



17018 Commercial Park Road  
Brainerd, MN 56401

Phone: (218) 829-0707  
Fax: (218) 829-0383

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MN LIC BC0002599

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## Construction Specifications

Northview Apartments  
Buildings 1 & 2

Project #01-16-1108

May 26, 2016



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## Title & Certification Sheet

### Project Manual & Specification for:

General Construction  
Mechanical Construction  
Electrical Construction

### Project:

Northview Apartments  
Buildings 1 & 2  
Project #01-16-1108

### Architect & General Contractor:

Kuepers Inc., Architects & Builders  
17018 Commercial Park Road  
Brainerd, MN 56401

Phone: 218-829-0707  
Fax: 218-829-0383

## Certification:

I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly **licensed** Architect under the laws of the State of Minnesota.

Christopher Raimann, AIA, LEED AP

Signature: 

Date: May 26, 2016

License #: 46319



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## List of Specifications

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## **SECTION 01010 - SUMMARY OF WORK**

### **Related Documents**

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

### **1.1 General**

- A. The Project consists of the construction of two 35-unit (1-, 2-bedroom units, 1 Type A accessible units per building) apartment buildings, each with a community room, library, fitness room, and detached garage building(s).
  - 1. Project Location: Sartell, Minnesota, as indicated on Drawings.
- B. These documents, dated 05/25/16, were prepared for the Project by Kuepers Inc., Architects & Builders, 17018 Commercial Park Road, Brainerd, MN. All references to "Architect" or "Contractor" refer to Kuepers Inc., Architects & Builders.
- C. The Work will be constructed under a single prime contract.
- D. Contractor Use of Premises: During construction the Contractor shall have full use of premises, including use of the site.

### **1.2 Products**

(Not Applicable)

### **1.3 Execution**

(Not Applicable)

**END OF SECTION 01010**

## SECTION 01027 - APPLICATIONS FOR PAYMENT

### Related Documents

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

### 1.1 General

- A. Summary: This Section specifies administrative and procedural requirements governing each Contractor's Applications for Payment.
  - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.
- B. Schedule of Values: Each prime Contractor shall coordinate preparation of its Schedule of Values for its part of the Work with preparation of the Contractor's Construction Schedule.
- C. Format and Content: Use the Project Manual's List of Specifications as a guide to establish the format for the Schedule of Values.
  - 1. Include the following project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of the Architect.
    - c. Project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
    - a. Generic name.
    - b. Related Specification Section.
    - c. Name of Subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Dollar value of contract.
    - g. Percentage of contract sum to the nearest one-tenth percent, adjusted to total 100 percent.
  - 3. Provide a breakdown of the contract sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
  - 4. Round amounts off to the nearest whole dollar; the total shall equal the contract sum.
- D. Applications for Payment:
  - 1. Each Application for Payment shall be consistent with previous applications and payments as certified by the Construction Manager and paid for by the Owner.
    - a. The initial Application for Payment, the Application for Payment at the time of Substantial Completion, and the final Application for Payment involve additional requirements.
  - 2. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
  - 3. Payment Application Forms: Use AIA Document G 702CM and Continuation Sheets G 703CM as the form for Application for Payment.
  - 4. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
    - a. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
    - b. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

## **SECTION 01027 - APPLICATIONS FOR PAYMENT**

### **1.1 General**

- D. 5. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
6. Administrative actions and submittals that shall proceed or coincide with this application include:
- a. Occupancy permits and similar approvals.
  - b. Warranties (guarantees) and maintenance agreements.
  - c. Test/adjust/balance records.
  - d. Maintenance instructions.
  - e. Start-up performance reports.
  - f. Change-over information related to Owner's occupancy, use, operation, and maintenance.
  - g. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
7. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
- a. Submit Minnesota Dept. of Revenue form IC-134 "Withholding Affidavit for Contractors."
  - b. Completion of project closeout requirements.
  - c. Completion of items specified for completion after Substantial Completion.
  - d. Assurance that unsettled claims will be settled.
  - e. Assurance that Work not complete and accepted will be completed without undue delay.
  - f. Proof that fees and similar obligations have been paid.
  - g. Removal of temporary facilities and services.
  - h. Removal of surplus materials, rubbish and similar elements.
  - i. Final cleaning.

### **1.2 Products**

(Not Applicable)

### **1.3 Execution**

(Not Applicable)

**END OF SECTION 01027**

## SECTION 01035 - MODIFICATION PROCEDURES

### Related Documents

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

### 1.1 General

- A. Owner-Initiated Change Order Proposal Requests: Requests for estimates for possible changes are to be included on an Additional Work Authorization form and signed by the Owner and the General Contractor. General Contractor will issue a description of proposed changes in the Work that require adjustment to the Contract Sum or Time. The description may include supplemental or revised Drawings and Specifications.
1. General Contractor will submit an estimate of cost necessary to execute the change for the Owner's review.
  2. These requests are not to be considered Change Orders or direction to proceed with the proposed changes. Any approved changes **will** then be implemented by a written Change Order.

### 1.2 Products

(Not Applicable)

### 1.3 Execution

- A. Change Orders will be numbered in sequence and dated. The Change Order will describe the changes, changes in the Contract Sum, changes in the Contract Time of Completion, and must be signed by the Owner and the General Contractor prior to work being performed. *Requests for estimates for possible changes are not to be considered Change Orders or direction to proceed with the proposed changes.*

**END OF SECTION 01035**

## SECTION 01040 - COORDINATION

### Related Documents

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

### 1.1 General

- A. This Section includes requirements for coordinating construction operations including, but not necessarily limited to, the following:
  - 1. Administrative and supervisory personnel.
  - 2. Cleaning and protection.
- B. Coordination: Coordinate construction to assure efficient and orderly installation of each part of the Work. Coordinate operations that depend on each other for proper installation, connection, and operation.
  - 1. Schedule operations in the sequence required to obtain the best results where installation of one part depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to assure maximum accessibility for maintenance, service, and repair.
  - 3. Make provisions to accommodate items scheduled for later installation.
  - 4. Where necessary, prepare memoranda for distribution to each party involved, outlining procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
  - 5. Administrative Procedures: Coordinate scheduling and timing of required procedures with other activities to avoid conflicts and assure orderly progress.

### 1.2 Products

(Not Applicable)

### 1.3 Execution

- A. Inspection of Conditions: Require Installers of major components to inspect substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Coordinate temporary enclosures with inspections and tests to minimize the need to uncover completed construction.
- C. Clean and protect construction in progress and adjoining materials, during handling and installation. Apply protective covering to assure protection from damage.
  - 1. Clean and maintain completed construction as necessary through the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
  - 2. Final Cleaning: Refer to Section 01700 "Contract Closeout" for final cleaning.
- D. Limiting Exposures: Supervise construction to assure that no part is subject to harmful, dangerous, or damaging exposure. Such exposures include, but are not limited to, the following:
  - 1. Excessive static or dynamic loading.
  - 2. Excessive internal or external pressures.
  - 3. Excessively high or low temperatures.
  - 4. Water or ice.
  - 5. Solvents and chemicals.
  - 6. Abrasion.

**SECTION 01040 - COORDINATION**

**1.3 Execution**

- D. 7. Soiling, staining, and corrosion.
- 8. Combustion.

**END OF SECTION 01040**

## **SECTION 01045 - CUTTING AND PATCHING**

### **Related Documents**

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

### **1.1 General**

- A. **Requirements for Structural Work:** Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
  - 1. Obtain Architect's approval before cutting and patching the following structural elements:
    - a. Foundation construction.
    - b. Bearing and retaining walls.
    - c. Timber and primary wood framing.
- B. **Operational Limitations:** Do not cut and patch operating elements in a manner that would reduce their capacity to perform as intended. Do not cut and patch operating elements in a manner that would increase maintenance or decrease operational life or safety.
  - 1. Obtain approval before cutting and patching the following operating elements or safety related systems:
    - a. Primary operational systems and equipment.
    - b. Electrical wiring systems.
- C. **Visual Requirements:** Do not cut and patch exposed construction in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

### **1.2 Products**

- A. Use materials identical to existing materials. Use materials that visually match adjacent surfaces to the fullest extent possible if identical materials are unavailable.

### **1.3 Execution**

- A. Examine surfaces to be cut and patched and conditions under which work is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action.
- B. **Temporary Support:** Provide temporary support of work to be cut.
- C. **Protection:** Protect existing construction to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.
- D. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. **Performance:** Employ skilled workmen. Proceed at the earliest feasible time and complete without delay.
- F. **Cutting:** Cut using methods that will not damage elements retained or adjoining construction. Comply with the original Installer's recommendations.
- G. **Patching:** Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
- H. **Cleaning:** Clean areas and spaces where cutting and patching are performed.

**END OF SECTION 01045**

## SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

### Related Documents

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

### 1.1 General

- A. Definitions: Basic contract definitions are included in the Conditions of the Contract.
- B. "Indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. Location is not limited.
- C. "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- D. "Furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- E. "Install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- F. "Provide" means to furnish and install, complete and ready for the intended use.
- G. "Installer" is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- H. "Project Site" is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- I. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.
- J. Abbreviations and Names: Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research Co.'s "Encyclopedia of Associations," available in most libraries.
- K. Permits, Licenses, and Certificates: Submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

### 1.2 Products

(Not Applicable)

### 1.3 Execution

(Not Applicable)

**END OF SECTION 01095**

## SECTION 01300 - SUBMITTALS

### Related Documents

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

### 1.1 General

- A. Summary: This Section specifies administrative and procedural requirements for submittals required for performance of the Work.
- B. Submittals Required:
1. Submit with Subcontractors for execution:
    - a. Insurance Certificates and Memorandum.
    - b. Form of Acknowledgment.
    - c. Certificate of Affirmative Action (if applicable).
  2. As Work requires and as specified:
    - a. Shop drawings.
    - b. Other guarantees.
    - c. Test reports or samples.
- C. Submittal Procedures:
1. Coordination:
    - a. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
    - b. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
    - c. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - d. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
  2. Submittal Preparation:
    - a. Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
      - (1) Include the following information on the label for processing and recording action taken:
        - (a) Project name.
        - (b) Date.
        - (c) Name and address of Architect, Contractor, Subcontractor.
        - (d) Name of manufacturer.
        - (e) Number and title of appropriate Specification Section.
  3. Submittal Transmittal:
    - a. Package each transmittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Project Manager using a transmittal form. Submittals received from sources other than the Contractor will be returned without action. Project Manager to transmit submittals to Architect.
    - b. On the transmittal, record relevant information and requests for data. On the form or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

## SECTION 01300 - SUBMITTALS

### 1.1 General

#### D. Construction Schedule:

1. The Project Manager has developed a bar-chart schedule that indicates time line to be followed. Any change from this schedule must be approved by the Project Manager.
2. If any change in schedule is desired, it must be requested by letter to the Project Manager within 7 days of receipt of the original schedule.
3. Distribution: Following response to the initial submittal, print and distribute copies to the Owner, Trade Contractors, and other parties required to comply with scheduled dates.

#### E. Shop Drawings:

1. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the project is not considered shop drawings.
2. Shop drawings shall be coordinated to contract document indications (i.e.: room numbers, door numbers, door, window and frame types, materials and equipment types, etc.). Uncoordinated submittals will be returned for correction before initial review is made.
3. Shop drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. Include the following information:
  - a. Dimensions.
  - b. Identification of products and materials included.
  - c. Compliance with specified standards.
  - d. Notation of coordination requirements.
  - e. Notation of dimensions established by field measurement.
4. Sheet Size: Submit shop drawings on sheets at least 8½" x 11" but no larger than 24" x 36". A minimum of 6 sets; 4 sets will be retained; the remainder will be returned. Do not use shop drawings without an appropriate final stamp indicating action taken in connection with construction.

#### F. Samples:

1. Submit full-size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
2. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
3. Where variation in color, pattern, texture, or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
4. Submittals: Where samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
  - a. Preliminary submittal will be reviewed and returned with the Architect's mark indicating selection and other action.

## **SECTION 01300 - SUBMITTALS**

### **1.1 General**

#### **G. Test and Inspections:**

1. The Contractor shall provide samples for testing as required in specified Sections. Tests will be made by an Independent Testing Laboratory approved by the Architect, and reports shall be provided to the Architect. Tests shall be conducted in accordance with ASTM Standards where they apply.
2. In addition to the tests specified, should the Contractor propose a material, method, or assembly that is of unknown or questionable quality to the Architect, the Architect may require and order suitable tests to establish a basis for acceptance or rejection. Such tests shall be paid for by the Contractor.

### **1.2 Products**

(Not Applicable)

### **1.3 Execution**

(Not Applicable)

**END OF SECTION 01300**

## SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

### Related Documents

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

### 1.1 General

- A. Summary: This Section specifies construction facilities and temporary controls including temporary utilities, support facilities, and security and protection facilities.
- B. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  - 1. Building code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.
  - 4. Environmental protection regulations.
- C. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
  - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- D. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- E. Owner/Visitor Use of Premises: This Section applies to all situations in which the Owner or Owners' visitors enter upon the construction site.
  - 1. Please contact the Project Manager or Project Foreman prior to visiting the site.
  - 2. The Contractor reserves the right to require that anyone entering the site wear a hard hat and be accompanied by a member of the Contractor's staff. Hard hats shall be provided by Contractor.
  - 3. Please observe commonsense safety procedures at all times, including:
    - a. Children are prohibited from entering the premises at all times.
    - b. Do not walk backwards, even one step - look in the direction you are moving.
    - c. Watch for boards, cords, tools, nails, or construction materials that might cause tripping, puncture wounds, or other injury.
    - d. Stay a minimum of 6' from all excavations.
    - e. Give large, noisy grading equipment or delivery vehicles plenty of room; assume that the driver cannot see or hear you.

### 1.2 Products

- A. Materials: Provide new materials or the Contractor may use undamaged, previously used materials in serviceable condition for temporary purposes. Provide materials suitable for use intended.
- B. Equipment: Provide new equipment or the Contractor may use undamaged, previously used equipment in serviceable condition for temporary purposes. Provide equipment suitable for use intended.
  - 1. Electrical Outlets: Properly configured, NEMA-polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
  - 2. Electrical Power Cords: Grounded extension cords. Use hard-service cords where exposed to abrasion and traffic.

## **SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

### **1.2 Products**

- B. 3. Lamps and Light Fixtures: General service incandescent lamps. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- 4. Heating Units: Temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- 5. Fire Extinguishers: Hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.

### **1.3 Execution**

- A. Installation, General: Use qualified personnel to install temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Telephone: Kuepers Inc. phones to be utilized.
- C. Sanitary Facilities: Provide temporary sanitary satellite facilities.
- D. Support Facilities Installation: Locate storage sheds and other construction and support facilities for easy access. Maintain facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- E. Termination and Removal: Remove each temporary facility when the need has ended, when replaced by a permanent facility, or no later than Substantial Completion.
  - 1. Materials and temporary facilities are the Contractor's property.

**END OF SECTION 01500**

**SECTION 01530 - TEMPORARY EROSION & SEDIMENT CONTROL**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 01530**

## **SECTION 01700 - CONTRACT CLOSEOUT**

### **Related Documents**

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

### **1.1 General**

- A. Summary: This Section describes an orderly and efficient transfer of the completed Work to the Owner.
- B. Quality Assurance: Prior to requesting inspection by the Owner, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

### **1.2 Products**

(Not Applicable)

### **1.3 Execution**

- A. Procedures:
  - 1. Submit final Application for Payment or Invoice identifying total adjusted Contract Sum, previous payments and balance due.
  - 2. Final Cleaning:
    - a. Execute final cleaning prior to final inspection.
    - b. Clean debris from site, roofs, gutters, downspouts and drainage systems.
    - c. Remove waste and surplus materials, rubbish and construction facilities from the site.
  - 3. Schedule a final walk-through with Owner and Architect.
    - a. Assure project is complete and ready for occupancy.
    - b. Prepare a list of items to be corrected or completed including costs and dates for completion.
- B. Submittals: Closeout submittals include:
  - 1. Operation and maintenance data and manuals for new equipment;
  - 2. Warranties and bonds;
  - 3. Keys;
  - 4. Spare parts;
  - 5. Evidence of compliance with requirements of governmental agencies having jurisdiction, including:
    - a. Certificates of Inspection;
    - b. Certificates of Occupancy;
  - 6. Evidence of payment and release of liens;
  - 7. List of subcontractors including names, addresses, and telephone numbers where they can be reached for emergency service.
- C. Instruct the Owner in proper operation and maintenance of systems, equipment and similar items which were provided as part of the Work.

**END OF SECTION 01700**

## **SECTION 01730 - OPERATION AND MAINTENANCE DATA**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** To provide a positive source of information regarding products incorporated into the Work, furnish and deliver the data described in this Section and in the pertinent other Sections of these Specifications.

### **1.2 Products**

- A. **Instruction Manuals:** Submit manufacturer's instruction/maintenance manuals as required by technical sections for, but not limited to, the following:
1. Appliances and equipment.
  2. Approved Shop Drawings.
  3. Finish hardware including keying schedule.
  4. Flooring.
  5. Roofing.
  6. Mechanical equipment.
  7. Elevator equipment.
  8. Electrical equipment.
  9. If manufacturer's instruction/maintenance manuals are not available, supply a list of equipment showing model number, purchase date, name and address of manufacturer and name and address of installer.

### **1.3 Execution**

(Not Applicable)

**END OF SECTION 01730**

## **SECTION 02100 - SITE PREPARATION**

### **Related Documents**

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

### **1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02100**

**SECTION 02300 - EXCAVATION, EMBANKMENT, & GRADING**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02300**

**SECTION 02360 - PLANT-MIXED ASPHALT PAVEMENT**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02300**

**SECTION 02600 -TRENCH EXCAVATION & BACKFILL/SURFACE RESTORATION**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02600**

**SECTION 02611 -WATER MAIN & SERVICE LINE INSTALLATION**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02611**

**SECTION 02621 - SANITARY SEWER & STORM SEWER INSTALLATION**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02621**

## **SECTION 02685 - GAS PIPING**

### **Related Documents**

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

### **1.1 General**

- A. Provide gas piping to equipment and appliances as shown on the Drawings, as specified herein and as need for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

### **1.2 Products**

- A. Type L soft copper with flared joints as per local code.

### **1.3 Execution**

- A. Connection: Make connection to utility company or agency service line or meter in accordance with the requirements of the utility having jurisdiction.
- B. Field Inspections & Tests:
  - 1. Provide personnel and equipment necessary, and perform tests required by local agencies having jurisdiction over this work to demonstrate that the work of this Section has been completed in accordance with specified requirements.
  - 2. Comply with NFPA 54 "National Fuel Gas Code" for gas piping materials and components; installations; and inspection, testing, and purging.
  - 3. Comply with NFPA 70 "National Electrical Code" for electrical connections between wiring and electrically operated control devices.
  - 4. Excavation, trenching, and backfilling as required.

**END OF SECTION 02685**

## **SECTION 02711 - DRAIN TILE SYSTEM**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide underslab drainage system where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. **Related Sections:**
  - 1. Section 14240 "Hydraulic Elevators."
  - 2. Section 15400 "Plumbing."
- C. **Quality Assurance:** Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

### **1.2 Products**

- A. **Materials:** 4" perforated polyethylene (PE) flexible pipe with fittings, couplings, and coupled joints.

### **1.3 Execution**

- A. Excavate for under floor drainage system after subgrade material has been compacted. Include clear, horizontal distance between drainage pipe and trench walls of not less than 2 times pipe diameter, unless otherwise shown. Grade bottom of trench excavations to required slope and compact to firm, solid bed for drain system.
- B. Install piping according to manufacturer's written instructions and other requirements indicated.
- C. Install perforated pipe with perforations down.
- D. Terminate piping to required sump drainage system.
- E. **Drainage Fill:** Place fill over drain piping after satisfactory testing and covering with filtering material. Cover piping to width of at least 6" on each side and above top of pipe to within 12" of finish grade. Place fill material in layers not exceeding 3" in loose depth, and compact each layer placed.
- F. **Testing:** Test drain piping with water or visually check piping to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory. Place additional filtering material to depth of 4" around sides and top of drains after testing.

**END OF SECTION 02711**

**SECTION 02751 - CONCRETE PAVING**

**Related Documents**

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

**1.1 General**

Perform Work of this Section in accordance with civil engineer's specifications.

**END OF SECTION 02751**

## SECTION 02810 - IRRIGATION SYSTEMS

### Related Documents

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

### 1.1 General

- A. Summary: Provide an irrigation system as shown on the Drawings, as specified herein, and as needed for a complete and proper installation. This Section includes valves, piping, sprinklers, specialties, accessories, controls, and wiring for lawn irrigation systems.
  - 1. Related Sections: The following Sections contain requirements that relate to this Section:
    - a. Division 2 "Water Systems" for water supply.
    - b. Division 16 for electrical power materials and installations.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  - 1. Comply with requirements of utility supplying water for prevention of backflow and back siphonage.
- C. Definitions:
  - 1. Pipe Sizes: Pipe sizes used in this Section are nominal pipe size (NPS) in inches. Tube sizes are standard size in inches. Equivalent SI (metric) sizes are indicated in millimeters (mm) in parentheses.
  - 2. Supply Piping: Piping from water source to connection to irrigation system pressure piping. Piping is under same pressure as water supply. Piping in this category is not included in this Section.
- D. System Performance Requirements:
  - 1. Location of Sprinklers & Devices: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards.
  - 2. Minimum Water Coverage: Not less than 100%.
  - 3. Components & Installation: Capable of producing piping systems with the following minimum working pressure ratings except where indicated otherwise.
    - a. Pressure Piping: 150 psig (1035 kPa).
    - b. Circuit & Drain Piping: 100 psig (690 kPa).
- E. Submittals: Submit each item in this Article according to the Conditions of this Contract and Division 1 Specifications.
  - 1. Product data including pressure rating, rated capacity, settings, and electrical data of selected models for the following:
    - a. Water meters.
    - b. Backflow preventers, including test equipment.
    - c. Pressure regulators.
    - d. Valves, including general-duty, underground, manual and automatic control, and quick-coupler types, and valve boxes.
    - e. Sprinklers, including emitters, drip tubes, and devices.
    - f. Controls, including controller wiring diagrams.
    - g. Wiring.
    - h. Water hammer arresters.
    - i. Area drains.
  - 2. Wiring diagrams for electrical controllers, valves, and devices.

## SECTION 02810 - IRRIGATION SYSTEMS

### 1.1 General

- E. 3. Shop drawings showing irrigation system, including plan layout and locations, types, sizes, capacities, and flow characteristics of irrigation system components. Include water meters, backflow preventers, valves, piping, sprinklers and devices, accessories, controls, and wiring. Show areas of sprinkler spray and overspray.
- 4. Coordination drawings showing piping and major system components. Indicate interface and spatial relationship between piping, system components, adjacent utilities, and proximate structures.
- 5. Maintenance data for inclusion in "Operating & Maintenance Manual" specified in Division 1 Section "Project Closeout" for the following:
  - a. Water meters.
  - b. Backflow preventers, including instructions for testing.
  - c. Pressure regulators.
  - d. Automatic control valves.
  - e. Sprinklers.
  - f. Controllers.
- F. Project Conditions: Research public utility records, and verify existing utility locations. Verify that irrigation system piping may be installed in compliance with original design and referenced standards.
- G. Sequencing & Scheduling:
  - 1. Maintain uninterrupted water service to building during normal working hours. Arrange for temporary water shutoff with Owner.
  - 2. Coordinate irrigation systems work with landscape work specified in Division 2 Section 02900 "Landscaping."
- H. Extra Materials: Deliver extra materials to the Owner. Furnish extra materials matching products installed as described below. Package them with protective covering for storage and label clearly describing contents.
  - 1. Quick Couplers, Sprinklers, Emitters, Drip Tube, & Devices: Furnish quantity of units equal to 10% of amount of each type or size installed.
  - 2. Valve Keys, Quick-Coupler Hose Swivels, & Quick-Coupler Operating Keys: Furnish quantity of units equal to 25% of amount of each type installed.

### 1.2 Products

Rain Bird (or equal) Sprinkler System.

### 1.3 Execution

- A. Investigate and determine available water supply water pressure and flow characteristics.
- B. Set stakes to identify proposed sprinkler locations. Obtain Architect's approval before excavation.
- C. Install piping in sleeves where crossing sidewalks, roadways, and parking lots.
- D. Install system according to manufacturer's written instructions.
- E. Testing: Perform hydrostatic testing of piping and valves before backfilling trenches. Piping may be tested in sections to expedite work.
  - 1. Repair leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.

## **SECTION 02810 - IRRIGATION SYSTEMS**

### **1.3 Execution**

- F. **Cleaning & Adjusting:**
  - 1. Flush dirt and debris from piping before installing sprinklers and other devices.
  - 2. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.
  - 3. Carefully adjust lawn sprinklers so they will be flush with, or not more than ½" (13 mm) above, finish grade after completion of landscape work.
  - 4. Adjust settings of controllers and automatic control valves.
- G. **Starting Procedures:** Follow manufacturer's written procedures.
- H. **Operational Testing:** Perform operational testing after hydrostatic testing is completed, backfill is in places, and sprinklers are adjusted to final position.
- I. **Demonstration:**
  - 1. Demonstrate to Architect that system meets coverage requirements and that automatic controls function properly.
  - 2. Demonstrate to Owner's maintenance personnel operation of equipment, sprinklers, specialties, and accessories. Review operating and maintenance information.

**END OF SECTION 02810**

## **SECTION 02881 – PLAYGROUND EQUIPMENT**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide labor and materials for the satisfactory installation of playground equipment in accordance with manufacturer's installation procedures.
- B. **Submittals:**
  - 1. Product data, including manufacturer information for warranty work or questions.
  - 2. Plan view drawings and 3-dimensional renderings with deck heights.
  - 3. Detailed component list with model numbers and catalog descriptions.
  - 4. Drawings for any safety, age appropriate signage or warning signs and method of installation or application to structure, playground equipment, or modular units.
  - 5. Copy of manufacturer's warranty.
- C. **Safety Standards & Quality Assurance:** All products shall bear the certification seal of the International Play Equipment Manufacturers Association. All designs shall meet or exceed the Americans with Disabilities Act (ADA) "Final Accessibility Guidelines for Play Areas" regulations.

### **1.2 Products**

Approved Manufacturer (or equal): Lifetime.

### **1.3 Execution**

- A. Install in accordance with manufacturer's installation guidelines.
- B. Contractor shall provide manufacturer's comprehensive maintenance program with inspection checklist and recommended frequency interval.

**END OF SECTION 02881**

## SECTION 02900 - LANDSCAPING

### Related Documents

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

### 1.1 General

- A. Summary: Provide landscaping, including trees, plants, and ground cover as follows and in compliance with civil engineer's specifications.
1. Types of work required include, but are not limited to, the following:
    - a. Furnishing of trees and shrubs.
    - b. Preparation of planting beds including excavation, backfilling, and disposal of surplus and unsuitable excavated material.
    - c. Planting of trees and shrubs, including fertilizing, mulching, trimming, guying, and wrapping.
    - d. Maintenance of trees and shrubs until Substantial Completion.
- B. Inspection:
1. Comply with local, state, and federal laws pertaining to inspection, sale, and shipment of plant materials.
  2. Architect may inspect trees and shrubs either at place of growth or at site before planting for compliance with requirements of name, variety, size and quality. Architect retains the right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries, and latent defects, and to reject damaged or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.
- C. Submittals: Submit two copies of typewritten instructions recommending procedures for maintenance of landscape work for one year after Substantial Completion. Submit instructions prior to Substantial Completion.
- D. Work Seasons: Conduct landscaping during favorable weather conditions. Do not proceed when ground surface is frozen, except seeding may be performed in November prior to snow cover if seed is applied over mulch that was placed prior to freezing.
1. Plant trees and shrubs during normal seasons. Plant bare root and flowering trees and shrubs only during spring planting season, unless otherwise approved.
  2. Plant frost-tender trees and shrubs only after danger of frost is past or sufficiently before frost season to allow for establishment before first frost. Do not plant in frozen ground.
  3. Plant trees and shrubs after final grades are established. If planting of trees and shrubs occur after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.
- E. Product Handling:
1. Provide freshly dug trees and shrubs. Do not use trees or shrubs which have been in cold storage or heeled-in. Do not prune prior to delivery, except as approved by Architect. Provide adequate protection of root systems and balls from drying winds and sun. Do not bend or bind-tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.

## SECTION 02900 - LANDSCAPING

### 1.1 General

- E. 2. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist as follows:
  - a. Heel-in bare root stock. Soak roots in water for 2 hours if dried out.
  - b. Set balled stock on ground and cover ball with soil, peat moss, or other acceptable material.
- 3. Do not remove container grown stock from containers until planting time.
- 4. Plants with roots exposed to the sun, or otherwise unprotected during transit, unloading, or storage shall be rejected.
- F. Guarantee: Trees, shrubs, and ground cover shall be guaranteed for one year from date of acceptance. All plants not in vigorous growing condition after one year shall be replaced in first succeeding planting season.

### 1.2 Products

- A. Tree & Shrub Material, General:
  - 1. Provide trees and shrubs grown in a recognized nursery in accordance with good horticultural practice, with normal, well-developed branch system and healthy root systems developed by transplanting or root pruning. Provide only healthy, vigorous stock grown for at least 2 years under climatic conditions similar to conditions in locality and free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement.
  - 2. Provide trees and shrubs true to name and variety established by American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names". Comply with recommendations and requirements of ANSI Z60.1 "Standard for Nursery Stock".
  - 3. Provide trees and shrubs of sizes and species designated and in accordance with dimensional relationship requirements of ANSI Z60.1 for kind and type. Trees and shrubs of larger size than specified may be used if size of roots and balls are increased proportionately.
  - 4. Measure trees and shrubs with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6" above ground for trees up to 4" caliper size, and 12" above ground for larger sizes. Measure main body of tree or shrub for height and spread dimensions; do not measure from branch or root tip-to-tip.
  - 5. Label each tree and shrub with a securely attached waterproof tag bearing legible designation of botanical and common name.
- B. Deciduous Trees:
  - 1. Provide trees of height and caliper designated.
  - 2. Shade trees shall be single stem trees with straight trunk and intact leader, free of branches to a point about 60% of their height, as recommended by ANSI Z60.1 for size and kind of trees required.
  - 3. Where small trees of upright or spreading type are required, provide trees with single stem, branched or pruned naturally according to species and type, and with relationship of caliper and branching recommended by ANSI Z60.1, unless otherwise shown. Where shown as "bush form", provide trees with branching starting close to ground in manner of a shrub. Where shown as "clump", provide trees with 3 or more main stems starting from ground.
  - 4. Provide bare root deciduous trees, except where shown as "B&B", provide balled and burlapped trees.
  - 5. Container grown deciduous trees may be substituted for balled and burlapped trees, subject to specified limitations for container stock.

## SECTION 02900 - LANDSCAPING

### 1.2 Products

#### C. Deciduous Shrubs:

1. Dimensions designated indicate required height.
2. Provide deciduous shrubs with not less than the minimum number of canes required by ANSI Z60.1 for type shown and height of shrub required. Except as otherwise shown, provide bare root deciduous shrubs.
3. Where shown as "clump", provide deciduous shrubs with at least twice the number of canes required for standard shrubs.
4. Container grown deciduous shrubs may be substituted for balled and burlapped shrubs, subject to specified limitations for container grown stock.

#### D. Coniferous & Broadleaf Evergreens:

1. Provide evergreens of sizes designated. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens and height for all other types, such as globe, dwarf, cone, pyramidal, broad up-right, and columnar. Provide evergreens with well-balanced form complying with requirements for other size relationships to the primary dimension indicated.
2. Provide balled and burlapped normal quality evergreens unless shown as "specimen". Container grown evergreens may be substituted, subject to specified limitations for container grown stock.

#### E. Requirements for B&B Stock:

1. Where shown or specified to be balled and burlapped, provide trees and shrubs dug with firm, natural ball of earth in which they are grown.
2. Provide ball size of not less than diameter and depth recommended by ANSI Z60.1 for type and size of tree or shrub required. Increase ball size or modify ratio of depth to diameter as required to encompass fibrous and feeding root system necessary for full recovery of trees or shrubs.
3. Wrap and tie earth ball as recommended by ANSI Z60.1 for size of balls required. Drum-lace balls with a diameter of 30" or greater.

#### F. Requirements for Container Grown Stock:

1. Where specified as acceptable, provide healthy, vigorous, well-rooted trees or shrubs established in container in which they are sold. Provide balled and burlapped stock, when required trees or shrubs exceed maximum size recommended by ANSI Z60.1 for container grown stock.
2. Established container stock is defined as a tree or shrub transplanted into a container and grown in container for a length of time sufficient to develop new fibrous roots so that root mass will retain its shape and hold together when removed from container.
3. Use rigid containers which will hold ball shape and protect root mass during shipping. Provide trees and shrubs established in containers of not less than minimum sizes recommended by ANSI Z60.1 for kinds, type, and size of trees and shrubs required.

#### G. Requirements for Bare Root Stock: Where specified to be bare root, provide trees and shrubs with a heavy fibrous root system developed by transplanting or root pruning and with not less than minimum root spread recommended by ANSI Z60.1 for kind and size of trees and shrubs required.

#### H. Topsoil: Fertile, friable, natural loam surface soil, reasonably free of subsoil, clay lumps, brush, noxious weeds and free of roots, stumps, stones larger than 2" and extraneous matter harmful to plant growth. Obtain topsoil from local sources to supplement insufficient quantities at site; do not obtain from bogs or marshes. Imported topsoil containing less than 10% organic matter shall be supplemented with at least 5% humus by volume.

## SECTION 02900 - LANDSCAPING

### 1.2 Products

- I. Planting Soil: Planting soil shall be a prepared mixture of topsoil and cattle manure or of topsoil, commercial fertilizer and peat moss. To prepare planting soil, add one part well rotted cattle manure to two parts topsoil and thoroughly mix combination prior to delivery to site. If suitable manure is not available, prepare planting soil by thoroughly mixing one part peat moss with five parts topsoil to which has been added five pounds of 10-6-4 commercial fertilizer per cubic yard of topsoil.
- J. Fertilizer:
  1. Trees, Plants, & Ground Cover: Commercial fertilizer for additional plant application shall be standard 10-6-4, nitrogen 10%, phosphoric acid 6%, potash 4%, and shall contain minor trace elements. Formula shall be in conformity with applicable state fertilizer laws.
  2. Lawn Areas: Solid or liquid form, commercial fertilizer having an analysis of 20-10-10 (Nitrogen/Phosphoric/Potash) or approved equal. Organic fertilizer may be used only with prior approval.
- K. Peat Moss:
  1. Trees, Plants, & Ground Cover: Peat moss shall be sphagnum peat moss of standard commercial quality and shall be fully warranted by producer. Peat moss shall be delivered to site in air-dry condition in bags or other convenient containers; pH value shall be approximately 4 to 5.
  2. Lawn Areas: Finely divided, granular texture moss peat or peat muck with pH of 6.0 to 7.5.
- L. Bark Mulch: Locally available shredded bark mulch.
- M. Edging: Heavy duty, landscaping grade, 4<sup>3</sup>/<sub>4</sub>" black polyethylene edging in minimum 20' straight lengths with connectors and stakes (coiled stock not acceptable); Valley View Specialties/Professional Heavy Duty type, or approved equal.
- N. Water: Water will be furnished by Owner for execution of all work, including maintenance under this contract. Landscape contractor shall verify that water available from Owner is suitable for irrigation and free from ingredients harmful to plant life.
- O. Lime: Agricultural grade limestone ground sufficiently fine so 80% passes a No. 8 sieve. Lime shall contain 80% calcium carbonate equivalent. Moisture shall not exceed 8%.
- P. Sod: Good quality, nursery grown, 2-year old sod of predominantly Kentucky Bluegrass from approved field suppliers. Sod shall be free from noxious weeds and objectionable grasses and shall have a dense root system of not less than 1" thickness. Sod grown on highly organic matter will not be acceptable. Sod shall be clipped in field to 2" in height, cleaned, and cut into rectangular pieces of uniform width and not less than 30" length.
- Q. Grass Seed: Deliver in bags tagged and labeled to show percentage of purity and germination. Seed shall have been tested within one year prior to date of seeding and shall conform to latest State and Federal seed laws. Seed mixture shall conform to the following percentages by weight:
  1. Kentucky Bluegrass: 15%
  2. Creeping Red Fescue: 55%
  3. Perennial Rye: 10%
  4. White Clover: 15%
  5. Red Top: 5%

## SECTION 02900 - LANDSCAPING

### 1.3 Execution

- A. Installation of Plant Materials: Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure Architect's acceptance before start of planting work. Make minor adjustments as may be requested by Architect.
- B. Excavation for Trees, Plants, & Ground Cover:
  - 1. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.
  - 2. For bare root trees and shrubs, make circular excavations at least 1'0" wider than root spread and deep enough to allow for setting of roots on a 6" layer of compacted backfill and with collar set at same grade as in nursery, but 1" below finished grade at site.
  - 3. For balled and burlapped trees and shrubs, make excavations at least twice the ball diameter and equal to ball depth plus an allowance for a 6" layer of compacted soil mixture on the bottom.
  - 4. For container grown stock, excavate as specified for balled and burlapped stock, except container width and depth shall govern.
  - 5. Dispose of subsoil removed from landscape excavations. Do not mix with planting soil nor use as backfill.
- C. Setting & Backfilling for Trees, Shrubs, & Ground Cover:
  - 1. Set balled and burlapped stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Remove burlap from sides and tops of balls but do not remove from under balls. Remove platforms, if any, before setting. Do not use stock if ball is cracked or broken before or during planting operation. When set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately two-thirds full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill.
  - 2. Set bare root stock on cushion of planting soil mixture. Spread roots and carefully work backfill around roots by hand and puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots. Set collar 1" to 2" below adjacent finish landscape grades. Spread out roots without tangling or turning up to surface. Cut injured roots clean, do not break.
  - 3. Set container grown stock as specified for balled and burlapped stock, except cut cans on two sides with a metal cutter; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls. Do not cut or remove containers with spades.
  - 4. Move and set large specimen trees with crane or other recognized tree moving equipment.
- D. Mulch Beds: Provide mulch beds where indicated on Drawings. Dish top of backfill to allow for mulching. For spring planting, provide additional backfill berm around edge of excavations to form shallow saucer to collect water. Provide not less than 4" of mulch and finish level with adjacent finish grades.
- E. Edging: Install edging where indicated by Owner; form contours and bury in topsoil to center of bulb.
- F. Spraying: If moved in full-leaf, spray deciduous trees and shrubs with antidesiccant at nursery before moving and again 2 weeks after planting. Provide an adequate film on trunks, branches, stems, twigs, and foliage.

## SECTION 02900 - LANDSCAPING

### 1.3 Execution

#### G. Pruning:

1. Prune, thin out, and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required heights and spread. Unless otherwise directed, do not cut tree leaders, and remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character and accomplish their use in the landscape design. Required shrub sizes are the size after pruning.
2. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
3. Paint cuts over ½" in size with standard tree paint or compound, covering all exposed, living tissue. Use asphaltic base paint which is waterproof, antiseptic, adhesive, elastic and free of kerosene, coal tar, creosote, and other substances harmful to plants. Do not use shellac.

#### H. Maintenance of Trees, Shrubs, & Ground Cover: Until work is accepted by Owner, make periodic checks to make certain that materials are properly watered, cultivated, pruned, that all guys and stakes are in proper adjustment, and that conditions are contributing to satisfactory progress of materials.

#### I. Fine Grading: Provide fine grading as required to prepare subgrade for placement of topsoil.

#### J. Topsoil Placement:

1. After completion of fine grading, re-spread salvaged topsoil over areas indicated for lawn work. Place a minimum of 4" of topsoil.
2. Smooth grade topsoil to eliminate irregularities. Finished topsoil grade shall be 1" below adjoining grade of any surfaced area.

#### K. Soil Preparation:

1. Loosen topsoil by tilling to a depth of 3". Apply lime in sufficient quantity to produce soil pH of 6.5; mix thoroughly into topsoil. Rake out surface irregularities; remove rocks and hard soil clods. In residential areas, topsoil shall be hand-raked to a smooth, even finish by a qualified landscaper.
2. In areas to be seeded, apply fertilizer uniformly in sufficient quantity to achieve to 2.0 lb. of nitrogen nutrient per 1000 sq ft.

#### L. Sodding:

1. Precautions shall be taken to prevent sod from drying out and from heating. Sod cut more than 48 hours before installation or that shows visible signs of heating shall be rejected.
2. Strips shall be placed tightly against each other so that no open joints are apparent. Sod shall be placed without stretching. Joints between adjacent rows shall be staggered at least 1'.
3. At edge of walks and drives, sod shall have same finish grade as surfaced area. At curbs, sod shall match top of curb. At top of slopes, lay sod so water from adjacent areas will have free flow onto sodded area.
4. On slopes, sodding shall begin at bottom and progress upward with strips laid transverse to flow of water. If necessary to protect sod already laid, furnish ladders or treaded planks for workmen.
5. Sod shall be watered and compressed into underlying soil by rolling. Initial watering and rolling shall provide firm contact and bond between sod and underlying soil. Rolling shall result in a smooth even surface free of humps and depressions without excessive compaction.
6. Stake sod placed on slopes steeper than 3:1. Drive wood stakes spaced not more than 30" apart at an angle against flow of water until stakes project ½" above sod. Stakes shall be removed when sod has become re-established.
7. Apply one dressing of fertilizer by mechanical spreader at rate indicated by fertilizer producer one week after sod replacement.

## SECTION 02900 - LANDSCAPING

### 1.3 Execution

#### M. Watering & Mowing:

1. Water turf areas as necessary to assure that lawn areas are maintained in a moist condition until approved and Owner accepts responsibility for maintenance.
2. Mow lawn areas repeatedly to a height of 1½" when growth exceeds 3" prior to acceptance by Owner.

#### N. Establishment & Replacement:

1. Sod which fails to become established after 1 month from installation shall be replaced in proper season at landscape contractor's expense.
2. Seeded areas which fail to show an adequate stand of grass within four weeks shall be raked, re-seeded, fertilized, and mulched at landscape contractor's expense. Areas seeded in Fall which fail to show an adequate stand shall be re-seeded, fertilized, and mulched the following Spring before June 1. Adequate stand shall be considered a minimum of 10 seedling per sq.in.

- O. Clean Up: Promptly remove soil, manure, peat, or similar material from paved areas; keep area clean at all times. Upon completion of planting, remove excess soil, stones, and debris from site. Ground areas disturbed as a result of planting operations shall be restored to their original condition or to desired new appearance.

**END OF SECTION 02900**

## SECTION 03300 - CAST-IN-PLACE CONCRETE

### Related Documents

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

### 1.1 General

- A. Cast-in-place concrete includes the following:
  - 1. Footings, including sono tube footings.
  - 2. Slabs-on-grade (apartment building, detached garages); monolithic slabs with thickened edges at patios.
- B. Related Sections:
  - 1. Section 02751 "Concrete Paving."
  - 2. Section 03610 "Insulated Concrete Forms Systems."
  - 3. Section 04200 "Unit Masonry."
- C. Refer to Structural Drawings for additional information.
- D. Quality Control:
  - 1. Products:
    - a. Test Cylinders: 6" dia. x 12" high cylinder, ASTM C31.
    - b. Slump Cone: 12" high standard mold, ASTM C143.
  - 2. Execution:
    - a. Sampling: Contractor shall extend full cooperation to testing agency in obtaining concrete samples.
    - b. Compressive Strength Tests: During progress of work, prepare 3 test cylinders per 150 cu.yd. or fraction thereof for each class of concrete placed each day. Comply with ACI 318, Section 4.3 (samples secured - ASTM C172, cylinders prepared and cured - ASTM C31, and tested - ASTM C 39).

### 1.2 Products

- A. Form Materials: Furnish form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.
  - 1. Forms for Exposed Concrete Surfaces: Suitable panel-type material to provide continuous, straight, smooth, exposed surfaces.
- B. Admixtures: Provide admixtures that contain not more than 0.1 percent chloride ions.
  - 1. Air-Entraining Admixture: ASTM C 260.
- C. Related Materials: As follows:
  - 1. Vapor Retarder: Clear 6-mil-thick polyethylene.
- D. Limit maximum water-cement ratio of concrete exposed to freezing and thawing to 0.45.

### 1.3 Execution

- A. Formwork: Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation, and position. Select form materials to obtain required finishes.
  - 1. Maintain formwork tolerances and surface irregularities within ACI 347 limits, Class A tolerances for concrete exposed to view and Class C tolerances for other concrete surfaces.
  - 2. Provide openings in formwork to accommodate work of other trades. Accurately place and securely support items built into forms.

## SECTION 03300 - CAST-IN-PLACE CONCRETE

### 1.3 Execution

- A. 3. Clean and adjust forms prior to concrete placement. Apply form-release agents or wet forms as required. Re-tighten forms during concrete placement, if required, to eliminate mortar leaks.
- B. Vapor Retarders/Barriers: Place vapor retarder/barrier membrane for slabs on grade, with joints lapped 12" at apartment building slab per radon control requirements and sealed.
- C. Reinforcement: Accurately position and support reinforcement, and secure against displacement. Locate and support reinforcement to maintain minimum cover with metal chairs, runners, bolsters, spacers, and hangers as required. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
  1. Install welded wire fabric in lengths as long as practicable; lap at least one full mesh and lace splices with wire.
- D. Joints: Locate and install construction, isolation, and control joints as indicated or required. Locate construction joints so they do not impair strength and appearance of structure. Place isolation and control joints in slabs-on-ground to stabilize differential settlement and prevent random cracking.
- E. Installation of Embedded Items: Set and build anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting diagrams, templates, and instructions provided by others for locating and setting.
- F. Concrete Placement: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," for placing concrete in a continuous operation within planned joints or sections. Do not begin concrete placement until other affected work is completed.
  1. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping so that concrete is worked around reinforcement and other embedded items and into forms.
  2. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placing, and curing.
    - a. In cold weather comply with ACI 306.
    - b. In hot weather comply with ACI 305.
- G. Slab Finishes: As follows:
  1. Float Finish: Apply float finish to slab surfaces to receive trowel finish when surface water has disappeared and when concrete has stiffened sufficiently to permit operation of power-driven floats. Consolidate surface with power-driven floats or by hand-floating.
    - a. Check and level surface plane to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness). Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, re-float surface to a uniform, smooth, granular texture.
  2. Trowel Finish: Apply trowel finish to slab surfaces to be exposed to view and slab surfaces to be covered with resilient flooring, carpet, paint, or other thin film-finish coating system.
    - a. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness). Grind smooth surface defects that would telegraph through applied floor covering system.
  3. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

**1.3 Execution**

- G. 4. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete sidewalks and elsewhere as indicated.
  - a. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route.
- H. Curing: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

**END OF SECTION 03300**

## SECTION 03510 - GYPSUM CONCRETE FLOOR UNDERLAYMENT

### Related Documents

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

### 1.1 General

- A. Provide gypsum concrete floor underlayment as shown on the Drawings, as specified herein and as needed for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

### 1.2 Products

- A. Manufacturers/Product:
  - 1. Gypcrete Corp.: Gypcrete
  - 2. Hacka Industries, Inc.: Forta-Fill Gyp.
  - 3. Film-Fill
- B. Mixing proportions shall be approximately 8 gal. water, 1.8 cu. ft. sand per 80 lb. bag.
- C. 1800 psi,  $\frac{3}{4}$ " thick as per plans.

### 1.3 Execution

- A. Surface Conditions:
  - 1. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
  - 2. Building interior shall be enclosed and maintained at a temperature above 50° F until structure and subfloor temperatures are stabilized.
  - 3. Subfloor shall be broom clean and free from any contaminants.
  - 4. Before pouring concrete, subfloor shall be coated with manufacturer-approved primer.
  - 5. Acceptable Subfloor:
    - a. Structural concrete.
    - b.  $\frac{3}{4}$ " tongue and groove plywood.
- B. Installation:
  - 1. Mix gypsum concrete in accordance with manufacturer's instructions.
  - 2. Install gypsum concrete to a minimum thickness of  $\frac{3}{4}$ ".
  - 3. Provide continuous ventilation and adequate heat to remove moisture from the area until underlayment is dry.

**END OF SECTION 03510**

## SECTION 03610 - INSULATED CONCRETE FORM SYSTEMS

### Related Documents

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

### 1.1 General

- A. Summary:
1. Supply and installation of insulating concrete forms, installation of reinforcing steel, and placement of concrete within formwork.
  2. Adequate bracing and false work shall be provided to comply with all applicable codes.
- B. Scope of Work:
1. Furnish all labor, materials, tools and equipment to perform the installation of flat wall adjustable forms per manufacturer's recommendations.
  2. Furnish all labor to include placement of reinforcing steel within forms, placement of concrete into forms, and final cleanup.
- C. Other Products:
1. Reinforcing steel.
  2. Concrete.
  3. Anchor bolts, sleeves, and inserts.
  4. Window and door opening bucks.
  5. Penetrations.
- D. Related Sections:
1. Section 03300 "Cast-in-place Concrete."
  2. Section 04200 "Concrete Masonry Block."
  3. Section 05120 "Structural Steel & Metal Fabrications."
  4. Section 06100 "Rough Carpentry."
- E. References:
1. ACI 301/Standard Specification for Structural Concrete.
  2. ACI 318/Building Code Requirements for Reinforced Concrete.
  3. ACI 332/Guide to Residential Cast-in-Place Concrete Construction.
  4. ACI 347/Guide for Formwork for Concrete.
  5. ASTM E84/Surface Burning Characteristics of Building Materials.
  6. Manufacturer's installation manual or guide.
- F. System Description:
1. Insulating concrete wall form system shall consist of two opposing panels of expanded polystyrene (EPS) having a uniform minimum density of 1.5 pounds per cubic foot (pcf) connected by steel or composite cross ties.
  2. Wall system to provide minimum concrete wall section thickness where specified on the project drawings.
  3. Wall system cross ties to provide minimum 1½" wide furring strips at 12" maximum on center spacing, recessed ½" below the surface of the form face, to facilitate finish fastening both interior and exterior.
  4. Wall system to provide accurate positioning of steel reinforcement within form cavity to conform to the placement requirements of ACI 318.

## SECTION 03610 – INSULATED CONCRETE FORM SYSTEMS

### 1.1 General

- G. Submittals: In accordance with Division 1, Section 01300 “Submittals”, submittals shall include:
1. Material Testing & Code Approval Reports: Submit relevant laboratory tests or data that validate product compliance with performance criteria specified prior to commencement of work under this Section. Submit code approval report as required by the local building code department.
  2. Product Data: Submit copy of manufacturer’s product data and installation manual or guide.
  3. Shop Drawings: Submit drawings indicating layout dimensions and form types and details.
  4. Design Calculations: Submit calculations signed and sealed by a licensed design professional registered in the state of this project. Or, indicate conformance with code-approved prescriptive methods.
- H. Quality Assurance:
1. Installer’s Qualifications: Must show proof of three years of experience in installing this product and meet manufacturer’s qualifying criteria. Installer shall furnish proof of training documentation to Contractor prior to commencement of work under this Section.
  2. Manufacturer’s Qualifications: Must show continuous manufacturing of this product for a minimum of three years.
  3. Pre-installation Meeting: Prior to starting ICF work, convene meeting at project site. Include trades responsible for installing forms, concrete, reinforcement and trades responsible for installing work that requires form modification.
  4. Installation to comply with project drawings, specifications, governing building codes and regulations, and manufacturer’s installation manual or guide.
  5. Material in contact with ICF form must be compatible with expanded polystyrene.
- I. Delivery, Storage, & Handling:
1. Deliver products in original factory packaging, bearing identification of product and manufacturer, and product listing label.
  2. Handle and store products in original factory packaging in a location to prevent physical damage and soiling.
  3. Ensure that ultra violet protection is provided for material should on-site storage extend beyond thirty days.
- J. Project Conditions: Use appropriate measures for protection and supplementary heating when required for curing conditions in accordance with manufacturer’s recommendations if installation is carried out during periods of weather where temperatures are below minimum specified by the governing building code for concrete.
- K. Coordination:
1. Ensure those materials listed under sub-Section “C” are provided to installer prior to commencement of work under this Section.
  2. Coordinate this Section with other Sections of work which require attachment of components to formwork.
- L. Warranty: Manufacturer to provide a written copy of product warranty.

## SECTION 03610 – INSULATED CONCRETE FORM SYSTEMS

### 1.2 Products

#### A. Materials:

1. Insulating concrete forms as approved by the Architect.
2. Form units to be supplied through an authorized distributor.
3. Substitutes and alternates as approved by the Architect.

#### B. Concrete:

1. Concrete supplied under Section 03300 shall have a compressive strength as specified by the Architect or Engineer (measured at 28 days).
2. Recommended maximum aggregate size is  $\frac{3}{4}$ ".
3. Recommended concrete slump range is 5-6".

#### C. Reinforcing Steel:

1. Reinforcing steel grade s specified under Section 03300.
2. Reinforcing steel grade, size, placement and spacing as specified by the Structural Engineer.

#### D. Accessories:

1. Bracing, Wall Alignment, & Scaffolding: Nominal size lumber or metal framing.
2. Anchor bolts, anchor straps or inserts.
3. Waterproofing and dampproofing.
4. Sleeves for wall penetrations.

### 1.3 Execution

A. Examination: Inspect all areas included in Scope of Work to establish extent of work and verify site access conditions.

#### B. Site Verification of Conditions:

1. Verify that site conditions are as set out in Part 1 – General Conditions.
2. Verify reinforcing steel dowels are in place at specified locations along footing lengths.

C. Preparation: Clean all debris from top of footings prior to commencing work.

#### D. Installation – Formwork:

1. Installation of forms to be in strict accordance with manufacturer's installation manual or guide.
2. Install formwork, shoring, and bracing to achieve project design requirements.
3. Provide sufficient bracing to ensure stability, alignment, and plumbness of formwork. Provide additional reinforcement and bracing of cut forms.
4. Erect forms in running or stack bond. Align embedded furring strips to facilitate wall finish attachment.
5. Coordinate this Section with other sections of work which require attachment of components to formwork.

## SECTION 03610 – INSULATED CONCRETE FORM SYSTEMS

### 1.3 Execution

- E. Installation – Inserts, Embedments, & Openings:
  - 1. Locate and set in place items which will be cast directly into concrete.
  - 2. Provide formed or sleeved openings where required for items to be embedded in or to pass through concrete work.
  - 3. Openings exceeding 24" × 24" in area shall be reinforced.
  - 4. Coordinate with work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, and other components of other work.
  - 5. Install accessories in accordance with manufacturer's instructions; straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- F. Form Cleaning:
  - 1. Clean forms as installation proceeds, to remove foreign matter within forms.
  - 2. Clean formed cavities of debris prior to placing concrete.
  - 3. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
  - 4. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms unless formwork and concrete construction proceed within a heated enclosure. Use compressed air or other means to remove foreign matter.
- G. Formwork Tolerances: Construct formwork to maintain tolerances required by ACI 301.
- H. Field Quality Control:
  - 1. Comply with Section 01400.
  - 2. Ensure that the cast-in-place concrete walls are level, plumb, square, and straight and that all dimensions conform to the project design drawings.
  - 3. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with design, and that supports, fastenings, ties, and other items are secure.
  - 4. Refer to manufacturer's final checklist provided in the installation manual or guide.
  - 5. Site Tests or Samples: To be specified as required.
- I. Cleanup: Clean up and properly dispose of all debris remaining on the job site related to the installation of the insulating concrete forms.
- J. Protection:
  - 1. Provide temporary coverage of installation to reduce exposure to ultra violet light should final finish application be delayed longer than sixty days.
  - 2. Provide temporary bracing of installation per manufacturer's instructions.

**END OF SECTION 03610**

## SECTION 04200 - UNIT MASONRY

### Related Documents

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

### 1.1 General

- A. Summary: Concrete masonry block units where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
  - 1. Masonry block foundation walls at elevator pit with reinforced vertical core fills and horizontal bond beam.
- B. Standards: Comply with recommendations of Brick Institute of America (BIA) and National Concrete Masonry Association (NCMA).
- C. Cold-Weather Requirements: Do not build on frozen subgrade or setting beds. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with the following requirements:
  - 1. Cold-Weather Construction: Heat mixing water and sand to produce mortar and grout temperatures between 40° and 120° F (4° and 49° C). Maintain mortar and grout above freezing. Heat masonry units to 40° F (4° C) if grouting.
- D. Hot-Weather Requirements: Protect unit masonry work from excessive evaporation of water from mortar and grout. Do not apply mortar to substrates with temperatures of 100° F (38° C) and above.

### 1.2 Products

- A. Concrete Block:
  - 1. Hollow Block: ASTM C 90.
    - a. Weight Classification: Normal Weight.
- B. Mortar Materials & Mixes: Provide mortar complying with ASTM C 270, Proportion Specification, for materials and mortar types of composition indicated below:
  - 1. Cementitious Material: Premixed colored masonry cement of formulation required to produce mortar color indicated.
  - 2. Aggregate: Natural or manufactured sand.
  - 3. Colored Mortar Pigments: Natural.
  - 4. Use Type N mortar for exterior, above-grade loadbearing and non-loadbearing walls and for other applications where another type is not indicated.
  - 5. Do not add admixtures unless otherwise indicated.
- C. Reinforcement: Deformed bars of grade indicated complying with ASTM A 615, except as otherwise indicated.
  - 1. Grade 60 for bars No. 3 to No. 6.
- D. Grout: ASTM C 476.

### 1.3 Execution

- A. Install masonry units in running bond pattern.
- B. Cut exposed masonry units, where necessary, with a power saw and conceal cut edges.
  - 1. Avoid the use (by proper layout) of less-than-half-size units.
  - 2. Use jamb block at all openings and building corners.

## **SECTION 04200 - UNIT MASONRY**

### **1.3 Execution**

- C. Hold uniform joint sizes as indicated, or if not indicated, hold joint sizes to suit modular size of masonry units.
- D. Cut joints flush and tool slightly concave, unless otherwise indicated.
- E. Keep cavities clean of mortar droppings.
- F. Use grouting technique and type of grout appropriate to masonry construction indicated and as recommended in referenced standards.
- G. Build other work into the masonry work as shown, fitting masonry units around other work, and grouting for secure anchorage.
- H. Protect newly laid masonry from exposure to precipitation, excessive drying, freezing, soiling, backfill, and other harmful elements.

**END OF SECTION 04200**

## SECTION 04410 - SIMULATED STONE VENEER

### Related Documents

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

### 1.1 General

- A. Summary: Provide simulated stone where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
  - 1. Store mortar and other moisture-sensitive materials in protected enclosures; handle by methods which avoid exposure to moisture.
  - 2. Maintain materials and surrounding air temperature to minimum 40° F. prior to, during, and for 48 hours after completion of work.
  - 3. Allow no construction activity on opposite side of wall during installation and for 48 hours after completion of work.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Samples for selection purposes showing full range of products available.

### 1.2 Products

- A. Materials: Environmental Stone Works, or equal, as selected from manufacturer's standard selection.
- B. Mortar:
  - 1. Portland Cement, ASTM C 150, Type 1 or masonry cement (Type N), ASTM C 91.
  - 2. Masonry sand.
  - 3. Lime: ASTM C 207
  - 4. Iron oxide pigments.
- C. Weather-Resistant Barrier: As recommended by manufacturer.
- D. Metal Lath: 18 gauge galvanized woven wire mesh, 2.5 lb. or 3.4 lb.
- E. Cap will be metal flashing.

### 1.3 Execution

- A. Installation:
  - 1. Apply in accordance with manufacturer's installation instructions.
  - 2. Apply metal lath to surfaces, attach with galvanized concrete nails, 6" apart, 16" o.c.
  - 3. Minimize job site cutting. Perform necessary cutting with proper tools to provide uniform edges; take care to prevent breaking unit corners or edges.
  - 4. Remove excess mortar; do not allow mortar to set up on face of units.
  - 5. Clean and finish joints in accordance with manufacturer's instructions.
  - 6. Arrange and cut stones as to achieve joints approximately 3/4" in width.
  - 7. Pattern: Balance the number of small stones and large stones throughout the exposed area; balance the distribution of color.

**END OF SECTION 04410**

**SECTION 05120 - STRUCTURAL STEEL & METAL FABRICATIONS**

**Related Documents**

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

**1.1 General**

Refer to Structural Drawings.

**END OF SECTION 05120**

## SECTION 05500 - METAL FABRICATIONS

### Related Documents

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

### 1.1 General

A. Summary: This Section includes the following metal fabrications:

1. Deck columns.
2. Ladders, including elevator pit ladders.
3. Loose bearing and leveling plates.
4. Loose steel lintels.
5. Handrails and railings.
6. Miscellaneous steel trim, including pipe bollards.
7. Roof hatch.

B. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:

1. Shop Drawings: Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections.

C. Quality Assurance:

1. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.
2. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code - Steel", AWS D1.2 "Structural Welding Code - Aluminum", and AWS D1.3 "Structural Welding Code - Sheet Steel".
  - a. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

D. Project Conditions:

1. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

### 1.2 Products

- A. 1. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
2. Steel Plates, Shapes, & Bars: ASTM A 36/A 36M.
  3. Rolled Steel Floor Plates: ASTM A 786/A 786M.
  4. Steel Tubing: Product type (manufacturing method) and as follows:
    - a. Cold-Formed Steel Tubing: ASTM A 500.
  5. Steel Pipe: ASTM A 53, standard weight (schedule 40), unless otherwise indicated, or another weight required by structural loads.
  6. Welding Rods & Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.

## SECTION 05500 - METAL FABRICATIONS

### 1.2 Products

#### B. Paint:

1. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

#### C. Fasteners: Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electro deposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

#### D. Fabrication, General:

1. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
3. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
4. Remove sharp or rough areas on exposed traffic surfaces.
5. Weld corners and seams continuously to comply with the following:
  - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - b. Obtain fusion without undercut or overlap.
  - c. Remove welding flux immediately.
  - d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
6. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated, or if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
7. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
8. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
9. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
10. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

## SECTION 05500 - METAL FABRICATIONS

### 1.3 Products

- E. Rough Hardware:
1. Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.
  2. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.
- F. Loose Bearing & Leveling Plates: Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.
- G. Loose Steel Lintels:
1. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
  2. Weld adjoining members together to form a single unit where indicated.
  3. Size loose lintels for equal bearing of 1" per foot (85 mm per meter) of clear span but not less than 8" (200 mm) bearing at each side of openings, unless otherwise indicated.

### 1.3 Execution

- A. Preparation: Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.
- B. Installation, General:
1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
  2. Cutting, Fitting, & Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
  3. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.
  4. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
  5. Field Welding: Comply with the following requirements:
    - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
    - b. Obtain fusion without undercut or overlap.
    - c. Remove welding flux immediately.

## SECTION 05500 - METAL FABRICATIONS

### 1.3 Execution

- B. 5. d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- C. Installing Pipe Bollards:
  - 1. Anchor bollards in concrete – see detail.
  - 2. Fit bollards solidly with concrete, mounding top surface.
- D. Adjusting & Cleaning:
  - 1. Touch-up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
    - a. Apply by brush or spray to provide a 2.0-mil (0.05-mm) minimum dry film thickness.
  - 2. Touch-up Painting: Cleaning and touch-up painting of field welds, bolted connections, and abraded areas of the shop paint on miscellaneous metal is specified in Division 9, Section 09900 "Painting".

**END OF SECTION 05500**

## SECTION 05720 - ORNAMENTAL RAILINGS

### Related Documents

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

### 1.1 General

- A. Summary: This Section includes ornamental metal railing systems.
- B. Related Sections:
  - 1. Section 05500 "Metal Fabrications."
  - 2. Section 09900 "Painting."
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for verification of each type of exposed finish required, prepared on components of same thickness and metal indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
- D. Quality Assurance: Obtain railing systems of each type and material from a single manufacturer.
- E. Storage: Store railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.
- F. Field Measurements: Where railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

### 1.2 Products

- A. Product: Aluminum railings/guard rails with powder coat finish at balconies.
- B. Metals: Provide metal free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
- C. Fasteners:
  - 1. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings.
  - 2. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or that are incompatible with materials joined.
- D. Grout & Anchoring Cement:
  - 1. Non-shrink, Nonmetallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
  - 2. Non-shrink, Nonmetallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## SECTION 05720 - ORNAMENTAL RAILINGS

### 1.2 Products

#### D. Grout & Anchoring Cement:

3. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and that is recommended for exterior use by manufacturer.

#### E. Fabrication:

1. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacing, and anchorage, but not less than that required to support structural loads.
2. Assemble railing systems in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
3. Un-welded Connections: Fabricate railing systems and handrails by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

#### F. Iron & Steel Finishes:

1. Galvanizing: Hot-dip galvanize items indicated to be galvanized to comply with applicable standard listed below:
  - a. ASTM A 153 for galvanizing iron and steel hardware.
  - b. ASTM A 123 for galvanizing iron and steel products made from rolled, pressed, and forged steel shapes, casings, plates, bars, and strips.
2. Apply shop primer to prepared surfaces of handrails and railing components, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

### 1.3 Execution

- A. Preparation: Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.
- B. Installation, General:
  1. Fit exposed connections accurately together to form tight, hairline joints.
  2. Cutting, Fitting, & Placement: Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
  3. Field Welding: At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

## **SECTION 05720 - ORNAMENTAL RAILINGS**

### **1.3 Execution**

- B. 4. Adjust railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by structural loads.
- 5. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings systems and for properly transferring loads to in-place construction.
- C. Railing Connections: Non-welded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic filler, cement colored to match finish of railing systems.
- D. Adjusting and Cleaning: Clean metals by washing thoroughly with clean water and soap, followed by rinsing with clean water.
- E. Protection:
  - 1. Protect finishes of railing systems and handrails from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.
  - 2. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION 05720**

## SECTION 06100 - ROUGH CARPENTRY

### Related Documents

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

### 1.1 General

- A. Refer to Structural Drawings for additional information.
- B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Codes and Standards: In addition to complying with the pertinent codes and regulations of governmental agencies having jurisdiction, comply with:
  - 1. Western Wood Products Association "Product Use Manual";
  - 2. American Plywood Association "Plywood Specification and Grade Guide".
- D. Provide wood, nails, bolts, screws, framing anchors and other items and perform rough carpentry for the construction shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- E. Delivery, Storage, and Handling:
  - 1. Protection:
    - a. Deliver the materials to the job site and store in a safe area, out of the way of traffic, and shored up off the ground surface.
    - b. Identify framing lumber as to grades.
    - c. Protect metals with adequate waterproof outer wrapping.
    - d. Use extreme care in off-loading of lumber to prevent damage, splitting, and breaking of materials.

### 1.2 Products

- A. Provide dressed lumber, S4S, with each piece factory marked with grade stamp of inspection agency.
- B. All wood members 2×8 dimension or greater shall be Hem Fir (HF), all wood members 2×6 dimension or less, shall be Spruce Pine Fir (SPF). All wood members to be No. 2 marked by a recognized grading agency (WCLIB and WWPA).
- C. Sheathing: APA-rated OSB sheathing.
  - 1. Exterior walls.
  - 2. Roof and dormer walls.
  - 3. Garage partition walls: One layer OSB one side only on walls between garage stalls.
- D. Balcony Decking: 5/4 × 6" treated decking.
- E. All sills or plates resting on concrete or masonry shall be pressure-treated Southern Pine No. 2.
- F. Moisture content of wood at time of placing shall not exceed 19%.
- G. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- H. Metal Framing Anchors: Provide galvanized steel framing anchors of structural capacity, type, and size indicated.

## **SECTION 06100 - ROUGH CARPENTRY**

### **1.2 Products**

- I. Sill-Sealer Gaskets: Glass-fiber-resilient insulation or closed cell foam, fabricated in strip form, for use as a sill sealer; 1" (25- mm) nominal thickness, compressible to  $\frac{1}{32}$ " (0.8 mm); widths to suit width of sill members indicated.

### **1.3 Execution**

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- B. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- D. Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.

**END OF SECTION 06100**

**SECTION 06192 - METAL-PLATE-CONNECTED WOOD TRUSSES**

**Related Documents**

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

**1.1 General**

Refer to Structural Drawings.

**END OF SECTION 06192**

## **SECTION 06200 - FINISH CARPENTRY**

### **Related Documents**

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

### **1.1 General**

Provide finish carpentry work as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

### **1.2 Products**

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," for lumber and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- B. Softwood Plywood: Comply with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood."
- C. Interior Standing Trim:
  - 1. Provide Legacy (or equal) trim, manufacturer's standard selection.
  - 2. No casing at windows – gypsum board returns with cultured marble window sills.
  - 3. Wood cap at stairs.
  - 4. Community Room Fireplace: Mantel and wood surround as per plans.
  - 5. Corridor 200 (overlooking Lobby): Wood railing.
  - 6. Prefinished wood chair rail at Corridors & Lobby.
- D. Refer to Section 06402 "Architectural Woodwork" for cabinetry, countertops, and cultured marble window sills.

### **1.3 Execution**

- A. Install finish carpentry plumb, level, true, and aligned with adjacent materials. Use concealed shims where required for alignment. Scribe and cut finish carpentry to fit adjoining work Refinish and seal cuts as recommended by manufacturer.
- B. Standing and Running Trim: Install with minimum number of joints practical, using full-length pieces from maximum lengths. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.
- C. Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

**END OF SECTION 06200**

## SECTION 06402 - ARCHITECTURAL WOODWORK

### Related Documents

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

### 1.1 General

- A. Provide architectural woodwork as shown on the Drawings, as specified herein and as needed for a complete and proper installation. This Section includes cabinetry, plastic laminate countertops, and cultured marble vanity tops and window sills.
- B. Related Sections:
  - 1. Division 6, "Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section and incorporated into items of architectural woodwork during fabrication, finishing, and installation.
  - 2. Shop drawings showing location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 3. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.
    - a. Cabinets.
    - b. Plastic laminate.
    - c. Cultured marble.
- D. Quality Assurance:
  - 1. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this project, with sufficient production capacity to produce required units without causing delay in the Work.
  - 2. Single-source Manufacturing and Installation Responsibility: Engage a qualified manufacturer to assume undivided responsibility for woodwork specified in this Section, including fabrication, finishing, and installation.
  - 3. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated.
- E. Delivery, Storage, and Handling:
  - 1. Protect materials during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
  - 2. Coordinate delivery of materials with Project Manager.
- F. Project Conditions:
  - 1. Environmental Conditions: Obtain and comply with manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions for materials during storage and installation. Do not install until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0% of optimum moisture content from date of installation through remainder of construction period.
  - 2. Field Measurements:
    - a. Where material is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

## SECTION 06402 - ARCHITECTURAL WOODWORK

### 1.1 General

- F. 2. b. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with manufacture without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.

### 1.2 Products

- A. Materials, General: Provide materials that comply with requirements of the AWI standard for each type of woodwork and quality grade indicated; and, where the following products are part of interior woodwork, with requirements of the reference product standards that apply to product characteristics indicated:
1. Hardboard: AHA A135.4.
  2. Medium-density Fiberboard: ANSI A208.2.
  3. Particle Board: ANSI A208.1, Grade M-2.
  4. Softwood Plywood: PS 1.
  5. Hardwood Plywood and Face Veneers: HPVA HP-1.
  6. Formaldehyde emission level for medium-density fiberboard: Comply with requirements of NPA 9.
  7. High-pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
- B. Cabinetry:
1. Manufacturer (or equal): Grandview Products.
  2. Door Style: Flat panel.
  3. Wood Type: Birch.
  4. Color/Stain: As selected by Architect from manufacturer's standard color selection.
  5. Hardware: 3" satin nickel wire pulls.
- C. Plastic Laminate: Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated in the Work include, but are not limited to, the following:
1. Formica Corp.
  2. Laminart
  3. Nevamar Corp.
  4. Ralph Wilson Plastics Co.
- D. Laminate Clad Tops:
1. Quality Standard: Comply with AWI Section 400 and its Division 400B "Laminate Clad Cabinets".
  2. Grade: Custom.
  3. Type of Construction: As selected by Architect.
  4. Laminate Cladding Grade: GP-50 (0.050" nominal thickness).
  5. Edge Treatment: Postform.
- E. Vanity Tops & Window Sills: Cultured marble.
1. Vanity tops to have integral lav bowls.
  2. Skirt at handicap unit vanity top.

## SECTION 06402 - ARCHITECTURAL WOODWORK

### 1.2 Products

#### F. Fabrication – Plastic Laminate:

1. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.
2. Complete fabrication, including assembly, finishing, and hardware application, before shipment to protect site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
3. Pre-cut openings to maximum extent possible, to receive hardware, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with water-resistant coating.

### 1.3 Execution

#### A. Preparation:

1. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
2. Before installation, examine shop-fabricated work for completion and complete work as required, including removal of packing.

#### B. Installation: Install plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of $\frac{1}{8}$ " in 8'0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.

#### C. Surface Conditions: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### D. Workmanship: Anchor securely to support systems as indicated.

#### E. Adjustment & Cleaning:

1. Repair damaged and defective materials where possible to eliminate defects functionally and visually; where not possible to repair, replace product.
2. Clean, lubricate, and adjust hardware.
3. Clean exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

**END OF SECTION 06402**

## SECTION 07210 - BUILDING INSULATION

### Related Documents

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

### 1.1 General

- A. Summary: Provide building insulation work as shown and as specified. Comply with applicable provisions of Division 1.
  - 1. Related Section: Section 03610 "Insulated Concrete Forms Systems."
- B. Performance Requirements: Thicknesses shown are based on thermal performance specified for each material. Adjust thickness of material having a different thermal performance.
- C. Regulatory Requirements: Comply with fire-resistance and flammability ratings indicated and as required by State Code. Comply with code interpretations by governing authorities.
- D. Delivery, Storage, & Handling: Do not allow insulation materials to become wet or soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage, and protection.

### 1.2 Products

- A. Extruded Polystyrene Board Insulation: Extruded, closed-cell polystyrene with integral high-density skin complying with ASTM C578, Type X, min. 15 psi compressive strength, thermal resistance (R-value at 40° F.) of 5.4 per 1" thickness.
- B. Fiberglass Batt Insulation: Glass fiber blankets with separate vapor barrier as specified below, complying with ASTM C665, type I unfaced; thermal performance of R-11 per 3½" thickness and R-19 per 6" thickness. Unfaced blanket shall be non-combustible as determined by ASTM E136.
- C. Blown Fiberglass Insulation: At vestibule, attic and vaulted spaces, ASTM C 764, Type I, R-49 blown fiberglass (loose fill must meet winter conditions).
- D. Closed cell spray foam insulation at rims (3").
- E. Sound Reduction:
  - 1. Blown fiberglass at floor systems (full).
  - 2. Fiberglass batts at bedroom, bathroom, fire partition, and fire barrier walls.
- F. Vapor Barrier:
  - 1. 6 mil sheet clear polyethylene for exterior wall and roof surfaces.
  - 2. 6 mil poly vapor barrier beneath building slab.

### 1.3 Execution

- A. Installation:
  - 1. Extend insulation full thickness as shown over entire surface. Cut and fit tightly around obstructions, and fill voids with insulation and mastic.
  - 2. Comply with manufacturer's recommendations for particular conditions of installation. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
  - 3. Apply a single layer of insulation of required thickness, unless otherwise shown or as required to make up total thickness.
  - 4. Use extruded polystyrene where insulation is in contact with soil.
  - 5. Mastics used with polystyrene insulations shall be approved for use by insulation manufacturer.

## **SECTION 07210 - BUILDING INSULATION**

### **1.3 Execution**

- B. Vapor Barrier Installation: Install polyethylene vapor barrier on warm side of exterior wall and ceiling insulation. Vapor barrier shall be continuous and complete. Tape all projections through barrier to form a seal. Lap all joints 6". Tape joints and edges at ceiling and floor.
- C. Pneumatically place attic insulation in joist spaces to achieve an R value of 49 Completely fill intended spaces. Leave no gaps or voids.
- D. Miscellaneous Insulation: Insulate miscellaneous voids and cavity spaces as designated. Apply vapor barrier where necessary to prevent infiltration of outside air.

**END OF SECTION 07210**

## SECTION 07311 - ASPHALT SHINGLES

### Related Documents

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

### 1.1 General

- A. Summary: Provide granular surfaced asphalt shingle roofing as shown on the Drawings, as specified herein and as needed for a complete and proper installation.
  - 1. Roof covering material to meet the requirement for a Class B roof covering.
  - 2. Roof covering to meet the IBC Chapter 16 requirements for a 90 mph wind rating.
- B. Other Related Sections:
  - 1. Division 6, Section "Rough Framing" for wood sheathing and framing.
- C. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- D. General Warranty: Manufacturer's standard warranty period.
- E. Environmental: Do not install shingles when ambient temperatures are below that required by the product manufacturer.
- F. Delivery, Storage, & Handling:
  - 1. Deliver materials to project site in manufacturer's unopened bundles or containers with labels intact.
  - 2. Handle and store materials at project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job-site storage, handling, and protection.
- G. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Samples for selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.

### 1.2 Products

- A. Available Manufacturers:
  - 1. Subject to compliance with requirements, provide asphalt shingles produced by TAMKO Building Products, Inc. (or equal) 30-year, color as selected by Owner from manufacturer's standard selection.
  - 2. Underlayment: Subject to compliance with requirements, provide waterproof underlayment produced by TAMKO Building Products, Inc. (or equal).
- B. Metal Trim & Flashing:
  - 1. Furnish the following sheet metal materials:
    - a. Aluminum Sheets: ASTM B 209 (ASTM B 209M), alloy 3003 H14 with mill finish, minimum 0.024" (0.6 mm) thick, unless otherwise indicated.
    - b. Galvanized Steel Sheets: ASTM A 526, G 90 (ASTM A 526M, Z 275) hot-dip galvanized steel with coating designation according to ASTM A 525 (ASTM A 525M), mill phosphatized where indicated for painting; 0.0217" (0.55 mm) thick, unless otherwise indicated.

## SECTION 07311 - ASPHALT SHINGLES

### 1.2 Products

- B. 2. Metal Flashing: Job-cut to sizes and configurations required.
    - a. Material:
      - (1) Aluminum sheets.
      - (2) Galvanized steel sheets.
  - 3. Closed Valley Metal Flashing: Rolled sheet stock at center of valley and extending at least 9" (230 mm) in each direction from centerline of valley.
    - a. Material:
      - (1) Aluminum sheets.
      - (2) Galvanized steel sheets.
  - 4. Vent Pipe Flashing – Plumbing: Rubber boot.
- C. Accessories:
- 1. Felt Underlayment: Type I, 36" (914 mm) wide, asphalt-saturated organic felt, complying with ASTM D 226 (#15) or ASTM D 4869.
  - 2. Waterproof Underlayment: Minimum 40 mil (1 mm) thick, self-adhering polymer-modified, bituminous sheet membrane, complying with ASTM D 1970. Provide primer when recommended by underlayment manufacturer. (GAF Weather Watch)
  - 3. Asphalt Plastic Cement: Non-asbestos fibrated asphalt cement, complying with ASTM D 4586.
  - 4. Nails: Aluminum or hot-dip galvanized steel, 0.120" (3 mm) diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum  $\frac{3}{8}$ " (9.5 mm) diameter head and of sufficient length to penetrate  $\frac{3}{4}$ " (19 mm) into solid decking or at least  $\frac{1}{8}$ " (3 mm) through plywood sheathing.
    - a. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.

### 1.3 Execution

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed until unsatisfactory conditions are corrected.
- B. Preparation:
  - 1. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with non-corrosive roofing nails.
  - 2. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.
- C. Installation:
  - 1. Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA's "Residential Asphalt Roofing Manual" or "The NRCA Steep Roofing Manual".
    - a. Fasten asphalt shingles to roof sheathing with roofing nails.
  - 2. Felt Underlayment: Apply one layer of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 2" (50 mm), end laps a minimum of 4" (100 mm), and hips and valleys a minimum of 6" (150 mm). Fasten felt with sufficient number of roofing nails or non-corrosive staples to hold underlayment in place until asphalt shingle installation.

**SECTION 07311 - ASPHALT SHINGLES**

- C. 2. a. Omit felt underlayment at areas of waterproof underlayment. Lap felt underlayment over waterproof underlayment as recommended by manufacturer but not less than 2" (50 mm).
3. Waterproof Underlayment: Apply waterproof underlayment at eaves. Cover deck from eaves to at least 3' inside the exterior wall line.
  - a. In addition to eaves, apply waterproof underlayment in place of felt underlayment at valleys.
4. Woven and Closed-cut Valleys: Comply with ARMA and NRCA recommendations.
5. Flashing: Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Asphalt Roofing Manual."
6. Install asphalt shingles, beginning at roof's lower edge, with a starter strip of roll roofing or inverted asphalt shingles with tabs removed. Fasten asphalt shingles in the desired weather exposure pattern; use four (4) fasteners per shingle as recommended by manufacturer for high wind situations. Use vertical and horizontal chalk lines to ensure straight coursing.
  - a. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
  - b. Use fasteners at ridges of sufficient length to penetrate sheathing as required.
7. Adjusting: Replace any damaged materials installed under this Section with new materials that meet specified requirements.

**END OF SECTION 07311**

## SECTION 07460 - VINYL SIDING

### Related Documents

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

### 1.1 General

- A. Provide vinyl siding as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 6, Section 06100 "Rough Carpentry."
  - 2. Division 7, Section 07620 "Sheet Metal Flashing & Trim."
  - 3. Division 7, Section 07901 "Joint Sealants."
- C. Quality Assurance:
  - 1. Single-Source Responsibility for Siding & Accessories: Obtain each color, grade, finish, type, and variety of siding and related accessories from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Delivery, Storage, & Handling:
  - 1. Deliver materials to Project site in a manufacturer's unopened bundles or containers with labels intact.
  - 2. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Comply with manufacturer's recommendations for job site storage, handling and protection.
- E. Project Conditions: Proceed with siding installation only when existing and forecasted weather conditions will permit siding to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.
- F. Warranty:
  - 1. Special Project Warranty: Submit a written warranty, executed by manufacturer, agreeing to repair or replace siding that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of siding beyond normal weathering. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.
  - 2. Warranty Period: As per manufacturer's limited warranty.

### 1.2 Products

- A. Manufacturer (or equal): Royal Building Products.
- B. Color: As selected by Owner from manufacturer's standard color selection.
- C. Accessories:
  - 1. Siding Accessories: Corner posts, door casings, window casings, starter strips, trim, and other items as recommended by manufacturer for building configuration, matching type of siding selected.
    - a. Exterior Column & Skirtboard Wraps: Select by Royal Building Products (or equal) cellular PVC column wraps (standard cap style) and skirtboard wraps, standard prefinished color selection.
  - 2. Fasteners & Adhesives: As recommended by manufacturer.
  - 3. Gable End Shakes: Decorative vinyl panels by Royal Building Products (or equal), locations as shown on the Drawings. Color as selected by Owner from manufacturer's standard selection.

## **SECTION 07460 - VINYL SIDING**

### **1.3 Execution**

- A. Examination: Examine substrates for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of siding. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Preparation:
  - 1. Clean substrates of projections and substances detrimental to application.
  - 2. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.
- C. Installation: Comply with siding manufacturer's installation instructions and recommendations. Center nails in elongated nailing slots without binding siding to allow for thermal movement. Install trim and accessories in accordance with manufacturer's recommendations. Overlap butt joints to shed water away from direction of prevailing wind. Isolate dissimilar metals.
- D. Adjusting: Replace damaged siding materials with new materials complying specified requirements.
- E. Cleaning: Clean finished surfaces as recommended by siding manufacturer, and maintain in a clean condition during construction.

**END OF SECTION 07460**

## SECTION 07620 - SHEET METAL FLASHING AND TRIM

### Related Documents

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

### 1.1 General

- A. **Summary:** Provide flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent water penetration through the exterior shell of the building and as needed for a complete and proper installation. Work of this Section includes:
  - 1. Through-wall flashing.
  - 2. Flashing over windows, doors, louvers, etc.
  - 3. Sheet metal for ductwork/venting of interior exhaust fans.
  - 4. Gutters and downspouts.
- B. **Submittals:** In accordance with Division 1, Section 01300 "Submittals", submittals shall include Product Data, Shop Drawings, and Samples for each item specified.
- C. **Delivery, Storage, & Handling:** Stack preformed material to prevent twisting, bending, or abrasion and to provide ventilation.

### 1.2 Products

- A. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
  - 1. Prefinished Sheet Metal: Una-Clad; Copper Sales, Inc. or approved equal.
- B. **Galvanized Sheet Metal:** ASTM A 526, G 90 (ASTM A 526M, Z 275), commercial quality, or ASTM A 527, G 90 (ASTM A 527M, Z 275), lock-forming quality, hot-dip galvanized, mill phosphatized where indicated for painting; not less than 0.0396" (1.0 mm) thick, unless otherwise indicated.
- C. **Gutters & Downspouts:** Prefinished aluminum.
  - a. Seamless gutters.
  - b. Each downspout shall carry water from no more than a 700 sq ft roof area.
  - c. Slope gutters ¼" per foot for continuous pitch toward downspout.
- D. **Miscellaneous Materials and Accessories, as follows:**
  - 1. **Fasteners:** Non-corrosive metal. Match finish of exposed heads with materials being fastened.
  - 2. **Mastic Sealant:** Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
  - 3. **Clips, Straps, Anchoring Devices, and Similar Accessories:** Compatible with material being installed.
  - 4. **Gutter & Downspout Anchorage Devices:** As recommended by manufacturer.
    - a. **Gutter Supports:** Brackets, straps, or spikes and ferrules.
    - b. **Downspout Supports:** Brackets or straps.
- E. **Fabrication:**
  - 1. Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
  - 2. Fabricate sheet metal flashing to shapes and sized detailed, allowing sufficient material for up-standing leg. Make surfaces free of waves and buckles, with lines, arises, and angles sharp and true. Form in strict accordance with detailed drawings. No raw, exposed edges allowed.

## **SECTION 07620 - SHEET METAL FLASHING AND TRIM**

### **1.2 Products**

- F. Coil-Coated Galvanized Steel Sheet Finish: 2-coat fluoropolymer Hylar 5000 or Kynar 500.
1. Color and Gloss: As selected from manufacturer's standard color and gloss designations.

### **1.3 Execution**

- A. Installation:
1. Comply with manufacturer's instructions and SMACNA's "Architectural Sheet Metal Manual."
  2. Allow for thermal expansion; set true to line and level as indicated.
  3. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
  4. Conform to quality procedures and methods recommended by National Association of Sheet Metal Contractors. Accurately form, fit snugly, have exposed edges folded under at least ½" and no sharp corners left exposed. Properly shield against galvanic action with asphalt base paint or equivalent. Securely fasten and make absolutely watertight.
  5. Wherever possible, secure metal by cleats without nailing through metal. In general, space nails, rivets, or screws not more than 8" apart and where exposed to weather, use lead washers. If nailing into concrete or masonry, use "Dryvins" and drilled holes.
- B. Separations: Separate incompatible metals or corrosive substrates with a coating of asphalt mastic or other permanent separation as recommended by manufacturer.
- C. Counterflashings: Coordinate installation with installation of assemblies to be protected by counterflashing. Secure in a waterproof manner by means of snap-in installation and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2" (50 mm) and bed with sealant.
- D. Roof-Penetration Flashing: Coordinate installation with roofing and installation of items penetrating roof.

**END OF SECTION 07620**

## SECTION 07901 - JOINT SEALANTS

### Related Documents

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

### 1.1 General

- A. **Summary:** Throughout the Work, seal and caulk joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of moisture and air. The following areas must be sealed.
1. Window and door frames and utility penetrations.
  2. All exterior joints that may be sources of air intrusion.
  3. Rim joists (to prevent air leakage).
  4. Top of interior partition walls.
  5. Between wall assemblies, rim joists, and foundations.
  6. Between exterior trim and siding.
  7. Any bypass openings in studs or plates to be foamed and caulked.
- B. **Submittals:** In addition to product data, submit samples of each type and color of joint sealant required.

### 1.2 Products

- A. **Compatibility:** Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.
- B. **Colors:** Provide color indicated of exposed joint sealants or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- C. **Elastomeric Sealant Standard:** Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated complying with ASTM C 920 requirements.
1. **One-Part, Mildew-Resistant Silicone Sealant:** Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.
    - a. Dow 786; Dow Corning Corp.
    - b. SCS 1702 Sanitary; General Electric Co.
  2. **Multi-Part, Non-sag Urethane Sealant for Use NT:** Type M, Grade NS, Class 25, and as follows:
    - a. Uses NT, M, G, A, and O.
      - (1) Sonolastic NP 2; Sonneborn Bldg. Prod.
      - (2) Dymeric; Tremco Inc.
- D. **Silicone-Emulsion Sealant:** Product complying with ASTM C 834 and, except for weight loss measured per ASTM C 792, with ASTM C 920, that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 50 percent.
1. AC - 20+ Silicone; Pecora Corp.
  2. ALEX Plus; DAP Inc.
- E. **Sealant Backings, General:** Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
1. **Plastic Foam Joint Fillers:** Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
    - a. Open-cell or closed-cell polyurethane foam.

## **SECTION 07901 - JOINT SEALANTS**

### **1.2 Products**

- E. 2. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back of joint.
- F. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

### **1.3 Execution**

- A. General: Comply with joint sealant manufacturer's instructions applicable to products and applications indicated.
- B. Sealant Installation Standard: Comply with ASTM C 1193.
  - 1. Use multi-part, non-sag urethane sealant for all exterior work and interior work as noted.
  - 2. Use mildew-resistant silicone sealant at toilet rooms and plumbing fixtures.
  - 3. Use silicone-emulsion sealant for interior work except as noted above.

**END OF SECTION 07901**

## **SECTION 08110 - METAL DOORS AND FRAMES**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide metal doors and frames complete in place with finish hardware as shown on the Drawings, as specified herein, and as needed for a complete and proper installation. Refer to Door Schedule.
- B. **Related Section:** Section 09900 "Painting."
- C. **Quality Assurance:** Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- D. **Delivery:** Deliver all material of this Section under protective cover and store within dry, enclosed spaces at the site.
- E. **Submittals:** In accordance with Division 1, Section 01300 "Submittals", submittals shall include Shop Drawings for each item specified.

### **1.2 Products**

- A. Provide all hollow metal doors and frames by Bayer Built (or a comparable equal). Gauges:
  - 1. Frames: 16 gauge.
  - 2. Doors: 18 gauge.
- B. Doors: 1¾" thick, seamless design, thermal-rated (insulated).
- C. Frames: Pressed steel frames for exterior openings, welded unit type. Fabricate to be rigid, free from defects, warp or buckle.
- D. **Type and Design:** Fabricated from cold-rolled steel with tightly hemmed vertical seam on lock and hinge edges, with top flush channel and beveled lock edge, in the dimensions and types shown on the Drawings or listed in the Door Schedule, reinforced for the finish hardware being provided.
- E. Factory-primed doors and welded frames to be field painted.

### **1.3 Execution**

- A. **General:** Install metal doors, frames, and accessories according to manufacturer's specifications and as shown on Drawings.
- B. **Placing Frames:** Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
  - 1. Place frames before constructing enclosing walls and ceilings.
  - 2. Install at least 3 anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
- C. **Door Installation:** Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.
- D. **Prime Coat Touch Up:** Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

**END OF SECTION 08110**

## SECTION 08211 - INTERIOR DOORS

### Related Documents

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

### 1.1 General

- A. Summary: Provide interior doors complete in place with finish hardware installed as shown on the Drawings, as specified herein and as needed for a complete and proper installation.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include Product Data, Shop Drawings, and Samples for each item specified.
- C. Quality Assurance:
  - 1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  - 2. In addition to complying with applicable codes and regulations, comply with "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute, for the grade or grades specified.
- D. Delivery, Handling, & Storage: Deliver doors to the site after plaster and cement are dry and after the building has reached the average prevailing humidity of its locale.

### 1.2 Products

- A. Door Manufacturer: Subject to compliance with requirements, provide doors by Masonite, or a comparable equal.
- B. Interior Doors, as follows:
  - 1. Style: Legacy (or equal).
  - 2. Flush panel.
  - 3. Finish: As selected by Architect.
  - 4. Unit Entry Doors: Solid core, raised panel.
  - 5. Closet/Passage Doors: Hollow core.
- C. Frames: As noted on Door Schedule.
  - 1. Wood Frames (Interior Unit Doors): Prehung.
  - 2. Knock-down Metal Frame (Common Area Doors, Corridor Doors, Entry Doors): Timely, Redi Frame (or equal), color as selected by Owner.
- D. Fabricate flush wood doors to comply with following requirements:
  - 1. Factory fit doors to comply with clearance requirements of referenced quality standard. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
  - 2. Factory machine doors for hardware that is not surface applied.

### 1.3 Execution

- A. Install wood doors and frames to comply with manufacturer's instructions and referenced quality standard and as indicated.
  - 1. Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.
- B. Align and fit doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.
- C. Install finish hardware as shown on the Door Hardware Schedule and in accordance with the manufacturer's instructions.

**END OF SECTION 08211**

## **SECTION 08360 - OVERHEAD DOORS**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide overhead doors installed of the types, designs, and dimensions shown on the Door Schedule, as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. **Quality Assurance:** Provide each overhead door as a complete unit produced by a single manufacturer.
- C. Overhead doors shall be listed/labeled to evidence compliance with required wind loading design provisions of IBC Chapter 16 (3-second gust 90 mph wind design load) per code.

### **1.2 Products**

- A. **Overhead Doors:** Provide and install 9'0" × 8'0" raised panel metal overhead doors, by Midland (or equal), manual operation. Each door to be provided with lock and keys.
  - 1. Overhead door at Garage 401 to be 9'0" × 8'2" with overhead door opener and remote transmitter.
- B. **Weatherstripping:** Resilient neoprene strip.

### **1.3 Execution**

- A. **Surface Conditions:** Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. **Preparation:** Verify that wall openings are ready to receive work and opening dimensions and tolerances are within limits.
- C. **Installation:**
  - 1. Install in accordance with manufacturer's instructions.
  - 2. Anchor components securely to existing construction without distortion or stress. Secure tracks to structural members only.
  - 3. Fit and align door unit including hardware, level and plumb, to provide smooth operation.

**END OF SECTION 08360**

## SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

### Related Documents

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

### 1.1 General

- A. Summary: Provide aluminum entrances and storefronts as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals," submittals shall include Product Data and Shop Drawings for each item specified.
- C. Quality Assurance:
  - 1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  - 2. Obtain aluminum entrance and storefront systems from one source and from a single manufacturer.
- D. Warranty: Contractor shall warranty his work against defective materials or workmanship for a period of one year from the date of Substantial Completion.
- E. Air Infiltration: Provide entrance and storefront systems with permanent resistance to air leakage through fixed glazing and frame areas of not more than 0.06 cfm/sq.ft. of fixed wall area when tested according to ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq.ft.
- F. Thermal Movements: Provide entrance and storefront systems, including anchorage, that accommodate thermal movements of systems and supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses on glazing, failure of joint sealants, damaging loads on fasteners, failure of doors or other operating units to function properly, and other detrimental effects.
  - 1. Temperature Change (Range): 120° F., ambient; 180° F., material surfaces.

### 1.2 Products

- A. Framing System: Fabricate from extruded aluminum members of size and profile indicated. Include reinforcing. Provide for flush glazing from the exterior without projecting stops. Shop-fabricate and preassemble. Provide frame sections without exposed seams.
  - 1. Manufacturer (or approved equal): Kawneer.
- B. Entrance Doors: Tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts.
  - 1. Glazing: Fabricate to facilitate replacement of glass or panels, without disassembly. Provide snap-on extruded aluminum glazing stops with exterior stops anchored for non-removal.
  - 2. Design: 1¾"-thick doors of design indicated.
  - 3. Medium stile.
- C. Fabrication: Fabricate components to designs, sizes and thicknesses indicated and comply with indicated standards. Sizes and profiles are indicated on the drawings.
  - 1. Thermal-Break Construction: Fabricate window framing with an integrally concealed, low conductance thermal barrier, between exterior materials and interior members to eliminate direct metal-to-metal contact.
- D. Prefabrication: Complete fabrication, assembly, finishing and hardware application before shipment to the Project. Disassemble only as necessary for shipment and installation.
  - 1. Do not drill and tap for surface-mounted hardware items until time of installation.
  - 2. Pre-glaze door and frame units to greatest extent possible.

## SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

### 1.2 Products

- E. Exterior and Interior Aluminum Surfaces: As selected by Architect from available standard finishes.
- F. Glazing: 1" insulated clear Low E glass. Refer to Drawings for tempered glass locations.
- G. Hardware: Heavy-duty units; finish to match door.
  - 1. Ball-Bearing Butts: 5-knuckle, 2-bearings, steel ball bearing butts; 3 butts for each door.
  - 2. Surface-Mounted Overhead Closers: LCN1461, modern type with cover, for parallel arm installation. Includes the following:
    - a. Hold-open arm.
    - b. Delayed-action closing.
  - 3. Pull Handles: Aluminum pull handles.
  - 4. Push Bars: Dor-O-Matic 1790 rim panics; full door width single-bar push bar.
  - 5. Thresholds: Extruded aluminum in mill finish.
  - 6. Sweeps: Aluminum neoprene.
  - 7. Weatherstripping: Manufacturer's standard replaceable weatherstripping.
  - 8. Schlage 20-000 mortise cylinder lock.

### 1.3 Execution

- A. Examine substrates for compliance with requirements, installation tolerances, and conditions that affect installation. Correct unsatisfactory conditions before proceeding.
- B. Installation: Comply with manufacturer's instructions. Set units plumb, level, and true to line, without warp or rack of framing members or doors. Install in proper alignment and relation to established lines and grades. Provide support and anchor securely in place.
- C. Drill and tap frames and doors and apply surface-mounted hardware.
- D. Set sill members in bed of sealant, or with joint fillers or gaskets.
- E. Refer to Division 8, Section 08800 "Glazing" for installation of glass and other panels glazed into doors and framing.
- F. Adjust hardware to function properly.
- G. Clean completed system after installation.
- H. Install perimeter sealant to comply with requirements of Division 7, Section 07901 "Joint Sealants", unless otherwise indicated.
- I. Erection Tolerances: Install entrance and storefront systems to comply with the following maximum tolerances:
  - 1. Variation from Plane: Limit variation from plane or location shown to  $\frac{1}{8}$ " in 12';  $\frac{1}{4}$ " over total length.
  - 2. Alignment: Where surfaces abut in line, limit offset from true alignment to  $\frac{1}{16}$ ". Where surfaces meet at corners, limit offset from true alignment to  $\frac{1}{32}$ ".
  - 3. Diagonal Measurements: Limit difference between diagonal measurements to  $\frac{1}{8}$ ".
- J. Remove excess sealant and glazing compounds and dirt from surfaces.

**END OF SECTION 08410**

## **SECTION 08610 - VINYL WINDOWS**

### **Related Documents**

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

### **1.1 General**

- A. Summary: Provide vinyl window and patio door units, complete in place with finish hardware, of the types and dimensions as shown on the Window Schedule, as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Install Window Fall Protection at all operable windows in excess of 72" above the exterior grade plane. All required Window Fall Prevention scree, guards, or other devices shall comply with ASTM F2006 or ASTM F2090.
- C. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- D. Delivery: Deliver all material of this Section under protective cover and store within dry, enclosed spaces at the site.
- E. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include Shop Drawings for each item specified.

### **1.2 Products**

- A. Manufacturer: Vector (or equal).
  - 1. Color: White.
- B. Screens:
  - 1. Screening: Aluminum screen cloth.
  - 2. Screen Frames: Color white, rolled aluminum of rectangular sections with mesh set into frame and secured.
  - 3. Provided for all operating windows and patio doors.
- C. Glazing: Insulated Low E II, clear glass, with argon-filled gas. Tempered glass where required.
- D. Window Fall Protection at second and third floor windows only.

### **1.3 Execution**

- A. General: Install frames, hardware and flashings in accordance with the manufacturer's instructions.
  - 1. Securely fasten frames to structure.
  - 2. Align assembly plumb and level, free of warp or twist.
  - 3. Coordinate attachment and seal of air and vapor barriers. Pack shim spaces with insulation.
  - 4. Seal all joints between windows and frames and building, tightly and continuously.
  - 5. Foam Sealant: At rough window openings, apply ¾" - 1" of non-expanding foam sealant between window jamb, trimmer stud, and sheathing deep in the cavity. During installation, close windows and allow for some foam expansion. Place fiberglass insulation in balance of cavity and secure air/vapor barrier to trimmer or exterior jamb using a non-hardening caulk.

**END OF SECTION 08610**

## SECTION 08710 - DOOR HARDWARE

### Related Documents

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

### 1.1 General

- A. Summary: Provide finish hardware, trim attachments and fastenings required to complete the Work as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
  - 1. Related Sections:
    - a. Section 08110 "Metal Doors & Frames."
    - b. Section 08211 "Interior Doors & Frames."
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include Shop Drawings for each item specified.

### 1.2 Products

- A. Manufacturers (or equal):
  - 1. Butts & Hinges: Stanley.
  - 2. Locks: Schlage.
  - 3. Door Stripping & Seals: Reese.
  - 4. Thresholds: Reese.
  - 5. Wallstops: Glynn-Johnson.
- B. Door Hardware Systems: "Lever" or "paddle" style door hardware system (accessible) shall be installed/used throughout common areas of the building with the Type A dwelling unit and at each unit entry door for accessibility purposes.
- C. Hinges:
  - 1. Furnish three hinges per door.
  - 2. Exterior doors to have non-removable pins. Interior doors to have non-rising pins.
  - 3. Size: 4½" x 4½".
- D. Stops & Bumpers: Door stops shall be furnished wherever an opened door strikes a wall or other part of the building construction.
- E. Magnetic hold open for fire doors (elevator and exit access doors).

### 1.3 Execution

- A. Hardware Mounting Locations: As recommended by the Door & Hardware Institute, unless indicated otherwise.
- B. Install each hardware item to comply with manufacturer's instructions and recommendations.
- C. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant. Remove excess sealant and clean adjacent surfaces.

**END OF SECTION 08710**

## SECTION 09255 - GYPSUM BOARD ASSEMBLIES

### Related Documents

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

### 1.1 General

- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- B. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that are identical to assemblies tested for fire resistance according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

### 1.2 Products

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Gypsum Board and Related Products:
    - a. Georgia-Pacific Corp.
    - b. National Gypsum Co.; Gold Bond Building Products Division.
    - c. United States Gypsum Co.
  - B. Gypsum Board Products: Types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
    - 1. Gypsum Wallboard: ASTM C 36, in thickness indicated.
      - a. Type: Type X for all fire-rated assemblies.
      - b. Type: Sag-resistant type for ceiling surfaces, unless Type "X" is required.
      - c. Edges: Tapered.
    - 2. Water-Resistant Gypsum Backing Board: ASTM C 630, in thickness indicated.
      - a. Location: All water-resistant required areas, unless Type "X" is required.
    - 3. Resilient Sound Channel at floor/ceiling as per plans.
- C. Joint Treatment Materials: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
  - 1. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
    - a. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
  - 2. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
    - a. Ready-Mixed Formulation: Factory-mixed product.
      - (1) All-purpose compound formulated for both taping and topping compounds.
- D. Miscellaneous Materials: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
  - 1. Steel drill screws complying with ASTM C 1002 for the following applications:
    - a. Fastening gypsum board to wood members.

## SECTION 09255 - GYPSUM BOARD ASSEMBLIES

### 1.3 Execution

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
  - 1. Sound-attenuation blankets, thermal insulation, and vapor retarder should be installed where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
  - 2. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
  - 3. Floating Construction: Where feasible, including where recommended by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.
  - 4. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
    - a. Space screws a maximum of 12" (304.8 mm) o.c. for vertical applications.
  - 5. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
    - a. Fasten with screws.
- B. Installing Trim Accessories: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
  - 1. Install cornerbead at external corners.
  - 2. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
    - a. Install control joints according to ASTM C 840 and manufacturer's recommendations.
- C. Finishing Gypsum Board Assemblies: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
  - 1. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
  - 2. Apply joint tape over gypsum board joints, except those with trim accessories having flanges not requiring tape.
  - 3. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
    - a. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
    - b. Level 4 for gypsum board surfaces scheduled to receive paint finish.
  - 4. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
  - 5. Where Level 1 gypsum board finish is indicated, embed tape in joint compound.
  - 6. Finish water-resistant gypsum backing board to comply with ASTM C 840 and gypsum board manufacturer's directions.

**SECTION 09255 - GYPSUM BOARD ASSEMBLIES**

**1.4 Schedule**

- A. Gypsum Board Walls: Orange peel texture finish.
- B. Gypsum Board Ceilings: Orange peel texture finish.

**END OF SECTION 09255**

## SECTION 09300 - TILE

### Related Documents

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

### 1.1 General

- A. Provide ceramic tile as shown on the Room Finish Schedule and the Drawings, as specified herein and as needed for a complete and proper installation.
- B. ANSI Tile Standards: Comply with ANSI A137.1 Standard Specification for Ceramic Tile and ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile."
- C. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation," comply with TCA installation methods indicated.
- D. Submittals: With manufacturer's product data and installation instructions for tile work, submit samples of each type, color, and texture of tile.

### 1.2 Products

- A. Sizes and Thicknesses: As indicated on plans, or if not indicated, as selected by Architect from manufacturer's standard sizes and thicknesses.
- B. Tile Grade: "Standard Grade" unless otherwise indicated.
- C. Interior Tile (or equal): See 1.4 Schedule.
- D. Setting Materials: Provide setting materials as follows:
  - 1. Latex-Portland Cement Mortar: ANSI A118.4.
    - a. Prepackaged dry mortar mix composed of Portland cement, graded aggregate, and the following dry polymer additive in the form of a re-emulsifiable powder to which only water is added at job site.
      - (1) Dry Polymer Additive: Manufacturer's standard.
- E. Latex additive as described below, replacing part or all of gauging water, combined at job site with prepackaged dry mortar mix specified by latex additive manufacturer.
  - 1. Latex Type: Manufacturer's standard.
- F. Grouting Materials: Provide grouting materials as follows:
  - 1. Latex-Portland Cement Grout: ANSI A118.6 of the following composition.
    - a. Prepackaged dry grout mix composed of Portland cement, graded aggregate, and the following dry polymer additive in the form of a re-emulsifiable powder to which only water is added at job site.
      - (1) Dry Polymer Additive: Polyvinyl acetate or ethylene vinyl acetate.
    - b. Latex additive (water emulsion) replacing part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
      - (1) Latex Type: Manufacturer's standard.
      - (2) Dry Grout Mixture: Dry-set grout specified or supplied by latex additive manufacturer. Use latex additive without retarder with dry-set grout.

### 1.3 Execution

- A. Installation: Comply with ANSI A108.1 and 108.4 through A108.10, as applicable for type of tile, setting materials, grout, and methods of installation indicated. Comply with manufacturer's instructions for application of proprietary materials.

## **SECTION 09300 - TILE**

### **1.3 Execution**

- B. Joint Pattern: Use grid pattern with  $\frac{3}{16}$ "-wide joints unless otherwise indicated.
- C. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

### **1.4 Schedule**

- A. Floor Tile (Vestibule, Front Lobby, Side Entries, Common Restrooms): 12" × 12" porcelain tile with metal transition pieces.
- B. Wall Tile (Common Restrooms): To 4' height on all four walls; metal cap.
- C. Fireplace Face: 6×6 tile at fireplace face as per plans.

**END OF SECTION 09300**

## SECTION 09512 - ACOUSTICAL TILE CEILINGS

### Related Documents

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

### 1.1 General

- A. Summary: This Section includes ceilings composed of acoustical tiles and suspension systems.
- B. Quality Assurance:
  - 1. Installer Qualifications: Engage an experienced Installer who has completed acoustical tile ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
  - 2. Fire-Test-Response Characteristics: Provide acoustical tile ceilings that comply with the following requirements:
    - a. Acoustical tile ceilings indicated are identical in materials and construction to those tested for fire resistance per ASTM E 119.
    - b. Fire-resistance-rated, acoustical tile ceilings are indicated by design designations listed in the UL "Fire Resistance Directory", in the Warnock Hersey "Certification Listings", or in the listing of another qualified testing and inspecting agency.
    - c. Products are identified with appropriate markings of applicable testing and inspecting agency.
  - 3. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
  - 4. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Project Conditions: Space enclosure and environmental limitations: Do not install acoustical tile ceilings until spaces are enclosed and weatherproof, wet-work in spaces is completed and dry, work above ceilings is complete, and ambient temperature and humidity conditions are being maintained at the levels indicated for Project when occupied for its intended use.
- D. Coordination: Coordinate layout and installation of acoustical tiles and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition assemblies (if any).

### 1.2 Products

- A. Manufacturer (or equal): USG
  - 1. Class A, 2' x 2' x 5/8" square edge.
- B. Metal Suspension Systems, General:
  - 1. Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
  - 2. Finishes & Colors: White.

## SECTION 09512 - ACOUSTICAL TILE CEILINGS

### 1.2 Products

- B. 3. Attachment Devices: Size for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.
  - a. Cast-in-Place and Post-installed Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attachment of hangers of type indicated and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing per ASTM E 488, conducted by a qualified testing agency.
    - (1) Type: Expansion anchors.
  - b. Corrosion Protection: Carbon steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC service condition (mild).
- 4. Wire Hangers, Braces, & Ties: Provide wires complying with the following requirements:
  - a. Zinc-coated Carbon Steel Wire: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper.
  - b. Size: Select wire diameter so that its stress at 3 times the hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than the yield stress of wire, but provide not less than 0.106" (2.69 mm) diameter wire.
- 5. Extruded Aluminum Edge Moldings & Trim: Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's product designations, complying with the following requirements:
  - a. Color: As selected by Architect from manufacturer's standard colors.
  - b. Available Manufacturers: Subject to compliance with requirements, manufacturers offering aluminum accessories that may be incorporated in the Work include, but are not limited to, the following:
    - (1) Fry Reglet Corp.
    - (2) USG, Inc.
    - (3) MM Systems, Inc.

### 1.3 Execution

- A. Examination: Examine substrates and structural framing to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Preparation:
  - 1. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections.
    - a. Furnish cast-in-place anchors and similar devices to other trades for installation well in advance of time needed for coordinating other work.
  - 2. Measure each ceiling area and establish the layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders, unless approved, and conform to the layout shown on reflected ceiling plans.
- C. Installation:
  - 1. General: Install acoustical tile ceilings to comply with publications referenced below per manufacturer's instructions and CISCA "Ceiling Systems Handbook".
    - a. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.

## SECTION 09512 - ACOUSTICAL TILE CEILINGS

### 1.3 Execution

- D. 2. Suspend ceiling hangers from building's structural members and as follows:
  - a. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of the supporting structure or of the ceiling suspension system.
  - b. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter splaying, or other equally effective means.
  - c. Do not support ceilings directly from permanent metal forms. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.
  - d. Space hangers not more than 48" (1200 mm) o.c. along each member supported directly from hangers, unless otherwise shown; and provide hangers not more than 8" (200 mm) from ends of each member.
3. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
4. Install acoustical tiles with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut tiles at borders and penetrations to provide neat, precise fit.
  - a. Paint the cut tile edges remaining exposed after installation; match color of exposed tile surfaces using coating recommended for this purpose by acoustical tile manufacturer.
  - b. Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.
- E. Cleaning: Clean exposed surfaces of acoustical tile ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION 09512**

## **SECTION 09660 - RESILIENT TILE FLOORING**

### **Related Documents**

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

### **1.1 General**

- A. Resilient floor tile to comply with ASTM F-1066, Composition 1, Class 2 through pattern tile.
- B. Installation materials and labor shall be provided by this Section.
- C. Extra Materials: Furnish an additional 1% of each type and pattern of resilient work. Obtain from same manufactured lot as installed materials.
- D. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual sections of resilient tile flooring showing full range of colors and patterns available for each different product indicated.
  - 2. Maintenance data for resilient tile flooring, to include in the Operating & Maintenance Manual specified in Division 1.

### **1.2 Products**

- A. Resilient Flooring: Tarkett Azrock VCT flooring at locations indicated on Room Finish Schedule.
- B. Resilient Base: Refer to Section 09678 "Resilient Wall Base" of this Division.
- C. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland-cement-based formulation provided or approved by tile manufacturer for applications indicated.
- D. Adhesives (Cements): Water-resistant type recommended by manufacturer to suit floor products and substrate conditions indicated.

### **1.3 Execution**

- A. Examine areas where installation of tiles will occur, with Installer present, to verify that substrates and conditions are satisfactory for tile installation and comply with tile manufacturer's requirements.
  - 1. Concrete Subfloors: Verify that surface is free of surface irregularities and substances with potential to interfere with adhesive bond, show through surface, or stain tile.
- B. Preparation: Comply with manufacturer's installation specifications to prepare substrates indicated to receive tile.
  - 1. Maintain space at min. 70° F. for 48 hours prior to installation. Cure concrete min. 28 days and until dry. Maintain 70° F. temperature during and until 48 hours after installation.
- C. Installation: Comply with manufacturer's installation directions and other requirements indicated.
  - 1. Lay tiles in basket weave pattern with grain direction alternating between reversed in adjacent tiles.
  - 2. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room are of equal width. Adjust as necessary to avoid use of cut widths less than 3" at perimeter. Lay tile square to room axis, unless otherwise shown.
- D. Cleaning: Clean resilient tile floors after installation.
  - 1. Remove exposed adhesive and blemishes using neutral type cleaners as recommended by manufacturer. Protect installed materials from damage by construction traffic.

**END OF SECTION 09660**

## SECTION 09666 - VINYL FLOOR COVERINGS

### Related Documents

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

### 1.1 General

- A. Summary: This Section includes vinyl floor coverings.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual sections of vinyl floor coverings showing full range of colors and patterns available for each different product indicated.
  - 2. Maintenance data for vinyl floor coverings, to include in the Operating & Maintenance Manual specified in Division 1.
- C. Quality Assurance:
  - 1. Single-Source Responsibility for Vinyl Floor Coverings: Obtain each type, color, and pattern of sheet vinyl floor covering from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Delivery, Storage, & Handling:
  - 1. Deliver vinyl floor coverings and installation accessories to Project site in original manufacturer's unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
  - 2. Store flooring materials in dry spaces protected from the weather with ambient temperatures maintained between 50° F. (10° C.) and 90° F. (32° C.).
  - 3. Move vinyl floor coverings and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.
- E. Project Conditions: Maintain a minimum temperature of 70° F. (21° C.) in spaces to receive sheet vinyl floor coverings for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55° F. (13° C.).
  - 1. Do not install vinyl floor coverings until they are at the same temperature as the space where they are to be installed.
  - 2. Close spaces to traffic while installing vinyl floor covering.
- F. Sequencing & Scheduling:
  - 1. Install vinyl floor coverings and accessories after other finishing operations, including painting, have been completed.
  - 2. Do not install vinyl floor coverings over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by floor covering manufacturer's recommended bond and moisture test.

### 1.2 Products

- A. Manufacturers: Subject to compliance with requirements, vinyl floor coverings that may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheet at end of this Section.

## SECTION 09666 - VINYL FLOOR COVERINGS

### 1.2 Products

#### B. Sheet Vinyl Floor Coverings:

1. Type I Unbacked Sheet Vinyl Floor Coverings: Products complying with ASTM F 1303, Type I, except for backing requirements, and with requirements specified in Type I Unbacked Sheet Vinyl Floor Covering Product Data Sheet at end of this Section.

#### C. Installation Accessories:

1. Primer: Non-staining type as recommended by flooring manufacturer.
2. Trowelable Underlayments & Patching Compounds: Latex-modified, Portland-cement-based formulation provided or approved by floor covering manufacturer for applications indicated.
3. Adhesives (Cements): Water-resistant, stabilized type as recommended by manufacturer to suit vinyl floor covering products and substrate conditions indicated.
4. Seam Sealer: Formulation provided or approved by floor covering manufacturer for products indicated.

### 1.3 Execution

#### A. Examination:

1. Examine areas where installation of vinyl floor coverings will occur, with Installer present, to verify that substrates and conditions are satisfactory for installation and comply with floor covering manufacturer's requirements and those specified in this Section.
2. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - a. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by floor covering manufacturer.
  - b. Finishes of subfloors comply with tolerances and other requirements specified in Division 3, Section 03300 "Cast-in-Place Concrete" for slabs receiving resilient flooring.
  - c. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.
3. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### B. Preparation:

1. Comply with manufacturer's installation specifications to prepare substrates indicated to receive vinyl floor coverings.
2. Use trowelable leveling and patching compounds per floor covering manufacturer's direction to fill cracks, holes, and depressions in substrates.
3. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
4. Broom or vacuum clean substrates to be covered by sheet vinyl floor coverings immediately before installation. Following cleaning, examine substrates to determine if there is visually any evidence of moisture, alkaline salts, carbonation, or dust.
5. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply according to manufacturer's directions.

#### C. Installation:

1. Comply with vinyl floor covering manufacturer's installation instructions and other requirements indicated that are applicable to each type of floor covering installation included in Project.

## SECTION 09666 - VINYL FLOOR COVERINGS

### 1.3 Execution

- C. 2. Lay out vinyl floor coverings to comply with the following requirements:
    - a. Maintain uniformity of vinyl floor covering direction.
    - b. Arrange for a minimum number of seams for sheet vinyl flooring and place them in inconspicuous and low traffic areas, but in no case less than 6" away from parallel joints in flooring substrates.
    - c. Match edges of resilient floor coverings for color shading and pattern at seams.
    - d. Avoid cross seams.
  3. Where demountable partitions and other items are indicated for installing on top of finished floor covering, install floor covering before these items are installed.
  4. Scribe, cut, and fit vinyl floor coverings to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture, including cabinets, pipes, outlets, edgings, thresholds, and nosings.
  5. Extend vinyl floor coverings into toe spaces, door reveals, closets, and similar openings.
  6. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent marking device.
  7. Adhere vinyl floor coverings to flooring substrates by method approved by floor covering manufacturer.
    - a. Produce completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections.
    - b. Comply with floor covering manufacturer's directions including those for trowel notching, adhesive mixing, and adhesive open and working times.
  8. Hand roll sheet vinyl floor coverings in both directions from center out to embed floor coverings in adhesive and eliminate trapped air. At walls, door casings, and other locations where access by roller impractical, press floor coverings firmly in place with flat-bladed instrument.
- D. Cleaning & Protection: Perform the following operations immediately after installing vinyl floor coverings:
1. Cleaning:
    - a. Remove visible adhesive and other surface blemishes using cleaner recommended by floor covering manufacturers.
    - b. Sweep or vacuum floor thoroughly.
    - c. Do not wash floor until after period recommended by floor covering manufacturer.
    - d. Damp-mop floor to remove black marks and soil.
    - e. Clean vinyl floor coverings by method recommended by manufacturer.
  2. Protection:
    - a. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by floor covering manufacturer.
    - b. Do not move heavy and sharp objects directly over vinyl floor coverings. Place plywood or hardboard panels over floor coverings and under objects while they are being moved. Slide or roll objects over panels without moving panels.

## **SECTION 09666 - VINYL FLOOR COVERINGS**

### **1.4 Product Data Sheet**

Sheet Vinyl Products (or equal): Tarkett Custom Pro; direct glue at main level; floating application at upper level.

Locations: Apartment unit bathrooms.

Warranty: 7-year limited residential warranty.

Wear Layer: Vinyl.

Wear Layer Thickness: 10 mil

Sheet Width: 12'

Color & Pattern: As selected by Architect from manufacturer's full range of colors and patterns.

Luxury Vinyl Products (or equal): Mohawk Prospects 6" × 36" planks; glue-down installation.

Locations: Apartment and Community Room kitchens.

Warranty: 15-yr. limited residential warranty.

Wear Layer: 6 mil.

Thickness: 2 mm.

**END OF SECTION 09666**

**END OF SECTION 09666**

## **SECTION 09678 - RESILIENT WALL BASE**

### **Related Documents**

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

### **1.1 General**

- A. **Submittals:** In addition to product data submit samples in manufacturer's standard sizes of each different color of product specified.

### **1.2 Products**

- A. **Product (or equal):** Roppe.
- B. **Vinyl Wall Base:** Products complying with FS SS-W-40, Type II, straight style, 4" high, 0.080" thickness, coil lengths, job formed corners.
- C. **Adhesives:** Water-resistant type recommended by manufacturer to suit resilient flooring product and substrate conditions indicated.

### **1.3 Execution**

- A. **Preparation:** Comply with manufacturer's installation specifications to prepare substrates indicated to receive products specified in this Section.
- B. **Installation:** Install products specified in this Section using methods indicated according to manufacturer's installation directions.
  - 1. Apply resilient wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required. Install wall base in lengths as long as practicable.
  - 2. Tightly adhere wall base to substrate throughout length of each piece, with continuous contact of base with horizontal and vertical substrates.
  - 3. Form corners on job from straight pieces of maximum lengths possible.
  - 4. Place resilient accessories so they are butted to adjacent materials of type indicated and secure with adhesive. Install reducer strips at edges of flooring that otherwise would be exposed.
- C. **Cleaning:** Clean products specified in this Section after installation and 4 days prior to date scheduled for inspections intended to establish date of Substantial Completion. Apply protective polish according to resilient accessory manufacturer's directions.

**END OF SECTION 09678**

## SECTION 09680 - CARPET

### Related Documents

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

### 1.1 General

- A. Submittals: Submit Product Data for each type of carpet, carpet cushion, and the following:
  - 1. Samples of each type of carpet material required.
  - 2. Maintenance data for carpet and cushion.
  - 3. FHA- & HUD-approved: Meet standards set in Bulletin UM-44D.
  - 4. Minimum Critical Radiant Flux: All public and common use exit access areas shall meet the minimum critical radiant flux of not less than a Class II level (CPSC16 CFR Part 1630 or ASMT D2858) pursuant to IBC Section 804.4 for interior floor finishes.
- B. Project Conditions: Comply with CRI 104, Section 6: "Site Conditions."
- C. Subfloor Moisture Conditions: Moisture emission rate of not more than 3 lb/1000 sq. ft./24 hours (14.6 kg/1000 sq. m/24 hours) when tested by calcium chloride moisture test in compliance with CRI 104, 6.2.1, with subfloor temperatures not less than 55° F (12.7° C).
- D. Subfloor Alkalinity Conditions: A pH range of 5 to 9 when subfloor is wetted with potable water and pHydron paper is applied.
- E. Surplus Materials: Allow the Owner to inspect and select from scrap carpet remaining after the installation is complete.

### 1.2 Products

- A. Carpet Type:
  - 1. Units: Mohawk Aladdin CK120 "Broadway Plaza" Cut Pile (or equal).
    - a. Labeled Face Weight: 25.0 oz.
    - b. Fiber: Everstrand with Scotch Guard
    - c. Wear Warranty: 10 year quality assurance warranty.
    - d. Width: 12'.
    - e. Pad: 6 lb.
  - 2. Public Areas (Hallways, Stairs, Upper Level Storage): Mohawk Aladdin "Ruminate" 22-oz. commercial carpet, pad at stairs only - remainder to be glued direct.
- B. Concrete-Slab Primer: Non-staining type as recommended by the carpet manufacturer.
- C. Trowelable Underlayments and Patching Compounds: As recommended by the carpet manufacturer.
- D. Adhesives: Water-resistant, mildew-resistant, non-staining type to suit products and subfloor conditions indicated and to comply with flammability requirements for installed carpet as recommended by the carpet manufacturer.
- E. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- F. Transition Strips: Provide metal transition strips at carpet/vinyl locations.

## SECTION 09680 - CARPET

### 1.3 Execution

- A. Verify that subfloors and conditions are satisfactory for carpet installation and comply with requirements specified in this Section and those of the carpet manufacturer.
- B. Level subfloor within  $\frac{1}{4}$ " in 10' (6 mm in 3 m), noncumulative, in all directions.
  - 1. Use leveling and patching compounds to fill cracks, holes, and depressions in subfloor as recommended by the carpet manufacturer.
- C. Remove subfloor coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone.
- D. Broom or vacuum clean subfloors to be covered with carpet. Following cleaning, examine subfloors for moisture, alkaline salts, carbonation, or dust.
- E. Concrete-Subfloor Preparation: Apply concrete-slab primer, according to manufacturer's directions, where recommended by the carpet manufacturer.
- F. Comply with carpet manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
- G. Install pattern parallel to walls.
- H. Vacuum carpet using commercial machine with face-beater element.
- I. Protection: Comply with CRI 104, Section 15: "Protection of Indoor Installation."

**END OF SECTION 09680**

## SECTION 09900 - PAINTING

### Related Documents

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

#### 1.1 General

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.
  - 1. Surface preparation, priming, and finish coats specified are in addition to shop-priming and surface treatments.
- B. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
  - 1. Do not paint over Underwriters Laboratories, Factory Mutual, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- C. Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- D. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45° F (7° C). Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.
- E. Do not apply paint in snow, rain, fog, or mist, or when the relative humidity exceeds 85 percent, or at temperatures less than 5° F (3° C) above the dew point, or to damp or wet surfaces.
- F. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50° F (10° C) and 90° F (32° C).
- G. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45° F (7° C) and 95° F (35° C).

#### 1.2 Products

- A. Available Manufacturer (or approved equivalent):
  - 1. Benjamin Moore.
  - 2. Glidden.
  - 3. Fuller O'Brien.
- B. Paint Materials, General: Provide primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer, based on testing and field experience.
- C. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

#### 1.3 Execution

- A. Examination: Examine substrates and conditions under which painting will be performed for compliance with requirements. Do not begin application until unsatisfactory conditions have been corrected.
- B. Preparation: Provide surface-applied protection for items already installed that are not to be painted prior to surface preparation and painting.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.
  - 1. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

## SECTION 09900 - PAINTING

### 1.3 Execution

- C. 2. Ferrous Metals: Clean non-galvanized ferrous-metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substances.
- D. Application: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  - 1. The term exposed surfaces includes areas visible when permanent or built-in fixtures are in place. Extend coatings in these areas to maintain system integrity and provide desired protection.
  - 2. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
- E. Prime Coats: Before applying finish coats, apply a prime coat to material to be painted or finished that has not been prime-coated by others.
- F. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.
- G. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
  - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
- H. Protection: Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- I. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.
- J. Paint Schedule: Provide the following paint systems for the various substrates indicated:

### 1.4 Schedule

<b>Exterior Paint</b>	Exterior Doors (with factory-prime finish): 2 coats satin latex enamel paint.
<b>Interior Paint</b>	Gypsum Board Walls: <ul style="list-style-type: none"><li>A. 1 coat primer.</li><li>B. Spray-applied and back-rolled, 2 coats eggshell, color Cypress White.</li></ul> Gypsum Board Ceilings: <ul style="list-style-type: none"><li>A. Orange peel texture ceilings to have flat White ceiling paint.</li></ul> Hollow Metal Frames (Elevator Doors only): <ul style="list-style-type: none"><li>A. Paint to match unit entry door frames.</li></ul>

**END OF SECTION 09900**

## **SECTION 10305 – MANUFACTURED FIREPLACE**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide direct vent gas fireplace unit at Community Room along with other materials not specifically described but required for a complete and proper installation.
- B. **Submittals:** In accordance with Division 1, Section 01300 "Submittals", provide the following:
  - 1. Shop drawings.
  - 2. Product data for each type of product and process specified in this Section.
- C. **Quality Assurance:** Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- D. **Delivery, Storage, & Handling:** Ship sign materials including attachment devices carefully packaged to prevent surface damage. Include shop drawings to insure correct installation and arrangement of all materials.
- E. **Related Sections:**
  - 1. Section 02685 "Gas Piping."
  - 2. Section 06200 "Finish Carpentry."
  - 3. Section 09300 "Tile."
  - 4. Section 16400 "Electrical Distribution."

### **1.2 Products**

- A. **Fireplace:** Napoleon Ascent™ B35 direct vent gas fireplace.

### **1.3 Execution**

- A. **Surface Conditions:** Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. **Installation:** Install fireplace components in accordance with UL standards and manufacturer's instructions.
- C. **Secure the fireplace unit in place, plumb and level.**

**END OF SECTION 10305**

## SECTION 10440 - SIGNS

### Related Documents

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

### 1.1 General

- A. Summary:
1. Provide interior sign work as shown and as specified. Comply with applicable provisions of Division 1.
  2. Exterior: "Stair shaftway" signs only, as specified below. All other exterior building signage is by Owner.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals", provide the following:
1. Shop Drawings: Submit shop drawings, product data sheets, and schedules. Indicate type of sign, materials, dimensions, colors, graphics, and method of attachment.
  2. Color Charts: Submit chart of color combinations for selection by Architect.
- C. Regulatory Requirements: Signs shall comply with the Americans with Disabilities Act (ADA) of 1990.
1. Required tactile signage will be designed and installed in accordance with 2015 Minnesota Accessibility Code at each of the unit entry doors, all common/public use spaces, and at exit stair identification signage per code. Required tactile signage shall include braille.
  2. Wall-mounted placard style "EXIT" signs must be installed at the corridor side of each of the exit stair enclosures at each floor level. Each placard sign shall include braille and must be installed with required reach ranges at the floor.
- D. Delivery, Storage, & Handling: Ship sign materials including attachment devices carefully packaged to prevent surface damage. Include shop drawings to insure correct installation and arrangement of all materials.

### 1.2 Products

- A. Signs, General:
1. Signs which designate permanent rooms and spaces shall meet the following general requirements:
    - a. Characters shall be raised  $\frac{1}{32}$ " and shall be accompanied with Grade 2 braille.
    - b. Raised characters shall be of height designated or shown, but not less than  $\frac{5}{8}$ " (16 mm), nor more than 2" (50 mm).
    - c. Pictograms, where designated, shall be accompanied by equivalent verbal description placed directly below pictogram. Border dimension of pictogram shall be 6" (152 mm) minimum in height.
  2. Signs which provide direction to, or information about, functional spaces shall meet the following general requirements:
    - a. Characters on signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.
    - b. Characters for signs that are suspended or projected overhead shall be of height designated or shown, but not less than 3" (75 mm).
  3. All signs shall meet the following general requirements:
    - a. Characters and background signs shall be eggshell, matte, or other non-glare finish.
    - b. Characters shall contrast with their background - either light characters on a dark background or dark characters on a light background.

## SECTION 10440 - SIGNS

### 1.2 Products

- A. 4. Where specific text height and sign size requirements are specified below, those specific requirements shall govern over these general requirements.
- B. Acrylic Signs:
  - 1. Machine-cut copy characters and symbols from matte-finish opaque acrylic sheet and chemically weld onto the opaque acrylic sheet forming sign panel face. Produce precisely formed characters with square cut edges free from burrs and cut marks.
  - 2. Copy only signs shall be as detailed.
  - 3. Pictogram/copy signs shall be 6" × 8" with square corners with Helvetica medium, upper case characters. Provide international symbol of accessibility, graphics, and directional arrows as shown and/or as scheduled.
- C. Relief Engraved Signs:
  - 1. Signs shall consist of 1/8" thick laminated plastic engraving stock with letters and symbols raised on a contrasting color incised background.
  - 2. Copy only signs shall be as detailed.
  - 3. Pictogram/copy signs shall be 6" × 8" with square corners with Helvetica medium, upper case characters. Provide international symbol of accessibility, graphics, and directional arrows as shown and/or as scheduled.
  - 4. Attachment Devices: Provide continuous double faced vinyl tape around entire perimeter for all signs designated.

### 1.3 Execution

- A. Installation:
  - 1. Install signs in accordance with shop drawings and manufacturer's recommendations.
  - 2. Mounting heights and locations shall comply with ADA requirements.

### 1.4 Schedule

To be determined.

**END OF SECTION 10440**

## SECTION 10522 - FIRE EXTINGUISHERS & CABINETS

### Related Documents

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

### 1.1 General

- A. Summary: Provide fire extinguishers and cabinets as shown and as specified. Comply with applicable provisions of Division 1.
- B. Submittals: In accordance with Division 1, Section 01300 "Submittals", submit the following:
  - 1. Product Data: Submit manufacturer's data and installation instructions for the products specified.

### 1.2 Products

- A. Acceptable Manufacturers: Subject to compliance with specified requirements, provide fire extinguishers and cabinets by one of the following manufacturers (or approved equal):
  - 1. J.L. Industries.
  - 2. Larsen's Mfg. Co.
  - 3. Modern Metal Products, Div. of Technico.
  - 4. Potter-Roemer.
  - 5. Walter Kidde.
- B. Fire Extinguishers:
  - 1. Provide fire extinguishers for each extinguisher cabinet and other locations as shown. Provide new fire extinguishers approved and labeled by Underwriters' Laboratories.
  - 2. Provide manufacturer's standard wall mounting brackets with bottom support for extinguishers not located in cabinets.
  - 3. Fill and service extinguishers as required.
  - 4. Provide the following fire extinguisher type: ABC Dry Chemical: 10 lb. capacity, enameled steel container with pressure indicating gauge, for Class A, B, and C fires.
- C. Fire Extinguisher Cabinets:
  - 1. Cabinets must be fire-rated.
  - 2. Provide cabinets suitable for housing extinguishers specified above. Cabinets shall be manufacturer's standard steel box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.
  - 3. Provide cabinet and trim of the following type: Semi-recessed for wall installation.
  - 4. Provide cabinets fabricated of following minimum steel gauges:
    - a. Box: 20 gauge.
    - b. Trim Frame: 18 gauge.
    - c. Tubular Door Perimeter Frame: 20 gauge.
    - d. Door Panel: 16 gauge.
  - 5. Provide doors of the following type: Bubble type, one-piece molded clear 1/8" acrylic, with catch.
  - 6. Provide continuous type hinge permitting door to open 180 degrees. Provide either lever handle with cam action latch, or door pull and friction latch.
  - 7. Provide white baked enamel interior and exterior finish.

## **SECTION 10522 - FIRE EXTINGUISHERS & CABINETS**

### **1.3 Execution**

- A. Inspection: Examine conditions under which products are to be installed; notify in writing of conditions detrimental to proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Installation:
  - 1. Install extinguishers and cabinets in locations shown.
  - 2. Mount top of surface-mounted cabinets at 46" above floor. For recessed cabinets, make top of wall opening at 48" above floor.
  - 3. Prepare recesses in walls as required. Securely fasten to structure, square and plumb, in accordance with manufacturer's instructions.

**END OF SECTION 10522**

## **SECTION 10550 - POSTAL SPECIALTIES**

### **Related Documents**

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

### **1.1 General**

- A. Summary: Provide postal specialties as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

### **1.2 Products**

- A. Type: Wall-mounted front-loading style.
- B. Verify that items provided under this Section comply with postal regulations.
- C. Finish: Manufacturer's standard selection.
- D. Provide other materials not specifically described but required for a complete and proper installation.

### **1.3 Execution**

- A. Examination: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Installation:
  - 1. Coordinate, as required, with other trades to assure proper and adequate provision for the installation of the products of this Section.
  - 2. Install the work of this Section in strict accordance with the Drawings and pertinent requirements of postal authorities. Anchor all components firmly into position, level and plumb.

**END OF SECTION 10550**

## SECTION 10800 - TOILET & BATH ACCESSORIES

### Related Documents

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

### 1.1 General

- A. Summary: Provide toilet and bath accessories complete in place with finish hardware as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

### 1.2 Products

- A. Materials, General: Fabricate toilet accessory items from the following materials and according to requirements specified for individual accessory items:
  - 1. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034" (22-gage) minimum thickness, unless otherwise indicated.
  - 2. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
  - 3. Mirror Glass: Nominal 6.0-mm (0.23") thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating.
  - 4. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
  - 5. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.
- B. Toilet Accessories (or equal):
  - 1. Paper Towel Dispenser: Surface mount. Locate at each public lavatory.
  - 2. Paper Holder: Surface mount. Provide one at each water closet.
  - 3. Towel Bar: Surface mount. Provide one at each unit bathroom.
  - 4. Shower Curtain Rod: Surface mount. Provide one at each bathbay.
- C. Handicap Grab Bars: Refer to Division 15, Section 15400 "Plumbing."
- D. Mirrors: ¼" plate glass, ground edges with metal mounting clips and screws (typical). Install where shown of sizes as noted on Plans.
- E. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

### 1.3 Execution

- A. Installation: Install toilet accessory units according to manufacturers' printed installation instructions, using fasteners appropriate to substrate as recommended by unit manufacturer.
  - 1. Install units plumb and level, firmly anchored in locations and at heights indicated.
  - 2. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved.
  - 3. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
  - 4. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

**END OF SECTION 10800**

## **SECTION 11450 - APPLIANCES**

### **Related Documents**

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

### **1.1 General**

- A. Summary: Provide residential equipment as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

### **1.2 Products**

- A. Approved Manufacturer (or equal): Whirlpool, color as selected by Owner.
- B. Products:
  - 1. Refrigerator (Standard Units & Community Room): 18 cu.ft.
  - 2. Refrigerator (ADA compliant): 19 cu.ft.
  - 3. Range (Standard Units): 30" electric w/cord, self-cleaning oven
  - 4. Range (ADA compliant): 30" built-in w/cord
  - 5. Dishwasher (Standard Units): 24"
  - 6. Dishwasher (ADA compliant): 24"
  - 7. Range Hood: 30" non-vented
  - 8. In-Unit Laundry:
    - a. Top-load washer in each unit; front-load washer meeting ADA requirements in Type A unit(s).
    - b. Dryer: Electric.

### **1.3 Execution**

- A. Surface Conditions:
  - 1. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
  - 2. Verify that all openings and utility services are ready to receive work and opening dimensions are in accordance with the manufacturer's instructions.
- B. Installation:
  - 1. Install equipment in accordance with the manufacturer's instructions.
  - 2. Set and adjust units level and plumb.
  - 3. Activate units to conform proper operation.
  - 4. Turn refrigerator on and set to moderate temperature.
  - 5. Promptly remove from the job site all cartons and packing material associated with the work of this Section.

**END OF SECTION 11450**

## SECTION 12511 - HORIZONTAL LOUVER BLINDS

### Related Documents

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

### 1.1 General

- A. Summary: Provide Venetian blinds as specified herein and as needed for a complete and proper installation. Refer to Window Schedule on Drawings.
- B. Related Section: Section 06100 "Miscellaneous Carpentry" for wood blocking.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of horizontal louver blind specified. Include printed data on physical characteristics.
  - 2. Shop drawings showing location and extent of blinds. Show installation details at and relationship to adjoining work. Include elevations indicating blind units. Indicate location of blind controls.
  - 3. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors, textures, and patterns available for each type of horizontal louver blind indicated.
  - 4. Samples for verification in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare samples from the same material to be used for the Work.
  - 5. Schedule of horizontal louver blinds using same room designations indicated on the Drawings.
  - 6. Maintenance data for horizontal louver blinds to include in the operation and maintenance manual specified in Division 1. Include the following:
    - a. Methods for maintaining horizontal louver blinds and finishes.
    - b. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.
- D. Quality Assurance:
  - 1. Fire-Test-Response Characteristics: Provide horizontal louver blinds identical to those tested for the following fire-test-response characteristics as determined by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
    - a. Test Method: NFPA 701.
    - b. Rating: Pass.
- E. Project Conditions:
  - 1. Field Measurements: Check actual horizontal louver blind dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 2. Space Enclosure and Environmental Limitations: Do not install horizontal louver blinds until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

### 1.2 Products

- A. Approved Manufacturer (or equal): Graber.
- B. Horizontal Louver Blinds: Customizer 1" metal blinds.
  - 1. Tilt Operation: Manual with wand or cord.
  - 2. Length of Tilt Control: Full length of blind.

## SECTION 12511 - HORIZONTAL LOUVER BLINDS

### 1.2 Products

- B. 3. Position of Tilt Control: Left side, unless otherwise indicated.
- 4. Cord-Lock Operation: Cord lock; locks pull cord to stop blind at any position in ascending or descending travel.
- 5. Cord-Lock Operation: Top-locking cord lock; locks pull cord to stop blind in either fully opened or fully closed position only and is equipped with a ring pull not more than 10" (250 mm) long.
  - a. Position of Cord Lock: Right side, unless otherwise indicated.
- 6. Cord Equalizers: Self-aligning to maintain horizontal louver blind position.
- 7. Mounting: As indicated.
- 8. Colors and Patterns: Where manufacturer's standard products are indicated, provide horizontal louvers complying with the following requirements:
  - a. Match colors and patterns indicated by referencing manufacturer's standard designations for these characteristics.
  - b. Provide Architect's selections from manufacturer's full range of colors and patterns for horizontal louver blinds of type indicated.
- C. Fabrication:
  - 1. Product Standard and Description: Comply with AWCMA Document 1029 for each horizontal louver blind unit consisting of louvers, rails, cord locks, tilting mechanisms, tapes, and installation hardware.
  - 2. Lifting and Tilting Mechanisms: Non-corrosive, self-lubricating materials.
  - 3. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74° F. (23° C.):
    - a. Blind Units Installed Between (inside) Jamb: Width equal to ¼" (6 mm) per side or ½" (12 mm) total, plus or minus ⅛" (3 mm), less than jamb-to-jamb dimension of opening in which each blind is installed. Length equal to ¼" (6 mm), plus or minus ⅛" (3 mm), less than head-to-sill dimension of opening in which each blind is installed.
  - 4. Fasteners: As recommended by manufacturer.

### 1.3 Execution

- A. Examination: Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of horizontal louver blinds. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Installation: Install blinds level, plumb, and located so exterior louver edges in any position are not closer than 1" (25 mm) to interior face of glass lites.
  - 1. Jamb-Mounted: Install headrail flush with face of opening jamb and head.
- C. Adjusting: Adjust components and accessories for proper operation.
- D. Cleaning:
  - 1. Clean blind surfaces, according to manufacturer's instructions, after installation.
  - 2. Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.
- E. Protection: Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensure that horizontal louver blinds are without damage or deterioration at the time of Substantial Completion.

**END OF SECTION 12511**

## **SECTION 15325 - STANDPIPE & SPRINKLER SYSTEMS**

### **Related Documents**

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

### **1.1 General**

- A. Provide design and installation for wet-pipe and dry-pipe sprinkler systems as specified herein and as needed for a complete and proper installation.
- B. **Quality Assurance:**
  - 1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  - 2. Upon completion of water line sterilization, deliver to the Owner two copies of an acceptable Certificate of Performance for that activity.
- C. **Submittals:** In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Shop drawings.
  - 3. Construction documents for complete wet-pipe and dry-pipe sprinkler systems.
  - 4. Construction specifications for complete wet-pipe and dry-pipe sprinkler systems. Note: Specifications should include, but are not limited to, the items listed in 1.3 Execution as follows:

### **1.2 Products**

As specified by Sprinkler System Contractor.

### **1.3 Execution**

- A. **Surface Conditions:** Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. **Sprinkler System Layout:** Lay out the sprinkler system in careful coordination with the Drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system.

**END OF SECTION 15325**

## **SECTION 15400 - PLUMBING**

### **Related Documents**

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

### **1.1 General**

- A. Provide plumbing design and installation as specified herein and as needed for a complete and proper installation including, but not limited to:
  - 1. Domestic hot and cold water piping systems;
  - 2. Drain, waste, and vent systems;
  - 3. Gas piping system;
  - 4. Plumbing fixtures and trim as shown on the Drawings and Plumbing Fixture Schedule.
- B. Quality Assurance:
  - 1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  - 2. Upon completion of water line sterilization, deliver to the Owner two copies of an acceptable Certificate of Performance for that activity.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Shop drawings.
  - 3. Construction documents for complete plumbing supply/drain system.
  - 4. Construction specifications for complete plumbing supply/drain system. Note: Specifications should include, but are not limited to, the items listed in 1.2 Products and 1.3 Execution as follows:

### **1.2 Products**

- A. Sanitary Sewer Piping, Buried Beyond Building:
  - 1. PVC Pipe: ASTM D3033 or D3034, SDR35, with elastomeric gaskets.
- B. Sanitary Sewer Piping, Within Building:
  - 1. PVC Pipe: ASTM D2729, solvent weld joints.
- C. Water Piping, Buried Beyond Building:
  - 1. PVC Pipe: ASTM D1785, Schedule 40, or ASTM D2241, minimum 150 psig pressure rating, solvent weld joints.
- D. Water Piping, Buried Under Building:
  - 1. Copper Tubing: ASTM B88, type 1 annealed with wrought copper fittings and Grade 95TA solder joints.
- E. Water Piping, Above Grade:
  - 1. Copper Tubing: ASTM B88, type M, hard drawn, with cast brass or wrought copper fittings and Grade 95TA solder joints and/or Wirsbo Aqua-Pex.
- F. Natural Gas Piping, Buried:
  - 1. L Copper: Soft.
- G. Natural Gas Piping, Above Grade:
  - 1. Steel Pipe: ASTM A53 or A120, Schedule 40 black, with malleable iron or forged steel fittings, screwed or welded.

## **SECTION 15400 - PLUMBING**

### **1.2 Products**

#### **H. Valves:**

1. Gate Valves: Bronze body, non-rising stem and handwheel, inside screw, single wedge or disc, solder or threaded ends.
2. Relief Valves: Bronze body, Teflon seat, steel stem and springs, automatic, direct-pressure actuated, capacities ASME certified and labeled.

### **1.3 Execution**

- A. Surface Conditions: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Plumbing System Layout:
  1. Lay out the plumbing system in careful coordination with the Drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system.
  2. Follow the general layout shown on the Drawings in all cases except where other work may interfere.
  3. Lay out pipes to fall within partition, wall or roof cavities and to not require furring other than as shown on the Drawings.
- C. Preparation:
  1. Ream pipe and tube ends. Remove burrs. Remove scale and dirt on inside and outside piping before assembly. Prepare piping connections to equipment with flanges or unions.
  2. Coordinate cutting or forming of roof or floor construction to receive drains to required invert elevations.
  3. Verify adjacent construction is ready to receive rough-in work of this Section.
- D. Installation:
  1. Install piping to conserve building space and not interfere with use of space.
  2. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
  3. Provide clearance for installation of insulation and access to valves and fittings.
  4. Slope water piping and arrange to drain at low points.
  5. Install each fixture with chrome-plated rigid or flexible supplies with screwdriver stops, reducers, escutcheons.
- E. Service Connections:
  1. Provide connection to city sewer services.
  2. Provide connection to city water supply system.
  3. Provide connection to gas service complete with gas meter and regulators.

### **1.4 Fixture Schedule**

To be provided by Plumbing Contractor on Plumbing Drawings.

**END OF SECTION 15400**

## SECTION 15500 - HEATING, VENTILATING, & AIR CONDITIONING

### Related Documents

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

### 1.1 General

- A. Summary: Provide heating/ventilating system design and installation as specified herein and as needed for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Shop drawings.
  - 3. Construction documents for complete HVAC system.
  - 4. Construction specifications for complete HVAC system. Note: Specifications should include, but are not limited to, the items listed in 1.2 Products and 1.3 Execution as follows:

### 1.2 Products

- A. Ductwork:
  - 1. For exhaust systems and ventilating systems, use galvanized sheet metal ducts fabricated and installed in accordance with applicable ASHRAE and SMACNA standards.
  - 2. Size the ducts for pressure drop of 0.1" H<sub>2</sub>O per 100'.
- B. Flexible Duct:
  - 1. Use factory fabricated insulated low-pressure flexible duct with the following attributes:
    - a. Zinc-coated spring steel helix, with 1"-thick fiberglass insulation, sheathed in a seamless vapor barrier jacket.
    - b. Interior fire-resistive coated to prevent fiber erosion.
  - 2. Provide flexible duct in fully extended condition, free from sags and kinks. Use only the minimum length required to make the connection. Do not exceed 8' in length. Make joints and connections with ½" wide positive locking steel straps.
- C. Other Materials: Provide other materials not specifically described but required for a complete and proper installation as selected by the Contractor subject to the approval of the Owner.

### 1.3 Execution

- A. Surface Conditions: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Preparation:
  - 1. Flashing: Where items of this Section penetrate the roof, outer walls or waterproofing of any kind, provide all base flashing and counter flashing required.
- C. Testing and Adjustments:
  - 1. Test and adjust each piece of equipment and each system as required to assure proper balance and operation.
  - 2. Secure required permits and approvals from local governing authority.

**SECTION 15500 - HEATING, VENTILATING, & AIR CONDITIONING**

**1.4 Schedule**

To be provided by HVAC Contractor on HVAC Drawings.

**END OF SECTION 15500**

## SECTION 16400 - ELECTRICAL DISTRIBUTION

### Related Documents

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

### 1.1 General

- A. Summary: Provide complete electrical and telephone service design and installation as specified herein and as needed for a complete and proper installation.
- B. Quality Assurance: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Submittals: In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Shop drawings.
  - 3. Construction documents for complete electrical system.

### 1.2 Products

- A. General:
  - 1. Use only new materials of the type and quality specified. Where Underwriters' Laboratories, Inc. have established standards for such materials, use only materials bearing the UL label.
  - 2. Provide temporary power as described in Section 01500 of these Specifications. When permanent metering is in place and connected, the Owner will pay the costs for electrical power charged against the meter.
  - 3. Approved Manufacturers: Use manufacturers as listed (or equal).
  - 4. Provide accommodations for Voice-Over IP in all bedrooms and common rooms.
  - 5. All 1-Bedroom Units: Provide a total of five Category 5 cable home runs.
  - 6. All 2-Bedroom Units: Provide a total of seven Category 5 cable home runs.
- B. Telephone:
  - 1. Provide service entrance conduit only and mounting board.
  - 2. Provide outlets, terminal boards, and other items as required for a complete, approved, and operating telephone service.
- C. Cable Television:
  - 1. Provide service entrance conduit only and mounting board.
- D. Provide outlets, terminal boards, and other items as required for a complete, approved, and operating cable television service.
- E. Load Center:
  - 1. Manufacturers:
    - a. Square D, Product: QO.
    - b. Cutler Hammer.
  - 2. Main Distribution Panels: NEMA PB 1; circuit breaker type.
    - a. Provide surface cabinet front with screw cover and hinged door.
    - b. Bus: Copper.
    - c. Ground Bus: Copper.
- F. Wiring Devices and Wall Plates:
  - 1. Manufacturers:
    - a. Leviton.
    - b. P & S.
    - c. Hubbell.

## SECTION 16400 - ELECTRICAL DISTRIBUTION

### 1.2 Products

- F. 2. Wall Switch: AC general use, quiet operating snap switch rated 20 amperes and 120-277 volts AC, standard color.
- 3. Receptacle:
  - a. Provide straight blade receptacles to NEMA WD 1.
  - b. Convenience receptacle configuration: Type 5-20 R, plastic face, standard color.
  - c. Dishwasher outlet required in all dwelling units.
- 4. Specific Purpose Receptacles: Configuration as noted on the Drawings, black face.
- 5. Weatherproof Cover Plate: Gasketed cast metal with hinged gasketed device covers.
- G. Miscellaneous: Intercom system, fire alarm annunciator, 2-way communication system at Areas of Refuge.

### 1.3 Execution

- A. Surface Conditions: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Preparation:
  - 1. Make arrangements with the serving utility company to obtain permanent electric service to the Project.
  - 2. Verify that interior of the building has been physically protected from the weather.
  - 3. Coordinate as necessary with the other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section. Coordinate the installation of electrical items with the schedule for work of the other trades to prevent unnecessary delays in the total work.
  - 4. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, provide required supports and wiring to clear the encroachment.
  - 5. Where outlets are not specifically shown on the Drawings, locate as determined in the field by the Owner.
- C. Trenching and Backfilling:
  - 1. Perform trenching and backfilling operations required for the completion of the work of this Section in accordance with the provisions of Division 2, Section 02600 "Trench & Backfill/Surface Restoration" of these Specifications.
- D. Installation:
  - 1. Install utility services in accordance with utility company instructions.
  - 2. Install equipment in accordance with manufacturer's instructions.
  - 3. Provide grounding and bonding to NFPA 70.
  - 4. Neatly train and secure wiring inside boxes, equipment and panel boards.
  - 5. Support cables above accessible ceilings to prevent them from resting on ceiling tiles.
  - 6. Make splices, taps, and terminations to carry full ampacity of conductors without perceptible temperature rise.
  - 7. Terminate spare conductors with electrical tape.
  - 8. Install wiring devices in accordance with manufacturer's instructions.
  - 9. Install wall plates flush and level.
- E. Installation of Lighting Fixtures:
  - 1. Install lighting fixtures complete and ready for service as shown on the Drawings.
  - 2. Install all lighting fixtures so that the weight of the fixture is supported, either directly or indirectly, by a sound structural member.

## **SECTION 16400 - ELECTRICAL DISTRIBUTION**

### **1.3 Execution**

#### **F. Field Quality Control:**

1. Perform field testing and inspection as required by local governing authority.
2. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

### **1.4 Schedule**

Refer to Electrical Drawings.

**END OF SECTION 16400**

## **SECTION 16500 - LIGHTING**

### **Related Documents**

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

### **1.1 General**

- A. **Summary:** Provide interior and exterior lighting design and installation as specified herein and as needed for a complete and proper installation.
- B. **Quality Assurance:** Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. **Submittals:** In accordance with Division 1, Section 01300 "Submittals", submittals shall include the following:
  - 1. Product data for each type of product and process specified in this Section.
  - 2. Shop drawings.
  - 3. Construction documents for complete interior and exterior lighting.
  - 4. Photometric site plan conforming to City requirements.

### **1.2 Products**

- A. **Luminaires and Lampholders:**
  - 1. **Luminaire Schedule:** Product requirements for each luminaire and lampholder are specified in the Lighting Fixture Schedule at the end of this Section.
  - 2. Provide required accessories for mounting and operation of each luminaire.
- B. **Exit Signs:**
  - 1. **Manufacturers (or approved equal):**
    - a. Prescolite, Product: LED.
    - b. Dual Light.
  - 2. **Description:** Exit sign fixture; manufacturer's standard lamp; 120 volts.
  - 3. **Emergency Power Supply:** Nickel-cadmium battery; dual type charger.

### **1.3 Execution**

- A. **Surface Conditions:** Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. **Installation:** Install luminaires and accessories in accordance with manufacturer's instructions.
- C. **Adjusting and Cleaning:**
  - 1. Align luminaires and clean lenses and diffusers.
  - 2. Aim adjustable luminaires as directed by the Owner.

### **1.4 Schedule**

Refer to Electrical Drawings.

**END OF SECTION 16500**