

**TREMÉ / LAFITTE AND  
TULANE / GRAVIER  
HOMEBUILDING PLAN**

NEW ORLEANS, LOUISIANA

ISSUE FOR PERMIT  
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## **SECTION 00700 - GENERAL CONDITIONS**

### **PART 1-GENERAL**

- 1.1 The General Conditions of this contract is the American Institute of Architect's AIA Document A201-1997 Edition, 14 Articles, 44 pages, which is made a part of the Contracts Document with the same force and effect as though set forth in full.
- 1.2 The Contractor is hereby specifically directed, as a condition of the Contract, to obtain the necessary number of copies of the AIA document A201, to acquaint himself with the Articles contained therein, and to notify and apprise all subcontractors and any other parties to the Contract or individuals or agencies engaged on the work as to its contents.
- 1.3 No contractual adjustments shall be due or become exigent as a result of failure on the part of the Contractor to fully acquaint himself with the conditions of AIA Document A201.
- 1.4 The provisions of the Agreement, the General Conditions and the Supplementary Conditions of the Contract, and Division 1- General Requirements apply to the work specified in each section of the Project Manual.

**PART 2-PRODUCTS-NOT USED.**

**PART 3-EXECUTION-NOT USED.**

**END OF SECTION**



SECTION 01410 - TESTING LABORATORY SERVICES - (BUILDING FOUNDATION)

PART 1 - GENERAL

11. RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Provisions and Division 1 Specification sections, apply to the work specified in this section.

21. SELECTION AND PAYMENT

- A. The Owner will select and pay for an independent Testing Laboratory of recognized standing for all testing hereinafter specified and/or required in the Contract Documents.

31. RESPONSIBILITY OF CONTRACTOR

- A. Employment of the Laboratory in no way relieves the Contractor of responsibility to furnish materials and construction in full conformance with the Contract Documents. Excluding written protests by the Contractor in advance, processing or use of materials shall be understood as constituting full acceptance and approval by the Contractor of materials as suitable for the intended purpose.

41. COOPERATION OF CONTRACTOR

- A. The Contractor shall cooperate with the Laboratory as follows:
  - 1. Make available, without cost, samples of all materials to be tested in accordance with applicable standard Specifications.
  - 2. Furnish such nominal labor and sheltered working space as is necessary to obtain samples at the project.
  - 3. Advise the Laboratory of the identity of material sources and instruct the suppliers to allow tests or inspections by the Laboratory.
  - 4. Notify the Laboratory sufficiently in advance of operations to allow for completion of initial tests and assignment of inspection personnel.

51. REJECTION OF MATERIALS

- A. The Laboratory shall notify the Contractor, or his authorized representative, of any materials or work which are not in full conformance with the Contract Documents and the Architect shall be informed of such notification. Such nonconforming items shall not be incorporated in the finished work unless

changed or corrected.

- B. The Contractor shall pay the Testing Laboratory costs for all tests which indicate non-conformance with the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

13. TEST METHODS

- A. Tests and inspections shall be conducted in accordance with the requirements of the Contract Documents or, if not specified therein, in accordance with the latest standards of ASTM, ACI, or other recognized authorities.

23. TEST REPORTS

- A. The Laboratory shall promptly submit written reports of each test and inspection to the Architect, Engineer, Owner, Contractor, suppliers of tested products, and to such other parties the Architect may specify.

33. ADDITIONAL TESTS

- A. The Owner reserves the right to require additional tests to those specified or upon materials not already specified for testing. If such tests disclose noncompliance with the Contract requirements, the Owner reserves the right to require additional tests at the expense of the Contractor.

43. DESCRIPTION OF LABORATORY SERVICES

- A. Concrete:
  - 1. Mix Design: In advance of concrete operations, materials proposed for use in concrete will be sampled and tested to determine their compliance with these Specifications. Mix proportions for each strength and type of concrete required shall be established by the Contractor and submitted to Laboratory. Laboratory shall review the designs for compliance with the specifications and shall submit a report to Engineer for his records.
  - 2. Job Inspection: A representative of the Laboratory at the site will check the mixing of the concrete and conduct all field tests, such as slump determinations, yield, and air content checks, cast test cylinders, and regulate the consistency of the concrete. This representative shall also check and report any substandard concreting operations observed while at the site.

3. Concrete Cylinders: For each day's pour of one hundred (100) cubic yards or fraction thereof, three (3) test cylinders shall be cast for each different strength of concrete placed. One (1) cylinder shall be tested and reported at seven (7) days and two (2) at twenty-eight (28) days, unless otherwise directed.
- B. Reinforcing Steel: Check for compliance with Specifications.
- C. Piling (when used):
1. Test Piles and Load Test: Laboratory shall inspect and log the placement of all test piles, and oversee the tests as selected by the Engineer and as described in Section 02350. The load test shall be conducted in compliance with the requirements of the International Building Code to determine the safe bearing capacity of the piles.
  2. Inspection: Perform inspections at source and at project site as specified in the Division 2 section for piling.
  3. Logging of Pile Driving: Log the driving of all piling and record the following:
    4. Date driven, type of hammer, pile description including actual tip, length and butt dimensions measured just prior to driving.
    5. Location of pile.
    6. Size and depth of predrill (if any).
    7. Number of blows per foot for full length of pile.
    8. Tip and butt elevation.
    9. Reporting: Submit records daily.

END OF SECTION 01410



## SECTION 02200 - EARTHWORK - BUILDING FOUNDATION)

### PART 1 - GENERAL

#### 11. RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Provisions and Division 1 Specification Sections, apply to this Section.

#### 21. SUMMARY

- A. Description: Perform the following as indicated on the Drawings and specified in this Section:
  - 1. Prepare subgrades for structures and pavements.
  - 2. Excavate, backfill and compact within building lines for pile caps (when used) and beams.
  - 3. Excavate, backfill and compact within building lines for under-slab mechanical and electrical work, including excavated areas and voids resulting from demolition and removal of existing buildings and utilities.

#### 31. DEFINITIONS

- A. Excavation: Removal of material to subgrade elevations indicated and subsequent disposal of materials removed.
- B. Unauthorized Excavation: Removal of materials beyond indicated dimensions and subgrade elevations without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at Contractor's expense.
  - 1. Under pile caps, grade beams, footings, foundation bases, or retaining walls, fill unauthorized excavation by extending bottom of concrete to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Engineer.
  - 2. In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.
- C. Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer, who will make an inspection of conditions. If Engineer determines that bearing materials at required subgrade elevations are unsuitable, continue excavation until suitable bearing materials are encountered and replace excavated material as directed by Engineer. The Contract Sum may be adjusted by an appropriate Contract Modification.

- D. Subgrade: The undisturbed earth or the compacted soil layer immediately below subsequent construction.

PART 2 - PRODUCTS

12. SOIL MATERIALS

- A. Backfill and Fill Materials: River sand free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter, and as follows:
  - 1. Hydraulically dredged Mississippi River Sugar Sand.
  - 2. Excavated material may be used subject to approval by Engineer.
- B. Unacceptable Materials:
  - 1. "Spillway" sand shall not be used for any purpose.
  - 2. Excavated material with clay, rock or gravel larger than 2 inches, debris, vegetation, and other deleterious matter.

PART 3 - EXECUTION

13. EXCAVATION

- A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction.
  - 1. Excavation is unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
  - 2. Slope sides of excavations, or shore and brace where sloping is not feasible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- B. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 1. For pile foundations, stop excavations from 6 inches to 12 inches above bottom of footing before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
- C. Dry Bottom: Where necessary due to unstable and wet soil conditions, provide a dry bottom under concrete construction, consisting of a 6" thick layer of gravel or crushed stone or a 4" thick unreinforced 1:3:5 mix concrete slab.

2 3.FILL AND BACKFILL

- A. Placement and Compaction: Place fill and backfill in maximum 8 inches loose

thickness layers and compact to at least the percentage density specified in paragraph COMPACTION.

1. Do not place backfill or fill material on surfaces that are muddy, frozen or contain frost or ice. Do not place backfill or fill material on unsound surface.
2. Place backfill and fill materials evenly adjacent to structures, to required elevations. Carry material uniformly around structures to approximately same elevation in each lift, to prevent wedging action against structure.

### 33. COMPACTION

- A. General: Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Engineer if soil density tests indicate inadequate compaction.
- B. Density Requirements: Compact each layer of fill and backfill to not less than the following percentages of maximum density, in accordance with ASTM D 698 (standard proctor).
  1. Under soil-bearing structures, compact top 8 inches of subgrade and each layer of backfill or fill material at 95 percent maximum density.
  2. Pile supported structures - Compact sufficiently to support structures until concrete design strength is reached.
- C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.
  1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
  2. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

END OF SECTION 02200



## **SECTION 02225 - DEMOLITION**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Selective demolition of built site elements.
- B. Abandonment and removal of existing utilities and utility structures.

#### **1.2 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
  - 1. Vegetation to be protected.
  - 2. Areas for temporary construction and field offices.
- C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
  - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
  - 2. Identify demolition firm and submit qualifications.
  - 3. Include a summary of safety procedures.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

### **PART 2 PRODUCTS -- NOT USED**

### **PART 3 EXECUTION**

#### **3.1 SCOPE**

- A. Remove paving and curbs as required to accomplish new work.
- B. Remove all other paving and curbs within site boundaries.
- C. Within area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade.
- D. Outside area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade.
- E. Remove concrete slabs on grade within site boundaries.
- F. Remove manholes and manhole covers, curb inlets and catch basins.
- G. Remove fences and gates.
- H. Remove other items indicated, for salvage, relocation, and recycling.
- I. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

#### **3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with other requirements specified in Section 01700.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.

1. Obtain required permits.
  2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  3. Provide, erect, and maintain temporary barriers and security devices.
  4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  5. Do not close or obstruct roadways or sidewalks without permit.
  6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
  7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from Owner.
- D. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
  2. Prevent movement or settlement of adjacent structures.
  3. Stop work immediately if adjacent structures appear to be in danger.
- E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

### 3.3 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

### 3.4 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.

- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**



SECTION 02300 - TIMBER TYPE PILING - (BUILDING FOUNDATION)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions and Division I - General Requirements, apply to the work specified in this section.

1.2 DESCRIPTION OF WORK

- A. The extent of piling work is indicated on the Drawings.
- B. This section includes the following type of piling:
  - 1. Treated timber piling, tip 6" and butt 8" minimum ASTM D25 quality, 45 feet long below existing grade.
- C. Related Work Specified Elsewhere:
  - 1. Testing Laboratory Services: Section 01410
  - 2. Earthwork: Section 02200

1.3 DAMAGE TO EXISTING PROPERTY

- A. Contractor shall investigate the existing adjacent buildings, sewers, and utilities and shall take proper and necessary precautions to protect same from damage due to the execution of the piling work. Should damage occur due to Contractor's negligence, the cost and responsibility for repairing and replacing the work in its original condition shall be born by the Contractor at no cost to the Owner.

1.4 TEST PILE PROGRAM

- A. Exploratory Piles: Contractor shall furnish and drive twenty (20) piles at directed by the Architect. Exploratory piles shall be a part of the permanent foundation and shall meet all requirements for piling as set forth in these specifications except that these piles shall be 45 feet long below existing grade with a 7" min.-6.5" max. diameter tip and 8" min.-8.5" max. diameter butt. Exploratory piles shall be driven prior to ordering permanent piles.
- B. Load Test: The Contractor shall load test three (3) exploratory piles. The load shall be applied by means of hydraulic jack acting directly on the head of the pile. All materials required for testing, with the exception of the hydraulic jack, shall be furnished and installed by the Contractor. The furnishing and installing of the hydraulic jack and the actual load testing will be performed by the independent testing laboratory. See Section 01410 - Testing Laboratory Services. Pile design load is 6 tons in compression, 4 tons in tension.

1. Load test piles to the yield point of the soil in accordance with the requirements of the International Building Code (Modified) 2006.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Piles: Southern Pine conforming to ASTM D 25 Specification.
- B. Creosote for brush treatment: Comply with Federal Specification TT-C-655.
- C. Preservative Treatment: Comply with Federal Specification TT-W-571, using Grade 1 creosote with minimum wet retention of 12 lbs. per cu. ft. of wood. Testing of piles by the gauge method will be acceptable.
- D. Contract Length: Contractor shall base his bid on the tip piles being driven to a penetration of 45 feet below the natural ground surface. Piles shall be of sufficient length to extend from this tip elevation to the cut off elevations required by the Drawings. In order to fix the cost to the Owner of longer or shorter length piles, if sub-strata conditions should require them, the Contractor shall submit in his proposal the following unit costs:
  1. Extra cost per pile for base piles Added:
  2. Credit per pile for base piles Omitted:
  3. Extra cost per foot in 2'-0" increments for
    - a. Increase in pile length up to 10 ft.:
  4. Credit cost per foot in 2'-0" increments for
    - a. Decrease in pile length down to 10 ft.:
  5. Extra cost per Load Test (up to three):

## PART 3 - EXECUTION

### 3.1 HANDLING

- A. Piles shall be carefully handled with no sudden dropping, breaking of outer fibers, bruising or penetrating the surface with tools. All cut or damaged surfaces of piles, including the tops of piles after cut-off, shall be given a brush treatment of hot creosote oil in a quantity that will fill all shakes and splits and thoroughly penetrate the cut surfaces.

### 3.2 DRIVING

- A. Driving Equipment: All driving and load testing equipment shall be subject to the Architect's review, and if at any time, in the Architect's opinion, does not perform its intended task adequately, it shall be rejected.
- B. Hammer: A #1 Vulcan hammer (5,000 ram, 3'-0" drop) or equivalent hammer (in the opinion of the Architect) shall be used.

- C. Driving Procedures: Driving shall be done with fixed leads that shall hold the pile firmly in position and in alignment with the hammer. The butt of each timber pile before driving shall be cut at right angles to the longitudinal axis of the pile, and shall be taper trimmed. The top of the pile shall be protected with a standard steel hood or similar type device which will prevent damage to the pile during driving. Driving shall progress continuously until proper penetration as determined by the Architect is obtained.
- D. Location: Piles shall be driven plumb and accurately into positions shown on Drawings: a maximum variation not exceeding 3" in not more than 10% of the total number of piles in a cluster will be accepted as fulfillment of Contract, providing limiting and controlling conditions make it impossible to maintain more accurately the spacing indicated on plans. Should the variations from true center exceed the above, the piles in each cluster shall be plotted by the Contractor and the center of gravity of said cluster determined. If required, sufficient piles shall then be added at locations determined by the Architect. Contractor shall, at his own cost, drive such additional piling and/or alter pile caps as may be required to compensate for or to rectify the conditions brought about by failure to preserve proper spacing, whether this defect is discovered before or after cutting off.
- E. Over-Driving: Any piles driven too low to permit proper cut-off must be corrected without extra charge. Any pile which is damaged, defected, or broken, or any pile which cannot be driven to proper tip penetration because of interference by stumps or other underground obstructions, shall be immediately removed and replaced with an acceptable substitute pile at the location determined by the Architect. In the event that such removal should prove impossible, the defective pile shall be abandoned and a suitable pile shall be driven close to the worthless one, where the Architect directs. Payment will be made to the Contractor in accordance with the terms of the Contract unless the defect is due to the Contractor's negligence.

### 3.3 CUT-OFF

- A. Piles shall be cut-off on a neat horizontal plan and the cut-off portions shall be removed from the job site. The tops of the piles shall be brush treated as specified herein under "Handling".

### 3.4 MISSING PILES:

- A. Contractor shall be held responsible for any pile omitted; and missing piles at whatever stage of work discovered shall be provided without extra cost.

END OF SECTION 02300



## **SECTION 02361 - SOIL TREATMENT FOR TERMITE CONTROL**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Chemical soil treatment with termiticide.

#### **1.2 REFERENCE STANDARDS**

- A. Title 7, United States Code, 136 through 136y - Federal Insecticide, Fungicide and Rodenticide Act; United States Code; 1947 (Revised 2001).

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Service Life of Soil Treatment: Soil treatment by use of a termiticide that is effective for not less than five years against infestation of subterranean termites.

#### **1.4 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate toxicants to be used, composition by percentage, dilution schedule, intended application rate.
  - 1. Include the EPA-Registered Label for termiticide products.
- C. Test Reports: Indicate regulatory agency approval reports when required.
- D. Manufacturer's Application Instructions: Indicate caution requirements and coverage requirements.
- E. Manufacturer's Certificate: Certify that toxicants meet or exceed specified requirements.
- F. Record moisture content of soil before application, date and rate of application, and areas of application.
- G. Maintenance Data: Indicate re-treatment schedule.
- H. Warranty: Submit warranty and ensure that forms have been completed in Owner's name.

#### **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing this type of work and:
  - 1. Having minimum of 2 years documented experience.

#### **1.6 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for requirements for application and authority to use toxicant chemicals, and comply with EPA regulations.

#### **1.7 SEQUENCING**

- A. Apply toxicant immediately prior to finish grading work outside foundations.

#### **1.8 WARRANTY**

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year installer's warranty against damage to building caused by termites.

1. Include coverage for repairs to building and to contents damaged due to building damage. Repair damage and, if required, re-treat.
2. Inspect semi-annually and report in writing to Owner. Provide inspection service for 12 months from Date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Manufacturers:
  1. Bayer Environmental Science Corp; Product Premise Pre: [www.nobugs.com](http://www.nobugs.com).
  2. Substitutions: See Section 01600 - Product Requirements.
- B. Toxicant Chemical: EPA approved; synthetically color dyed to permit visual identification of treated soil.
- C. Diluent: Recommended by toxicant manufacturer.

### 2.2 MIXES

- A. Mix toxicant to manufacturer's instructions.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that soil surfaces are sufficiently dry to absorb toxicant, and ready to receive treatment.
- B. Verify final grading is complete.

### 3.2 APPLICATION

- A. Spray apply toxicant in accordance with manufacturer's instructions.
- B. Apply toxicant at following locations:
  1. In Crawl Spaces.
  2. At Both Sides of Foundation Surface.
- C. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.
- D. Re-treat disturbed treated soil with same toxicant as original treatment.
- E. If inspection or testing identifies the presence of termites, re-treat soil and re-test.

### 3.3 PROTECTION

- A. Do not permit soil grading over treated work.

**END OF SECTION**

SECTION 03200  
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions and Division 1 - General Requirements, apply to the work specified in this section.

1.2 DESCRIPTION OF WORK

- A. All concrete reinforcement and incidental items required to complete the work indicated on the drawings.
  - 1. Include all reinforcing steel for concrete pads and supports for mechanical and electrical equipment where indicated. Unless otherwise shown, these pads shall include 500 lbs. of reinforcing steel per cubic yard of concrete.
- B. Related Work Specified Elsewhere:
  - 1. Testing Laboratory Services: Section 01410
  - 2. Cast-In-Place Concrete: Section 03300

1.3 QUALITY ASSURANCE

- A. Standard Specifications:
  - 1. Except as modified or supplemented by these Specifications, the "Specifications for Structural Concrete for Buildings (ACI 301-84) of the American Concrete Institute" shall govern all work in this Section and the Contractor must have a copy of these specifications in the project's field office at all times. Copies of the ACI specifications may be obtained by writing American Concrete Institute, P. O. Box 19150, Redford Station, Detroit, Michigan 48219.
- B. Testing:
  - 1. Refer to Section 01410 and to Chapter 16 of ACI 301 modified and/or supplemented as follows:
  - 2. Article 16.4.3: Mill Test Reports for all reinforcing steel shall be furnished to the Architect and the Testing Laboratory.
- C. SUBMITTALS
  - A. Shop Drawings: Refer to Articles 5.1.1 and 5.1.2 of ACI-301 modified and/or supplemented as follows:
    - 1. Article 5.1.1: Change last word of third line from "acceptance" to "review".  
Add the following after Article 5.1.2:
      - a. Submit shop drawings in accordance with Section 01340.

PART 2 - PRODUCTS

## 2.1 BASIC MATERIALS

- A. General: Refer to Chapters 1 and 5 of ACI 301 modified and/or supplemented as follows:
1. Article 5.2.1: Grades of Reinforcing and the locations of their use are indicated on the drawings.
  2. Article 5.2.5.1: Welded Wire Fabric shall have plain wire unless otherwise noted on the drawings.
  3. Article 5.5.3: Bar Supports in formwork and on concrete dry bottoms shall be metal or plastic. Bar supports in concrete to be exposed to the weather or view shall be plastic or plastic-tipped with a minimum of 1/4" plastic protection between the form and the metal portion of the bar support. Bar supports in concrete poured on earth shall be 3" x 3" precast concrete pads of proper thickness, top slab bars shall be supported by metal chairs which in turn shall be supported by 5" x 5" x 1" precast concrete pads.
    - a. Concrete pads shall be 4,000 psi concrete especially cast for this purpose.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Refer to Chapters 1, 5, and 6 and of the following Articles of ACI 301 modified and/or supplemented as follows:
1. Chapter 16: Testing: Standards for testing and inspection as called for in this Chapter. Actual services and tests performed by an independent testing laboratory. Section 01410.
    2. Article 16.7.4.4: Mill Test Reports for all cement, reinforcing steel, and post-tensioning tendons as well as all data required by Articles 15.2.1.2 and 15.2.1.3 shall be furnished to Architect and the Testing Laboratory.

END OF SECTION 03200

SECTION 03300 - CAST-IN-PLACE CONCRETE - (BUILDING FOUNDATION)

PART 1 - GENERAL

11. RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Provisions and Division 1 Specification Sections, apply to this Section.

21. SUMMARY

- A. Description: Provide cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes, as indicated on the Drawings and specified in this Section.
- B. Related Work:
  - 1. Compacted fill is specified in Earthwork (Building Foundation) Section 02200.

31. SUBMITTALS

- A. General: Submit the following in accordance with Section 01300.
- B. Product Data: Manufacturer's product specifications and application instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, and others as requested by Architect.
- C. Shop Drawings: Dimensioned drawings and schedules for fabrication, bending, and placement of concrete reinforcement. Comply with ACI SP-66 (88), "ACI Detailing Manual," showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
  - 1. Comply with Articles 5.1.1 and 5.1.2 of ACI 301, modified and/or supplemented as follows:
  - 2. Article 5.1.1 - Change last word of first sentence to "review". Delete last sentence.
  - 3. Article 5.1.2 - Add the following: "Submit Shop Drawings in accordance with Section 01300".
- D. Mix Designs: Laboratory test reports for concrete materials and mix design test.

41. QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. ACI 301, "Specifications for Structural Concrete For Buildings".
  2. ACI 318, "Building Code Requirements for Reinforced Concrete".
  3. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice".
- B. Concrete Testing Service:
1. Contractor shall engage a testing laboratory acceptable to Architect to design concrete mixes. Owner's testing laboratory will perform material evaluation tests and review mix design.
  2. Refer to Section 01410 for field quality control testing services.

## PART 2 - PRODUCTS

### 12. FORM MATERIALS

- A. General: Comply with Chapters 1, 4 and 10 of ACI 301 as amplified and modified herein.
- B. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
- C. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- D. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, nor adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces requiring bond or adhesion.
1. Apply form coatings in accordance with manufacturer's instructions.
  2. Subject to compliance with requirements, provide one of the following. Products of other manufacturers require approval prior to use.  
 "Debon"; L & M Construction Chemicals.  
 "Nox-Crete Form Coating"; Nox-Chem Chemicals.  
 "Magic-Coat"; Symons Corp.
- E. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to exposed surface.
1. Provide ties that, when removed, will leave holes not larger than 1-inch diameter in concrete surface.

## 22. REINFORCING MATERIALS

- A. General: Comply with Chapter 1 and all of the following Articles of ACI 301 modified and/or supplemented as follows:
1. Article 5.2.1 - Grades of reinforcing and the locations of their use are indicated on the Drawings.
  2. Article 5.2.6.1 - Welded wire fabric shall have plain wire unless otherwise noted on the Drawings.
  3. Article 5.5.3 - Bar supports in form work and on concrete dry bottoms shall be metal or plastic. Bar supports in concrete to be exposed to the weather or view shall be plastic or plastic-tipped with a minimum of 1/4" plastic protection between the form and the metal portion of the bar support. Bar supports in concrete poured on earth shall be 3" x 3" precast concrete blocks of proper thickness, top slab bars shall be supported by metal chairs which in turn shall be supported by 5" x 5" x 1" precast concrete blocks.
- B. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- C. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- D. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- E. Welded Deformed Steel Wire Fabric: ASTM A 497.
- F. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications and paragraph A, item 3, above.

## 32. CONCRETE MATERIALS

- A. General: Comply with Chapters 1, 2, 3, 6 and 12 of ACI 301 and/or supplemented as follows:
1. Article 2.2, Admixtures - See Article 3.7.
  2. Article 3.7.1 and 3.7.2 - The use of admixtures containing chloride in any form will not be permitted.
  3. Article 6.2.2, Preformed Expansion Joint Material.
    - a. Preformed expansion joint material shall be as specified in Section 07900.
    - b. Joint sealer at expansion joints and grooved joints shall be as specified in Section 07900.
  4. Article 12.2.1.7, Liquid Membrane-Forming Curing Compound.
    - a. Curing Compound for exposed concrete floors shall conform to Federal Spec. TT-C-800, Type

- I. Dayton "Crete-Cure" is acceptable.
    - b. Products offered by manufacturers to comply with the requirements for membrane-forming curing compounds include the following:
      - Floor Coat; The Euclid Chemical Corp.
      - MB429; Master Builder's
      - Kure-N-Seal 800; Sonneborn
      - Dekote; W. R. Grace
      - Acrylic Cure 800; Unitex
5. The use of fly ash will not be acceptable.
- B. Portland Cement: ASTM C 150, Type I.
    - 1. Use one brand of cement throughout project unless otherwise acceptable to AR.
  - C. Normal Weight Aggregates: ASTM C 33 and as herein specified.
    - 1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
  - D. Water: Drinkable.
  - E. Admixtures, General: Provide admixtures for concrete that do not contain chloride in any form.
  - F. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
  - G. Water-Reducing Admixture: ASTM C 494, Type A.
  - H. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.
  - I. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

4 2.PROPORTIONING AND DESIGN OF MIXES

- A. General: Contractor shall select and employ an independent laboratory to design mixes. Comply with Chapters 1 and 3 of ACI 301 modified and/or supplemented as follows:
  - 1. Article 3.2, Strength of Concrete - All concrete shall have the strengths indicated on the Drawings.
  - 2. Article 3.7, Admixtures - Admixtures for normal weight concrete may be used at the Contractor's option providing the requirements of Article 3.7 are met. The use of any admixture containing chloride in any form will not be permitted.
  - 3. Article 3.7, Selection of Proportions - Method 1 or 2 shall be used.

- B. Prepare design mixes for each type and strength of concrete by methods 1 or 2 as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- C. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Engineer.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

5 2.ADMIXTURES

- A. Use water-reducing admixture in concrete as required for placement and workability.
- B. Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
- C. Air-entraining admixture in exterior exposed concrete will not be required.
- D. Use admixtures in strict compliance with manufacturer's directions.
- E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement not more than 4 inches, unless otherwise noted on the Drawings.

6 2.CONCRETE MIXING

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as specified.
  - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

13. GENERAL

- A. Coordinate the installation of joint materials and vapor retarders with placement

of forms and reinforcing steel.

- B. Compliance: Comply with Chapters 1 and 4 through 12 inclusive of ACI 301 modified and/or supplemented as follows:
  - 1. Article 4.1.3 - Earth cuts will be permitted in lieu of forms.

### 23. PREPARATION OF FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, non-residual, low-VOC, form-coating compound before reinforcement is placed.
- B. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- C. Coat steel forms with a non-staining, rust-preventative material. Rust-stained steel formwork is not acceptable.

### 3. CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.
- B. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.

### 43. CONCRETE CURING AND PROTECTION

- A. Protection: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Curing: Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Keep continuously moist for not less than 7 days.
  - 1. Cure formed concrete, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified below, as applicable.
  - 2. Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by application of appropriate curing method.
  - 3. Final cure concrete surfaces to receive liquid floor hardener or

finish flooring by use of moisture-retaining cover, unless otherwise directed.

5 3.QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Owner will employ a testing laboratory to perform tests and to submit test reports. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- B. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  - 1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
- C. Reports: Test results will be reported in writing to Architect, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION 03300



## SECTION 03505 - SELF-LEVELING UNDERLAYMENT

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Liquid-applied self-leveling floor underlayment.
- B. Acoustical floor mat to reduce impact noise through floor.

#### 1.2 REFERENCE STANDARDS

- A. ASTM C 472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2004).
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations of underlayment materials. Include information on surface preparation, environmental limitations, and installation instructions.

#### 1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years of experience.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Keep dry and protect from direct sun exposure, freezing, and ambient temperature greater than 105 degrees F.

#### 1.6 REGULATORY REQUIREMENTS

- A. Provide certificate of compliance from authority having jurisdiction indicating approval of underlayment materials in the required fire rated assembly.

#### 1.7 FIELD CONDITIONS

- A. Do not install underlayment until floor penetrations and peripheral work are complete.
- B. Maintain minimum ambient temperatures of 50 degrees F 24 hours before, during and 72 hours after installation of underlayment.
- C. During the curing process, ventilate spaces to remove excess moisture.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Gypsum Underlayment:
  - 1. Maxxon Corporation; Product Gyp-Crete 2000/3.2K "Green":  
[www.maxxon.com](http://www.maxxon.com).

2. Substitutions: See Section 01600 - Product Requirements.

B. Sound Deadening Pad:

1. Maxxon Corporation; Product Acousti-Mat II "Green": [www.maxxon.com](http://www.maxxon.com).

## 2.2 MATERIALS

A. Gypsum-Based Underlayment: Gypsum based mix, that when mixed with water in accordance with manufacturer's directions will produce self-leveling underlayment with the following properties:

1. Compressive Strength: Minimum 2000 psi, tested per ASTM C 472.
2. Density: Maximum 115 lb/cu ft.
3. Thickness: as indicated on drawings.
4. Surface Burning Characteristics: Flame spread/Smoke developed index of 0/0 in accordance with ASTM E 84.

B. Aggregate: Dry, well graded, washed silica aggregate, approximately 1/8 inch in size and acceptable to underlayment manufacturer.

C. Water: Potable and not detrimental to underlayment mix materials.

D. Reinforcement Mesh: Maxxon Crack Suppression Mat (CSM) or 3.4 lbs./sq. yd. galvanized metal lath.

E. Primer: Manufacturer's recommended type.

F. Overspray: As recommended by manufacturer.

G. Joint and Crack Filler: Latex based filler, as recommended by manufacturer.

## 2.3 MIXING

A. Site mix materials in accordance with manufacturer's instructions.

B. Mix to self-leveling consistency without over-watering.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Remove substrate surface irregularities. Fill voids and deck joints with filler. Finish smooth.

B. Leak Prevention: Fill cracks and voids with a quick setting patching or caulking material where leakage of underlayment.

C. Vacuum clean surfaces.

D. Prime substrate in accordance with manufacturer's instructions. Allow to dry.

E. Close floor openings.

### 3.2 APPLICATION OF ACOUSTICAL MAT

A. Acoustical Mat installation: Install acoustical mat following manufacturer's recommendations and specifications.

### 3.3 APPLICATION OF CEMENTITIOUS FLOORING

A. Install underlayment in accordance with manufacturer's instructions.

- B. Scheduling: Application of underlayment shall not begin until the building is enclosed, including roof, windows, doors, and other fenestration. Install after drywall installation unless tenant finish requirements identify partitioning after the pour. Schedule the acoustical floor mat sound control system as late as possible in the construction cycle.
- C. Prime acoustical mat or Maxxon CSM using floor primer to bond the underlayment to the mat.
- D. Pump or pour material onto substrate. Do not retemper or add water.
  - 1. Pump, move, and screed while the material is still highly flowable.
  - 2. Be careful not to create cold joints.
  - 3. Wear spiked shoes while working in the wet material to avoid leaving marks.
- E. Place to thickness indicated.
- F. Place after partition installation.

#### 3.4 CURING

- A. Once underlayment starts to set, prohibit foot traffic until final set has been reached.
- B. Air cure in accordance with manufacturer's instructions.

#### 3.5 APPLICATION TOLERANCE

- A. Top Surface: Level to 1/8 inch in 10 ft.

#### 3.6 PREPARATION FOR INSTALLATION OF GLUE DOWN FLOOR GOODS

- A. Sealing: Seal all areas that receive glue down floor goods with overspray. Any floor areas where the surface has been damaged shall be cleaned and sealed regardless of floor covering to be used. Where floor goods manufacturers require special adhesive or installation systems, their requirements supersede these recommendations.
- B. Floor Goods Procedures: See manufacturers guidelines for installing finished floor goods.

#### 3.7 PROTECTION

- A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.
- B. Do not permit traffic over unprotected floor underlayment surfaces.

**END OF SECTION**



## SECTION 04210 - CLAY MASONRY UNITS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Brick units.
- B. Anchors and ties.
- C. Flashing.
- D. Reinforcement
- E. Accessories.
- F. Mortar.
- G. Cleaning.

#### 1.2 REFERENCES

- A. ASTM A 36 - Standard Specification for Carbon Structural Steel.
- B. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- C. ASTM A 153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- D. ASTM A 366 - Standard Specification for Commercial Steel (CS) Sheet, Carbon (0.15 Maximum Percent) Cold-Rolled.
- E. ASTM A 616 - Standard Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement.
- F. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2006a.
- G. ASTM C 91 - Standard Specification for Masonry Cement; 2005.
- H. ASTM C 150 - Standard Specification for Portland Cement; 2005.
- I. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
- J. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- K. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2006.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

- C. Samples: Submit four samples of brick units units to illustrate color, texture, and extremes of color range.
- D. Manufacturer's Installation Instructions: Indicate special procedures, positioning of reinforcement, perimeter conditions requiring special attention.
- E. Manufacturer's Certificate: Certify that brick units meet or exceed specified requirements.

#### 1.4 SAMPLE PANELS

- A. Construct sample panel at location indicated or directed, and as follows:
  - 1. Size: 4 feet by 4 feet (1.2 m by 1.2 m).
  - 2. Include all unit types and sizes to be used, and mortar joint treatment.
- B. Obtain architect's acceptance of sample panel before beginning construction activities of this section.
- C. Do not remove sample panel until construction activities of this section have been accepted by architect.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products of this section on pallets, with individual faces protected; keep dry.
  - 1. Store glazed units in protected area or under cover on level ground; keep dry. Do not double-stack pallets.

#### 1.6 FIELD CONDITIONS

- A. Protection of Work:
  - 1. Wall Covering:
    - a. During erection, cover top of wall with strong waterproof membrane at end of each day or shutdown.
    - b. Cover partially completed walls when work is not in progress.
    - c. Extend cover minimum of 24 inches (610 mm) down both sides.
    - d. Hold cover securely in place.
  - 2. Load Applications:
    - a. Do not apply uniform floor or roof loading for at least 12 hours after building masonry columns or wall.
    - b. Do not apply concentrated loads for at least 3 days after building masonry columns or walls.
  - 3. Stain Prevention:
    - a. Prevent grout or mortar from staining the face of masonry.
    - b. Remove immediately grout or mortar in contact with face of such masonry.
    - c. Protect all sills, ledges and projections from droppings of mortar.
    - d. Protect base of wall from rain-splashed mud and mortar splatter.
    - e. Scaffold boards shall be turned on edge when work is not in progress.
- B. Hot Weather Protection:
  - 1. When temperature exceeds 100 degrees F or 90 degrees F with 8 mph wind (above 38 degrees C or 32 degrees C with 13 kms/h wind).
    - a. Maintain temperature of mortar and grout between 70 degrees F and 120 degrees F (21 degrees C and 49 degrees C).

- 1) Limit spread of mortar bed to 4 feet (1.2 m). Place units within 1 minute of spreading mortar.
- 2) Partially or recently completed walls may be fog sprayed and/or covered with opaque plastic or canvas to control moisture evaporation

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Saint Joe Brick Works Inc., 63076 Highway 11, New Orleans, LA., [www.stjoebrick.com](http://www.stjoebrick.com).
- B. Substitutions: Not permitted.

### 2.2 CLAY MASONRY UNITS

- A. Face Brick: ASTM C 216.
  1. Size: Modular, 2-1/4 inches (57.2 mm) high, 7-5/8 inches (193.7 mm) long, 3-5/8 inches (92.1 mm) deep.
  2. Texture: Smooth.
  3. Color: Multiple blends of Old Orleans and Heritage for individual buildings as selected by Architect from manufacturer's standard blends.

### 2.3 ANCHORS AND TIES

- A. Corrugated Ties: ASTM A 366, 20 Gage, Width: not less than 7/8 inch, Hot-dipped galvanized: ASTM A 153, Class B-2.
- B. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A 153/A 153M, Class B.
  1. Anchor plates: Not less than 0.075 inch thick, designed for fastening to structural backup through sheathing by two fasteners; provide design with legs that penetrate sheathing and insulation to provide positive anchorage.
  2. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
  3. Vertical adjustment: Not less than 3-1/2 inches.

### 2.4 MORTAR MATERIALS

- A. Masonry Cement: ASTM C 91 Type N.
- B. Portland Cement: ASTM C 150, Type I.
- C. Hydrated Lime: ASTM C 207, Type S.
- D. Water: Clean and potable.

### 2.5 FLASHINGS

- A. Metal Flashing Materials: Galvanized Steel, as specified in Section 07620.
- B. Rubberized Asphalt Flashing: Self-adhering composite material comprising rubberized asphalt adhesive compound bonded to cross-laminated polyethylene film, minimum 0.040 inch total thickness.
  1. Acceptable Manufacturers:
    - a. Air-Shield Thru Wall Flashing by W.R. Meadows, .

- b. CCW-705-TWF Thru-Wall Flashing by Carlisle, [www.carlisle-ccw.com](http://www.carlisle-ccw.com).
  - c. Textroflash by Hohmann & Barnard, [www.h-b.com](http://www.h-b.com).
- C. Lap Sealant: Butyl type as specified in Section 07900.
- D. Metal Pans: Galvanized Steel, as specified in Section 07620.

## 2.6 ACCESSORIES

- A. Steel Ledger angles: as specified in Section 05500.
- B. Surface Primer for Flexible Flashing: Water-based primer as recommended by flexible flashing manufacturer.
- C. Weather Resistant Barrier (WRB): ASTM D 226, Type I ("No. 15") asphalt felt.
- D. Weeps: Polyethylene tubing.
- E. Cavity Vents: Polyester mesh.
- F. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Inspect related conditions; do not start work in an area until adverse conditions in that area are corrected.

### 3.2 PREPARATION

- A. Test surfaces for straightness, levelness. Notify architect where grinding or troweled filler corrections are needed.

### 3.3 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Brick Units:
  - 1. Bond: Running.
  - 2. Coursing: Three units and three mortar joints to equal 8 inches.
  - 3. Mortar Joints: Concave.

### 3.4 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- C. Remove excess mortar as work progresses.
- D. Interlock intersections and external corners.
- E. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

- F. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

### 3.5 WEEPS/CAVITY VENTS

- A. Install cavity vents in veneer walls at 32 inches on center horizontally below shelf angles and lintels and at top of walls.
- B. Install cavity mortar control panels at base of cavity and above angles as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.
- C. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

### 3.6 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

- A. Stud back-Up: Secure veneer anchors to stud framed back-up and embed into masonry veneer at maximum 2.0 sq ft of wall surface per anchor. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 on center.
  - 1. Horizontal and vertical supports: secure to substrate at not less than 24 inches on center each way.

### 3.7 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
  - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
  - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
  - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend metal flashings to within 1/4 inch of exterior face of masonry.
- C. Flexible Flashing: Install per manufacturers installation recommendations.
  - 1. Priming: Clean surfaces to remove residual dust before priming. Stir primer. Apply by roller, allow primer to dry per manufacturers recommendation..
  - 2. Vertical Surfaces: Install sheet membrane in horizontal fashion with shingle style overlapping seams. Overlap edge seams 2 ½", end laps 5". Ensure that all laps are firmly adhered and that there are no gaps or fishmouths.
  - 3. Terminations: per manufacturers recommendation.
  - 4. Protection: Thru Wall flashing to be held back 1/2 inch from edge of clay masonry units.
  - 5.
- D. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

### 3.8 LINTELS

- A. Install loose steel lintels over openings.
- B. Maintain minimum 8 inch bearing over brick on each side of opening.

### 3.9 TOLERANCES

- A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

### 3.10 CUTTING AND FITTING

- A. Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### 3.11 INSTALLATION

- A. Cut units where required for fitting or for installation of built-in items, using power tools; do not install units having chipped or cracked edges on sight-exposed surfaces.
- B. Align base courses to follow accurate floor lines.
- C. Align faces plumb, level, and true, with uniform joint widths.
- D. Size and portion units for best appearance, with joints arranged neat and symmetrical, free of imperfections detracting from overall appearance.

### 3.12 FIELD QUALITY CONTROL

- A. Architect will observe appearance of installed units; installed masonry surfaces shall be free of imperfections which detract from overall appearance when viewed from a distance of 5 feet (1.5 m) at 90 degrees normal to surface.

### 3.13 CLEANING

- A. Clean installed masonry surfaces in accordance with manufacturer's instructions; do not clean units with products not specified in manufacturer's instructions.

**END OF SECTION**

## **SECTION 04810 - CONCRETE MASONRY ASSEMBLIES**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Concrete Block.
- B. Mortar and Grout.
- C. Reinforcement and Anchorage.
- D. Accessories.

#### **1.2 REFERENCE STANDARDS**

- A. ACI 315-99 Details and Detailing of Concrete Reinforcement.
- B. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2005.
- C. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2005.
- D. ASTM A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.
- E. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- F. ASTM C 5 - Standard Specification for Quicklime for Structural Purposes; 2003.
- G. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2006b.
- H. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2007a.
- I. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
- J. ASTM C 150 - Standard Specification for Portland Cement; 2007.
- K. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
- L. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2007a.
- M. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2007.
- N. ASTM C 476 - Standard Specification for Grout for Masonry; 2007.
- O. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2007a.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

#### **1.4 QUALITY ASSURANCE**

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

## PART 2 PRODUCTS

### 2.1 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:
  - 1. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depth of 8 inches and 12 inches.
  - 2. Load-Bearing Units: ASTM C 90, normal weight except as noted below:
    - a. Compressive strength: Minimum 200 psi.
    - b. Hollow block, as indicated.
    - c. Exposed faces: Manufacturer's standard color and texture.
    - d. Provide compressive strength necessary to obtain masonry assemblage compressive strength indicated on drawings, minimum of 1900 psi at 28 days.

### 2.2 MORTAR AND GROUT MATERIALS

- A. Mortar: Conform to ASTM C270, Type M or S.
  - 1. Provide compressive strength necessary to obtain masonry assemblage compressive strength indicated on the drawings, , minimum 3000 psi at 28 days.
  - 2. Proportions by volume: 1 part Portland cement, 1/2 part lime, 4 ½ parts aggregate.
  - 3. Color: Natural Grey, unless otherwise noted on drawings.
  - 4. Portland Cement: ASTM C150, Type II
  - 5. Hydrated Lime: ASTM C270, Type M.
  - 6. Quicklime: ASTM C5
  - 7. Aggregates: Clean, dry, and protected against dampness, freezing and foreign matter. Conform to ASTM C144.
  - 8. Water: Clean, potable, and free of injurious materials.
- B. Grout: Course grout, transit mixed conform to ASTM C476 Table I.
  - 1. Provide compressive strength as necessary for masonry assemblages to attain compressive strengths shown on the drawings, minimum 2000 psi at 28 days.
  - 2. Slump: 9 to 10 inches.
  - 3. Portland Cement: ASTM C150, Type II
  - 4. Hydrated Lime: ASTM C207, Type S
  - 5. Quicklime: ASTM C5
  - 6. Aggregates: Clean, dry, and protected against dampness, freezing and foreign matter. Conform to ASTM C 404.
  - 7. Water: Clean, potable, and free of injurious materials.
  - 8. Plasticizer: SIK A Grout AID
- C. Portland Cement: ASTM C 150, Type I.
- D. Hydrated Lime: ASTM C 207, Type S.

E. Grout Aggregate: ASTM C 404.

F. Water: Clean and potable.

### 2.3 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: Type specified in Section 03200; size as indicated on drawings; uncoated finish.

B. Single Wythe Joint Reinforcement: Truss type; ASTM A 82/A 82M steel wire, hot dip galvanized after fabrication to ASTM A 153/A 153M, Class B; 0.1875 inch side rods with 0.1875 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.

### 2.4 ACCESSORIES

A. Preformed Control Joints: Neoprene material. Provide with corner and tee accessories, fused joints.

1. Manufacturers:

a. Dur-O-Wal: [www.dur-o-wal.com](http://www.dur-o-wal.com).

b. Hohmann & Barnard, Inc: [www.h-b.com](http://www.h-b.com).

c. Substitutions: See Section 01600 - Product Requirements.

B. Any exposed steel secured to the CMU shall be hot dipped galvanized.

C. Weeps: Polyethylene tubing.

D. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

### 2.5 LINTELS

A. Precast Concrete Lintels: 3000 psi strength at 28 days.

### 2.6 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C 270, using the Proportion Specification.

B. Mix in batch mechanical mixer of at least one-sack capacity permitting accurate control of water amounts.

C. Mix materials for at least three minutes with minimum of water to produce workable consistency.

D. Use and place mortar in final position within 2½ hours after mixing.

1. Mortar that has stiffened as a result of evaporation of water may be retempered with water as frequently as required to restore required consistency during this time period.

E. Grout: ASTM C 476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

### 2.7 SOURCE QUALITY CONTROL

A. The Owner's Testing Agency will:

1. Collect mill test reports for reinforcements.

2. Sample and test concrete masonry units in accordance with ASTM C140

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

### 3.2 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  - 1. Bond: Running.
  - 2. Coursing: One unit and one mortar joint to equal 8 inches.
  - 3. Mortar Joints: Concave.

### 3.3 PLACING AND BONDING

- A. Lay hollow masonry units with face shell bedding on head and bed joints.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- C. Interlock intersections and external corners.
- D. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

### 3.4 WEEPS/CAVITY VENTS

- A. Install weeps in cavity walls at 24 inches on center horizontally above shelf angles and lintels, and at bottom of walls.

### 3.5 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Place bars where noted in accordance with ACI 315 and do not disturb after start of masonry placement.
- B. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.

### 3.6 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

- A. Install horizontal joint reinforcement 16 inches on center.
- B. Place continuous joint reinforcement in first and second joint below top of walls.
- C. Lap joint reinforcement ends minimum 6 inches.

### 3.7 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
  - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
- B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install joint sealer below drip edge to prevent moisture migration under flashing.

### 3.8 LINTELS

- A. Install precast concrete lintels over openings.
- B. Maintain minimum 8 inch bearing on each side of opening.

### 3.9 GROUTED COMPONENTS

- A. Lap splices minimum 24 bar diameters.
- B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- C. Place and consolidate grout fill without displacing reinforcing.

### 3.10 TOLERANCES

- A. Maximum Variation from Alignment of Pilasters: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

### 3.11 CUTTING AND FITTING

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### 3.12 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01400.
- B. Concrete Masonry Unit Tests: Test concrete unit masonry in accordance with ASTM

C 140 for conformance to requirements of this specification.

- C. Mortar Tests: Test each type of mortar in accordance with ASTM C 780, testing with same frequency as masonry samples.

### 3.13 CLEANING

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

**END OF SECTION**

## SECTION 05500 - METAL FABRICATIONS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Shop fabricated steel items, including:
  - 1. Balcony Supports.
  - 2. Crawl space vents.
  - 3. Stair Nosings.

#### 1.2 REFERENCE STANDARDS

- A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- B. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.
- C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.
- D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- E. ASTM A 283/A 283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).
- F. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2007a.
- G. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2007.
- H. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2007.
- I. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2006 and Errata.
- J. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- K. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- L. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data for Stair Nosings, including installation instructions.

### PART 2 PRODUCTS

#### 2.1 MATERIALS - STEEL

- A. Steel Sections: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.

- C. Plates: ASTM A 283.
- D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- E. Fasteners: Exterior: hot-dipped galvanized steel or stainless steel.
- F. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
- G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

## 2.2 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

## 2.3 FABRICATED ITEMS

- A. Balcony supports plates: as sized on drawings, hot-dipped galvanized steel with welded threaded studs.
- B. Ledge Angles and Plates Not Attached to Structural Framing: For support of masonry; hot dipped galvanized finish.
- C. Crawl Space Vents: McNichols Riveted Bar Grating:
  - 1. Series GO.
  - 2. Bar Size: 1 x 1/8 inch.
  - 3. Spacing: 3-1/5 x 1-1/8 inch.
  - 4. Finish: Powder coat finish over galvanized steel.
  - 5. Substitutions: See Section 01600 - Product Requirements.
- D. Stair Nosings: Style number 801 as manufactured by American Safety Tread Company, [www.americansafetytread.com](http://www.americansafetytread.com).
  - 1. Material: Cast in Alumacast, with #24 virgin grain Silicon Carbide granules embedded into the walking surface while the matrix is in a molten state.
  - 2. Cast in place Concrete stairs: Nosings shall terminate not more than 3" from ends of steps.
  - 3. Concrete Filled Metal Pan treads: nosings shall be full length of steps less 1/8" clearance.
  - 4. Accessories: Furnish with all components required to completely install nosing in slabs
  - 5. Finish: Natural metal.

## 2.4 FINISHES - STEEL

- A. Prime paint all steel items.
  - 1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for factory finish.
  - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements. Provide minimum 2.0 oz/sq ft galvanized coating.
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.

## 2.5 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### 3.2 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

### 3.3 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

**END OF SECTION**

## **SECTION 05721 - ORNAMENTAL RAILINGS AND BRACKETS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Exterior Handrails at stairs and ramps.
- B. Exterior guardrails at stairs, ramps, porches and balconies.
- C. Exterior metal balcony brackets.
- D. Interior handrail brackets.

#### **1.2 REFERENCES**

- A. ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
- C. Shop Drawings: Show layout, dimension, spacings, and anchorage; include field measured dimensions of spaces where railings are to be installed, if critical to proper fit.
- D. Submit manufacturer's samples of standard materials, finishes, colors, and textures.
- E. Manufacturer's Certification: Certify that railings have been designed to meet the design criteria of the specified code; include all conditions or limitations of the design necessary to achieve the necessary strength for the loading specified.
- F. Selection Samples: For each colored finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- G. Sample: Two full size pickets of each style shown on drawings. These will be returned with approved submittal.
- H. Test Reports: Submit test reports from qualified independent testing agency indicating compliance with ASTM E 985.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store products in manufacturer's unopened packaging until ready for installation.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Basis of Design: King Architectural Metals, [www.kingsmetals.com](http://www.kingsmetals.com), except as noted otherwise below.
- B. Substitutions: See Section 01600 - Product Requirements.

#### **2.2 GUARDRAILS AND HANDRAILS.**

- A. Material: Forged steel.
- B. Components:
  - 1. Decorative Metal Rails
  - 2. Steel handrails at exterior.
  - 3. Metal Balcony Brackets.
  - 4. Decorative scrollwork rail infill at some systems
- C. Design: As indicated on drawings.
- D. Finish: Field paint over galvanized steel, see Section 09900.
- E. Interior handrail bracket: Cast bracket round saddle with one mounting hole equal to Model number 1774 satin bronze by The Wagner Companies, [www.wagnercompanies.com](http://www.wagnercompanies.com).
- F. Exterior Handrails at Stairs and Ramps:
  - 1. Size and configuration as indicated on drawings.
  - 2. Material: forged steel.
  - 3. Joints: Coped and fully welded with welds ground smooth.
  - 4. Top Rail to Post Connection at Open Ends: as indicated on drawings
  - 5. Finish: factory painted, from manufacturer's standard colors.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive railing system. Notify Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install railing system in accordance with manufacturer's instructions using manufacturer's trained installers or an installer acceptable to the specified manufacturer.
- C. Install railing system plumb, level, square, true to line, and rigid.
- D. Attach railing system securely in place using fasteners supplied or approved by manufacturer.
- E. All embedded anchor plates and supporting steel shall be provided by another trade and coordinated with the railing supplier.
- F. Anchor railings securely, in accordance with conditions of design criteria.

- G. Attach railing system to supports as indicated on the drawings and as approved by manufacturer.
- H. Field-weld components as approved by manufacturer.
- I. Use manufacturer's supplied hardware.
- J. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- K. Remove and replace defective or damaged components that cannot be successfully repaired as determined by Architect.

#### 3.4 CLEANING

- A. Clean railing system promptly after installation in accordance with manufacturer's instructions.

#### 3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**



## SECTION 061000 - ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Framing with dimension lumber.
  - 2. Framing with engineered wood products.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Wood blocking, cants, and nailers.
  - 5. Wood furring and grounds.
  - 6. Wood sleepers.
  - 7. Plywood backing panels.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
  - 1. Wood-preservative-treated wood.
  - 2. Engineered wood products.
  - 3. Metal framing anchors.

#### 1.3 PRODUCT HANDLING

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
  - 1. For lumber and plywood pressure treated with waterborne chemicals, sticker between each course to provide air circulation.

#### 1.4 PROJECT CONDITIONS

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
  - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, which meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

### 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA C2, Use Category 4A.
  - 1. Preservative Chemicals: Copper Azole, CA-B, with a retention rate of 0.21 pounds per cubic foot. Ammonia shall not be used as a base (carrier) in the pressure process.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
  - 1. Joists, blocking, rims, beams and posts supporting first floor.
  - 2. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  - 3. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  - 4. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
  - 5. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.

6. Wood floor plates that are installed over concrete slabs-on-grade.

### 2.3 DIMENSION LUMBER FRAMING

- A. Maximum Moisture Content: 19 percent for 2-inch nominal thickness or less, no limit for more than 2-inch nominal thickness.
- B. Non-Load-Bearing Interior Partitions: Standard, Stud, or No. 3 grade, southern pine; SPIB.
- C. Framing Other Than Non-Load-Bearing Interior Partitions: No. 2 grade; southern pine; SPIB.
- D. Exposed Exterior Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
  1. Species and Grade: As indicated above for load-bearing construction of same type.

### 2.4 ENGINEERED WOOD PRODUCTS

- A. Laminated-Veneer Lumber, LVL: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, manufactured in accordance with ICC Evaluation Service Report ESR-1387, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559 and containing no urea formaldehyde.
  1. Extreme Fiber Stress in Bending, Edgewise: 2600 psi for 12-inch nominal- depth members.
  2. Modulus of Elasticity, Edgewise: 1,900,000 psi.
  3. Shear Stress: 285 psi.
- B. Laminated-Strand Lumber, LSL: Structural composite lumber made from strands of lumber with strands oriented parallel to the length of the lumber, manufactured in accordance with ICC Evaluation Service Report ESR-1387, and manufactured with an isocyanate-based adhesive.
  1. Extreme Fiber Stress in Bending, Edgewise: 1700 psi for 12-inch nominal- depth members.
  2. Modulus of Elasticity, Edgewise: 1,300,000 psi.
  3. Shear Stress: 400 psi.
- C. Parallel-Strand Lumber, PSL: Structural composite lumber made from strands of lumber with strands oriented parallel to the length of the lumber, manufactured in accordance with ICC Evaluation Service Report ESR-1387, and manufactured with an phenol-formaldehyde adhesive.

1. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal- depth members.
  2. Modulus of Elasticity, Edgewise: 2,000,000 psi.
  3. Shear Stress: 290 psi.
- D. Wood I-Joists: Prefabricated units, I-shaped in cross section, made with solid or structural composite lumber flanges and wood-based structural panel webs, let into and bonded to flanges. Provide units complying with material requirements of and with structural capacities established and monitored according to ASTM D 5055.
1. Provide I-joists manufactured without urea formaldehyde.
  2. Web Material: Either oriented strand board or plywood, complying with DOC PS 1 or DOC PS 2, Exposure 1.
  3. Structural Properties: Provide units with depths and design values not less than those indicated.
- E. Rim Boards: Product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research/evaluation report for I-joists.
1. Material: Manufactured product made from any combination of wood strands and veneers. Provide rim boards made without urea formaldehyde.
  2. Thickness: 1-1/4 inches.

## 2.5 CONSTRUCTION PANELS

- A. Construction Panel Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood panels and, for products not manufactured under PS 1 provisions, with American Plywood Association (APA) "Performance Standard and Policies for Structural-Use Panels", Form No. E445.
- B. Trademark: Factory-mark each construction panel with APA trademark evidencing compliance with grade requirements.
- C. Concealed APA Performance-Rated Panels: Where construction panels will be used for the following concealed types of applications, provide APA Performance-Rated Panels complying with requirements indicated for grade designation, span rating, exposure durability classification, edge detail (where applicable) and thickness.
1. Combination Subfloor-Underlayment: APA RATED STURD-I-FLOOR.
    - a. Exposure Durability Classification: EXPOSURE 1.
    - b. Span Rating: As required to suit joist spacing indicated.
    - c. Edge Detail: Tongue and groove.
  2. Subflooring: APA RATED SHEATHING.
    - a. Exposure Durability Classification: EXPOSURE 1.
    - b. Span Rating: As required to suit joist spacing indicated.
  3. Wall Sheathing: APA RATED SHEATHING.
    - a. Exposure Durability Classification: EXPOSURE 1.

- b. Span Rating: As required to suit stud spacing indicated.
4. Roof Sheathing: APA RATED SHEATHING.
- a. Exposure Durability Classification: EXPOSURE 1.
  - b. Span Rating: As required to suit rafter spacing indicated.

## 2.6 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
- 1. Blocking for attachment of non-structural items. Blocking between joists and in shear walls shall conform to Paragraph 2.3A.
  - 2. Nailers.
  - 3. Cants.
  - 4. Furring.
  - 5. Grounds.
- B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber with 19 percent maximum moisture content of any species.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content, Mixed southern pine, No. 3 grade; SPIB.

## 2.7 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

## 2.8 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified.
- 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Power-Driven Fasteners: NES NER-272.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.
- 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide bolts with hot-dip zinc coating complying with ASTM A 123/A 153M.

## 2.9 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Simpson Strong-Tie Co., Inc., or approved equal. If substitution from products shown on Drawings is requested, Contractor shall provide line-by-line comparison of proposed substitution comparing to specified product. Comparison shall include structural properties, material properties, coating properties and required fasteners.
- B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
- C. Framing anchors in contact with preservative treated lumber shall comply with ASTM A 653/A 653M, G185 coating designation.

## 2.10 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Flexible Flashing: Self-adhesive, rubberized-asphalt compound, bonded to a high-density, polyethylene film to produce an overall thickness of not less than 0.025 inch.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- E. Do not splice structural members between supports, unless otherwise indicated.
- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
  2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.
  3. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- H. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
  2. Fastener schedules on drawings.
- K. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.
- L. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
1. Comply with indicated fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
- 3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION
- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### 3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Gypsum Board or Plaster Lath: Install 1-by-2-inch nominal- size furring vertically at 16 inches o.c.

### 3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction, unless otherwise indicated.
  - 1. Provide wood studs spaced 16 inches o.c. unless otherwise indicated.
  - 2. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
  - 1. For non-shear, non-load-bearing interior partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width. Non-load bearing partitions are defined as those not supporting g
  - 2. For load-bearing walls, provide headers, jambs and king studs as indicated on Drawings.

### 3.5 FLOOR JOIST FRAMING INSTALLATION

- A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing on wood or metal. Attach floor joists as follows:

1. Where supported on wood members, by toe nailing or by using metal framing anchors.
  2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.
- B. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches.
  - C. Provide solid blocking or continuous rim joist of 2-inch nominal thickness by depth of joist at ends of joists unless supported by metal framing hangers.
  - D. Provide solid blocking of 2-inch nominal thickness by depth of joists at mid-span, not exceeding 8 feet on center.
  - E. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.
  - F. Provide solid blocking between joists under jamb studs for openings.
  - G. Under non-load-bearing partitions, provide double joists.

### 3.6 WOOD I-JOIST INSTALLATION

- A. General: Install I-joists per manufacturer's directions.
- B. Frame openings with LSL headers supported by metal joist hangers, and double joists each side in direction of span.
- C. Provide LSL solid blocking or continuous rim joist over supports as shown on drawings.
- D. Align I-joists at supports - do not lap.
- E. Install manufacturer required web stiffener at all supports, including where I-joists are supported in metal framing hangers.

### 3.7 CEILING JOIST AND RAFTER FRAMING INSTALLATION

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
  1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal- size or 2-by-4-inch nominal- size stringers spaced 48 inches o.c. crosswise over main ceiling joists.
- B. Rafters: Notch to fit exterior wall plates and use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with

metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
  2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.
- C. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions, if any.

### 3.8 STAIR FRAMING INSTALLATION

- A. Provide stair framing members of size, space, and configuration indicated or, if not indicated, to comply with the following requirements:
1. Stringer Size: As indicated on Drawings.
  2. Stringer Material: As indicated on Drawings.
  3. Notching: Notch stringers as indicated on Drawings. Do not overcut notch.
  4. Stringer Spacing: At least 3 stringers for each 36-inch clear width of stair.
- B. Provide stair framing with no more than 3/16-inch variation between adjacent treads and risers and no more than 3/8-inch variation between largest and smallest treads and risers within each flight.

END OF SECTION 061000

## SECTION 061200

### STRUCTURAL SHEAR PANELS

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

##### 1.02 SUMMARY

- A. Work includes pre-engineered and prefabricated steel shear walls that are designed and constructed to support vertical gravity loads while resisting in-plane and out-of-plane lateral loads resulting from wind or earthquakes.
- B. Coordinate this work with interfacing work to assure proper connections and sequence of installation.
- C. Work in other sections affecting this work:
  1. Section 033000 Cast-In-Place Concrete
  2. Section xxxxxx Concrete Unit Masonry
  3. Section 061000 Rough Carpentry

##### 1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product information and installation instructions for each item of cold-formed metal framing and accessories.
- B. Submit test report by an independent testing agency showing conformance with required criteria.

##### 1.04 QUALITY ASSURANCE

- A. Installer: Installation to be performed or supervised by workers familiar with techniques of wood framed construction and proper installation of prefabricated structural shear walls.
- B. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
  1. ASTM A36 - Carbon Structural Steel
  2. ASTM A307 - Carbon Steel Bolts and Studs
  3. ASTM A449 - Quenched and Tempered Steel Bolts and Studs
  4. ASTM A563 Grade A – Low Carbon Hex or Heavy Hex Nuts
  5. ASTM F844 – Standard Specification for Washers, Steel, Plain (Flat) Unhardened for General Use
  6. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvanized) by Hot-Dip Process
  7. 2006 International Building Code (IBC)
  8. Manufacturer's specifications as submitted and approved for this project.

##### 1.05 DELIVERY, HANDLING & STORAGE

- A. Deliver products to job site undamaged, complete with installation instructions or a manufacturer's Product Catalog. Do not bend, crimp or puncture any of the surfaces during handling.
- B. Short term storage does not require protection from weather. For long term storage in an area that is not protected from weather, cover to reduce prolonged exposure and contact with moisture.

## PART 2 – PRODUCTS

### 2.01 PREFABRICATED STEEL SHEAR WALLS

- A. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
  - 1. Hardy Frame Panels
- B. Provide all manufacturer's accessories as required for a complete installation including templates, bolts, and connectors.

### 2.02 MATERIALS

- A. Steel Grades:
  - 1. Sheet: ASTM A653, SS Grade 50
  - 2. Plate Washers: Hot-rolled flat bar, ASTM A36
  - 3. Fasteners:
    - a. Tension Anchors (hold downs) ASTM A36 threaded rod
      - 1. Attach with ASTM F844 washers below ASTM A563 Grade A nuts
    - b. Shear Anchors: ASTM A307
      - 2. Attach with ASTM F844 washers below ASTM A563 Grade A nuts
    - c. Shear screws: AISI C 1022 (SAE Grade 5)
- B. Steel Finishes:
  - 1. Sheet: Hot Dipped Galvanized: G90
  - 2. Plate Washers: Galvanize Paint
  - 3. Anchors: Black
  - 4. Screws: Zinc and dichromate

### 2.03 FABRICATION:

- A. Shop assemble all shear panels.
- B. Fabrication tolerances per manufacturer, except that panels shall fit neatly inside site framed walls with no offsets or bulges.
- C. The product and manufacturer identification shall be provided on all shear panels.

### 2.04 TESTING

- A. Testing shall have been conducted by an independent laboratory to confirm the calculated allowable loads.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. The Panels shall be installed on supporting structural members per the Drawings.
- B. Verify that the properties and dimensions of the supporting member are sufficient to receive the specified panels.

### 3.02 INSTALLATION

- A. For installation on "Foundations", Panels may be installed on a nut and washer (double nut installation), directly onto concrete or masonry. Do not exceed the manufacturer's allowable load values provided in the table corresponding to this installation

- B. For installations that stack prefabricated steel shear walls the load path for tension, compression and shear must be complete to the foundation. Do not install shims or fillers between panels unless shown.
- C. Choose the correct template recommended by the manufacturer and corresponding to the product being installed to assure proper embed bolt placement.
- D. For Panels, the orientation of the solid face should be determined with input from the other trades. This may reduce the need for penetrations in the solid face, or web. Solid face may be installed toward interior or exterior of the building.
- E. Install top and bottom connections per the corresponding details.
- F. To extend the length of threaded rod hold downs coupling nuts are allowed provided they are ASTM A563 Grade A (minimum).
- G. Install washers and nuts at all anchors. All nuts should be “snug tight” immediately prior to enclosing the wall with surface material finishes.
- H. Specified fasteners must be installed according to the Drawings and in accordance with the manufacturer’s instructions.
- I. Install specified top connectors after loading the prefabricated steel shear wall.
- J. For connections to non-structural members such as furring, siding and fixtures, use #10 self tapping screws with a head that is appropriate for the material being connected.
- K. For connections to structural members such as beams or posts, use #10 self tapping screws with a head that is appropriate for the material being connected and do not exceed allowable uniform loads (W), point loads (P), or compression and tension loads at the products post.
- L. Field penetrations into the structural members are allowed only per the manufacturer’s typical details, and as approved by the Architect and the Engineer.

### 3.03 FIELD QUALITY CONTROL

- A. Determine that the proper part is being used by observing the Manufacturer’s label denoting the model number and manufacturer name.
- B. Determine that the product is being supported by and connected to structural members in accordance with the Drawings and the manufacturer’s specifications.

### **END OF SECTION**



## SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Wood roof trusses.
  - 2. Wood girder trusses.
  - 3. Wood truss bracing.
  - 4. Metal truss accessories.
- B. Related Sections include the following:
  - 1. Division 06 Section "Rough Carpentry" for roof sheathing.
- C. Allowances: Provide wood truss bracing under the Metal-Plate-Connected Truss Bracing Allowance as specified in Division 01 Section "Allowances."

#### 1.3 DEFINITIONS

- A. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plate-connected members fabricated from dimension lumber and cut and assembled before delivery to Project site.
- B. TPI: Truss Plate Institute, Inc.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NLGA: National Lumber Grades Authority.
  - 2. SPIB: The Southern Pine Inspection Bureau.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.
  - 1. Design Loads: As indicated.

2. Maximum Deflection Under Design Loads:
  - a. Roof Trusses: Vertical deflection of 1/240 of span.

## 1.5 SUBMITTALS

- A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.
- B. Shop Drawings: Prepared by or under the supervision of a qualified professional engineer. Show fabrication and installation details for trusses.
  1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
  2. Indicate sizes, stress grades, and species of lumber.
  3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
  4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
  5. Show splice details and bearing details.
  6. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss fabricating firm.
- D. Qualification Data: For metal-plate manufacturer, fabricator and Installer.
- E. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- F. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
  1. Metal-plate connectors.
  2. Metal truss accessories.

## 1.6 QUALITY ASSURANCE

- A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
  1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
  2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

- B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
- C. Source Limitations for Connector Plates: Obtain metal connector plates from a single manufacturer.
- D. Comply with applicable requirements and recommendations of the following publications:
  - 1. TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
  - 2. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
  - 3. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
- E. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations of TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
  - 1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
  - 2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
  - 3. Provide for air circulation around stacks and under coverings.
- B. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

#### 1.8 COORDINATION

- A. Time delivery and erection of trusses to avoid extended on-site storage and to avoid delaying progress of other trades whose work must follow erection of trusses.

### PART 2 - PRODUCTS

#### 2.1 DIMENSION LUMBER

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
  2. Provide dressed lumber, S4S.
  3. Provide dry lumber with 19 percent maximum moisture content at time of dressing.
- B. Grade and Species: For truss chord and web members, provide dimension lumber of any species, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."
- C. Grade and Species: Provide visually graded dimension lumber for truss chord and web members of the following species:
1. Species: Southern pine; SPIB.
  2. Species: Douglas fir-larch; WCLIB or WWPA.
- D. Minimum Chord Size For Roof Trusses: 2 by 6 inches nominal for both top and bottom chords.
- E. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 06 Section Rough Carpentry.

## 2.2 METAL CONNECTOR PLATES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Alpine Engineered Products, Inc.
  2. Cherokee Metal Products, Inc.; Masengill Machinery Company.
  3. CompuTrus, Inc.
  4. Eagle Metal Products.
  5. Jager Building Systems, Inc.
  6. MiTek Industries, Inc.; a subsidiary of Berkshire Hathaway Inc.
  7. Robbins Engineering, Inc.
  8. TEE-LOK Corporation; a subsidiary of Berkshire Hathaway Inc.
  9. Truswal Systems Corporation.
- B. General: Fabricate connector plates to comply with TPI 1.
- C. Hot-Dip Galvanized Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 coating designation; and not less than 0.036 inch thick.
1. Use for interior locations where stainless steel is not indicated.

## 2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

## 2.4 METAL TRUSS ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Cleveland Steel Specialty Co.
  - 2. Harlen Metal Products, Inc.
  - 3. KC Metals Products, Inc.
  - 4. Simpson Strong-Tie Co., Inc.
  - 5. Southeastern Metals Manufacturing Co., Inc.
  - 6. USP Structural Connectors.
- B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
- C. Roof Truss Bracing/Spacers: U-shaped channels, 1-1/2 inches wide by 1 inch deep by 0.040 inch thick, made to fit between 2 adjacent trusses and accurately space them apart, and with tabs having metal teeth for fastening to trusses.

## 2.5 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20, with dry film containing a minimum of 94 percent zinc dust by weight.

## 2.6 FABRICATION

- A. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.
- B. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.
- C. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
  - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

- D. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- F. Space trusses 24 inches o.c.; adjust and align trusses in location before permanently fastening.
- G. Anchor trusses securely at bearing points; use metal truss tie-downs as applicable. Install fasteners through each fastener hole in truss accessories according to manufacturer's fastening schedules and written instructions.
- H. Securely connect each truss ply required for forming built-up girder trusses.
  - 1. Anchor trusses to girder trusses as necessary to transfer loads.
- I. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
  - 1. Install bracing to comply with Division 06 Section Rough Carpentry.
- J. Install wood trusses within installation tolerances in TPI 1.
- K. Do not cut or remove truss members.
- L. Replace wood trusses that are damaged or do not meet requirements.
  - 1. Do not alter trusses in field.

### 3.2 REPAIRS AND PROTECTION

- A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Repair damaged galvanized coatings on exposed surfaces with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- C. Protective Coating: Clean and prepare exposed surfaces of metal connector plates. Brush apply primer, when part of coating system, and one coat of protective coating.
  - 1. Apply materials to provide minimum dry film thickness recommended by coating system manufacturer.

END OF SECTION 061753



## SECTION 06200 - FINISH CARPENTRY

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Finish carpentry items.
- B. Wood door frames, glazed frames.
- C. Wood casings, base and moldings.
- D. Interior wood guardrails and handrails.
- E. Hardware and attachment accessories.
- F. Exterior soffits under second floor enclosed balconies.
- G. Eave and soffit vents.

#### 1.2 REFERENCE STANDARDS

- A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide data on cellular PVC materials and application instructions.
  - 2. Provide instructions for attachment hardware and finish hardware.
- C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, accessories, to a minimum scale of 1-1/2 inch to 1 ft.
- D. Samples: Submit two samples of wood trim 12 inch long.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

### PART 2 PRODUCTS

#### 2.1 MATERIALS - GENERAL

- A. Unless otherwise indicated provide products of quality specified by AWI Architectural Woodwork Quality Standards Illustrated for Custom grade.

#### 2.2 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

## 2.3 LUMBER MATERIALS

- A. Hardwood Lumber: Maple species, S4S sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
- B. Exterior Trim and molding:
  - 1. Basis of Design: Azek expanded rigid poly-vinyl chloride trim and molding products, [www.azek.com](http://www.azek.com).
  - 2. Acceptable manufacturer's:
    - a. Fypon PVC trim and moldings, [www.fypon.com](http://www.fypon.com).
  - 3. Profile: As shown on drawings.
  - 4. Substitutions: See Section 01600 - Product Requirements.
- C. Exterior Decking:
  - 1. Basis of Design: Porch Plank Decking by Azek.
  - 2. Size: 1 x 3-1/8 inch (actual size).
  - 3. Location: all second floor balconies and as indicated on drawings.
- D. Exterior Decorative Porch Brackets:
  - 1. Fabricated from Azek 5/4 inch thick trimboards, supplied by Millwork Unlimited, [www.parksite.com](http://www.parksite.com).
- E. Exterior Rails:
  - 1. Basis of Design: Azek Premier and Trademark railings.
  - 2. Acceptable manufacturer: HG & B Perma Porch railing:
    - a. Savannah top rail.
    - b. 1-1/2 inch square balusters.
    - c. 4-1/4 inch square newels and top.
  - 3. Acceptable alternate: Wood fabricated rails
    - a. AWI custom grade, Northern or Eastern white pine, paint finish.
    - b. 36 inches high rails.
    - c. Termite treated wood, non-incised.
    - d. Pickets: 2 x 2.
    - e. Posts: 6 x 6.
    - f. Provide caps on ends of posts.
- F. Interior trim, casing and molding:
  - 1. Material:
    - a. Free foam cellular PVC trim and molding: where called for in drawings.
      - 1) Adhesive: per manufacturers recommendation.
    - b. Wood: paint grade finger-jointed poplar.
  - 2. Profile as indicated on drawings.
- G. Interior wood guardrails and handrails:
  - 1. Size: as indicated on drawings.
  - 2. Fasteners: no exposed fasteners except as detailed on drawings.
  - 3. Picket and cap species: Select white maple, grade 1.

## 2.4 FASTENERS

- A. Fasteners: Of size and type to suit application; bright finish in concealed locations and bright finish in exposed locations where allowed.

## 2.5 ACCESSORIES

- A. Lumber for Shimming, Blocking: Softwood lumber of Southern Yellow Pine species.

- B. Primer: as specified in Section 09900.
- C. Wood Filler: waterbased base, tinted to match surface finish color.

## 2.6 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. Fit exposed sheet material edges with 3/8 inch matching hardwood edging. Use one piece for full length only.
- C. Shop assemble PVC cornices, field paint.
- D. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### 3.2 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.
- B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- C. Install hardware supplied by Section 08710 in accordance with manufacturer's instructions.

### 3.3 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply one coats of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

### 3.4 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09900.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

### 3.5 ERECTION TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**



## SECTION 06470 - WOOD SHUTTERS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Exterior shutters.
- B. Exterior shutter hardware.

#### 1.2 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide Manufacturer's data sheets on each product to be used, including:
  - 1. Materials, dimensions, profiles, fasteners and anchors, hardware and finishes.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Field finishing instruction, to be forwarded to paint applicator.
- C. Shop Drawings: Indicate size of units, size of members, profile of slats and proposed fasteners.
- D. Samples: Submit one full size sample for review and approval. This will be returned and may be installed into the project.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

#### 1.4 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver materials to project site in manufacturer's original, packaging, with labels clearly identifying product name and manufacturer..
- B. Store products in manufacturer's packaging under cover and elevated above grade.
- C. Protect materials during handling and installation to prevent damage.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Kestrel Shutters & Doors, Inc., [www.dyishutters.com](http://www.dyishutters.com).
- B. Substitutions: See Section 01600 - Product Requirements.

#### 2.2 MATERIALS

- A. Solid clear Spanish Cedar.

#### 2.3 SHUTTERS

- A. Exterior Shutters: FAS grade clear, kiln dried Spanish Cedar; frames with pegged, mortise and tenon joints. Frame thickness as follows:
  - 1. 1-1/4 inch (32 mm).
- B. Louvered Shutters:
  - 1. Style: Alnwick:

- a. Fixed louver; centered mid-rail for 50 percent over 50 percent split.
- 2. Style: Calais:
  - a. Fixed louver; two mid-rails for three equal sections.
- 3. Style: Custom:
  - a. Fixed louver; two mid-rails for three sections with spacing as shown on building elevations.
- C. Paneled Shutters:
  - 1. Style: Bristol; paneled with a mid-rail for 50 percent over 50 percent split.
  - 2. Style: Kennett; paneled with two mid-rails for three equal sections.
  - 3. Panel Style: Traditional raised panel: 13/16 inch (21 mm) thick; without trim.
- D. Board and Batten Shutters:
  - 1. Style: Tongue and groove board & batten; full height boards with surface-applied cross-battens at approximately 1/8 of height from top and bottom and one cross-batten at mid-point. The number of vertical boards per shutter will vary depending on the actual shutter width.
  - 2. Style: Custom; design as indicated on drawings.
    - a. Special features as per drawing
- E. Fixed Louvers:
  - 1. Mortise and tenon joints.
  - 2. Blade Size: Plantation, 2-1/2 inch (64 mm).

## 2.4 SHUTTER HARDWARE

- A. Exterior Shutter Hardware:
  - 1. Hinges:
    - a. Surface Mounted Hinges: L strap hinge; stainless steel; straight edges.
      - 1) Phosphate coating with matte black finish coating.
  - 2. Slide Bolts:
    - a. Slide Bolts: Wrought iron plate; wrought steel slide; round ends. Phosphate coating with matte black finish coating.
  - 3. Shutter Dogs:
    - a. Provide lag, plate, or long arm/sill mount for complete assembly.
    - b. Style: Hook and Staples; 3/8x 12 inch hand forged steel.
      - 1) Phosphate coating with matte black finish coating.
  - 4. Mounting
    - a. Provide lag bolt mounting for attachment to stone, stucco, brick, or frame construction.
    - b. Provide surface plate mounting for attachment to wood siding.
    - c. Provide long arm extension mounting for attachment to stone construction.
  - 5. Ring Pulls (at second floor shutters with no accessible balcony only):
    - a. Ring Pulls: Wrought iron; with pin. Phosphate coating with matte black finish coating.

## 2.5 FABRICATION

- A. Finish: Field applied paint.
- B. Joints: Frame to be mortise and tenden with exterior rated glue and stainless steel screws countersunk and plugged.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of any unsatisfactory preparation before proceeding.
- C. Commencement of work will imply acceptance of substrate.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation..

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Secure to wall through the cement plaster and into wood studs.
- C. Provide stand-offs to keep shutters away from cement plaster to allow water to pass by.

### 3.4 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch.

### 3.5 PROTECTION

- A. Protect exterior work from weather until paint or transparent finish is applied.
- B. Protect installed products from damage by weather and other work until Date of Substantial Completion.
- C. Touch-up and repair damaged products before Date of Substantial Completion.
- D. Replace damaged products where touch-up or repair cannot be made indistinguishable from undamaged products.

**END OF SECTION**



## SECTION 06610 - GLASS FIBER AND RESIN FABRICATIONS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Fiber-reinforced polymer composite Columns and Pilasters.
- B. Cellular PVC Columns.
- C. Decorative Capitals and Bases.
- D. Cellular PVC Millwork.

#### 1.2 REFERENCE STANDARDS

- A. ASTM D 570 - Standard Test Method for Water Absorption of Plastics; 1998 (Reapproved 2005).
- B. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics; 2008.
- C. ASTM D 2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005.
- D. ASTM D2395-06 Standard Test Methods for Specific Gravity of Wood and Wood-Based Materials
- E. ASTM D4726 - 02 Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Exterior-Profile Extrusions Used for Assembled Windows and Doors.
- F. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2007.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Physical Properties:
  - 1. Specific gravity/Gr/CC density of 0.62 when tested in accordance with ASTM D2395.
  - 2. Surface hardness of Shore D 0.71 when tested in accordance with ASTM D2240.
  - 3. Screw holding of 400 pounds when tested in accordance with ASTM D 1761.
  - 4. Nail holding of 0.61 pounds when tested in accordance with ASTM D 1761.
  - 5. PSI Tensile strength of 2984 when tested in accordance with ASTM D 638.
  - 6. Water absorption percent increase in weight of +0.04 percent when tested in accordance with ASTM D570.
  - 7. Dimensional stability 0.53 percent when tested in accordance with ASTM D 4726.

#### 1.4 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified component products including recommendations for finishing columns and installation.
- C. Shop Drawings: Indicate dimensions, adjacent construction, materials, thicknesses, fabrication details, required clearances, field jointing, tolerances, colors, finishes, methods of support, integration of plumbing components, and anchorages.
- D. Samples: Submit two samples of each profile, 18 inches long, illustrating texture, and finish.
- E. Maintenance Data: Include instructions for stain removal, surface and gloss restoration.

## 1.5 QUALITY ASSURANCE

- A. Shop Fabricator: Company specializing in architectural glass fiber and resin components with three years documented experience.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect components from damage by retaining shipping protection in place until installation.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Fiber and Resin Columns:
  - 1. PermaCast round and square columns and pilasters by HB & G Perma Builders, [www.hbgcolumns.com](http://www.hbgcolumns.com).
- B. Cellular PVC round and square columns by HB & G Perma Builders, [www.hbgcolumns.com](http://www.hbgcolumns.com).
  - 1. Permawrap round and square columns by HB & G Perma Builders, [www.hbgcolumns.com](http://www.hbgcolumns.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

### 2.2 MATERIALS

- A. Fiber and Resin Columns:
  - 1. FRP: Centrifugal-cast, fiberglass-reinforced polymer.
    - a. Comply with ASTM E 84.
    - b. Flame Spread index: 15.
    - c. Smoke Developing Index: 335.
- B. Cellular PVC columns
  - 1. Expanded cellular PVC.
  - 2. Wall thickness: 1/2 inch unless noted otherwise on drawings.
- C. Roving: Continuous glass fiber strands, chemically sized, wound into tubeless packaging, for up to 24 percent chopped glass content, for epoxy resin.
- D. Resin: Polyester type, fire resistant, high workability characteristics.

### 2.3 SHOP FABRICATION

- A. Tuscan capitals: Injection-molded, high impact styrene or high-density polyurethane.
- B. Tuscan base: Injection-molded, high impact styrene or fiberglass reinforced polymer.
- C. Mold Surface: Smooth.
- D. Finish trim corners and edges.
- E. Columns to be 2 pieces (L-shaped) for installation around structural columns.

### 2.4 CONFIGURATION

- A. Round:
  - 1. Height: as indicated on drawings.
  - 2. Diameter: as indicated on drawings.
  - 3. Style: as indicated on drawings.

- B. Square:
  - 1. Height: as indicated on drawings.
  - 2. Diameter: as indicated on drawings.
  - 3. Style: as indicated on drawings.

## 2.5 FINISH

- A. Color: field painted, see section 09900.
- B. Exposed to view Surface Texture: smooth.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.

### 3.2 INSTALLATION

- A. Install fabrications in accordance with shop drawings and fabricator's instructions.
- B. Joints shall be filled and finished as recommended by manufacturer.
- C. Joining or Fastening:
  - 1. Nailing: For power nailing use, T nails or finish nails. For hand nailing use 6 to 8 penny finishing nails. Space nails 8 inches (203 mm) apart. Fill holes with colored caulk, putty or spackling.
  - 2. Screws: Use drywall screws with large thread or flute. Fill holes with colored caulk, putty or spackling.
  - 3. Cellular PVC requirements:
    - a. Adhesive: Use adhesives identified for use with PVC, PVC cement will bond cellular PVC joints.
    - b. When butting profiles together use scarf joint.
    - c. To raise dents or marks on the profiles, use a hair dryer.
  - 4. Fill dents and gouges and correct errors before applying final coating.
  - 5. Fill seams between two-piece column covers as recommended by manufacturer, seams to be invisible when complete.
  - 6. Insert vents in columns as required by manufacturer.
  - 7. Prepare surfaces and paint materials as recommended by the manufacturer.

### 3.3 TOLERANCES

- A. Maximum variation from true position: 1/4 inch.
- B. Maximum offset from true alignment: 1/8 inch.

### 3.4 CLEANING

- A. Clean components of foreign material without damaging finished surface.
- B. Clean fabrications in accordance with fabricator's instructions.
- C. If moldings get dirty during installation clean with a light detergent and warm water. For stubborn stains use denatured alcohol or one pint bleach to 5 parts water.

- D. Protect installed products until completion of project.
- E. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**

## **SECTION 07130 - SELF ADHERING MEMBRANE**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Self adhesive sheet membrane waterproofing at second floor balconies.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers- Tension; 2006a.
- B. ASTM E 96/E 96M - Standard Test Methods For Water Vapor Transmission of Materials; 2005.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for membrane.
- C. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- D. Manufacturer's Installation Instructions: Indicate special procedures.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### **1.4 QUALITY ASSURANCE**

- A. Membrane Manufacturer Qualifications: Company specializing in waterproofing sheet membranes with three years experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience.

#### **1.5 FIELD CONDITIONS**

- A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Grace Construction Products; Product Grace Ultra, [www.na.graceconstruction.com](http://www.na.graceconstruction.com).
- B. Other Acceptable Laminated Composite Manufacturers:
  - 1. W.R. Meadows, Inc; Product Air-Shield: [www.wrmeadows.com](http://www.wrmeadows.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

#### **2.2 MEMBRANE MATERIALS**

- A. Composite Laminate Membrane: Comprised of high strength polyethylen film and butyl rubber adhesive; 30 mil total thickness.
  - 1. Tensile Strength, membrane: 250 psi, measured in accordance with ASTM D 412 (Die C modified).

2. Elongation: 250 percent, measured in accordance with ASTM D 412 (Die C modified).
3. Water Vapor Permeability: 0.05 perm inch, measured in accordance with ASTM E 96/E 96M.

B. Membrane Sealant: As recommended by membrane manufacturer.

## 2.3 ACCESSORIES

A. Primer as recommended by membrane manufacturer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify substrate surfaces are durable; free of matter detrimental to adhesion or application of waterproofing system.
- C. Verify that items that penetrate surfaces to receive waterproofing are securely installed.

### 3.2 PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions. Vacuum substrate clean.
- C. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.
- D. Seal cracks and joints with sealant using depth to width ratio as recommended by sealant manufacturer.
- E. Surfaces for priming: Apply primer at a rate recommended by manufacturer. Protect prime from rain or frost until dry.

### 3.3 INSTALLATION - MEMBRANE

- A. Install membrane waterproofing in accordance with manufacturer's instructions.
- B. Roll out membrane. Minimize wrinkles and bubbles.
- C. Remove release paper layer. Roll out on substrate with a mechanical roller to encourage full contact bond.
- D. Overlap edges and ends and seal by method recommended by manufacturer, minimum 3 inches. Seal permanently waterproof.
- E. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.
- F. Weather lap joints on sloped substrate in direction of drainage. Seal joints and seams.
- G. Install flexible flashings. Seal items penetrating through membrane with flexible flashings. Seal watertight to membrane.

H. Seal membrane and flashings to adjoining surfaces. Install counterflashing over all exposed edges.

#### 3.4 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

**END OF SECTION**



## SECTION 07212 - BATT INSULATION

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Batt insulation in exterior wall, ceiling, and roof construction.

#### 1.2 REFERENCE STANDARDS

- A. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.
- B. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

### PART 2 PRODUCTS

#### 2.1 APPLICATIONS

- A. Insulation in Wood Framed Walls: Batt insulation with no vapor retarder.
  - 1. R-15 batts in wall.
- B. Insulation in Wood Framed Ceiling Structure: Batt insulation with no vapor retarder.
  - 1. R-21 batts at interior floors over exterior porches.
  - 2. R-30 batts in attic/roof assembly.
  - 3. R-15 batts in cathedral ceilings with 2 6 and 2 x 8 rafters.
  - 4. R-21 batts in cathedral ceilings with 2 x 10 rafters.

#### 2.2 BATT INSULATION MATERIALS

- A. Batt Insulation: ASTM C 665; preformed batt; friction fit, conforming to the following:
  - 1. Combustibility: Non-combustible, when tested in accordance with ASTM E 136, except for facing, if any.
  - 2. Formaldehyde Content: Zero.
  - 3. Thermal Resistance: R value as indicated in 2.1.
  - 4. Facing: Asphalt treated mesh reinforced Kraft paper, one side.
  - 5. Manufacturer: Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 6. Substitutions: See Section 01600 - Product Requirements.

#### 2.3 ACCESSORIES

- A. Nails or Staples: Steel wire; galvanized; type and size to suit application.
- B. Spring wire at interior floor above exterior porches.
- C. Low expansive foam: see Section 07214.

### PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

### 3.2 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall, roof, ceiling, and floor spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Retain insulation batts in place with wire mesh secured to framing members.
- F. At wood framing, place vapor retarder on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over member face.
- G. Tape seal tears or cuts in vapor retarder.
- H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.
- I. Coordinate work of this section with requirements for vapor retarder specified in Section 07260.
- J. Coordinate work of this section with construction of air barrier seal specified in Section 07260.

### 3.3 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

**END OF SECTION**

## SECTION 07214 - SPRAY FOAM INSULATION

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Spray foam insulation under first floor assemblies in crawl spaces.
- B. Low expansive foam insulation at doors and windows where voids are too small to install batts.

#### 1.2 REFERENCE STANDARDS

- A. ASTM C 1029 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation; 2007.
- B. ASTM E 96/E 96M - Standard Test Methods for Water Vapor Transmission of Materials; 2005.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, and preparation requirements.
- C. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing work of the type specified, with minimum three years of experience.

#### 1.5 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame and smoke limitations.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Spray Foam Insulation:
  - 1. Apex Foam Industries; Earth Seal 1.8: [www.apexfoam.org](http://www.apexfoam.org).
  - 2. BASF Polyurethane Foam Enterprises LLC; Product Comfort Foam: [www.foamenterprises.com](http://www.foamenterprises.com).
  - 3. North Carolina Foam Industries; Product InsulStar: [www.ncfi.com](http://www.ncfi.com).
  - 4. Substitutions: See Section 01600 - Product Requirements.
- B. Low expansive foam Insulation
  - 1. Great Stuff Pro by Dow Building Solutions; [www.building.dow.com/na/products/greatstuff/gst\\_window.htm](http://www.building.dow.com/na/products/greatstuff/gst_window.htm).
  - 2. Kwik Foam by DAP, [www.dap.com/docs/tech/00077005001.pdf](http://www.dap.com/docs/tech/00077005001.pdf).

#### 2.2 MATERIALS

- A. Spray foam insulation: ASTM C 1029, Type I, polyurethane.
- B. Low expansive foam Insulation:
  - 1. One-component.
  - 2. Minimally expanding.
  - 3. Low-pressure-build.
  - 4. Flexible polyurethane foam.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify work within construction spaces or crevices is complete prior to insulation application.
- B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation adhesion.

### 3.2 PREPARATION

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

### 3.3 APPLICATION

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Apply Spray foam insulation to a minimum cured thickness of 3-1/2 inch.
- D. Apply Low expansive foam around windows and doors to completely fill cavity.
- E. Patch damaged areas.

### 3.4 FIELD QUALITY CONTROL

- A. Field inspections and tests will be performed by an independent testing agency under provisions of Section 01400.
- B. Inspection will include verification of insulation and overcoat thickness and density.

### 3.5 PROTECTION

- A. Do not permit subsequent construction work to disturb applied insulation.

**END OF SECTION**

## SECTION 07260 - WEATHER BARRIERS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Water-Resistive Barrier (WRB): Under exterior wall cladding, over sheathing or other substrate; not air-tight or vapor retardant.
- B. Self-Adhered Flashing (SAF): Behind PVC trim.
- C. Self Adhered Flashing Tape (SAF Tape): Used to tape WRB at seams.
- D. Sill Self Adhered Flashing (Sill SAF): Used at window sill rough openings, under metal pan flashing.
- E. Head Self Adhered Flashing (Head SAF): Used at window and door head and jamb rough openings.
- F. Rafter Vent: Used under roof sheathing over rafters at cathedral roofs.

#### 1.2 REFERENCE STANDARDS

- A. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2001.
- B. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 1997 (Reapproved 2004).

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on material characteristics.
- C. Shop Drawings: Provide drawings of special joint conditions.
- D. Manufacturer's Installation Instructions: Indicate preparation.

#### 1.4 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

### PART 2 PRODUCTS

#### 2.1 WEATHER BARRIER ASSEMBLIES

- A. All weatherization products shall be manufactured by DuPont Tyvek. Provide warranty entire system for 5 years.
- B. Water-Resistive Barrier (WRB): Provide on exterior walls under exterior cladding and where indicated in other sections.
  - 1. Performance Characteristics:
    - a. Air Penetration: 0.004 cfm/ft<sup>2</sup> at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677.
    - b. Water Vapor Transmission: 50 perms, when tested in accordance with ASTM E96, Method B.

- c. Water Penetration Resistance: 210 cm when tested in accordance with AATCC Test Method 127.
  - d. Basis Weight: 2.1 oz/yd<sup>2</sup>, when tested in accordance with TAPPI Test Method T-410.
  - e. Air Resistance: 300 seconds, when tested in accordance with TAPPI Test Method T-460.
  - f. Tensile Strength: 30/30 lbs/in., when tested in accordance with ASTM D882, Method A.
  - g. Tear Resistance: 7/9 lbs, when tested in accordance with ASTM D1117.
  - h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: 5, Smoke Developed: 25
2. Product: Tyvek Drainwrap by DuPont unless otherwise indicated.
  3. Under portland cement stucco, use two separate layers of building paper, see Section 09220.
  4. Accessories:
    - a. Fasteners: Tyvek® Wrap Caps, as manufactured by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners.
    - b. Sealants: Refer to Section 07920.
    - c. Adhesives: Provide adhesive recommended by weather barrier manufacturer.
    - d. Primer: Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
- C. Self-Adhered Flashing (SAF): Provide behind PVC Trim, siding butt joints and all locations where nails will be penetrating WRB.
1. Product: DuPont™ StraightFlash™, as manufactured by DuPont Building Innovations: straight flashing membrane.
    - a. Width: 9 inches typical unless noted otherwise
- D. Self Adhered Flashing Tape (SAF Tape): Used to tape WRB at seams.
1. Product: DuPont Tyvek Tape.
    - a. Width: 3 inches wide.
    - b. Thickness: 20 mils.
- E. Sill Self Adhered Flashing (Sill SAF): Used at window sill rough openings, under metal pan flashing.
1. Product: DuPont Tyvek Flexiwrap, straight flashing.
    - a. Width: 9 inches typical unless noted otherwise.
    - b. Thickness: 70 mils.
    - c. Face Material Composition: Conformable textured polyethylene laminate barrier.
    - d. Face color: white
    - e. Adhesive composition: Butyl adhesive
    - f. Release Liner: 1 piece siliconized paper.
    - g. Elastic Elongation: >230% at 70°F.
- F. Head Self Adhered Flashing (Head SAF): Used at window and door head and jamb rough openings.
1. Product: DuPont Tyvek Flexiwrap, straight flashing.
    - a. Width: 9 inches typical unless noted otherwise.
    - b. Thickness: 70 mils.

- c. Face Material Composition: Conformable textured polyethylene laminate barrier.
  - d. Face color: white
  - e. Adhesive composition: Butyl adhesive
  - f. Release Liner: 1 piece siliconized paper.
  - g. Elastic Elongation: >230% at 70°F.
- G. Rafter Vent: Used under roof sheathing over rafters at cathedral roofs.
- 1. Product: DuPont Tyvek Attic Wrap.
  - 2. Performance Characteristics:
    - a. Water Vapor Transmission: 27 perms, when tested in accordance with ASTM E 96, Method B.
    - b. Water Penetration Resistance: 200 cm when tested in accordance with AATCC Test Method 127.
    - c. Air Resistance: Air infiltration at 1100 seconds, when tested in accordance with TAPPI Test Method T-460.
    - d. Tensile Strength: 26/29 lbs/in., when tested in accordance with ASTM D 882, Method A.
    - e. Tear Resistance: 4100/4800 grams, when tested in accordance with ASTM D 1922.
    - f. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 5, Smoke Developed: 40

## 2.2 SEALANTS: See Section 07920.

- A. Type 2, as recommended by weather barrier manufacturer. See Section 07900 Sealants.

## 2.3 ACCESSORIES

- A. Self-Adhesive Sheet Flashing: ASTM D 1970.
- B. Thinners and Cleaners: As recommended by material manufacturer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surfaces and conditions are ready to accept the work of this section.

### 3.2 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

### 3.3 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.
- C. Mechanically Fastened Sheets - On Exterior:
  - 1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
  - 2. Overlap seams as recommended by manufacturer but at least 6 inches.

3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
  4. Attach to framed construction with fasteners extending through sheathing into framing. Space fasteners at 12 to 18 inches on center along each framing member supporting sheathing.
  5. Where stud framing rests on concrete or masonry, extend lower edge of sheet at least 4 inches below bottom of framing and seal to foundation with sealant.
  6. Install Head Self Adhered Flashing (Head SAF) over sheathing.
  7. Install Weather-Resistant Barrier over jamb flashings.
  8. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.
- D. Self-Adhesive Sheets:
1. Prepare substrate in manner recommended by sheet manufacturer; fill and tape joints in substrate and between dissimilar materials.
  2. Lap sheets shingle-fashion to shed water and seal laps air-tight.
  3. Use same material, or other material approved by sheet manufacturer for the purpose, to seal to adjacent construction and as flashing.
  4. At wide joints, provide extra flexible membrane allowing joint movement.
- E. Openings and Penetrations in Exterior Weather Barriers:
1. Install Sill Self Adhered Flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
  2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with Head Self Adhesive Flashing at least 4 inches wide; do not seal sill flange.
  3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using self-adhesive flashing at least 9 inches wide, covering entire depth of framing.
  4. At head of openings, install self-adhesive flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
  5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
  6. Service and Other Penetrations: Form self-adhesive flashing around penetrating item and seal to weather barrier surface.

### 3.4 FIELD QUALITY CONTROL

- A. Do not cover installed weather barriers until required inspections have been completed.
- B. Take digital photographs of each portion of the installation prior to covering up.

### 3.5 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

**END OF SECTION**

## SECTION 07311 - ASPHALT SHINGLES

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Associated metal flashings and accessories.

#### 1.2 REFERENCE STANDARDS

- A. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2006.
- B. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2001.
- C. ASTM D 3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules; 2007.
- D. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating material characteristics.
- C. Shop Drawings: For metal flashings, indicate specially configured metal flashings.
- D. Samples: Submit two samples of each shingle color indicating color range and finish texture/pattern; for color selection.
- E. Samples: Submit two samples of each color of metal flashings.
- F. Manufacturer's Instructions: Indicate installation criteria and procedures.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

### PART 2 PRODUCTS

#### 2.1 SHINGLES

- A. Manufacturers:
  - 1. Certain Teed; [www.certainteed.com](http://www.certainteed.com).
  - 2. GAF Materials Corporation: [www.gaf.com](http://www.gaf.com).
  - 3. Substitutions: See Section 01600 - Product Requirements.
- B. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D 3462; Class A fire resistance.
  - 1. Self-sealing type.
  - 2. Style: Three-Tab, square edged.

3. Color: as sheduled on drawings.

## 2.2 SHEET MATERIALS

- A. Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D 226, Type II ("No.30") at shallow roof slopes (less than 5 in 12 pitch).
- B. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D 1970; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

## 2.3 ACCESSORIES

- A. Nails: Standard round wire shingle type, of hot dipped zinc coated steel, minimum 3/8 inch head diameter and 0.105 inch shank diameter, 1-1/4 inch long.
- B. Lap Cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.
- C. Ridge Vents: Plastic, formed with vent openings that do not permit direct water or weather entry; flanged to receive shingles; X-5 X-Treme ridge vent manufactured by Cor-A-Vent Inc., [www.cor-a-vent.com](http://www.cor-a-vent.com). Provide galvanized sheet metal cap over Cor-A-Vent and under shingle cap, painted to match roofing color.
- D. Roof ventilator: Aura-D AV-10 ventilator by Active Ventilation Products Inc.

## 2.4 METAL FLASHINGS

- A. Metal Flashings: Provide sheet metal eave edge, gable edge, ridge, ridge vents, open valley flashing, dormer flashing, and other flashing indicated.
  - 1. Form flashings to profiles indicated on Drawings.
  - 2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
  - 3. Hem exposed edges of flashings minimum 1/4 inch on underside.
  - 4. Coat concealed surfaces of flashings with bituminous paint.
- B. Sheet Metal: Prefinished aluminum, 0.016 inch thick; PVC coating, color as selected.
- C. Color: Match color of sheet metal flashing provided under Section 07620.
  - 1. Color as selected by Architect.
- D. Bituminous Paint: Acid and alkali resistant type; black color.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions prior to beginning work.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- C. Verify roof openings are correctly framed.
- D. Verify deck surfaces are dry, free of ridges, warps, or voids.

### 3.2 PREPARATION

- A. Seal roof deck joints wider than 1/16 inch with deck tape.

- B. Install gable edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 6 inches on center.

### 3.3 INSTALLATION - UNDERLAYMENT

- A. At Roof Slopes Less Than 4:12 : Install two layers of underlayment over entire roof area, with ends and edges weather lapped minimum 4 inches. Stagger end laps of each consecutive layer. Nail in place.
- B. At Roof Slopes Greater Than 4:12 : Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches. Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches over eave protection.
- C. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

### 3.4 INSTALLATION - VALLEY PROTECTION

- A. Install flexible flashing in accordance with manufacturer's instructions.
- B. Weather lap joints minimum 2 inches.
- C. At Exposed Valleys: Install one layer of sheet metal flashing, minimum 24 inches wide, centered over open valley and crimped to guide water. Weather lap joints minimum 2 inch wide band of lap cement along each edge of first, press roll roofing into cement, and nail in place minimum 18 inches on center, 1 inch from edges.

### 3.5 INSTALLATION - METAL FLASHING AND ACCESSORIES

- A. Install flashings in accordance with NRCA requirements.
- B. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.
- C. Secure in place with nails at 6 inches on center. Conceal fastenings.
- D. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.

### 3.6 INSTALLATION - SHINGLES

- A. Install shingles in accordance with manufacturer's instructions.
  - 1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
  - 2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.
- B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.
- C. Starter Course: full shingle with tabs removed.
- D. Project first course of shingles 3/4 inch beyond fascia boards.
- E. Extend shingles 1/2 inch beyond face of gable edge fascia boards.
- F. Cap hips with individual shingles, maintaining 5 inch weather exposure. Place to avoid exposed nails.

- G. After installation, place one daub of plastic cement, one inch diameter under each individual shingle tab exposed to weather, to prevent lifting.
- H. Complete installation to provide weather tight service.

**END OF SECTION**

## **SECTION 07411 - PREFORMED METAL ROOF PANELS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Architectural roofing system of preformed steel panels.
- B. Fastening system.
- C. Factory finishing.
- D. Accessories and miscellaneous components.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2006a.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Storage and handling requirements and recommendations.
  - 2. Installation methods.
  - 3. Specimen warranty.
- C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
  - 1. Show work to be field-fabricated or field-assembled.
- D. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.
  - 1. Include typical panel joint in sample.
  - 2. Include typical fastening detail.
- E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

#### **1.4 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project, with not less than 5 years of documented experience.
- B. Installer Qualifications: Company trained and authorized by roofing system manufacturer.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.
- B. Panels must not be stored in the open, exposed to the sun.

- C. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

## 1.6 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Galvalume material shall have a twenty year guarantee against failure due to corrosion, rupture or perforation.
- C. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of 2 years from date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Design is based on Double-Rib Galvalume metal roof by Berridge Metal Roofing and Siding, [www.berridge.com](http://www.berridge.com).
- B. Substitutions: See Section 01600 - Product Requirements.

### 2.2 ARCHITECTURAL ROOF PANELS

- A. Performance Requirements: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.
- B. Metal Roofing: Factory-formed panels with mill finish.
  - 1. Steel Panels:
    - a. Aluminum-zinc alloy-coated steel conforming to ASTM A 792/A 792M; minimum AZ50 coating.
    - b. Steel Thickness: Minimum 24 gage.
    - c. Strippable film shall be applied to top side of painted coil to protect finish during fabrication, shipping and field handling. This strippable film must be removed before installation.
  - 2. Profile: Standing seam, with minimum 1/2 inch seam height; exposed fastener system lapped seam in standing seam profile.
  - 3. Texture: Smooth.
  - 4. Length: Full length of roof slope, without lapped horizontal joints.
  - 5. Width: Maximum panel coverage of 24 inches.
  - 6. Mill-Finish Steel Panels: Treat with passivating chemical prior to shipment, to inhibit formation of corrosion.

### 2.3 ATTACHMENT SYSTEM

- A. Exposed System: Provide manufacturer's recommended stainless steel fasteners engineered to meet performance requirements and equipped with appropriate sealant separators to provide weathertight connections that will accommodate anticipated thermal movement.

- B. Panel-to-panel and panel-to-purlin connections to be with No. 12-14 self-drilling fasteners, 1" min. for panel-to-purlin connections, 3/4" minimum for panel-to-panel connections.

## 2.4 PANEL FINISH

- A. Galvalume finish.

## 2.5 ACCESSORIES AND MISCELLANEOUS ITEMS

- A. Miscellaneous Sheet Metal Items: Provide flashings, trim, and closure strips of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Sealants: As specified in Section 07900.
  - 1. Exposed sealant must cure to rubber-like consistency.
  - 2. Concealed sealant must be non-hardening type.
- C. Underlayment: See Section 07260 Self-Adhering Membrane.
- D. Slip Sheet: Provide slip sheet where required by metal roof manufacturer.

## 2.6 FABRICATION

- A. Panels: Fabricate panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- B. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- C. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- D. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

### 3.3 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and

panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.

1. Install roofing system with exposed fasteners prefinished to match panels.
2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

B. Accessories: Install all components required for a complete roofing assembly, including flashings, trim, moldings, closure strips, preformed crickets, ridge closures, and similar roof accessory items.

C. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

1. Provide sealant tape or other approved joint sealer at lapped panel joints.

#### 3.4 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

#### 3.5 PROTECTION

#### 3.6 CLEANING AND PROTECTION

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

B. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

C. Touch-up, repair, or replace damaged roof panels or accessories before date of Substantial Completion.

**END OF SECTION**

## SECTION 07461 - WOOD SIDING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Board siding for Walls.

#### 1.2 REFERENCE STANDARDS

- A. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber; Redwood Inspection Service; 2000.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating materials.
- C. Samples: Submit two samples 12 x 12 inch in size illustrating surface texture.

#### 1.4 QUALITY ASSURANCE

- A. Grade lumber in accordance with the following:
  - 1. Redwood: RIS (GR).
- B. Siding shall have natural decay and termite/pest resistant properties. Sapwood generally does not have as great a resistance to these elements as heartwood, therefore, boards containing sapwood will be rejected.

#### 1.5 WARRANTY

- A. Provide supplier's warranty for a period of 15 years from date of Substantial Completion against cupping, warping and splitting.

### PART 2 PRODUCTS

#### 2.1 SIDING

- A. Board Siding: Flat cedar, #2 grade, maximum moisture content of 10 percent.
  - 1. Size: 1 inch thick, 8 inch high nominal board.
  - 2. Profile: Dutch lap.
  - 3. Supplier: Clear All Heart Redwood from Buffalo Lumber, [www.buffalo-lumber.com](http://www.buffalo-lumber.com).
  - 4. Surface Texture: Sanded.
  - 5. Supply boards to job-site pre-primed, all edges with high quality waterbased primer.

#### 2.2 ACCESSORIES

- A. Nails: Hot dipped galvanized type; non-staining, of size and strength to securely and rigidly retain the work for wood to wood connections.
- B. Fasteners into steel: Hardy Frames to be ET & F pin or equivalent (0.144 min shank thickness with Aericote polymer finish).
- C. Flashing: Galvanized steel as specified in Section 07620.

### PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that substrates are ready to receive work.
- B. Do not begin until unacceptable conditions have been corrected.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

### 3.3 INSTALLATION

- A. Fasten siding in place, level and plumb.
  - 1. Arrange for orderly nailing pattern. Blind nail except on over trim.
  - 2. Install siding for natural shed of water.
  - 3. Position cut ends over bearing surfaces. Sand cut edges smooth and clean.
  - 4. Minimum length of siding is 32 inches with no more than 10% of boards less than 48 inches long.
  - 5. Pre-drill siding if required to prevent splitting of panel.
- B. Sand work smooth and set exposed nails and screws.
- C.

### 3.4 INSTALLATION TOLERANCES

- A. Maximum Variation From Plumb and Level: 1/4 inch per 10 feet.
- B. Maximum Offset From Joint Alignment: 1/16 inch.

**END OF SECTION**

## SECTION 07466 - FIBER CEMENT SIDING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Wood-fiber cement siding.

#### 1.2 REFERENCE STANDARDS

- A. ASTM C 1186 - Standard Specification for Flat Fiber Cement Sheets; 2007.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Manufacturer's requirements for related materials to be installed by others.
  - 2. Preparation instructions and recommendations.
  - 3. Storage and handling requirements and recommendations.
  - 4. Installation methods, including nail patterns.
- C. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified in this section with minimum 3 years of experience.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products under waterproof cover and elevated above grade, on a flat surface.

### PART 2 PRODUCTS

#### 2.1 SIDING

- A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C 1186 Type A Grade II; with machined edges, for nail attachment.
  - 1. Style: Standard lap style.
  - 2. Texture: Smooth.
  - 3. Length: 12 ft, nominal.
  - 4. Width (Height): 5-1/4 inches.
  - 5. Exposure: 4 inches.
  - 6. Thickness: 5/16 inch, nominal.
  - 7. Finish: Unfinished.
  - 8. Warranty: 50 year limited; transferable.
  - 9. Lap Siding Manufacturers:
    - a. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
    - b. James Hardie Building Products, Inc: [www.jameshardie.com](http://www.jameshardie.com).
    - c. Substitutions: See Section 01600 - Product Requirements.

#### 2.2 ACCESSORIES

- A. Trim: See Section 06200 for trim.

- B. Fasteners into steel: Hardy Frames to be ET & F Panelfast nails or equivalent (minimum 0.10 min shank thickness x 0.313 HD with Aerico polymer finish).
- C. Fasteners into wood structure: Hot-Dipped galvanized; non-staining, of size and strength to securely and rigidly retain the work for wood to wood connections
- D. Fasteners into wood structure:
- E. Joint Sealer: As specified in Section 07900.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.
- B. Do not begin until unacceptable conditions have been corrected.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Install sheet metal flashing (See Section 07620):
  - 1. Above door and window trim and casings.
  - 2. Above horizontal trim in field of siding.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and recommendations.
  - 1. Read warranty and comply with all terms necessary to maintain warranty coverage.
  - 2. Use trim details indicated on drawings.
  - 3. Touch up all field cut edges before installing.
  - 4. Pre-drill nail holes if necessary to prevent breakage.
- B. Over Wood, Wood-Composite and Mat-Faces Gypsum Board Sheathing: Fasten siding through sheathing into studs.
- C. Joints:
  - 1. Allow space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant.
  - 2. Install a layer of self adhering flashing tape (see Section 07260) over sheathing.
  - 3. Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
- D. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
- E. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.
- F. Finish Painting: Specified in Section 09900.

### 3.4 CLEANING AND PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**



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

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Fabricated sheet metal items, including termite barriers, flashings and counterflashings.

#### **1.2 REFERENCE STANDARDS**

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2005.
- B. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.
- C. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.
- D. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.
- E. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details of flashing and termite shields.
- C. Samples: Submit two samples 3 x 5 inch in size illustrating metal finish color.

#### **1.4 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with three years of documented experience.

### **PART 2 PRODUCTS**

#### **2.1 SHEET MATERIALS**

- A. Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.
- B. Pre-Finished Aluminum: ASTM B 209 (ASTM B 209M); 0.032 inch thick; plain finish shop pre coated with fluoropolymer coating of color as selected.

1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as scheduled.
- C. Termite Shields:
1. Laminated Copper Barrier by YorkShield 10
    - a. 106 TS by YorkShield, [www.yorkmfg.com](http://www.yorkmfg.com).
    - b. Width: As required to conform to details in drawings.

## 2.2 ACCESSORIES

- A. Fasteners: Aluminum, with soft neoprene washers.
- B. Underlayment: See Section 07260.
- C. Primer: Zinc chromate type.
- D. Protective Backing Paint: Zinc molybdate alkyd.
- E. Sealant: Type specified in Section 07900.
- F. Plastic Cement: ASTM D 4586, Type I.

## 2.3 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.
- G. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

### 3.2 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

### 3.3 INSTALLATION

- A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Seal metal joints watertight.

#### 3.4 FIELD QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

**END OF SECTION**



## SECTION 07631 - GUTTERS AND DOWNSPOUTS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Pre-finished aluminum gutters and downspouts.
- B. Precast concrete splash pads.

#### 1.2 REFERENCE STANDARDS

- A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.
- C. Product Data: Provide data on prefabricated components.
- D. Samples: Submit two samples, 16 inch long illustrating component design, finish, color, and configuration.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials that could cause discoloration, staining, or damage.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate the work with downspout discharge pipe inlet.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Gutters and Downspouts:
  - 1. Berger Building Products; Product Half Round Gutters and Round Downspouts, [www.bergerbuildingproducts.com](http://www.bergerbuildingproducts.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

#### 2.2 MATERIALS

- A. Pre-Finished Galvanized Steel Sheet: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.
  - 1. Finish: Shop pre-coated with modified silicone coating.
  - 2. Color: As scheduled.

#### 2.3 COMPONENTS

- A. Gutters: Double Bead Half Round Gutter.
  - 1. Provide Model Number 6 SB (single bead with 1 inch flange) at locations indicated on drawings.

2. Provide Model Number 6 DB (double bead) at locations indicated on drawings.
- B. Downspout: Round pre-finished aluminum downspout.
  1. See drawings for size.
  2. Thickness: 0.019 inches.
- C. Offsets: Provide round offsets as required to conform to drawings.
- D. Anchors and Supports: Profiled to suit gutters and downspouts.
  1. Gutter Supports at gutter-type 6SB: Straps, Model Number 10 Combination Circle and Shank with spring clips, Model Number C\_106.
    - a. Space supports at an equal spacing, not to exceed 24 inches on center.
  2. Gutter Supports at gutter type 6DB: Straps, Model Number REGFG6.
    - a. Space supports at an equal spacing, not to exceed 24 inches on center.
  3. Downspout Supports: Stamped Sickle Hooks for wood.
    - a. Finish: painted galvanized steel, white.
  4. Downspout Supports: Brackets.
- E. Fasteners: Galvanized steel, with soft neoprene washers.

## 2.4 ACCESSORIES

- A. Factory fabricated inside and outside corners.
- B. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment at locations indicated on drawings and where downspouts daylight in non-paved areas.
- C. Provide manufacturer's standard outlets, end caps and slip joints.
- D. Downspout Boots: Coordinate with civil drawings.

## 2.5 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

## 2.6 FACTORY FINISHING

- A. Modified silicone polyester coating: Baked enamel system conforming to AAMA 603.8.
- B. Color: High Gloss White.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that surfaces are ready to receive work.

### 3.2 PREPARATION

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

### 3.3 INSTALLATION

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- C. Friction-fit lengths and connection pieces to form watertight joints. Friction-fit gutters to downspouts and accessories.
- D. Set gutters level.
- E. Connect downspouts to storm sewer system where indicated on drawings. Seal connection watertight.
- F. Set splash pans under downspouts where indicated on drawings.

**END OF SECTION**



## SECTION 07840 - FIRESTOPPING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Firestopping materials.
- B. Firestopping of all penetrations and interruptions to fire rated assemblies, whether indicated on drawings or not, and other openings indicated.

#### 1.2 REFERENCE STANDARDS

- A. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2006.
- B. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.
- C. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- D. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Qualification statements for installing mechanics.

#### 1.4 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the specified fire ratings when tested in accordance with methods indicated.
  - 1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
  - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at [www.icc-es.org](http://www.icc-es.org) will be considered as constituting an acceptable test report.
  - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
  - 1. With minimum 3 years documented experience installing work of this type.
  - 2. Approved by firestopping manufacturer.

## 1.5 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

## PART 2 PRODUCTS

### 2.1 FIRESTOPPING ASSEMBLIES

- A. Firestopping: Any material meeting requirements.
  - 1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E 814 that has F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and that meets all other specified requirements.

### 2.2 MATERIALS

- A. Firestopping Sealants: Provide only products having lower volatile organic compound (VOC) content than required by
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

**END OF SECTION**

## SECTION 07900 - JOINT SEALERS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Precompressed foam sealers.

#### 1.2 REFERENCE STANDARDS

- A. ASTM C 834 - Standard Specification for Latex Sealants; 2005.
- B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2002.
- C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2005.
- D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005a.
- E. ASTM D 1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005.
- F. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2006.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.
- C. Manufacturer's Installation Instructions: Indicate special procedures.

#### 1.4 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- C. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years experience.

#### 1.5 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

#### 1.6 COORDINATION

- A. Coordinate the work with all sections referencing this section.

### PART 2 PRODUCTS

#### 2.1 SEALANTS

- A. Type 1 - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.
  - 1. Color: Standard colors matching finished surfaces.
  - 2. Applications: Use for:

- a. Joints between trim and siding materials.
  - b. Control, expansion, and soft joints in masonry.
  - c. Joints between concrete and other materials.
  - d. Joints between metal frames and other materials.
  - e. Other exterior joints for which no other sealant is indicated.
- B. Type 2 - Exterior Sealant at Tyvek products: solvent release curing; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.
- 1. Color: Standard colors matching finished surfaces.
  - 2. Product: Weatherization Sealant manufactured by DuPont.
  - 3. Applications: Use for:
    - a. Joints between metal frames and other materials.
    - b. Window and door weather sealing.
    - c. Joints at sidings and trim.
    - d. Joints between flashings and exterior finish.
    - e. In contact with Tyvek products.
- C. Type 3 - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
- 1. Applications: Use for:
    - a. Concealed sealant bead in sheet metal work.
- D. Type 4 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
- 1. Color: Standard colors matching finished surfaces.
  - 2. Applications: Use for:
    - a. Interior wall and ceiling control joints.
    - b. Joints between door and window frames and wall surfaces.
    - c. Other interior joints for which no other type of sealant is indicated.
- E. Type 5 - Bathtub/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
- 1. Applications: Use for:
    - a. Joints between plumbing fixtures and floor and wall surfaces.
    - b. Joints between kitchen and bath countertops and wall surfaces.
- F. Type 6 - Acoustical Sealant: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
- 1. Applications: Use for concealed locations only:
    - a. At locations shown on drawings..
    - b. At perimeter of gypsum board at rated walls.

## 2.2 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

### 3.2 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

### 3.3 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C 1193.
- C. Perform acoustical sealant application work in accordance with ASTM C 919 and GA-600.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.
- H. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

### 3.4 CLEANING

- A. Clean adjacent soiled surfaces.

### 3.5 PROTECTION

- A. Protect sealants until cured.

**END OF SECTION**



## **SECTION 08212 - STILE AND RAIL MDF DOORS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. MDF doors, stile and rail design.
- B. Panels of wood, glass, and louvers.
- C. Factory Prefitting and Premachining
- D. Factory Finishing of Stile and Rail Doors.

#### **1.2 REFERENCE STANDARDS**

- A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements for submittal procedures.
- B. Product Data: Indicate stile and rail core materials and construction; type and characteristics.
- C. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for louvers.
- D. Samples: Submit two samples of door construction, 12 x 12 inch in size cut from top corner of door.
- E. Manufacturer's Installation Instructions: Indicate special installation instructions.
- F. Warranty, executed in Owner's name.

#### **1.4 QUALITY ASSURANCE**

- A. Perform work in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1400, Custom grade.
- B. Factory finish doors in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1500.
- C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years of documented experience.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1300.
- B. Doors shall be stored and handled in accordance with the manufacturer's recommendations.
  - 1. Doors shall be stored on a flat and level surface in a well ventilated dry building. Doors shall not be stored on edge and shall be protected from dirt, water and abuse.
  - 2. Protect doors from exposure to light for veneers which are light sensitive.

3. Doors shall not be subjected to extreme heat or humidity. HVAC systems should be set to provide a temperature range of 50 -90 degrees F and 30-60% relative humidity.
  4. Handle doors with clean hands or gloves. Do not drag doors across floors or other surfaces.
  5. Each Door shall be marked with the opening number
- C. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Break seal on site to permit ventilation.

## 1.6 PROJECT CONDITIONS

- A. Coordinate the work with door opening construction, door frame and door hardware installation.

## 1.7 WARRANTY

- A. See Section 01780 - Closeout Submittals for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Stile and Rail MDF Doors:
1. Basis of Design: TruStile Doors, LLC; [www.trustile.com](http://www.trustile.com).
  2. Substitutions: See Section 01600 - Product Requirements.

### 2.2 DOOR TYPES

- A. Interior Doors: 1-3/8 inches thick unless otherwise indicated; solid lumber construction; mortised and tenoned joints.
- B. Door configurations are indicated in drawings. Provide interior doors as indicated below:
1. Bedroom and Bath Doors: TS6080 by Trustile.
  2. Laundry Closets, Water Heater Closets and Mechanical Closet Doors: VLR2020 by Trustile.
  3. Other Closets: TS1000.

### 2.3 FABRICATION

- A. Fabricate doors in accordance with AWI Quality Standards requirements.
- B. All solid components, including sticking and vertical stiles shall be zipper cut to increase glue surface area of glue joint.
- C. Panels:
1. Panels shall be constructed of 48 pound density MDF routed to profile specified.
  2. Panel Type: Raised.
  3. Panels shall float inside the sticking in true stile and rail construction.

4. Panels shall be held in place by the sticking and flexible bumper shall be installed inside sticking to keep panel centered.
  5. Factory fit doors for frame opening dimensions identified on shop drawings.
- D. Sticking: Traditional (TR).
- E. V Groove Series Doors:
1. Panel to be 3/4" C3 type.
  2. Panel to be VG type.
- F. Louver Type:
1. True vented louvers.
  2. Louver blades to be plantation type 3/8" x 2-1/4" with 2-1/8" visible.
- G. Stile Construction:
1. Core material to be constructed of 2 pieces of 48 pound density MDF laminated with PVC adhesive for interior. For exterior doors MDF shall be exterior grade MDF manufactured with phenolic resins to resist moisture.
  2. Stiles are to be constructed for improved screw holding by use of hardwood "wedge", 1-5/8" x 7/8" (1-3/4" doors) and 1-1/4" x 7/8" (1-3/8" doors). "Wedge" to extend the entire height of door.s.
- H. Doors shall be factory glazed with glass as specified unless otherwise indicated.
- I. Cut and configure exterior door edge to receive recessed weatherstripping devices. Provide edge clearances in accordance with AWI 1600.
- J. Pairs of Doors:
1. Where pairs of doors are specified, any arched panels shall be constructed to be common arched pairs where the flow of line between adjacent panels carries across both panels.
  2. Use of two single style doors will not be acceptable.

## 2.4 FINISH

- A. Factory finish doors in accordance with AWI Quality Standards Section 1500:
1. Opaque Finish: Opaque catalyzed polyurethane, Custom quality, gloss sheen.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Condition doors to average humidity in installation area prior to hanging.
- B. Prefit doors to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.

### 3.2 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and AWI Quality Standards requirements.
- B. Trim door width by cutting equally on both jamb edges.
- C. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
- D. Machine cut for hardware.

- E. Coordinate installation of doors with installation of frames and hardware.
- F. Coordinate installation of glazing.

### 3.3 INSTALLATION TOLERANCES

- A. Conform to AWI requirements for fit, clearance, and joinery tolerances.
- B. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taut string, corner to corner, over an imaginary 36 x 84 inch surface area.
- C. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taut string, top to bottom, over an imaginary 36 x 84 inch surface area.
- D. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 x 84 inch surface area.

### 3.4 ADJUSTING AND PROTECTION

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.
- C. Protect installed wood doors from damages or deterioration until acceptance of entire project.
- D. Refinish or replace doors damaged during installation.
  - 1. Causes for Rejection: Include chips, scratches or gouges.

### 3.5 SCHEDULE - See Drawings

**END OF SECTION**

## SECTION 08213 - STILE AND RAIL WOOD DOORS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Exterior outswinging wood doors, stile and rail design.
- B. Panels of wood and glass.

#### 1.2 REFERENCES

- A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements for submittal procedures.
- B. Product Data: Indicate stile and rail core materials and construction; veneer species, type and characteristics.
- C. Test Reports: Show compliance with specified Quality Assurance requirements in paragraph 1.4.
- D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.
- E. Samples: Submit two samples of door construction, 12 x 12 inch in size cut from top corner of door.
- F. Manufacturer's Installation Instructions: Indicate special installation instructions.
- G. Warranty, executed in Owner's name.

#### 1.4 QUALITY ASSURANCE

- A. Exterior doors to have a DP-50 Storm Rating minimum.
- B. Comply with IBC 1609 1.2 "Protection of Openings" for buildings J6 and K6.
- C. Comply with the following IRC sections for the remaining buildings:
  - 1. R301.2.1.2 "Protection of Openings".
  - 2. R613.3 "Performance."
  - 3. R613.4 "Testing and Labeling."
  - 4. R613.7 "Windborne Debris Protection."
- D. Perform work in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1400, Custom grade.
- E. Factory finish doors in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1500.
- F. Comply with International Building Code (IBC), Uniform Federal Accessibility Standards (UFAS) and ADA requirements for configuration of wood panels.
- G. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years of documented experience.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with AWI/AWMAC Quality Standards Illustrated, Section 1300.
- B. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

## 1.6 PROJECT CONDITIONS

- A. Coordinate the work with door opening construction, door frame and door hardware installation.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Stile and Rail Wood Doors:
  - 1. Anderson Windows Inc.; Product - Architectural Commercial Doors Outswing Patio Doors, [www.andersenwindows.com](http://www.andersenwindows.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

### 2.2 DOOR TYPES

- A. Exterior Doors: 1-3/4 inches thick; veneer and lumber stile and rail construction; mortised and tenoned joints.

### 2.3 DOOR AND PANEL FACING

- A. Adhesive: Type I - waterproof.

### 2.4 MATERIALS

- A. Frame Members: Fabricated from wood species approved in WDMA Industry Standard I.S.8.
- B. Weatherstripping: Continuous flexible compressible bulb type with welded corners.

### 2.5 FABRICATION

- A. Fabricate doors in accordance with AWI Quality Standards requirements.
- B. Preservative Treatment: Treat wood frame members and interior glazing stops after machining with a water repellent preservative in accordance with WDMA I.S.4.
- C. Frame Components:
  - 1. Aluminum Frame Cover: Fabricate from 6063-T5 extruded aluminum in the color selected by Architect from manufacturer's standard colors.
  - 2. Attach extruded aluminum frame cover to wood frame.
  - 3. Factory-apply fluoropolymer coating (1.5 mil primer and 1.5 mil top coat minimum dry film thickness) to exterior exposed surfaces of aluminum components.
- D. Door Panels:
  - 1. Stiles and Rails: 1-3/4 inch (44 mm) engineered wood cores with laminated veneer interior face and aluminum clad or laminated veneer, exterior face.

2. Attach stiles to rails using mortise and tenon joints. Reinforce top and bottom rail joints with 5 inch by 3/8 inch (127 mm by 9 mm) diameter lag screws.
  3. Clad exterior door panel surfaces with 0.050 inch (1.3 mm) aluminum cladding.
  4. Factory apply finish paint coating conforming to AAMA 2605 to exterior aluminum frame surfaces.
  5. Provide 5-3/4 inch (146 mm) horizontal intermediate rail.
  6. Door Panel Finishes:
    - a. Interior Facing: Unfinished Pine.
- E. Aluminum Frame Cover: Fabricate from 6063-T5 extruded aluminum in the color selected by Architect from manufacturer's standard colors.
- F. Weatherstripping: Flexible foam with butt joint corners.
- G. Sill: Extruded 6063 aluminum low profile 1/2 inch (13 mm) threshold with compressible bulb weatherstrip in the following finish:
  1. Color: Mill finish.
  2. Color: Bronze anodized.
  3. Color: Brass anodized.
- H. Astragals for Double Doors: Wood, as selected from manufacturer's standard shapes, overlapping and recessed at face edge, specifically for double doors.
- I. Fit door edge trim to edge of stiles after applying veneer facing.
- J. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.
- K. Factory fit doors for frame opening dimensions identified on shop drawings.

## 2.6 GLAZING

- A. General: Tempered insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Provide metal spacers with bent or soldered corners.
- B. Impact Resistant Glazing: Provide impact resistant glazing that has been tested in accordance with ASTM E1996 large missile impact requirements.
  1. Monolithic Impact Glass:
    - a. Glass: Impact resistant glass consisting of two (2) lites of clear annealed glass conforming to ASTM C1036, Type 1, Class 1, q3, Kind LA, laminated with 0.090 inch (2.3 mm) polyvinyl butyral interlayer in the following color:
      - 1) Color: Clear.
    - b. Protective removable polyolefin film applied to glass surfaces No. 1 and No. 2

## 2.7 HARDWARE

- A. Hinges: 4-1/2 inch (114 mm) heavy duty ball bearing hinge with non-removable pin with the following finish:
  1. Finish: White powder coated painted.
  2. Finish: Satin Stainless Steel.
  3. Finish: Oil Rubbed Bronze.

## 2.8 FINISH

- A. Factory finish doors in accordance with AWI Quality Standards Section 1500:
  - 1. Exterior Color: Selected by Architect from manufacturer's standard colors.
  - 2. Interior Transparent Finish: Transparent catalyzed polyurethane, Custom quality, satin sheen.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that sill plates are level.
- D. Wood frame walls are dry, clean, sound, and well nailed or glued, free of voids and without offsets at joints.
- E. Nail heads are driven flush with surfaces in openings and within 3 inches (75 mm) of rough opening.
- F. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

### 3.2 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and AWI Quality Standards requirements.
- B. Trim door width by cutting equally on both jamb edges.
- C. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
- D. Machine cut for hardware.
- E. Coordinate installation of doors with installation of frames and hardware.
- F. Coordinate installation of glazing.
- G. Install units level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- H. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- I. Install insulation in shim space around unit perimeter to maintain continuity of building insulation. Do not overfill.
- J. Hold back exterior siding or other finish materials from edge of unit to allow for expansion and contraction and installation of proper joint sealant with backing materials. Seal perimeter of unit after exterior finish is applied per requirements of Division 07 "Joint Sealants" Section.

### 3.3 INSTALLATION TOLERANCES

- A. Conform to AWI requirements for fit, clearance, and joinery tolerances.

- B. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taut string, corner to corner, over an imaginary 36 x 84 inch surface area.
- C. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taut string, top to bottom, over an imaginary 36 x 84 inch surface area.
- D. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 x 84 inch surface area.

#### 3.4 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.
  - 1. Conform with ADA requirements/

#### 3.5 CLEANING

- A. Clean units using cleaning material and methods specifically recommended by window manufacturer.
- B. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Avoid damaging protective coatings and finishes.
- D. Protect unit surfaces from masonry cleaning solution that could damage insulation glass panels or hardware.
- E. Remove debris from work site and properly dispose of debris

#### 3.6 SCHEDULE - See Drawings

**END OF SECTION**



## **SECTION 08225 - FIBERGLASS DOORS AND FRAMES**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Fiberglass reinforced plastic (FRP) entry doors.
- B. Fiberglass reinforced plastic (FRP) exterior french doors.
- C. Frames for fiberglass reinforced plastic doors.
- D. Glazing.
- E. Accessories.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2006.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard details, installation instructions, and hardware and anchor recommendations.
- C. Test Reports: Show compliance with specified Quality Assurance requirements in paragraph 1.4.
- D. Shop Drawings: Show layout and profiles; include assembly methods.
  - 1. Indicate product components, including hardware reinforcement locations and preparations, accessories, finish colors, patterns, and textures.
  - 2. Indicate door and frame elevations, sections, materials, gages, finishes, location of door hardware by dimension, and details of openings; use same reference numbers indicated on Drawings to identify details and openings.
- E. Verification Samples: Submit door surface samples for each finish specified, 10 inch by 10 inch in size, illustrating finishes, colors, and textures.
- F. Door Corner Sample: Submit corner cross sections, 10 inch by 10 inch in size, illustrating construction, finish, color, and texture.
- G. Maintenance Data: Include instructions for repair of minor scratches and damage.
- H. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer; include detailed terms of warranty.

#### **1.4 QUALITY ASSURANCE**

- A. Exterior doors to have a DP-50 Storm Rating.
- B. Comply with IBC 1609 1.2 "Protection of Openings" for buildings J6 and K6.
- C. Comply with the following IRC sections for the remaining buildings:

1. R301.2.1.2 "Protection of Openings".
2. R613.3 "Performance."
3. R613.4 "Testing and Labeling."
4. R613.7 "Windborne Debris Protection."

- D. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- E. Installer Qualifications: Company specializing in installing products of the type specified in this section with not less than three years of documented experience.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Mark doors with door opening mark number, door type, color, and weight.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials in original packaging, under cover, protected from exposure to harmful weather conditions and from direct contact with water.
1. Store at temperature and humidity conditions recommended by manufacturer.
  2. Do not use non-vented plastic or canvas shelters.
  3. Immediately remove wet wrappers.
- D. Store in position recommended by manufacturer, elevated minimum 4 inches above grade, with minimum 1/4 inches space between doors.

## 1.6 PROJECT CONDITIONS

- A. Obtain hardware manufacturer's templates prior to starting fabrication.
- B. Do not install doors until structure is enclosed.
- C. Maintain temperature and humidity at manufacturer's recommended levels during and after installation of doors.

## 1.7 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Laminated Fiberglass Doors:
1. Basis of Design Entry Doors: Therma-Tru Doors; [www.thrematru.com](http://www.thrematru.com).
  2. Basis of Design exterior French Doors: Neuma Doors;
  3. Substitutions: See Section 01600 - Product Requirements.

### 2.2 DOOR AND FRAME ASSEMBLIES

- A. Door and Frame Assemblies: Factory-fabricated, prepared and machined for hardware.
1. Screw-Holding Capacity: Tested to 900 psi, minimum.
  2. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less; when tested in accordance with ASTM E 84.
  3. Flammability: Self-extinguishing when tested in accordance with ASTM D 635.

4. Clearance Between Door and Frame: 1/8 inch, maximum.
5. Clearance Between Bottom of Door and Finished Floor: 1/2 inch, maximum; not less than 1/4 inch clearance to threshold.

## 2.3 COMPONENTS

- A. Doors: Through-color gel coating on fiberglass reinforced polyester resin construction with reinforced core;
  1. Thickness: 1-3/4 inches, overall.
  2. Door Construction: Fiberglass faces laminated to core with subsequently applied gel coating, or molded in one piece including gel coating on all sides.
  3. Subframe and Reinforcements: Fiberglass pultrusions or polymer foam; no metal or wood.
  4. Waterproof Integrity: All edges, cut-outs, and hardware preparations factory fabricated of fiberglass reinforced plastic; provide cut-outs with joints sealed independently of glazing or louver inserts or trim.
  5. Hardware Preparations: Factory reinforce, machine, and prepare for all hardware including field installed items; provide solid blocking for each hardware item; make field cutting, drilling or tapping unnecessary; obtain manufacturer's templates for hardware preparations.
  6. French Doors: Simulated Divided 10 Lites (SDL) inside and outside.
  7. Bottom Rail: Provide height necessary to allow up to 1-1/4 inches to be field cut off bottom of door without impairing door strength or durability.
  8. Glass: Clear 1 inch Laminated glass.
  9. Primer: Aliphatic urethane for field finishing.
- B. Frames: Profiles and dimensions as indicated on drawings; same type and construction used in mechanical durability test for doors.
  1. Corner Joints: Mitered with concealed corner blocks or angles of same material as frame; fiberglass and aluminum joined with screws; steel and stainless steel spot welded; sealed watertight with silicone sealant.
  2. At hardware cut-outs provide continuous backing or mortar guards of same material as frame, sealed watertight.
  3. Frame Anchors: Stainless steel, Type 304; provide 3 anchors in each jamb for heights up to 84 inches with one additional anchor for each additional 24 inches in height.
- C. Hinge and Hardware Fasteners: Stainless steel, Type 304; wood screws.

## 2.4 FABRICATION

- A. Fabricate non-rated doors in accordance with ANSI/WDMA requirements including manufacturer's enhanced amendments.
- B. Panels shall be laminated, using a high-performance adhesive to thermally broken, trimmable stiles and rails forming a perimeter to reduce transmission and allow for field preparation of hardware.
- C. Bottom edge shall be manufactured from a moisture-resistant and decay-resistant composite

- D. Core: Impact Rated Doors: Proprietary metal plate to reinforce, stiffen and to provide impact resistance to Foamed-in-place, CFC-free polyurethane with a minimum density of 2.0 pcf and U- value of 0.14 BTU / ft<sup>2</sup> x F x hr.
- E. Fiberglass faces:
  - 1. Smooth: Proprietary fiberglass-reinforced thermoset composite compound, made smooth for painted surface.
    - a. 6-Panel- SSF160

## 2.5 FINISHING

- A. Field painting: Doors should be field painted using a primer and acrylic latex paint.

## 2.6 ACCESSORIES

- A. Astragals for Inactive Leaves: Pultruded fiberglass angle or tee; same color as gel coat.
- B. Glazing Stops: Pultruded fiberglass unless otherwise indicated or required by fire rating; provided by door manufacturer to fit factory made openings, color and texture to match door; fasteners not penetrating waterproof integrity.
  - 1. Exterior Doors: Provide non-removable stops on outside and continuous compression gasket weatherseal.
  - 2. Glazed Openings: Provide removable stops on one side.
  - 3. Opening Sizes: As indicated on drawings.
- C. Glazing: Laminated safety glass, 1 inch thick, with minimum 0.030 inch thick interlayer, clear.
- D. Hardware: As specified in Section 08710.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. Clean and prepare substrate in accordance with manufacturer's directions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions; do not penetrate frames with anchors.
- B. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.
- C. In stud walls, install frames prior to building walls; anchor frames to studs using concealed anchors.

- D. Separate aluminum and other metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.

#### 3.4 ADJUSTING

- A. Lubricate, test, and adjust doors to operate easily, free from warp, twist or distortion, and to fit watertight for entire perimeter.
- B. Adjust hardware for smooth and quiet operation.
- C. Adjust doors to fit snugly and close without sticking or binding.

#### 3.5 CLEANING AND PROTECTION

- A. Remove temporary coverings and protection of adjacent work areas.
- B. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Repair or replace damaged installed products.
- C. Protect adjacent work areas and finish surfaces from damage during installation.
- D. Protect installed product and finish surfaces from damage during construction.

**END OF SECTION**



## **SECTION 08310 - ACCESS DOORS AND PANELS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Access door and frame units, non-fire-rated, in wall, and ceiling locations.

#### **1.2 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- C. Shop Drawings: Indicate exact position of all access door units.
- D. Samples: Submit two access units, 12 x 12 inch in size illustrating frame configuration.
- E. Manufacturer's Installation Instructions: Indicate installation requirements.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Access Doors:
  - 1. Basis of Design: Karp Associates, Inc: [www.karpinc.com](http://www.karpinc.com).
  - 2. Acceptable manufacturer's:
    - a. Acudor Products Inc: [www.acudor.com](http://www.acudor.com).
    - b. Milcor Inc: [www.milcorinc.com](http://www.milcorinc.com).
  - 3. Substitutions: See Section 01600 - Product Requirements.

#### **2.2 ACCESS DOORS AND PANELS**

- A. All Units: Factory fabricated, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies units are to be installed in.
- B. Units in Fire Rated Assemblies: Fire rating equivalent to the fire rated assembly in which they are to be installed.

#### **2.3 WALL AND CEILING UNITS**

- A. Non-Fire Rated Door and Frame Units in Walls and Ceilings:
  - 1. In Gypsum Board on Wood Studs:
    - a. Model KDW manufactured by Karp Associates.
- B. Fire Rated Door and Frame Units in Walls:
  - 1. In Gypsum Board on Wood/Steel Studs:
    - a. 1 hour fire rating.
    - b. Model KRP-150 FR manufactured by Karp Associates.

### **PART 3 EXECUTION**

#### **3.1 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings. Secure rigidly in place.

C. Position units to provide convenient access to the concealed work requiring access.

**END OF SECTION**

## SECTION 08561 - CELLULAR PVC WINDOWS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Factory fabricated cellular PVC windows with fixed and operating sash.
- B. Factory glazed.
- C. Operating hardware and window actuator.
- D. Insect screens.
- E. Perimeter sealant.

#### 1.2 REFERENCE STANDARDS

- A. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2002.
- B. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000.
- C. ASTM E 1996 - Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes.
- D. ASTM E 2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2002.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Windows
  - 1. Glazed openings must meet requirements of The Large Missile Test of ASTM E 1996.
  - 2. System Design: Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of window.
    - a. Design pressure 50 lb/sq ft acting inwards, and 50 lb/sq ft acting outwards.
    - b. Calculate design pressures in accordance with applicable code
    - c. Measure performance of units by testing in accordance with ASTM E 330, using test pressure equal to 1.5 times the design wind pressure and 10 second duration of maximum load.
  - 3. Deflection: Limit member deflection to 1/200 of the longer dimension with full recovery of glazing materials.
  - 4. Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
  - 5. Thermal Resistance of Assembly (Excluding Vision Areas): R value of 3.45.
  - 6. Water Leakage: None, when measured in accordance with ASTM E 331.
  - 7. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. Position thermal insulation on exterior surface of air barrier and vapor retarder.

#### 1.4 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Cellular PVC Windows:
  - 1. Windsor Windows & Doors; Product Legend.
  - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Window Acuator:
  - 1. Window Ease; Product Window Actuator, [www.windowease.com](http://www.windowease.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

### 2.2 COMPONENTS

- A. Windows: Extruded, hollow, tubular, ultra-violet resistant polyvinyl chloride (PVC) with integral color; factory fabricated; with vision glass, related flashings, anchorage and attachment devices.
  - 1. Configuration: Fixed, non-operable and double hung sash.
  - 2. Color: Color as selected.
- B. Insect Screen Frame: Rolled aluminum frame of rectangular sections; fit with adjustable hardware; nominal size similar to operable glazed unit.
- C. Insect Screens: 14/18 mesh, aluminum strands.
  - 1. Color: Color as selected.
- D. Operable Sash Weather Stripping: Wool pile; permanently resilient, profiled to effect weather seal.

### 2.3 GLASS AND GLAZING MATERIALS

- A. Insulated Glass Units: Double pane with glass to elastomer edge seal.
  - 1. Outer pane of clear, Impact rated safety glass, inner pane of Clear float glass.
  - 2. Durability: Certified by an independent testing agency to comply with ASTM E 2190.
  - 3. Purge interpane space with dry hermetic air.
  - 4. Total unit thickness of 3/4 inch minimum.

### 2.4 HARDWARE

**END OF SECTION**

## SECTION 08710 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Door hardware for the following:
    - a. Interior and exterior swinging doors
    - b. By-passing closet doors
  - 2. Provide all items of finish hardware for the project as shown on the drawings or included herein, including appropriate fasteners and miscellaneous material as required for a complete installation and to complete the Work of this section.
  - 3. Except as noted herein, Hardware items specified elsewhere in the Construction Documents are not a requirement of this Section.
- B. Related Sections include the following:
  - 1. Division 6 Sections "Exterior Architectural Woodwork" and "Interior Architectural Woodwork".
- C. Note: Some of the following products may be furnished and installed as part of another section. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
  - 1. Thresholds, weather stripping and cylinders for locks specified in other Sections, where they are supplied as part of an integrated, manufactured unit.

#### 1.3 SUBMITTALS

- A. Product Data: Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Qualification Data: For Installer.
- C. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.
- D. Warranty: Special warranty specified in this Section.
- E. Samples for Initial Selection: Provide samples as requested by the Architect.
- F. Contractor's Hardware Schedule
  - 1. At the earliest possible date after receipt of purchase order, submit 6 copies of a completely detailed Hardware Schedule. List hardware schedule for each door opening separately using a vertical format per the sample hardware set below. Provide five copies of catalogue cuts for each item proposed for use on this project. Provide physical samples when requested by the architect.
  - 2. Promptly incorporate any corrections and changes in the reviewed submittal and return 4 copies, quantity as required, of the revised schedule to the contractor for his use and distribution.
  - 3. Acceptance of the hardware schedule does not relieve the supplier of responsibility for errors or omissions.

- G. Templates: Upon receipt of reviewed schedule supply templates or physical hardware to fabricator of factory prepared doors, frames, and other work affected. Upon request, check the associated shop drawings to confirm that adequate provisions are made for proper installations.
- H. Special Tools: The contractor is to provide to the owner two sets of any special tools shipped with the finish hardware products required for maintenance and installation. Deliver to owner at completion of works.
- I. Operations and Maintenance Data: Submit required sets of maintenance manuals per Division 1, which shall include as-built Hardware Schedule, catalogue cuts, template list with templates and warranty information. One additional copy shall either be delivered with the Permanent keys or given separately to the maintenance department at the completion of the construction period. This copy shall contain parts data for exit devices, locksets, and closers.
- J. Keying Schedule: After receipt of the approved finish hardware schedule, the finish hardware supplier shall be responsible to arrange a meeting with the architect and/or owner to determine the keying requirements for the entire project. This request shall be made through the contractor. At this meeting the keying system shall be discussed and all lockset functions reviewed to insure they are functionally correct. Four complete copies of the keying schedule shall be submitted to the contractor for distribution to the appropriate parties.

#### 1.4 QUALITY ASSURANCE

- A. Supplier and Installer Qualifications:
  - 1. A recognized distributor who has been furnishing hardware in the same area as the project for a period of not less than 5 years and has successfully completed projects similar in type and scope.
  - 2. The distributor's organization shall employ qualified Architectural Hardware Consultants and licensed locksmiths who are available at all reasonable times during the course of the Project to meet with, and provide advice to, the Owner, Architect, and Contractor.
  - 3. The supplier shall have warehousing facilities in Project's vicinity.
  - 4. The supplier shall be a factory-authorized distributor and repairer of the specified products and shall maintain a stock and parts inventory of all standard items supplied on the project for future service to the Owner.
  - 5. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- B. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- C. Substitutions: To assure a uniformly high quality of materials for the project, it is intended that only the specified or approved items be furnished. Material by other manufacturers listed as acceptable may be submitted subject to approval by the Architect that they are equal to the specified item in quality, design, finish, and function. For ease of future maintenance and repair, substitution requests for one product may require a substitution request for the complete range of related hardware. Requests for substitution should be addressed to the Architect under the provisions of these Specifications in a timely manner to insure that no delay in construction and security will occur to the Work.

- D. All requests for substitution shall be product specific, meaning that the specific product listed in the specification and the specific product request for approval is to be identified in the substitution request. Requests will only be accepted only from distributor qualified to bid on the project. Approvals will be in writing or by addenda.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt jointly with Contractor until all parties are satisfied that the count of hardware items is correct.
- B. Store items in a secure, dry space, large enough for checking, sorting, and storage of the hardware.
- C. Tag each item or package separately with identification related to the final door hardware sets, and include basic installation instructions, templates, and necessary fasteners with each item or package.
- D. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

#### 1.6 COORDINATION

- A. Templates: Distribute door hardware templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

#### 1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within the specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of operators and door hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
  - 2. Warranty Period: One year from date of Substantial Completion, except as follows:

#### 1.8 EXTRA MATERIALS

- A. Furnish full-size units of door hardware described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Door Hardware: Replacement quantity for 10 average residential units.

### PART 2 - PRODUCTS

#### 2.1 HARDWARE SCHEDULE

- A. See Hardware Schedule at the end of this Section.

## 2.2 ACCEPTABLE MANUFACTURERS

- A. Provide products listed in the Hardware Schedule in sufficient quantities to complete the Work. See Part 1 of this Section for requirements for products by alternate manufacturers.
  - 1. Specified Manufacturers:
    - a. Butts and Hinges: Ives, Bommer, Stanley, McKinney
    - b. Cylindrical Locks and Latches: Schlage, Yale.
    - c. Deadbolts: Schlage, Yale.
    - d. Flat Goods and Trim: Ives, Trimco.
    - e. Thresholds and Gaskets: Pemko, NGP
    - f. Exit Devices: Von Duprin
    - g. Closers, automatic door operators: LCN
    - h. Magnetic wall holders; LCN
    - i. Key Cabinet: Lund, Telkee
    - j. Bolts, Dust Proof Strikes, Kick Plates, Door Stops & Silencers: Ives

## 2.3 HARDWARE FINISH

- A. Except as noted otherwise in the Hardware Schedule, finishes of hardware shall be oil rubbed bronze, 613 with clear protective finish. Except as noted otherwise in the Hardware Schedule

## 2.4 BUTTS AND HINGES

- A. Quantity: Provide the following, unless otherwise indicated:
  - 1. Three Hinges: For doors with heights 61 to 90 inches (1549 to 2286 mm).
  - 2. For unusual size or weight door, furnish type, size, and quantity as recommended by manufacturer.
- B. Size to be 4.5" x 4.5" unless otherwise indicated. Width of hinge shall be sufficient to clear frame and trim when door swings 180 degrees. Provide Non-Removable Pins (NRP) at exterior out-swing doors.
- C. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- D. Hinge Weight: Unless otherwise indicated, provide the following:
  - 1. Entrance Doors: Heavy-weight hinges.
  - 2. Interior Doors: Standard-weight hinges.
- E. Hinge Base Metal: Unless otherwise indicated, provide the following:
  - 1. Exterior Hinges: Brass, with stainless-steel pin body and brass protruding heads.
  - 2. Interior Hinges: Steel, with steel pin.
- F. Hinge Options: Where indicated in door hardware sets or on Drawings:
  - 1. Provide non-removable pins at exterior doors that swing outward.
- G. Fasteners: Comply with the following:
  - 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
  - 2. Wood Screws: For wood doors and frames.
  - 3. Screws: Phillips head or other proprietary drive head screws. Flat head screws will not be acceptable. Finish screw heads to match surface of hinges.

## 2.5 HINGES

- A. Butts and Hinges: BHMA A156.1.
- B. Template Hinge Dimensions: BHMA A156.7.

## 2.6 LOCKS AND LATCHES, GENERAL

- A. Accessibility Requirements: Where indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)." ANSI A117.1. FED-STD-795, "Uniform Federal Accessibility Standards", and local Building Code.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lb/f.
- B. Latches and Locks for Means of Egress Doors: Comply with NFPA 101. Latches shall not require more than 15 lb/f to release the latch. Locks shall not require use of a key, tool, or special knowledge for operation.
- C. Lock Trim:
  - 1. Levers: Cast. Style: Flair (FLA).
  - 2. Knobs: Wrought. Style: Andover (AND)
  - 3. Escutcheons (Roses): As supplied by manufacturer.
  - 4. Dummy Trim: Match lock trim and escutcheons.
- D. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum 1/2-inch (13-mm) latch bolt throw.
- E. Rabbeted Meeting Doors: Provide special rabbeted front and strike on locksets for rabbeted meeting stiles.
- F. Backset: 2 ¾", unless otherwise indicated.
- G. Strikes: Manufacturer's standard strike with strike box for each latch bolt or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, and as follows:
  - 1. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 2. Flat-Lip Strikes: For locks with three-piece anti-friction latch bolts, as recommended by manufacturer.
  - 3. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 4. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.

## 2.7 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: Function numbers and descriptions indicated in door hardware sets comply with the following:
  - 1. Bored Locks: BHMA A156.2.
  - 2. Interconnected Locks: BHMA A156.12.

## 2.8 DOOR BOLTS

- A. Bolt Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Half-Round Surface Bolts: Minimum 7/8-inch (22-mm) throw.
  - 2. Interlocking Surface Bolts: Minimum 15/16-inch (24-mm) throw.
- B. Dustproof Strikes: BHMA A156.16.
- C. Surface Bolts: BHMA A156.16.
  - 1. Flush Bolt Heads: Minimum of 1/2-inch- (13-mm-) diameter rods of brass, bronze, or stainless steel with minimum 12-inch- (305-mm-) long rod for doors up to 84 inches (2134 mm) in height. Provide longer rods as necessary for doors exceeding 84 inches (2134mm).

## 2.9 LOCK CYLINDERS

- A. Standard Lock Cylinders: BHMA A156.5.
- B. Cylinders: Cylinders shall be Schlage "Everest" series, or acceptable manufacturers equivalent, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
  - 1. Number of Pins: Six.
  - 2. Bored-Lock Type: Cylinders with tailpieces to suit locks.
- C. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
  - 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- D. Construction Keying: Comply with the requirements of the Hardware Schedule.
  - 1. Construction Master Keys: Furnish all cylinders with feature that permits voiding of construction keys without cylinder removal. Provision of construction master keys to be determined, but will be based on phasing of construction.
  - 2. Construction keying will be by phase. Final requirements are to be determined.
- E. Manufacturer: Same manufacturer as for locks and latches.

## 2.10 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference, and as follows:
  - 1. All cylinders shall be furnished with a visual key control key code stamped on the face of the keys and marked on the back or sided of t he cylinders. Example: AA1, AA2, etc.
  - 2. Keyed Quantities: Keys shall be furnished in quantities as follows:
    - a. 3 keys each change keys per keyed-alike group.
    - b. 2 keys per lockset.
  - 3. Master keying requirements are to be determined.
- B. Keys: Nickel silver.

## 2.11 STOPS AND HOLDERS

- A. Stops and Bumpers: BHMA A156.16.
  - 1. Provide floor stops for doors unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Where floor or wall stops are not appropriate, provide overhead holders.

2.12 DOOR GASKETING (where not supplied with pre-hung door units specified in a Division 8 Section).

- A. Standard: BHMA A156.22.
- B. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide non-corrosive fasteners for exterior applications and elsewhere as indicated.
  - 1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- C. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
- D. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- E. Gasketing Materials: ASTM D 2000 and AAMA 701/702.

2.13 THRESHOLDS (where not supplied with pre-hung door units specified in a Division 8 Section).

- A. Standard: BHMA A156.21.
- B. Accessibility Requirements: Where thresholds are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)." ANSI A117.1. FED-STD-795, "Uniform Federal Accessibility Standards" and local Building Code.
  - 1. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
- C. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch (13 mm) high.

2.14 CLOSERS:

- A. General:
  - 1. Closer cylinder bodies shall be of cast iron construction. Provide Extra Duty Arms (EDA) at all parallel arm applications.
  - 2. Closers for fire-rated doors shall have a temperature stabilizing fluid that complies with UBC 7-2 (1997) and UL10C.
  - 3. Closers shall be powder coated to mach BHMA 695.
  - 4. Closers to be installed with sex or through bolts.
- B. Accessibility Requirements: Closers shall operate with a maximum force of 5.0 lbs. for interior and exterior doors and with a force not in excess of 15 lbs. for fire-rated doors or as required by local AHJ.

2.15 MISCELLANEOUS DOOR HARDWARE

- A. Auxiliary Hardware: BHMA A156.16.

2.16 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
  - 1. Manufacturer's identification is permitted on rim of lock cylinders only.

- B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
- C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

## 2.17 FINISHES

- A. Standard: BHMA A156.18, as indicated in door hardware sets.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Wood Doors:
  - 1. Comply with DHI A115-W Series.
  - 2. Comply with requirements of door manufacturers and shop drawings submitted as part of the Work specified in Division 8.

### 3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated on Drawings unless otherwise indicated or required to comply with governing regulations.

- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Weather-stripping and Seals: Comply with manufacturer's instructions and recommendations to the extent that installation requirements are not otherwise specified.
  - 1. Set hardware so that door operation performs satisfactorily AFTER seals are installed.

### 3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall, if requested by Owner, examine and readjust, including adjusting operating forces, each item of door hardware as necessary to ensure function of doors and door hardware . at no additional cost to owner.

### 3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### 3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

HARDWARE SCHEDULE

SCHEDULE NOTES:

FINISH: SHALL BE 613, (ON BRASS OR BRONZE BASE METAL, 613 ON STEEL BASE METAL AND 630 FOR STAINLESS STEEL MATERIAL).

HINGES: SIZE TO BE 4.5" X 4.5" UNLESS OTHERWISE INDICATED. WIDTH OF HINGE SHALL BE SUFFICIENT TO CLEAR FRAME AND TRIM WHEN DOOR SWINGS 180 DEGREES. PROVIDE NON-REMOVABLE PINS (NRP) AT EXTERIOR OUT-SWING DOORS.

LOCKS: SHALL BE AS MANUFACTURED BY SCHLAGE LOCK. PROVIDE "S" SERIES LOCKS WITH "FLAIR" (FLA) LEVER DESIGN. CYLINDERS SHALL BE SCHLAGE "EVEREST".

CLOSERS: SHALL BE AS MANUFACTURED BY LCN OF PRINCETON, ILLINOIS. CLOSER CYLINDER BODIES SHALL BE OF CAST IRON CONSTRUCTION. PROVIDE PARALLEL ARM APPLICATIONS WHERE REQUIRED. CLOSERS FOR FIRE-RATED DOORS SHALL HAVE A TEMPERATURE STABILIZING FLUID THAT COMPLIES WITH UBC 7-2 (1997) AND UL10C. CLOSERS SHALL BE POWDER COATED TO MACH BHMA 689.

THRESHOLDS: THRESHOLDS SHALL NOT EXCEED 1/2" IN HEIGHT WHERE ACCESSIBLE ENTRANCES ARE REQUIRED.

GASKETING: PROVIDE FIRE OR DRAFT GASKETING AS APPROVED BY THE SELECTED DOOR MANUFACTURERS APPROVALS AND INSTALLATIONS INSTRUCTIONS FOR "POSITIVE PRESSURE" TESTING PROCEDURES.

INSTALLATION: ALL OPERATING HARDWARE SHALL BE INSTALLED BETWEEN 30" AND 44" AFF.

MANUFACTURERS SYMBOLS

HARDWARE

|     |                      |                                       |
|-----|----------------------|---------------------------------------|
| IVE | Ives                 | Hinges, Bolts, Door Stops & Silencers |
| LCN | LCN                  | Door Closers                          |
| PEM | Pemko                | Thresholds, Gasketing & Weatherstrip  |
| SCH | Schlage Lock Company | Locks, Latches & Cylinders            |

**END OF SECTION-HARDWARE SCHEDULE FOLLOWS**

HARDWARE GROUP: A

|   |     |               |              |     |     |
|---|-----|---------------|--------------|-----|-----|
| 3 | Ea  | Hinge         | 5BB1 4.5 X 4 | 613 | IVE |
| 1 | Ea  | Entrance Lock | S251PD FL    | 613 | SCH |
| 1 | Ea  | Dome Stop     | FS436        | 613 | IVE |
| 1 | Set | Seals         | S44D         | DKB | PEM |
| 1 | Ea  | Door Bottom   | 217AV        | 613 | PEM |
| 1 | Ea  | Threshold     | Per Detail   | AL  | PEM |

HARDWARE GROUP: B

|   |     |                |              |     |     |
|---|-----|----------------|--------------|-----|-----|
| 3 | Ea  | Hinge          | 5BB1 4.5 X 4 | 613 | IVE |
| 1 | Ea  | Entrance Lock  | S251PD FL    | 613 | SCH |
| 1 | Ea  | Surface Closer | 1071         | 613 | LCN |
| 1 | Ea  | Dome Stop      | FS436        | 613 | IVE |
| 1 | Set | Seals          | S44D         | DKB | PEM |
| 1 | Ea  | Door Bottom    | 217AV        | 613 | PEM |
| 1 | Ea  | Threshold      | Per Detail   | AL  | PEM |

HARDWARE GROUP: C

|   |    |             |              |     |     |
|---|----|-------------|--------------|-----|-----|
| 3 | Ea | Hinge       | 5PB1 4.5 X 4 | 613 | IVE |
| 1 | Ea | Privacy Set | S40D FL      | 613 | SCH |
| 1 | Ea | Door Stop   | 060          | 613 | IVE |

HARDWARE GROUP: D

|   |    |             |              |     |     |
|---|----|-------------|--------------|-----|-----|
| 3 | Ea | Hinge       | 5PB1 4.5 X 4 | 613 | IVE |
| 1 | Ea | Passage Set | S10D FL      | 613 | SCH |
| 1 | Ea | Door Stop   | 060          | 613 | IVE |

HARDWARE GROUP: E

|   |    |                |              |     |     |
|---|----|----------------|--------------|-----|-----|
| 6 | Ea | Hinge          | 5PB1 4.5 X 4 | 613 | IVE |
| 1 | Ea | Trim Set       | S10 FLA      | 613 | SCH |
| 2 | Ea | Door Stop      | 060          | 613 | IVE |
| 2 | Ea | Magnetic Catch |              | 613 | IVE |

HARDWARE GROUP: F

|   |     |                   |              |     |     |
|---|-----|-------------------|--------------|-----|-----|
| 6 | Ea  | Hinge             | 5PB1 4.5 X 4 | 613 | IVE |
| 1 | Ea  | Entrance Lock     | S251PD FL    | 613 | SCH |
| 1 | Ea  | Manual Flush Bolt | FB457        | 613 | IVE |
| 1 | Set | Seals             | S44D         | DKB | PEM |

HARDWARE GROUP: G

|   |     |                |              |     |     |
|---|-----|----------------|--------------|-----|-----|
| 3 | Ea  | Hinge          | 5BB1 4.5 X 4 | 613 | IVE |
| 1 | Ea  | Passage Set    | S10D FL      | 613 | SCH |
| 1 | Ea  | Surface Closer | 1071         | 613 | LCN |
| 1 | Ea  | Dome Stop      | FS436        | 613 | IVE |
| 1 | Set | Seals          | S44D         | DKB | PEM |
| 1 | Ea  | Door Bottom    | 217AV        | 613 | PEM |
| 1 | Ea  | Threshold      | Per Detail   | AL  | PEM |

HARDWARE GROUP: H

ALL HARDWARE BY DOOR  
MANUFACTURER

HARDWARE GROUP: I

|   |    |             |        |     |     |
|---|----|-------------|--------|-----|-----|
| 3 | Ea | Gate Hinges | VERIFY | 613 | HAG |
| 1 | Ea | Gate Latch  | VERIFY | 613 | HAG |

HARDWARE GROUP: J

|   |    |             |        |     |     |
|---|----|-------------|--------|-----|-----|
| 6 | Ea | Gate Hinges | VERIFY | 613 | HAG |
| 1 | Ea | Cane Bolt   | VERIFY | 613 | HAG |
| 1 | Ea | Gate Latch  | VERIFY | 613 | HAG |

**END OF SCHEDULE**

## SECTION 08830 - MIRRORS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Glass mirrors.

#### 1.2 RELATED REQUIREMENTS

- A. Section 10800 - Toilet, Bath, and Laundry Accessories: Medicine Cabinets with mirrors.

#### 1.3 REFERENCE STANDARDS

- A. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005a.
- B. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2004.
- C. GANA (TIPS) - Mirrors Handle with Extreme Care: Tips For the Professional on the Care and Handling of Mirrors; National Association of Mirror Manufacturers; 2004 (<http://www.mirrorlink.org/members/technical.htm>).

#### 1.4 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data on Mirror Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual for glazing installation methods.
  - 1. Maintain one copy on project site.
- B. Fabricate, store, transport, receive, install, and clean mirrors in accordance with recommendations of GANA (TIPS) "Mirrors Handle with Extreme Care: Tips For the Professional on the Care and Handling of Mirrors."

#### 1.6 FIELD CONDITIONS

- A. Do not install mirrors when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

#### 1.7 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for reflective coating on mirrors and replacement of same.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

- A. Mirror Glass - General: Select materials and/or provide supports as required to limit mirrored glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.
- B. Mirror Glass: Clear float type with copper and silver coating, organic overcoating, arised edges, 6 mm thick minimum.
  - 1. Sizes noted on Drawings.

## 2.2 GLAZING ACCESSORIES

- A. Mirror Adhesive: Chemically compatible with mirror coating and wall substrate.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer. Prime surfaces scheduled to receive sealant.
- C. Perform installation in accordance with ASTM C 1193 for solvent release sealants. Install sealant in accordance with manufacturer's instructions.

### 3.2 INSTALLATION - GENERAL

- A. Install mirrors in accordance with GANA recommendations.
- B. Set mirrors plumb and level, free of optical distortion.
- C. Set mirrors with edge clearance free of surrounding construction including countertops or backsplashes.
- D. Frameless Mirrors: Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.

### 3.3 CLEANING

- A. Remove labels after work is complete.
- B. Clean mirrors and adjacent surfaces.

### 3.4 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste.

**END OF SECTION**

## **SECTION 09220 - PORTLAND CEMENT PLASTER**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

#### **1.2 REFERENCE STANDARDS**

- A. ASTM C 926 - Standard Specification for Application of Portland Cement-Based Plaster; 2006.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittals procedures.
- B. Product Data: Provide data on plaster materials, characteristics and limitations of products specified.
- C. Samples: Submit two samples, 24 x 24 inch in size illustrating finish color and texture.

#### **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum three years of experience.

#### **1.5 FIELD CONDITIONS**

- A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F or over 80 degrees F.
- B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.

### **PART 2 PRODUCTS**

#### **2.1 PORTLAND CEMENT PLASTER ASSEMBLIES**

#### **2.2 PLASTER MATERIALS**

- A. Portland Cement, Aggregates, and Other Materials: In accordance with ASTM C 926.
- B. Premixed Base and Scratch coat: LaHabra Wall as manufactured by La Habra, [www.lahabrastucco.com](http://www.lahabrastucco.com)
- C. Premixed Finish Coat: Acrylic Finish manufactured by LaHabra.
- D. Water: Clean, fresh, potable and free of mineral or organic matter that could adversely affect plaster.
- E. Plaster Mix Reinforcement: Glass fibers, chopped to 1/2 inch nominal length, alkali resistant.
- F. Plaster Mix Reinforcement: Glass fibers, chopped to 1/2 inch nominal length, alkali resistant ; manufactured by Lahabra.

#### **2.3 METAL LATH**

- A. Ribbed Metal Lath: ASTM C 847, galvanized; 3/8 inch thick.

1. Weight: To suit application and as specified in ASTM C 841 for framing spacing.
  2. Weight: 3.4 lb/sq yd.
  3. Backed with treated paper.
- B. Beads, Screeds, and Joint Accessories: As specified in Section 09206.
- C. Corner Mesh: Formed sheet steel, minimum 0.018 inch thick, perforated flanges shaped to permit complete embedding in plaster, minimum 2 inch size; same finish as lath.
- D. Strip Mesh: Expanded metal lath, same weight as lath, 2 inch wide x 24 inch long; same finish as lath.
- E. Beads, Screeds, Joint Accessories, and Other Trim: Depth governed by plaster thickness, maximum possible lengths, hot-dipped galvanized unless noted otherwise.
1. Material: Formed galvanized sheet steel, expanded metal flanges.
  2. Casing Beads: Square edges.
    - a. Product: J-Series where self-adhered flashing is installed manufactured by Cemco.
    - b. Product: #66 where no self-adhered flashing is installed, manufactured by Cemco.
  3. Foundation Sill Screed: #36 Foundation Sill Screed manufactured by Cemco.
    - a. Finish: G-60 galvanized steel.
  4. Head Drip Screed: #6 head drip screed manufactured by Cemco.
    - a. Finish: G-90 galvanized steel.
  5. Exterior Corner Beads: Radiused corners.
    - a. Product: #1A-Expanded Corner Bead manufactured by Cemco.
  6. Interior Corner Beads
    - a. Product: #30 corner expansion joint manufactured by Cemco.
  7. Base Screeds: Bevelled edges.
  8. Expansion Joints: Two-piece sliding type with reveal, 2 inch wide flanges.
    - a. Product: M-Slide two piece expansion joints manufactured by Cemco.
  9. Control Joints: Accordion profile with protective tape, 2 inch flanges.
- F.

## 2.4 PLASTER MIXES

- A. Over Solid Bases: Two-coat application, mixed and proportioned in accordance with manufacturer's instructions.
- B. Over Metal Lath: Three-coat application, mixed and proportioned in accordance with manufacturer's instructions.
- C. Premixed Plaster Materials: Mix in accordance with manufacturer's instructions.
- D. Mix only as much plaster as can be used prior to initial set.
- E. Mix materials dry, to uniform color and consistency, before adding water.
- F. Protect mixtures from freezing, frost, contamination, and excessive evaporation.

- G. Do not retemper mixes after initial set has occurred.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify the suitability of existing conditions before starting work.
- B. Metal Lath and Accessories: Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are in place.

### 3.2 CONTROL AND EXPANSION JOINTS

- A. Locate joints as indicated on drawings.
- B. Install control and expansion joints.

### 3.3 LATH INSTALLATION

- A. Apply metal lath taut, with long dimension perpendicular to supports.
- B. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.
- C. Nest outside ribs of rib lath together.
- D. Attach metal lath to wood supports using nails at maximum 8 inches on center.
- E. Attach metal lath to metal supports using tie wire at maximum 6 inches on center.
- F. Attach metal lath to concrete using wire hair pins. Attach anchors to backup surface; space at maximum 24 inches on center.
- G. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.
- H. Place corner bead at external wall corners; fasten at outer edges of lath only.
- I. Place base screeds at termination of plaster areas; secure rigidly in place.
- J. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.
- K. Place lath vertically above each top corner and each side of door frames to 6 inches above ceiling line.
- L. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.
- M. Place additional strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

### 3.4

### 3.5 PLASTERING

- A. Apply premixed plaster in accordance with manufacturer's instructions.
- B. Apply plaster in accordance with ASTM C 926.
- C. Two-Coat Application:

1. Apply first coat to nominal thickness of 3/8 inch.
  2. Apply finish coat to nominal thickness of 1/8 inch.
- D. Three-Coat Application Over Metal Lath:
1. Apply first coat to a nominal thickness of 3/8 inch.
  2. Apply second coat to a nominal thickness of 3/8 inch.
  3. Apply finish coat to a nominal thickness of 1/8 inch.
- E. Moist cure base coats.
- F. Apply second coat immediately following initial set of first coat.
- G. After curing, dampen previous coat prior to applying finish coat.
- H. Finish Texture: smooth sand to a consistent finish.
1. Spray applied throughout except as noted.
  2. Smooth trowel applied
- I. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.
- J. Moist cure finish coat for minimum period of 48 hours.
- 3.6 ERECTION TOLERANCES
- A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

**END OF SECTION**

## **SECTION 09260 - GYPSUM BOARD ASSEMBLIES**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Shaft wall system.
- C. Acoustic insulation.
- D. Gypsum sheathing.
- E. Gypsum wallboard.
- F. Joint treatment and accessories.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).
- B. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.
- C. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.
- D. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2007.
- E. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2007.
- F. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2007.
- G. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.
- H. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2005.
- I. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.
- J. ASTM C 1280 - Standard Specification for Application of Gypsum Sheathing; 2007.
- K. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2006a.
- L. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000 (Reapproved 2005).
- M. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2004.

- N. ASTM E 413 - Classification for Rating Sound Insulation; 2004.
- O. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.

### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum three years of documented experience.

## PART 2 PRODUCTS

### 2.1 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C 840 and GA-216.
  - 1. See PART 3 for finishing requirements.
- B. Interior Partitions: Provide completed assemblies with the following characteristics:
  - 1. Acoustic Attenuation: STC of 55-59 calculated in accordance with ASTM E 413, based on tests conducted in accordance with ASTM E 90.
- C. Fire Rated Assemblies: Provide completed assemblies complying with applicable code.

### 2.2 METAL FRAMING MATERIALS

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
  - 1. Clark Western Building Systems: [www.clarkwestern.com](http://www.clarkwestern.com).
  - 2. Dietrich Metal Framing: [www.dietrichindustries.com](http://www.dietrichindustries.com).
- B. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
  - 1. Studs: "C" shaped with flat or formed webs.
  - 2. Runners: U shaped, sized to match studs.
  - 3. Ceiling Channels: C shaped.
  - 4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
  - 5. Resilient Channels: 1/2 inch high by 1-1/4 inch, two-legged, hat-shaped sections, minimum depth of 7/8 inch.
- C. Shaft Wall Studs and Accessories: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 and specified performance requirements.

### 2.3 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
  - 1. Georgia-Pacific Gypsum LLC; Product Tough Rock: [www.gp.com/gypsum](http://www.gp.com/gypsum).
  - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Wallboard: Paper-faced gypsum wallboard as defined in ASTM C 1396/C 1396M; sizes to minimize joints in place; ends square cut.

1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  2. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Ceilings: 5/8 inch.
    - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- C. Backing Board For Wet Areas:
1. Application: Surfaces behind tile in wet areas including tub and shower surrounds.
  2. Glass-Mat-Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C 1178.
    - a. Standard Type: Thickness 5/8 inch.
    - b. Products:
      - 1) Georgia-Pacific Gypsum LLC; DensShield Tile Backer:
        - (a) Install behind tile at wet locations (showers)
      - 2) Substitutions: See Section 01600 - Product Requirements.
- D. Backing Board For Non-Wet Areas: Dense, moisture-resistant paperless gypsum core and fiberglass mats on both sides
1. Mold Resistance: Score of 10, when tested in accordance with ASTM D 3273.
  2. Type: Regular and Type X, in locations indicated.
  3. Type X Thickness: 5/8 inch.
  4. Regular Board Thickness: 5/8 inch.
  5. Products:
    - a. Georgia-Pacific Gypsum LLC; Dens Armour Plus.
- E. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
  2. Glass-Mat-Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C 1177/C 1177M.
  3. Regular Board Thickness: 5/8 inch.
  4. Edges: Square, for vertical application.
  5. Glass-Mat-Faced Products:
    - a. Georgia-Pacific Gypsum LLC; DensGlass Gold Sheathing.
- F. Shaftwall and Coreboard: Type X; 1 inch thick by 24 inches wide, beveled long edges, ends square cut.
1. Paper Faced Type: Gypsum shaftliner board or gypsum coreboard as defined ASTM C 1396/C 1396M; water-resistant faces.

## 2.4 ACCESSORIES

- A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. Thickness: 3-1/2 inch.
- B. Acoustic Sealant: As specified in Section 07900.
- C. Water-Resistive Barrier: As specified in Section 07260.
- D. Finishing Accessories: ASTM C 1047, galvanized steel or rolled zinc, unless otherwise indicated.
  1. Types: As detailed or required for finished appearance.

2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
- E. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.
    1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
    2. Ready-mixed vinyl-based joint compound.
    3. Chemical hardening type compound.
  - F. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.
  - G. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness (Hardy Frames): ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

### 3.2 PREPARATION

- A. Coordinate with Firestopping installer in Section 07840 for penetrations through fire rated assemblies.

### 3.3 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
- B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

### 3.4 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C 754 and manufacturer's instructions.
- B. Framed Ceilings and Soffits: Space framing and furring members as indicated.
  1. Level ceiling system to a tolerance of 1/1200.
  2. Laterally brace entire suspension system.
  3. Install bracing as required at exterior locations to resist wind uplift.
- C. Studs: Space studs as permitted by standard.
  1. Extend partition framing to structure where indicated and to ceiling in other locations.
  2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
- D. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.

- E. Blocking: Install wood blocking per Section 06100 for support of:
  - 1. Wall mounted cabinets.
  - 2. Plumbing fixtures.
  - 3. Toilet accessories.
  - 4. Wall mounted door hardware.

### 3.5 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
  - 1. Place one bead continuously on substrate before installation of perimeter framing members.
  - 2. Place continuous bead at perimeter of each layer of gypsum board.

### 3.6 BOARD INSTALLATION

- A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Use glass mat faced gypsum board at exterior walls and at other locations as indicated. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Install DensShield Tile Backer (in wet areas) in accordance with ICC Evaluation Service Report NER-572, Re-issued April 1, 2007.
  - 1. Tape joints with 2 inch tape as recommended by manufacturer.
  - 2. Screw panels to wall at 6 inches on center at supports.
  - 3. Vertical supports: 24 inches on center maximum.
  - 4. Horizontal supports: 16 inches on center maximum supports.
  - 5. Screws shall be kept a minimum of 3/8 inches from ends and edges of panels.
- E. Exterior Sheathing: Comply with ASTM C 1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
  - 1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

### 3.7 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

### 3.8 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.
- B. Paper Faced Gypsum Board: Use fiberglass joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C 840, as follows:
  - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  - 2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

### 3.9 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

**END OF SECTION**

## SECTION 09300 - TILE

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Tile for wall applications.
- B. Coated glass mat backer board as tile substrate.
- C. Ceramic accessories.
- D. Ceramic trim.

#### 1.2 RELATED REQUIREMENTS

- A. Section 09260 - Gypsum Board Assemblies: Installation of tile backer board.

#### 1.3 REFERENCE STANDARDS

- A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2005.
  - 1. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2005.
  - 2. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar; 1999 (R2005).
  - 3. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex Portland Cement Mortar; 1999 (R2005).
  - 4. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 1999 (R2005).
  - 5. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (R2005).
  - 6. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (R2005).
  - 7. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (R2005).
  - 8. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (R2005).
  - 9. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (R2005).
  - 10. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 1999 (R2005).
  - 11. ANSI A118.7 - American National Standard Specifications for Polymer Modified Cement Grouts for Tile Installation; 1999 (R2005).
  - 12. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.

- B. ASTM C 1178/C 1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2006.
- C. TCNA (HB) - Handbook for Ceramic Tile Installation; Tile Council of North America, Inc.; 2007/2008.

#### 1.4 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 x 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- D. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

#### 1.5 QUALITY ASSURANCE

- A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Series on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum 5 years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

### PART 2 PRODUCTS

#### 2.1 TILE

- A. Manufacturers: All products by the same manufacturer.
  - 1. Dal-Tile Corporation: [www.daltile.com](http://www.daltile.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Glazed Wall Tile: ANSI A137.1, and as follows:
  - 1. Semi-gloss manufactured by daltile or approved equivalent product.
  - 2. Moisture Absorption: Over 7.0 but less than 20.0 percent.
  - 3. Size and Shape: 4-1/4 inch square.
  - 4. Edges: Square.
  - 5. Colors: White 0100.
  - 6. Trim Units: Matching bullnose shapes in sizes indicated.

#### 2.2 TRIM AND ACCESSORIES

- A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.
  - 1. Corner Soap Dish: With handle, clam shell design, recess mounted; cast strength sufficient to resist lateral pull force of 75 lbs.

- B. Ceramic Trim: Matching bullnose ceramic shapes in sizes coordinated with field tile.
  - 1. Applications: Use in the following locations:
    - a. Open Edges: Bullnose.
    - b. Inside Corners: Jointed.
  - 2. Manufacturer: Same as for tile.

### 2.3 ADHESIVE MATERIALS

- A. Latex-Portland Cement Mortar: ANSI A118.4, thinset bond type.

### 2.4 GROUT MATERIALS

- A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.
  - 1. Color: As selected.

### 2.5 ACCESSORY MATERIALS

- A. Coated Glass Mat Backer Board: ASTM C 1178/C 1178M, with coated inorganic fiberglass mat on both surfaces and integral acrylic coating vapor retarder. See Section 09260.
- B. Mesh Tape: 2-inch wide alkali-resistant, self-adhesive fiberglass mesh tape.

## PART 3 EXECUTION

### 3.1 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners neatly. Align wall joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Sound tile after setting. Replace hollow sounding units.
- H. Allow tile to set for a minimum of 48 hours prior to grouting.
- I. Grout tile joints. Use standard grout unless otherwise indicated.
- J. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

### 3.2 INSTALLATION - SHOWERS AND BATHTUB WALLS

- A. At bathtub walls install in accordance with TCA Handbook Method B419, over tile backer boards.
- B. Grout with standard grout as specified above.
- C. Seal joints between tile work and other work with sealant Type 5 specified in Section 07900.

### 3.3 INSTALLATION - WALL TILE

- A. Over coated glass mat backer board on studs, install in accordance with TCA Handbook Method W245.

### 3.4 CLEANING

- A. Clean tile and grout surfaces.

**END OF SECTION**

## **SECTION 09642 - HARDWOOD FLOORING - NAILED**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Wood strip flooring, nailed.

#### **1.2 REFERENCE STANDARDS**

- A. MFMA (SPEC) - Guide Specifications for Maple Flooring Systems; Maple Flooring Manufacturers Association; current edition.
- B. NOFMA (IN) - Installing Hardwood Flooring; National Oak Flooring Manufacturers Association; current edition located at [www.nofma.org](http://www.nofma.org).

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for flooring.
- C. Samples: Submit two samples 9 x 12 inch in size illustrating floor finish, color, and sheen.
- D. Installation Instructions: Indicate standard and special installation procedures.
- E. Maintenance Data: Include maintenance procedures.

#### **1.4 FIELD CONDITIONS**

- A. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized at maximum moisture content of 40 percent.
- B. Provide heat, light, and ventilation prior to installation.
- C. Store materials in area of installation for minimum period of 24 hours prior to installation.
- D. Maintain minimum room temperature of 65 degrees F for a period of two days prior to delivery of materials to installation space, during installation, and after installation.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Hardwood Flooring:
  - 1. Armstrong World Industries, Inc; Product Gunstock 2-1/4 x 3/4 inch Westchester oak flooring by Bruce Hardwood Flooring: [www.armstrong.com](http://www.armstrong.com).
  - 2. Substitutions: Section 01600 - Product Requirements.

#### **2.2 MATERIALS**

- A. Wood Strip Flooring:
  - 1. Species: Red Oak.
  - 2. Grade: First.
  - 3. Cut: Flat grain.
  - 4. Moisture Content: 7 to 9 percent.
  - 5. Actual Thickness: 25/32 inch.

6. Actual Width: 2-1/4 inches.
7. Edge: Tongue and Groove.
8. End: eased.
9. Length: Random, minimum of 9 inches.
10. Factory Finish: Clear Urethane stain.

B. Flooring Nails: Type recommended by flooring manufacturer.

## 2.3 ACCESSORIES

- A. Wood Base: Same species as flooring; profile as indicated.
- B. Transition Strip: Same species and finish as flooring material; profiles indicated.
- C. Floor Finish: Factory-applied Polyurethane, to achieve high gloss surface; type recommended by flooring manufacturer.

## 2.4 SOURCE QUALITY CONTROL

- A. Inspect and stamp species and grade on underside of each piece of wood flooring at factory.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify wood subfloor is properly secured, smooth and flat to plus or minus 1/4 inch in 10 feet.
- C. Verify that required floor-mounted utilities are in correct location.

### 3.2 PREPARATION

- A. Prepare substrate to receive wood flooring in accordance with manufacturer's, MFMA, and NOFMA instructions.
- B. Broom clean substrate.

### 3.3 INSTALLATION

- A. Wood Flooring:
  1. Install in accordance with manufacturer's, MFMA, and NOFMA instructions; predrill and blind nail to wood sub-floor.
  2. Lay flooring parallel to length of room areas. Verify alignment as work progresses.
  3. Arrange flooring with square ends set flush and tight.
  4. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar; provide divider strips and transition strips in accordance with flooring manufacturer's recommendations and as indicated..
  5. Install edge strips at unprotected or exposed edges, and where flooring terminates.
  6. Provide 1/32 inch expansion space per foot of wood floor width at fixed walls and other interruptions.

### 3.4 CLEANING

A. Clean and polish floor surfaces in accordance with manufacturer's instructions.

### 3.5 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Place protective coverings over finished floors; do not remove coverings until Substantial Completion.

**END OF SECTION**



## **SECTION 09650 - RESILIENT FLOORING**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Resilient sheet flooring.
- B. Resilient stair accessories.
- C. Installation accessories.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.
- B. ASTM F 1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing; 2004.
- C. ASTM F 1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2004.
- D. ASTM F 2034 - Standard Specification for Sheet Linoleum Floor Covering; 2003.
- E. FS RR-T-650 - Treads, Metallic and Nonmetallic, Skid Resistant; Federal Specifications and Standards; Revision E, 1994.

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plan.
- D. Verification Samples: Submit two samples, 9 x 12 inch in size illustrating color and pattern for each resilient flooring product specified.
- E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Protect roll materials from damage by storing on end.

#### **1.5 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

## PART 2 PRODUCTS

### 2.1 SHEET FLOORING

- A. Linoleum Sheet Flooring Type RF-1: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness:
  - 1. Minimum Requirements: Comply with ASTM F 2034, Type corresponding to type specified.
  - 2. Backing: Jute fabric.
  - 3. Wear Layer Thickness: 0.080 inch, minimum, excluding backing.
  - 4. Sheet Width: 79 inch, minimum.
  - 5. Pattern: To be selected from manufacturer's full range of standard colors.
  - 6. Color: To be selected from manufacturer's full color range.
  - 7. Seams: Heat welded.
  - 8. Manufacturers:
    - a. Armstrong World Industries, Inc; Product Marmoleum: [www.armstrong.com](http://www.armstrong.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
- B. Vinyl Sheet Flooring Type RF-2: Homogeneous without backing, with color and pattern throughout full thickness, and:
  - 1. Minimum Requirements: Comply with ASTM F 1303, Type II, without backing, or ASTM F 1913.
  - 2. Total Thickness and Wear Layer Thickness: 0.080 inch nominal.
  - 3. Sheet Width: 49 inch minimum.
  - 4. Static Load Resistance: 125 psi minimum, when tested as specified in ASTM F 1303.
  - 5. Heat welded seams.
  - 6. Integral covered base with cap strip.
  - 7. Pattern: As selected from manufacturer's full range of standard patterns.
  - 8. Manufacturers:
    - a. Tarkett; Product Infinity Collection.
    - b. Substitutions: See Section 01600 - Product Requirements.
- C. Vinyl Welding Rod: Solid vinyl bead produced by manufacturer of vinyl flooring for heat welding seams, in color matching field color.
- D. Linoleum Welding Rod: Solid color linoleum produced by flooring manufacturer for heat welding seams, in color in color matching predominant flooring color.

### 2.2 STAIR COVERING

- A. Stair Treads: Rubber; full width and depth of stair tread in one piece; tapered thickness; nosing not less than 1-5/8 inch deep.
  - 1. Minimum Requirements: Comply with FS RR-T-650 requirements corresponding to type specified.
  - 2. Nominal Thickness: 0.1875 inch.
  - 3. Nosing: Square.
  - 4. Color: Solid.
  - 5. Manufacturers:

- a. Johnsonite, Inc; Product Model HTR and VIHTR as required for visually impaired: [www.johnsonite.com](http://www.johnsonite.com).
  - b. Substitutions: See Section 01600 - Product Requirements.
- B. Stair Stringers: Full height in one piece and in maximum available lengths, matching treads in material and color:
- 1. Thickness: 0.080 inch.
  - 2. Pattern: Solid color.

## 2.3 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Filler for Coved Base: Plastic.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of athletic flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F 710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

### 3.2 PREPARATION

- A. Prepare sub-floor surfaces as recommended by flooring and adhesive manufacturers.
- B. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- C. Prohibit traffic until filler is cured.
- D. Clean substrate.

### 3.3 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.

- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### 3.4 SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns carefully at seams.
- B. Seams are prohibited in mechanical closets, bathrooms and laundry closets.
- C. Double cut sheet at seams.
- D. Lay flooring with tightly butted seams, without any seam sealer unless otherwise indicated.
- E. Finish seams in sheet vinyl by heat welding.
- F. Finish seams in linoleum by heat welding.
- G. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

### 3.5 STAIR COVERINGS

- A. Install stringers configured tightly to stair profile.
- B. Adhere over entire surface. Fit accurately and securely.

**END OF SECTION**

## SECTION 09680 - CARPET

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Carpet, stretched-in, with cushion underlay.

#### 1.2 REFERENCE STANDARDS

- A. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2006.
- B. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2008.
- C. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; Carpet and Rug Institute; 2002.
- D. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; current listings at [www.carpet-rug.org](http://www.carpet-rug.org).
- E. CRI (GLCC) - Green Label Testing Program - Approved Product Categories for Carpet Cushion; Carpet and Rug Institute; current listings at [www.carpet-rug.org](http://www.carpet-rug.org).
- F. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; current listings at [www.carpet-rug.org](http://www.carpet-rug.org).
- G. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2006.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit two samples 18 x 18 inch in size illustrating color and pattern for each carpet and cushion material specified.
- D. Submit two, 18 inch long samples of edge strip for each color specified.
- E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet with minimum three years experience.

#### 1.5 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

- B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation.
- C. Ventilate installation area during installation and for 72 hours after installation.

## 1.6 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective wear and tear within a five year period after Date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Carpet:
  - 1. J & J Industries, Inc: [www.jjindustries.com](http://www.jjindustries.com).
  - 2. Patcraft & Designweave by Shaw: [www.thenewpatcraftdesignweave.com](http://www.thenewpatcraftdesignweave.com)
  - 3. Interface.
  - 4. Substitutions: See Section 01600 - Product Requirements.

### 2.2 CARPET

- A. Carpet Type Broadloom:
  - 1. Carpet to be Green Label Plus by the Carpet and Rug Institute.
  - 2. Weight: 26 oz min.
  - 3. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E 648 or NFPA 253.
  - 4. Surface Flammability Ignition: Pass ASTM D 2859 (the "pill test").
  - 5. VOC Content: Provide CRI Green Label Plus certified product; in lieu of labeling, independent test report showing compliance is acceptable.
  - 6. Stainblocker: Provide stainblocker as recommended by carpet manufacturer.
  - 7. Substitutions: See Section 01600 - Product Requirements.

### 2.3 CUSHION

- A. Cushion: Prime Polyurethane (CC-1)
  - 1. VOC Content: Provide CRI Green Label certified product; in lieu of labeling, independent test report showing compliance is acceptable.
  - 2. Manufacturers:
    - a. Foamex/GFI, [www.foamex.com](http://www.foamex.com)
    - b. Leggett & Pratt, [www.lpurethane.com](http://www.lpurethane.com).
  - 3. Nominal Thickness: 1/4 inch.
  - 4. Density: 8 lb/cu ft.

### 2.4 ACCESSORIES

- A. Sub-Floor Filler: Type recommended by carpet manufacturer.
- B. Tackless Strip: Carpet gripper, of type recommended by carpet manufacturer to suit application, with attachment devices.
- C. Moldings and Edge Strips: Embossed aluminum, color as selected.

- D. Adhesives - General: Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.
- E. Seam Adhesive: Recommended by manufacturer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet.

### 3.2 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install carpet and cushion in accordance with manufacturer's instructions and CRI 104.
- C. Verify carpet match before cutting to ensure minimal variation between dye lots.
- D. Lay out carpet:
  1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
  2. Do not locate seams perpendicular through door openings.
  3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
  4. Locate change of color or pattern between rooms under door centerline.
  5. Provide monolithic color, pattern, and texture match within any one area.
- E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

### 3.3 STRETCHED-IN CARPET

- A. Install tackless strips with pins facing the wall around entire perimeter, except across door openings. Use edge strip where carpet terminates at other floor coverings.
- B. Space tackless strips slightly less than carpet thickness away from vertical surfaces, but not more than 3/8 inch.
- C. Install cushion in maximum size pieces using spot adhesive to adhere to sub-floor.
- D. Lay out cushion so that seams will be perpendicular to, or offset from, minimum 6 inches from carpet seams.
- E. Butt cushion edges together and tape seams.
- F. Trim cushion tight to edge of tackless strip and around projections and contours.
- G. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to all cut edges immediately.
- H. Join seams using hot adhesive tape. Form seams straight, not overlapped or peaked, and free of gaps.

- I. Following seaming, hook carpet onto tackless strip at one edge, power stretch, and hook firmly at other edges. Follow manufacturer's recommendations for method and amount of stretch.
- J. Trim carpet neatly at walls and around interruptions. Tuck edges into space between tackless strip and wall.

#### 3.4 INSTALLATION ON STAIRS

- A. Install tackless strips at back of treads, with pins facing riser, and at bottom of riser, with pins facing tread.
- B. Install cushion on stair treads and lap over nosing.
- C. Install carpet on stairs with the run of the pile in opposite direction of anticipated traffic to avoid peaking of backing at nosings.
- D. Stretch carpet over stair treads, full width in one piece. Fold carpet under 1-1/2 inches on each side.

#### 3.5 CLEANING

- A. Clean and vacuum carpet surfaces.

**END OF SECTION**

## **SECTION 09900 - PAINTS AND COATINGS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Floors, unless specifically so indicated.
  - 6. Glass.
  - 7. Concealed pipes, ducts, and conduits.
- E. See Schedule - Surfaces to be Finished, at end of Section.

#### **1.2 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Reapproved 2003).

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on tempered hardboard, 12 x 12 inch in size.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

## 1.5 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
  - 1. ICI Paints North America: [www.icipaintsinna.com](http://www.icipaintsinna.com).
  - 2. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 3. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
- C. Substitutions: Not permitted.

### 2.2 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Supply each coating material in quantity required to complete entire project's work from a single production run.
  - 3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of State in which the project is located.
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

## 2.3 PAINT SYSTEMS - EXTERIOR

- A. Paint PE-OP-3L - Cellular PVC, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Semi-gloss: Two coats of latex enamel.
- B. Paint FE-OP-3L - Fiberglass, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Semi-gloss: Two coats of latex enamel.
- C. Paint WE-OP-3L - Wood, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Semi-gloss: Two coats of latex enamel.
- D. Paint CE-OP-3L - Masonry/Concrete, Opaque, Latex, 3 Coat:
  - 1. One coat of block filler.
  - 2. Flat: Two coats of latex enamel; .
- E. Paint FE-OP-3L - Fiber Cement Panels, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Flat: Two coats of latex enamel; .
- F. Paint ME-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
  - 1. One coat of latex primer.
  - 2. Semi-gloss: Two coats of latex enamel; .
- G. Paint ME-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
  - 1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
  - 2. Semi-gloss: Two coats of latex enamel.
- H. Paint MgE-OP-3L - Galvanized Metals, Latex, 3 Coat:
  - 1. One coat galvanize primer.
  - 2. Semi-gloss: Two coats of latex enamel.

## 2.4 PAINT SYSTEMS - INTERIOR

- A. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Semi-gloss: Two coats of latex enamel; .
- B. Paint WI-TR-V - Wood, Transparent, Varnish, No Stain:
  - 1. One coat sealer.
  - 2. Satin: One coat of varnish; .
- C. Paint MI-OP-2A - Ferrous Metals, Primed, Alkyd, 2 Coat:
  - 1. Touch-up with alkyd primer.
  - 2. Semi-gloss: Two coats of alkyd enamel.
- D. Paint Mgl-OP-3A - Galvanized Metals, Alkyd, 3 Coat:
  - 1. One coat galvanize primer.
  - 2. Semi-gloss: Two coats of alkyd enamel.
- E. Paint GI-OP-3L - Gypsum Board, Latex, 3 Coat:
  - 1. One coat of latex primer sealer.
  - 2. Semi-gloss: Two coats of latex enamel.

3. Eggshell: Two coats of latex enamel.
4. Flat: Two coats of latex enamel.

## 2.5 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  1. Gypsum Wallboard: 12 percent.
  2. Plaster and Stucco: 12 percent.
  3. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  4. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.
  5. Exterior Wood: 15 percent, measured in accordance with ASTM D 4442.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

- H. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- J. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- K. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- L. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- N. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- O. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- P. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied. Back prime concealed surfaces before installation.

### 3.3 APPLICATION

- A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- B. Apply products in accordance with manufacturer's instructions.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and

particles just prior to applying next coat.

- G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

#### 3.4 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

#### 3.5 SCHEDULE - SURFACES TO BE FINISHED

- A. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically noted.
  - 2. Fire rating labels, equipment serial number and capacity labels.
- B. Paint the surfaces described in PART 2, Paint Systems Articles.
- C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
  - 1. Paint shop-primed items occurring in finished areas.
  - 2. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
  - 3. Paint dampers exposed behind louvers, grilles, to match face panels.

#### 3.6 SCHEDULE - PAINT SYSTEMS

- A. Exterior Fiber Cement Panels - 3 colors.

**END OF SECTION**

## **SECTION 09960 - HIGH-PERFORMANCE COATINGS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. High performance coatings on exterior metal railings and handrails.

#### **1.2 REFERENCE STANDARDS**

- A. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating coating materials and VOC content.
- C. Samples: Submit two samples 9 x 12 inch in size illustrating colors available for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Maintenance Data: Include cleaning procedures and repair and patching techniques.

#### **1.4 QUALITY ASSURANCE**

- A. Maintain one copy of each referenced document that applies to application on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- C. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

#### **1.5 FIELD CONDITIONS**

- A. Do not install materials when temperature is below 55 degrees F or above 90 degrees F.
- B. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.
- C. Restrict traffic from area where coating is being applied or is curing.

#### **1.6 WARRANTY**

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for bond to substrate.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. High-Performance Coatings:
  - 1. Tnemec Company, Inc: [www.tnemec.com](http://www.tnemec.com).
  - 2. Substitutions: Section 01600 - Product Requirements.

## 2.2 MATERIALS

- A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.
  - 1. Maximum volatile organic compound (VOC) content: As required by applicable regulations.
  - 2. Colors: Selected from manufacturer's standard colors.
- B. Urethane Coating: Two coats, two-part, aliphatic moisture-curing polyurethane, gloss finish.
  - 1. Primer for ferrous metal: Series 90-97 Tnemec Zinc. DFT 2.5 to 3.5 mil.
  - 2. Intermediate Coat: Series V69F-Color, Hi-Build Epoxoline II, DFT 4.0 to 6.0 mil.
  - 3. Finish Coat: Endura-Shield W. B. Series 1080-Color. DFT 2.0 to 3.0 mil.
- C. Primers: As recommended by coating manufacturer for specific substrate, unless otherwise specified.
- D. Shellac: Pure, white type.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.

### 3.2 PREPARATION

- A. Clean surfaces of loose foreign matter.
- B. Remove substances that would bleed through finished coatings. If unremovable, seal surface with shellac.
- C. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent.
- D. Ferrous Metal:
  - 1. Solvent clean.
  - 2. Remove loose rust, loose mill scale, and other foreign substances using hand tools according to SSPC-SP 2.
- E. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

### 3.3 PRIMING

- A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

### 3.4 COATING APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions, to thicknesses specified.

- B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

### 3.5 CLEANING

- A. Clean surfaces immediately of overspray, splatter, and excess material.
- B. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

### 3.6 PROTECTION

- A. Protect finished work from damage.

**END OF SECTION**



## SECTION 10210 - WALL LOUVERS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Louvers, frames, and accessories.

#### 1.2 REFERENCE STANDARDS

- A. AMCA 511 - Certified Ratings Program for Air Control Devices; Air Movement and Control Association International, Inc.; 2007.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.
- C. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, tolerances; head, jamb and sill details; blade configuration, screens, blankout areas required, and frames.
- D. Samples: Submit two samples 2 by 2 inches in size illustrating finish and color of exterior surfaces.
- E. Test Reports: Independent agency reports showing compliance with specified performance criteria.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.
- B. Performance Requirements: Provide AMCA and BSRIA test data as required to confirm that the louvers have the specified air and water performance characteristics.

#### 1.5 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide twenty year manufacturer warranty against distortion, metal degradation, and failure of connections.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Wall Louvers:
  - 1. Construction Specialties, Inc; Product DC 5304: [www.c-sgroup.com](http://www.c-sgroup.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

#### 2.2 LOUVERS

- A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified under AMCA 511.
1. Storm Resistant Louvers:
    - a. C/S 5" (127mm) Deep Dade County Approved Open Structure Protection Fixed Storm Resistant Horizontal Louver Model DC5304
      - 1) Material: Heads, sills, jambs and mullions to be one-piece structural aluminum members with integral caulking slot and retaining beads. Blades to be one-piece aluminum extrusions with front lip gutter and multiple secondary gutters designed to catch and direct water to sill. Louvers to be supplied with 4" (101.6mm) high by full depth sill flashings formed from minimum 0.050" (1.27mm) thick aluminum. Sill flashings to have welded side panels. Louvers and sill flashings to be installed in accordance with the manufacturer's recommended procedures to ensure complete water integrity performance of the louver system. Material thickness to be as follows: Heads, sills, jambs and mullions: 0.081" (2.06mm). Fixed blades: 0.060" (1.52mm).
      - 2) Structural Performance: Louvers shall have been tested in accordance with Dade County Protocols PA201, PA202 and PA 203; and shall be Dade County Approved for open structure building envelope protection (including missile) for single unit sizes up to 12 feet wide by 7 feet high; and for allowable design wind loading up to 120 psf (multiple units may be used for larger openings).
    - b.
      - 1) AMCA Performance: A 4' x 4' unit shall conform to the following:
        - (a) Free Area: 7.24 square feet.
        - (b) Intake Pressure drop at 700 fpm free area velocity: 0.20 inches water.
      - 2) Wind Driven Rain Performance: The louver test was based on a 39.370"(1.00m) x 39.370" (1.00 m) core area. Unit tested at a rainfall rate of 3.0 inches per hour (75 mm/hr) and with a wind directed to the face of the louver at a velocity 29.1-mph (13 m/s). The test data shall show the water penetration effectiveness rating at each corresponding ventilation rate.

|                                      |               |     |                   |     |                   |     |               |      |
|--------------------------------------|---------------|-----|-------------------|-----|-------------------|-----|---------------|------|
| Core Ventilation Rate (m/s):         | 0.0           | 0.5 | 1.0               | 1.5 | 2.0               | 2.5 | 3.0           | 3.5  |
| Core Ventilation Rate (ft/min):      | 0             | 98  | 197               | 295 | 394               | 492 | 591           | 689  |
| Free Area Ventilation Rate (ft/min): | 0             | 181 | 364               | 545 | 727               | 908 | 1091          | 1272 |
| Rating effectiveness:                | A             | A   | A                 | B   | B                 | B   | C             | C    |
| Effectiveness Rating:                | A = 1 to 0.99 |     | B = 0.989 to 0.95 |     | C = 0.949 to 0.80 |     | D = 0.80 to 0 |      |

2. Hurricane Louvers:
  - a. C/S 7" (177.8mm) Deep Dade County Approved Louver Series DC7024 with Wind driven rain performance module insert.
    - 1) With 4" Deep Model A4080 Front Unit. Total System 11" Deep.

- 2) Material: Heads, sills and jambs to be one piece structural aluminum sections with minimum 0.125 " (3.18mm) thick walls.
- 3) Structural Performance: Louvers shall have been tested in accordance with Dade County Protocols PA201, PA202 and PA 203; and shall be Dade County Approved for open structure building envelope protection (including missile) for single unit sizes up to 4 feet wide by 10 feet high; and for allowable design wind loading up to 160 psf (multiple units may be used for larger openings).
- 4) Pressure Drop: A 4' X 4' module of the complete system shall have a pressure drop not to exceed .077" in. H2O at an overall system free area velocity of 500 FPM.
- 5) Wind Driven Rain Performance: The louver test was based on a 39.370"(1.00m) x 39.370" (1.00 m) core area. Unit tested at a rainfall rate of 8.0 inches per hour (203.2mm/hr) and with a wind directed to the face of the louver at a velocity 50-mph (22.4 m/s). The test data shall show the water penetration effectiveness rating at each corresponding ventilation rate.

|                                      |               |     |                   |     |     |                   |     |      |
|--------------------------------------|---------------|-----|-------------------|-----|-----|-------------------|-----|------|
| Core Ventilation Rate (m/s):         | 0.0           | 0.6 | 1.0               | 1.4 | 2.0 | 2.4               | 2.9 | 3.5  |
| Core Ventilation Rate (ft/min):      | 0             | 119 | 201               | 274 | 386 | 473               | 570 | 694  |
| Free Area Ventilation Rate (ft/min): | 0             | 188 | 318               | 433 | 610 | 748               | 901 | 1097 |
| Rating effectiveness:                | A             | A   | A                 | A   | A   | A                 | A   | A    |
| Effectiveness Rating:                | A = 1 to 0.99 |     | B = 0.989 to 0.95 |     |     | C = 0.949 to 0.80 |     |      |
|                                      | D = 0.80 to 0 |     |                   |     |     |                   |     |      |

3.

4. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.

### 2.3 MATERIALS

- A. Bird Screen: Interwoven wire mesh of steel, 0.063 inch diameter wire, 1/2 inch open weave, diagonal design.
- B. Insect Screen: 18 x 16 size aluminum mesh.

### 2.4 ACCESSORIES

- A. Blank-Off Panels: Same material as louver, painted black on exterior side; provide where duct connected to louver is smaller than louver frame, sealing off louver area outside duct.
- B. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.
- C. Head and Sill Flashings: See Section 07620.
- D. Sealant: SJ-1 type, as specified in Section 07900.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that prepared openings and flashings are ready to receive work and opening dimensions are as indicated on shop drawings.

### 3.2 INSTALLATION

- A. Install louver assembly in accordance with manufacturer's instructions.
- B. Coordinate with installation of flashings by others.
- C. Install louvers level and plumb.
- D. Align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.
- E. Secure louver frames in openings with concealed fasteners.
- F. Install perimeter sealant and backing rod in accordance with Section 07900.
- G. Coordinate with installation of mechanical ductwork.

### 3.3 CLEANING

- A. Strip protective finish coverings.
- B. Clean surfaces and components.

**END OF SECTION**

## SECTION 10672 - WIRE STORAGE SHELVING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Wall mounted wire closet shelving.
- B. Accessories.

#### 1.2 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, with installation instructions.
- C. Shop Drawings: Provide drawings prepared specifically for this project; show dimensions of shelving and attachment to substrates.
- D. Selection Samples: For each color selection required, submit color chips representing manufacturer's full range of available colors and finish.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products under cover and elevated above grade.
- C. Store flat to prevent warpage and bending.

### PART 2 PRODUCTS

#### 2.1 SHELVING APPLICATIONS

- A. Shelf Depth: 12 inches, unless otherwise indicated.
- B. Bedroom Closets:
  - 1. Wall-to-wall shelf with free sliding hanger rod.
- C. Coat Closets:
  - 1. Wall-to-wall shelf with integral hanger rod.
- D. Linen Closets:
  - 1. Wall-to-wall Close-Mesh shelves spaced at 13 inch vertically, not less than 16 inch deep.

#### 2.2 MATERIALS

- A. Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.
  - 1. Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.

2. Coating: PVC or epoxy, applied after fabrication, covering all surfaces.
  3. PVC Coating: 9 to 11 mils thick.
  4. Epoxy Coating: Non-toxic epoxy-polyester powder coating baked-on finish, 3 to 5 mils thick.
  5. Standard Mesh Shelves: Cross deck wires spaced at 1 inch.
  6. Shelf and Rod Units: Integral hanging rod at front edge of shelf.
  7. Free-Sliding Hanging Rod: Integral hanging rod that permits uninterrupted sliding of hangers the full width of the shelf.
  8. Shoe Shelves: Same wire spacing as standard mesh shelves; angled wall brackets; upturned front lip.
- B. Mounting Hardware: Provide manufacturer's standard mounting hardware; include support braces, wall brackets, back clips, end clips, poles, and other accessories as required for complete and secure installation; factory finished to match shelving.
- C. Fasteners: As recommended by manufacturer for mounting substrates.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Inspect areas to receive shelving, to verify that spaces are properly prepared to receive shelf units, and are of dimensions indicated on shop drawings.
- B. Verify appropriate fastening hardware.
- C. Do not begin installation until substrates have been properly prepared.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, with shelf surfaces level.
- B. Cap exposed ends of cut wires.
- C. Install back clips, end clips at side walls, and support braces at open ends. Install intermediate support braces as recommended by manufacturer.
- D. Mounting Heights: As indicated in drawings, If not indicated, then install at heights indicated below:
  1. Single Hanging Rod Units: Install shelf at 68 inches above floor.
  2. Double Hanging Rod Units: Install shelves at 42 inches and 84 inches above floor.
  3. Shoe Shelves: Front edge at 4 inches above floor.

### 3.4 ADJUSTING AND CLEANING

- A. Clean soiled surfaces after installation.

- B. Touch-up, repair, or replace damaged products before Substantial Completion in a manner that eliminates evidence of replacement.

**END OF SECTION**



## **SECTION 10800 - TOILET, BATH, AND LAUNDRY ACCESSORIES**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Accessories for toilet rooms, showers, and residential bathrooms.
- B. Grab bars.

#### **1.2 REFERENCE STANDARDS**

- A. ASTM B 456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2003.

#### **1.3 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

#### **1.4 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- C. Samples: Submit two samples of each accessory, illustrating color and finish.
- D. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Products listed are made by Bobrick.

#### **2.2 MATERIALS**

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

#### **2.3 FINISHES**

- A. Chrome/Nickel Plating: ASTM B 456, SC 2, satin finish, unless otherwise noted.

#### **2.4 TOILET ROOM ACCESSORIES**

- A. Toilet Paper Dispenser: Single roll, recessed type, chrome-plated steel brackets.
  - 1. Product: B-667 manufactured by Bobrick.
- B. Grab Bars: Stainless steel, 1-1/4 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar.
  - 1. Length and configuration: As indicated on drawings.
  - 2. Product: B-5806 manufactured by Bobrick.

#### **2.5 SHOWER AND TUB ACCESSORIES**

- A. Shower Curtain Rod: Stainless steel tube, 1 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for installation with exposed fasteners.
  - 1. Product: B-207 manufactured by Bobrick.
- B. Towel Bar: Stainless steel Type 304, 3/4 inch round tubular bar; rectangular brackets, concealed attachment, bright polished finish.
  - 1. Length: 18 and 24 inches.
  - 2. Product: Borma manufactured by Jado.
- C. Towel Ring: Stainless steel, 2-1/2 inch extension from wall, with 1/4 inch diameter trapezoidal shaped ring, rectangular-shaped bracket and backplate for concealed attachment, bright polished finish.
  - 1. Product: Borma 6 inch towel ring manufactured by Jado.

## 2.6 RESIDENTIAL ACCESSORIES

- A. Medicine Cabinet: One-piece construction of heavy-gage steel with factory-applied, gloss white, baked enamel finish, fully recessed, satin finish stainless steel mirror frame, reversible type.
  - 1. Shelves: Adjustable, metal; provide not less than 3 shelves.
  - 2. Door: Fitted with continuous piano-type hinge, shock-absorbing spring-and-rod door stop, magnetized catch, swing as indicated.
  - 3. Product: B-398 manufactured by Bobrick.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.
- D. See Section 06100 for installation of blocking, reinforcing plates, and concealed anchors in walls, and ceilings.

### 3.2 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights and Locations: As required by accessibility regulations and as indicated on drawings

**END OF SECTION**

## SECTION 11450 - RESIDENTIAL EQUIPMENT

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Kitchen appliances.
- B. Laundry appliances.

#### 1.2 REFERENCE STANDARDS

- A. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; Underwriters Laboratories Inc.; current edition.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- C. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

#### 1.4 QUALITY ASSURANCE

- A. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.

#### 1.5 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five (5) year manufacturer warranty on refrigeration system of refrigerators.
- C. Provide ten (10) year manufacturer warranty on magnetron tube of microwave ovens.
- D. Provide ten (10) year manufacturer warranty on tub and door liner of dishwashers.

### PART 2 PRODUCTS

#### 2.1 KITCHEN APPLIANCES

- A. Refrigerator: Free-standing, side-by-side, frost-free.
  - 1. Energy Usage: Minimum 20 percent more energy efficient than energy efficiency standards set by DOE.
  - 2. Features: Include glass shelves, automatic icemaker, light in freezer compartment, and in-door water and ice dispenser.
  - 3. Finish: Porcelain enameled steel, color as indicated.
  - 4. Manufacturers:
    - a. At 1 & 2 bedroom units: GE Appliances; Product GTH16BBSRWW: [www.geappliances.com](http://www.geappliances.com).
    - b. At 3 & 4 bedroom units: GE Appliances; Product GTH18DBRRWW: [www.geappliances.com](http://www.geappliances.com).
- B. Range: Electric, free-standing, with glass-ceramic cooktop.
  - 1. Size: 30 inches.
  - 2. Oven: Self-cleaning with electronic ignition.
  - 3. Elements: 4.
  - 4. Controls: Solid state electronic.

5. Features: Include storage drawer, oven door window, broiler pan and grid, oven light, and Clock and Timer.
  6. Finish: Porcelain enameled steel, color as indicated.
  7. Manufacturers:
    - a. GE Appliances; Product JBP15DMWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  8. Range in accessible units shall have front controls.
- C. Cooking Exhaust: Range hood.
1. Size: 30 inches.
  2. Fan: Two- speed, 500 cfm
  3. Exhaust: Rectangular, vented to exterior.
  4. Features: Include cooktop light and removable grease filter.
  5. Finish: Painted steel, color as indicated.
  6. Manufacturers:
    - a. GE Appliances; Product JV338HWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  7. Provide remote operation switch at accessible units.
- D. Dishwasher: Undercounter.
1. Controls: Solid state electronic.
  2. Wash Levels: 3.
  3. Cycles: 4, including normal.
  4. Features: Include rinse aid dispenser, optional no-heat dry, optional water temperature boost, adjustable upper rack, and adjustable lower rack.
  5. Finish: Porcelain enameled steel, color as indicated.
  6. Manufacturers:
    - a. GE Appliances; Product GSD4000/4060N: [www.geappliances.com](http://www.geappliances.com).
    - b. At accessible units: GE Appliances; Product GSDA690MWW: [www.geappliances.com](http://www.geappliances.com).

## 2.2 LAUNDRY APPLIANCES

- A. Clothes Washer: Top-loading stationary.
- B. Clothes Washer
1. Manufacturers:
    - a. GE Appliances; Product WSXH208HWW: [www.geappliances.com](http://www.geappliances.com).
    - b. At accessible units: GE Appliances; Product WSSH300GWW: [www.geappliances.com](http://www.geappliances.com).
    - c. Substitutions: See Section 01600 - Product Requirements.
- C. Clothes Dryer
1. Manufacturers:
    - a. GE Appliances; Product DSXH43GFWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  2. Unit will be stacked in some units and floor mounted in other units,
  3. Fuel: Gas.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Anchor built-in equipment in place.

### 3.2 ADJUSTING

- A. Adjust operating equipment to efficient operation.

### 3.3 CLEANING

- A. Remove packing materials from equipment.
- B. Wash and clean equipment.

**END OF SECTION**



## SECTION 11450 - RESIDENTIAL EQUIPMENT

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Kitchen appliances.
- B. Laundry appliances.

#### 1.2 REFERENCE STANDARDS

- A. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; Underwriters Laboratories Inc.; current edition.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- C. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

#### 1.4 QUALITY ASSURANCE

- A. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.

#### 1.5 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five (5) year manufacturer warranty on refrigeration system of refrigerators.
- C. Provide ten (10) year manufacturer warranty on magnetron tube of microwave ovens.
- D. Provide ten (10) year manufacturer warranty on tub and door liner of dishwashers.

### PART 2 PRODUCTS

#### 2.1 KITCHEN APPLIANCES

- A. Refrigerator: Free-standing, side-by-side, frost-free.
  - 1. Energy Usage: Minimum 20 percent more energy efficient than energy efficiency standards set by DOE.
  - 2. Features: Include glass shelves, automatic icemaker, light in freezer compartment, and in-door water and ice dispenser.
  - 3. Finish: Porcelain enameled steel, color as indicated.
  - 4. Manufacturers:
    - a. At 1 & 2 bedroom units: GE Appliances; Product GTH16BBSRWW: [www.geappliances.com](http://www.geappliances.com).
    - b. At 3 & 4 bedroom units: GE Appliances; Product GTH18DBRRWW: [www.geappliances.com](http://www.geappliances.com).
- B. Range: Electric, free-standing, with glass-ceramic cooktop.
  - 1. Size: 30 inches.
  - 2. Oven: Self-cleaning with electronic ignition.

3. Elements: 4.
  4. Controls: Solid state electronic.
  5. Features: Include storage drawer, oven door window, broiler pan and grid, oven light, and Clock and Timer.
  6. Finish: Porcelain enameled steel, color as indicated.
  7. Manufacturers:
    - a. GE Appliances; Product JBP15DMWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  8. Range in accessible units shall have front controls.
- C. Cooking Exhaust: Range hood.
1. Size: 30 inches.
  2. Fan: Two- speed, 500 cfm
  3. Exhaust: Rectangular, vented to exterior.
  4. Features: Include cooktop light and removable grease filter.
  5. Finish: Painted steel, color as indicated.
  6. Manufacturers:
    - a. GE Appliances; Product JV338HWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  7. Provide remote operation switch at accessible units.
- D. Dishwasher: Undercounter.
1. Controls: Solid state electronic.
  2. Wash Levels: 3.
  3. Cycles: 4, including normal.
  4. Features: Include rinse aid dispenser, optional no-heat dry, optional water temperature boost, adjustable upper rack, and adjustable lower rack.
  5. Finish: Porcelain enameled steel, color as indicated.
  6. Manufacturers:
    - a. GE Appliances; Product GSD4000/4060N: [www.geappliances.com](http://www.geappliances.com).
    - b. At accessible units: GE Appliances; Product GSDA690MWW: [www.geappliances.com](http://www.geappliances.com).

## 2.2 LAUNDRY APPLIANCES

- A. Clothes Washer: Top-loading stationary.
- B. Clothes Washer
1. Manufacturers:
    - a. GE Appliances; Product WSXH208HWW: [www.geappliances.com](http://www.geappliances.com).
    - b. At accessible units: GE Appliances; Product WSSH300GWW: [www.geappliances.com](http://www.geappliances.com).
    - c. Substitutions: See Section 01600 - Product Requirements.
- C. Clothes Dryer
1. Manufacturers:
    - a. GE Appliances; Product DSXH43GFWW: [www.geappliances.com](http://www.geappliances.com).
    - b. Substitutions: See Section 01600 - Product Requirements.
  2. Unit will be stacked in some units and floor mounted in other units,
  3. Fuel: Gas.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

**END OF SECTION**



## SECTION 12355 - RESIDENTIAL CASEWORK

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Kitchen cabinets.
- B. Kitchen countertops.
- C. Vanity cabinets.
- D. Vanity countertops.
- E. Casework hardware.

#### 1.2 REFERENCE STANDARDS

- A. ANSI/KCMA A161.1 - Performance and Construction Standard for Kitchen and Vanity Cabinets; Kitchen Cabinet Manufacturers Association; 2000 (R2006).
- B. KCMA (DIR) - Directory of Certified Cabinet Manufacturers; Kitchen Cabinet Manufacturers Association; current edition, online.

#### 1.3 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions and construction details.
- C. Shop Drawings: Indicate casework locations, large scale plans, elevations, clearances required, rough-in and anchor placement dimensions and tolerances.

#### 1.4 QUALITY ASSURANCE

- A. Products: Complying with KCMA A161.1 and KCMA Certified.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Residential Casework:
  - 1. Kraftmaid Cabinetry, Inc; Product Formaldehyde-free EEP: [www.kraftmaid.com](http://www.kraftmaid.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

#### 2.2 COMPONENTS

- A. Cabinet Construction: Softwood lumber framing and particle board, tempered hardboard gables.
- B. Kitchen Countertop: Post formed plastic laminate over particle board, coved to back splash.
  - 1. Side Splash: Plastic laminate over particle board, square internal intersections to back splash and top surface, contoured to suit counter top profile.
- C. Vanity Countertop: Composite by General Marble.
- D. Door and Drawer Fronts: Solid wood.
- E. Bolts, Nuts, Washers and Screws: Of size and type to suit application.
- F. Concealed Joint Fasteners: Threaded steel.

## 2.3 HARDWARE

- A. Hardware: Manufacturer's standard.
- B. Shelf Brackets: Vertical chrome steel standards with chrome steel arms.

## 2.4 FABRICATION

- A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- B. Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.
- C. Fabricate sink and lavatory bases to able to accomodate accessibility requirements.

## 2.5 FINISHES

- A. Exposed To View Surfaces: Plastic laminate of color as selected.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install casework, components and accessories in accordance with manufacturer's instructions.
- B. Use anchoring devices to suit conditions and substrate materials encountered.
- C. Set casework items plumb and square, securely anchored to building structure.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Use filler strips; not additional overlay trim for this purpose.
- E. Close ends of units, back splashes, shelves and bases.

### 3.2 ADJUSTING

- A. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

### 3.3 CLEANING

- A. Clean casework, countertops, shelves, and hardware.

### 3.4 PROTECTION

- A. Do not permit finished casework to be exposed to continued construction activity.

**END OF SECTION**

## **SECTION 12492 - HORIZONTAL LOUVER BLINDS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Horizontal slat louver blinds.
- B. Operating hardware.

#### **1.2 REFERENCE STANDARDS**

- A. WCMA A100.1 - Safety of Corded Window Covering Products; Window Covering Manufacturers Association; 2007. (ANSI/WCMA A101.1)

#### **1.3 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating physical and dimensional characteristics.
- C. Samples: Submit two samples, 12 inch long illustrating slat materials and finish, color, cord type and color.
- D. Manufacturer's Installation Instructions: Indicate special procedures.

#### **1.4 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Horizontal Louver Blinds:
  - 1. Bali LightBlocker 1 inch Vinyl Blinds: [www.blindsgalore.com](http://www.blindsgalore.com).
  - 2. Substitutions: See Section 01600 - Product Requirements.

#### **2.2 BLINDS AND BLIND COMPONENTS**

- A. Vinyl Blinds: Horizontal slat louvers hung from full-width headrail with full-width bottom rail; manual control of raising and lowering by cord with full range locking; blade angle adjustable by control wand; complying with WCMA A100.1.
- B. Slat Support: Woven polypropylene cord, ladder configuration.
- C. Head Rail: Pre-finished, formed aluminum box, with end caps; internally fitted with hardware, pulleys, and bearings for operation; same depth as width of slats
- D. Bottom Rail: Pre-finished, formed steel with top side shaped to match slat curvature; with end caps. Color: Same as headrail.
- E. Lift Cord: Braided nylon; continuous loop.
- F. Control Wand: Extruded hollow plastic; hexagonal shape.
- G. Headrail Attachment: Wall brackets.
- H. Accessory Hardware: Type recommended by blind manufacturer.

#### **2.3 FABRICATION**

- A. Determine sizes by field measurement.
- B. Fabricate blinds to cover window frames completely.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

- A. Install blinds in accordance with manufacturer's instructions.
- B. Secure in place with flush countersunk fasteners.

#### 3.2 INSTALLATION TOLERANCES

- A. Maximum Variation of Gap at Window Opening Perimeter: 1/4 inch.
- B. Maximum Offset From Level: 1/8 inch.

#### 3.3 ADJUSTING

- A. Adjust blinds for smooth operation.

#### 3.4 CLEANING

- A. Clean blind surfaces just prior to occupancy.

**END OF SECTION**