., fully welded to bottom of the dish table to the right of the soak sink. Provide bracket with 60° top to bottom tapered sides turned back 90° from the face. Top of side to have 1" 90° inward return which welds to table bottom. Radius bottom corners 1/2". Punch the face for the faucet fitting.

E. Provide mounted on fixture bracket, Rear Feed Control Valve; 4" center to center remote control valve with internal spring-loaded checks; rear supply and rear feed connections; lever handles.
   1. Fisher model 2805-CV

ITEM NO. D-6 - (3) COMPARTMENT SINK

A. Provide 3 compartment sink; overall 2'-6"W. x 9'-0"L. x 34" high to work top above floor with 10"H x 2" sloped backsplash; 1-1/2" rolled rim at exposed sides. Construct in accordance with specifications for rolled rim sinks.

B. Starting from left end, provide approximately 36"W left end drainboard, three (3) wash sink bowls, each 1'8"W. x 2'-2 1/2"D. x 14"H, and approximately a 9" drain board that will be welded to Item D-4 to provide a continuous counter surface.

C. Centered behind the sinks, punch the backsplash face and provide a backsplash mount spring type pre-rinse Spray; 8" centers dual valve back splash mount, flexible stainless-steel hose wrapped with stainless steel support spring with wall bracket to adjacent wall. Maximum water use of 1.4 GPM.
   1. Fisher Model 13390; 1.15 GPM consumption with Ultra Spray Valve.
   2. Provide the spray valve with 2949-9001 scrub brush.

D. Provide centered on the wash sink partitions, Two (2) 3/4" x 8"O.C. Open Body Back Splash Faucets, with 10" or 12" swing spout, chrome finish;

E. Provide wash sink bowls with 2" rough chrome rotary action lever drains having stainless steel bar and flat stainless-steel strainer plate. Provide each with 6" tail piece.
F. Base shall be standard open frame type construction.

ITEM NO. D-7 - WALL SHELF

A. Provide and mount on wall, constructed per standards for elevated shelves, a 10"W. x 2'-0"L. wall shelf, 24" above table top, set on S/S wall brackets, with flat top and standard turn down edge with toe-in on all exposed sides, turn up adjacent wall 2" at back, securely anchored to wall.

ITEM NO. D-8 – WALL MOUNTED OSCILLATING FAN

A. (1) fan is existing. Disconnect, store, and re-install.

B. Provide (1) new fan to match existing.

ITEM NO K-1 – NOT USED

ITEM NO. K-2 - PREP TABLE W/ SINK

A. Provide overall 2'-6"W. x 8'-0"L. x 34"H. to work top. Construct per standards with Metal Top having standard edge at front, back, and ends.

B. Provide a standard 16"W x 20"L x 8"D integral stainless-steel sink. Provide with the following:

1. Single Hole Deck Mount Faucet; ½" double valve faucets with 8" swing spout, chrome finish; Chicago Faucet 51-L8.
2. Provide the sink bowl with 2" rough chrome rotary action lever drain having stainless steel bar and flat stainless-steel strainer plate. Provide with 6" x 17 ga. tail piece; Chicago Faucet 1356.

C. At the opposite end of the table from the sink provide an Edlund model no. S-11C manual stainless steel can opener, NSF certified, with cast S/S base, reversible S/S blade, dishwasher safe, opens cans to 14"H.

D. At the sink end of the table, provide a stainless-steel in-line knife rack mounted to the side of the counter.

E. Provide (2) standard 15" x 15" x 5" undercounter drawers. To the right of the drawers, provide cutting board storage channels. Provide open frame base and standard stationary under shelf.

ITEM NO. K-3 – WORK TABLE

F. Provide overall 2'-6"W. x 8'-0"L. x 34"H. to work top. Construct per standards with Metal Top having standard edge at front, back, and ends.
ITEM NO. K-4 - ICE CUBER & BIN

A. Provide Hoshizaki model no. KML-325MAJ cuber, air-cooled, up to 385 lb/day production; overall 30"W. x 27"D. x 22"H. Double sided stainless steel evaporator; audible alarm when in need of service; removable/cleanable air filters; (3) year parts and labor warranty on entire machine; five year parts and labor warranty on Evaporator; 5 year parts warranty on compressor and air cooled condenser; R404A refrigerant; Energy Star Certified.

B. Set cuber atop Hoshizaki model no. B-250PF ice storage bin with ARI rated 250 lbs. capacity; overall 30"W. X 32.3"D. X 33.4"H. Stainless steel exterior; plastic finish awning door; non-corrosives polyethylene sanitary bin liner; polyurethane insulation in bin walls, bottom and door panel 6" high legs.

C. Mounted in an accessible location, provide Cuno Food Service Water Filtration Products Ice-Assure 1-1 single cartridge ice machine water filtration system, overall 3-5/8"W. X 18- 7/8"H. X 4-9/16"D. SQC sanitary quick change cartridge; auto shut-off valve in filter head; pressure gauge; 1.5 GPM flow, 10,000 gallon filter life capacity. Includes (1) quick change CFS8112-S 1- micron graded density modified carbon block for sediment and chlorine reduction plus premium performance scale inhibitor; reduces particles down 1 micron; ANSI/NSF listed for Standard 42- Chlorine, Taste / Odor Reduction Class I; Standard 42, Particulate Reduction Class II. Filter to mount in cabinet below ice maker / dispenser.

ITEM NO. K-5 - TILTING STEAM JACKETED KETTLE

A. Provide Cleveland Range model KGL-40-T self-contained, gas, tilting, steam jacketed kettle, overall 45.75"W. x 42.25"D. x 40.5"H. to top of kettle rim. 40-gallon capacity, two-thirds steam jacket design, floor mounted control console supports, s/s exterior finish, std w/flanged feet, 50 psi rating, electronic spark ignition.

1. (KM) - gallon markings on interior of kettle, at 5 gallon intervals.
2. (PCK) - pan carrier.
3. (FS) - food strainer.
4. (TD2) - 2" tangent draw-off.
5. (CHS) - Spring assisted stainless steel cover.
6. (DPK) - Hot and cold water swing faucet.

B. Provide T & S series HG-4D-36S Safe-T-Link commercial stationary appliance connector hose kit (equivalent = Dormont Single Supr-Swivel Deluxe Install Kit). Kit includes:3/4" x 36" - 321 stainless steel, hydraulically formed flexible pipe with male nipple one end, S/S braided outer webbing, industrial cold welded fittings; Hansen manufacturing quick disconnect other end with brass swivel elbow fitting; 10 year normal use warranty on structural integrity of hose against leaks; 5 year connector warranty.

1. Provide with 2nd street EL fitting.

C. Provide with Two (2) Dormont model W50B48 Safety System Hi-PSI® Water Connector Hose; 1/2" dia.; 48" long; covered with stainless steel braid; NPT male thread on one end; NPT female thread on one end; limited lifetime warranty.
ITEM NO. K-6 – TWO BURNER RANGE

A. Provide Garland model M 125, two-burner gas open range on cabinet base; overall 12"w x 37 7/8"d x 30 3/8"h on 6" legs. 304 series stainless-steel exterior. Provide with the following:

1. Gasflex hose and quick disconnect; shut-off valve; rear gas connection; stainless-steel shelf in base cabinet.

ITEM NO. K-7 – DOUBLE CONVENCTION OVEN

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. K-8 – COMBI OVEN

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. K-9 – PAN RACK

A. Cambro UPR1826F20, 20 sheet capacity.

ITEM NO. K-10 – WIRE SHELVING

A. Two (2) units 12"D x 48"W x 74"H are existing to be relocated. Provide three (3) Metro 24"D x 48"W x 74"H units with wheels, Model 2448-46BR.

ITEM NO. K-11 - REFRIGERATOR

A. Item is existing. Disconnect, store, and re-install.

ITEM NO. K-12 - WORK TABLE W/ (2) SINKS

A. Provide overall 2'-6"W. x 12'-0"L. x 34"H. stainless-steel work top. Construct per specifications with standard edge at front, back, and ends, provide 10"H x 2'D sloped backsplash.

B. At center provide two 20"W x 20"L x 12"D integral stainless steel sinks. Provide with the following:

1. Backslash mounted spray arm, T&S B-0287 faucet with handles and B-0133B spray valve.
2. Provide the sink bowls with 2" rough chrome rotary action lever drain having stainless steel bar and flat stainless-steel strainer plate. Provide with 6" x 17 ga. tail piece.
3. Coordinate with Item No. K-16

C. On the left and right of the sinks provide 10"W X 4-0"L X 1 ¾" stainless-steel shelves elevated 16” above counters on 1 inch diameter stainless-steel posts.

D. At the left end of the counter provide an Edlund model no. S-11 manual stainless steel can opener, NSF certified, with cast S/S base, reversible S/S blade, dishwasher safe, opens cans to 14"H.
E. At the right end of the table, provide a standard in line knife rack.

F. Provide (2) standard 15” x 15” x 5” undercounter drawers. On each side of the drawers, provide cutting board storage channels.

G. Provide open frame base and standard stationary under shelf to the left and right of the sinks.

ITEM NO. K-13 – CAN RACK

A. Item is existing, store and re-install.

ITEM NO. K-14 – CARTS

A. Item is existing, store and re-install.

ITEM NO. K15 – HAND SINK

A. Provide Advance Tabco Model No. 7-PS-96, overall 17-1/4"L. x 15-1/4"D. X 55 1/2" H. 304 stainless steel, with deep drawn 14" x 10" x 5" bowl, recessed no drip edge. Includes: galvanized steel mounting bracket; splash mounted faucet; 1-1/2" flat top strainer; single-pedal mixing valve; towel dispenser; soap dispenser; and, trash receptacle. Provide with the following;

1. Tailpiece for drain.
2. Side mounting wall brackets for added strength 7-PS 36.

ITEM NO. K-16 – GARBAGE DISPOSER

A. Under the left-hand sink of Item No. K-12 provide a Salvajor garbage disposer, model 100-SA-6-208/60/3. Coordinate with Item No. K-12.

ITEM NO. K-17 – DUNNAGE RACK

ITEM NO. K-18 - WALK-IN FREEZER / REFRIGERATOR

A. Furnish all labor, materials, and equipment for complete installation of sectional walk-in refrigerator/freezer unit as shown on drawings and specified herein. Shall include lights, thermometers, time clock, expansion valves, solenoid valves, temperature control, sight glass, drier, head pressure control, crankcase heater, anti-sweat heater, cables, pilot lights, evaporators, outside condensing units, accessories and all other required parts and refrigeration specialties for complete first-class installation. Refrigerants shall be in compliance with the Montreal Protocol for reduced CFC content; refrigerator using R-404A, freezer using R-404A. Install compressors, refrigerant piping and refrigerant as specified, hereinafter. Equivalent manufacturers must provide equipment of similar dimensional size, and comparable construction and same or higher BTU refrigeration capacities with similar utility requirements to the refrigeration system on which this specification is based. Use of equivalent manufacturers equipment shall not require major changes to the plan, the equipment’s location or to electrical service designated within the contract documents. Any minor changes required are the responsibility of the provider to coordinate with other trades and all costs associated with changes shall be covered by the provider. Listed Equivalent manufacturers are responsible for verifying they comply with these requirements before submitting a bid.
B. Specification is based on walk-in boxes as manufactured by Bally, N.S.F. approved.

C. Design layout and overall size of walk-in units as shown on plans and as specified and have an overall size approximately 13'-6" wide x 8'-8 ½" deep x 8'-6" high from exterior top to bottom of pre-fab floor. Walk-in shall consist of two (2) storage compartments being separated by common insulated wall. Interior width of the refrigerator approximately 5'-4"; interior width of the freezer approximately 7-2". Each compartment being completely free of other for use and operation. Unit shall be installed above floor existing concrete floor.

D. Provide walk-in with insulated floor designed to with stand uniformly distributed loads of minimum 600 lbs per square foot. Provide aluminum diamond tread finish and exterior ramp at each opening.

E. Construct all exterior and interior surfaces of. Galvalume, insulate walk-in throughout, with 4" foamed-in-place, rigid U.L. fire rated, flame retardant polyurethane insulation sandwiched in between. Polyurethane insulation shall meet ASTME-84 flame spread of less than 25. "R" factor of 34. Insulation shall be blown using a non-CFC content blowing agent. Construct sections without internal wood or metal structural members and with 100% (excluding skins), polyurethane insulation. Provide 90° angled sections at all corners. Food service contractor shall provide penetrations thru insulated cabinet exterior & is responsible for sealing them.

F. Provide heated pressure relief port in freezer door section. Factory-wire relief port to J-box at door section.

G. Door openings 36" x 78". Construct door with interior and exterior surfaces of galvalume steel. Doors shall be in-fitting flush type and with insulation same thickness and material as wall sections. Fiberglass Reinforced Plastic door perimeter, jamb and threshold. Heavy duty cast alloy door handle and hinges with powder coat finish. Three (3) positive action self-closing hinges with stainless steel pin and nylon rising cam bearing. Door handle with key lock and inside 1/4 turn safety release handle. Provide thermoplastic gasket with magnetic core at door top and both sides and adjustable sweep gasket at door bottom edge. Provide heater wires around perimeter of door opening and door. Factory-wire heater wires to J-box at door section. Hinge doors as shown on plan.

1. Door hardware shall be high pressure die-cast zinc with a polished chrome finish.
2. Provide doors with observation windows - 14"W. x 24"H. Three pane tempered SIGMA approved safety glass. Below 4 degrees Centigrade to have heated frames around the glass. Rooms below 0 degrees Centigrade shall have heated frames and heated glass.
3. Provide 4" dial thermometer with accurate temperature sensing from -40°F to +60°F.; with both Fahrenheit and Centigrade scales; 5' capillary sensing tube; calibration adjustment screw.
4. Dead Bolt Lock; provide with all Prefabricated doors. Outside the dead bolt lock shall be operated by a key and shall have an inside safety release. Provide (5) keys.
H. Lighting: Provide vapor tight lights in both the refrigerator & freezer. Provide quick start low temperature lights / ballasts, matched to the refrigerator / freezer interior temperature, as necessary. All light fixtures shall operate on 115 VAC.

1. All conduit feeding light fixtures shall be run on the exterior top of walk-in box.
2. All conduit penetrations thru insulated box panels shall be with plastic conduit.

I. Provide vertical flat and angle strips of same material and gauge as walk-in exterior wall surface, where walk-in is adjacent to walls and/or columns. Crimp all angle trim strip edges down slightly, to hug adjacent surfaces. Attach trim strips with 1/8" aluminum pop rivets, using only minimum required number to give neat installation.

J. Provide closure panels of same material and gauge as walk-in exterior wall surface, at exposed edges of walk-in top, as shown on the drawings, to finish ceiling. Panels fit snugly in top and bottom channels providing a straight and uniform appearance without gaps, tin-panning and irregularities.

K. Provide Bally pre-fitted refrigeration system with condenser installation set on roof as located on drawings, including all standard parts, refrigeration specialties, factory sized refrigeration lines, electric defrost for freezer, air cooled condensing units, with weather-proof covers and low ambient kit/winter controls using head pressure control valves and other items necessary for a complete and properly operating system. Refrigerants shall be in compliance with the Montreal Protocol for reduced CFC content; refrigerator and freezer using R-404A. Install compressors, refrigerant piping and refrigerant as specified, hereinafter. Provide (5) year compressor warranty.

1. Provide refrigerator with complete refrigeration system to operate at 35° F, Bally evaporator BLP107MA-51B-T and outdoor condenser BEHA006M8-HS2C.
2. Provide freezer with complete refrigeration system to operate at -10° with electric defrost, Bally evaporator BLP207LE-S2B-T with outdoor condenser BEZA020L-HT3C.
3. Weather proof covers shall include hail screens.
4. (5) year extended warranty on refrigeration systems.

L. Condensing units shall be set in location shown on drawings. All refrigerant lines shall be sized for distances shown, for proper operation.

M. Extend evaporator condensate drains to floor drain as shown. Extend drain lines with cooper tubing having minimum diameter of 5/8" radius per manufacturers recommendations. Run lines as shown with minimum slope of 1/4" per foot. All condensate lines within rooms having temperature below 33° F., wrapped with electric heater wires and insulation to prevent freezing of condensate. Heat tape and insulation by Food Service Contractor. Connect heater wires to power supply at evaporator.

N. It is the intention of this specification for a complete refrigeration system, including all refrigeration specialties and all other parts, devices and accessories required for a complete and properly functioning system, furnished and installed whether or not each item is specifically mentioned in the specifications.
ITEM NO. K-19 - REFRIGERATOR AND FREEZER SHELVING

A. Provide wire shelving, epoxy coated, by Metro Shelving in the sizes and models indicated on the schedule on the Drawings. Include wheels and S-Clips.

ITEM NO. K-20 - NOT USED

ITEM NO. K-21 - HOOD

A. Ductwork, Fans, and Fan Controls: By Mechanical Contractor.

B. Where shown, provide an Ansul R-102 Liquid Agent Automatic Fire Suppression System, utilizing nozzles to protect cooking equipment and hood filters-plenums-exhaust ducts, which produce or are exposed to grease / grease laden vapors which can be a source of ignition. Suppression nozzles shall be located not to be blanketed from protected equipment by equipment lids, shelves, etc. Install system automatic release & suppressant cylinder(s) in a remote stainless-steel system cabinet below the room ceiling, where shown. Install remote manual pull station at location shown on drawings. Run piping unexposed where possible. All exposed piping & conduit shall be encased in stainless steel or chrome plated steel pipe shall be used. Exposed piping within ventilator not allowed, except over appliances. Provide micro-switch(s) with necessary qty. of contacts as required for electric items requiring fire/fuel shut-off(ref. elect. plans). Provide U.L. listed mechanical gas line shut-off valve adapted to the release mechanism cartridge receiver by means of a pneumatic piston type air cylinder. Valve size as shown on Mechanical Plans. Install system in strict accordance with recommendations of the manufacturer and conforming with International Mechanical Code Section 509.1, N.F.P.A. standards 96 and 17A, latest edition of UL 300, 2000 International Fire Code and all local and/or State authorities having jurisdiction.

ITEM NO W-1 - STACKED CLOTHES DRYER ATOP WASHER

A. Provide Whirlpool model WET 4027W stack front load electric washer and dryer; overall 24"W. x 27.1"D. x 74"H. 3.4 Cu. Ft dryer atop 1.6 Cu. Ft. washer; white on white exterior.

END OF EQUIPMENT SCHEDULE

END OF SECTION 114000