

## SECTION 09 21 16

### GYPSUM BOARD ASSEMBLIES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal channel ceiling framing.
- D. Fire rated area separation walls.
- E. Acoustic insulation.
- F. Gypsum wallboard.
- G. Water-resistive barrier over exterior wall sheathing.

##### 1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.

##### 1.03 REFERENCE STANDARDS

- A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)
- 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 C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.
- D. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.
- E. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2007.
- F. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2007.
- G. 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.
- H. 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.
- I. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2006a.
- J. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.
- K. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.
- L. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2006.

#### PART 2 PRODUCTS

##### 2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C 840 and GA-216.
- B. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:
  - 1. Fire Rated Ceilings: OBC Table 720.1 (3) Item 21-1.1; 1 hour rating.
  - 2. Fire Rated Area Barrier Walls: OBC Table 720.1 (2) Item 14-1.3; 1 hour rating.

## 2.02 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).
  - 3. Phillips Manufacturing Company: [www.phillipsmfg.com](http://www.phillipsmfg.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. Exception: The minimum metal thickness and section properties requirements of ASTM C 645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E 72 using assemblies specified by ASTM C 754.
  - 2. Studs: "C" shaped with flat or formed webs with knurled faces.
  - 3. Runners: U shaped, sized to match studs.
  - 4. Ceiling Channels: C shaped.
  - 5. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
- C. Ceiling Hangers: Type and size as specified in ASTM C 754 for spacing required.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
  - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
  - 2. Material: ASTM A 653/A 653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
  - 3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems indicated on drawings.
  - 4. Deflection and Firestop Track:
    - a. Provide mechanical anchorage devices as described above that accommodate deflection while maintaining the fire-rating of the wall assembly.
  - 5. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.

## 2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
  - 1. American Gypsum: [www.americangypsum.com](http://www.americangypsum.com).
  - 2. CertainTeed Corporation; Product ProRoc: [www.certainteed.com](http://www.certainteed.com).
  - 3. Georgia-Pacific Gypsum LLC; Product DensArmor Plus: [www.gp.com/gypsum](http://www.gp.com/gypsum).
  - 4. National Gypsum Company; Product Gold Bond: [www.nationalgypsum.com](http://www.nationalgypsum.com).
  - 5. USG Corporation; Product Durock: [www.usg.com](http://www.usg.com).
  - 6. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels 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. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  3. Thickness:
    - a. Vertical Surfaces: 1/2 inch.
    - b. Ceilings: 1/2 inch.
    - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
  4. Paper-Faced Products:
    - a. American Gypsum; EagleRoc Regular Gypsum Wallboard and FireBloc Type X Gypsum Wallboard.
    - b. CertainTeed Corporation; ProRoc Brand Gypsum Board.
    - c. Georgia-Pacific Gypsum LLC; ToughRock Gypsum Wallboard.
    - d. National Gypsum Company; Gold Bond Brand Gypsum Wallboard.
    - e. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
1. Regular Type:
    - a. Application: Use for vertical surfaces, unless otherwise indicated.
    - b. Thickness: 1/2 inch, 5/8 inch, as indicated.
    - c. Edges: Tapered.
  2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.
    - a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.
    - b. Other Applications: Use at all vertical surfaces, unless otherwise indicated.
    - c. Thickness: 1/2 inch, 5/8 inch, as indicated.
    - d. Edges: Tapered.
  3. Ceiling Board: Special sag-resistant type.
    - a. Application: Ceilings, unless otherwise indicated.
    - b. Thickness: 1/2 inch.
    - c. Edges: Tapered.

## **2.04 ACCESSORIES**

- A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. Thickness: 4 inch.
- B. Water-Resistive Barrier: No. 15 asphalt felt.
- C. 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.
- D. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.
- E. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

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

### **3.02 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C 754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
- 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.
  3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- D. Furring for Fire Ratings: Install as required for fire resistance ratings indicated and to GA-600 requirements.
- E. Blocking: Install wood blocking for support of:
1. Framed openings.
  2. Wall mounted cabinets.
  3. Plumbing fixtures.
  4. Toilet partitions.
  5. Toilet accessories.
  6. Wall mounted door hardware.

### **3.03 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.

### **3.04 BOARD INSTALLATION**

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.
- E. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
1. Single-Layer Applications: Screw attachment.
  2. Double-Layer Application: Install base layer using screws or nails. Install face layer using adhesive.

### **3.05 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.

### **3.06 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 09 51 00

### ACOUSTICAL CEILINGS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.
- C. Supplementary acoustical insulation above ceiling.

##### 1.02 RELATED REQUIREMENTS

- A. Section 07 21 00 - Thermal Insulation: Acoustical insulation.
- B. Section 23 37 00 - Air Outlets and Inlets: Air diffusion devices in ceiling.
- C. Section 26 51 00 - Interior Lighting: Light fixtures in ceiling system.

##### 1.03 REFERENCE STANDARDS

- A. ASTM C 635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2004.
- B. ASTM C 636/C 636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2006.
- C. ASTM E 580/E 580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2008a.
- D. ASTM E 1264 - Standard Classification for Acoustical Ceiling Products; 2008.

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

##### 1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate grid layout and related dimensioning.
- C. Product Data: Provide data on suspension system components.
- D. Samples: Submit two full size samples illustrating material and finish of acoustical units.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

##### 1.06 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

#### PART 2 PRODUCTS

##### 2.01 ACOUSTICAL UNITS

- A. Manufacturers:
  1. Armstrong World Industries, Inc; Product Dune Square Lay-in, #1775, 24x48: [www.armstrong.com](http://www.armstrong.com).
  2. CertainTeed Corporation; Product Performance Series: Sand: [www.certainteed.com](http://www.certainteed.com).
  3. USG: [www.usg.com](http://www.usg.com).
  4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Acoustical Units - General: ASTM E 1264, Class A.
- C. Acoustical Panels Type APC-1: Painted mineral fiber, ASTM E 1264 Type III, with the following characteristics:
  1. Size: 24 x 48 inches.
  2. Thickness: 15/16 inches.
  3. Composition: Nodular, cast or molded.
  4. Edge: Square.
  5. Surface Color: Color as selected.
  6. Surface Pattern: Perforated, regularly spaced large holes.
  7. Suspension System: Exposed grid.

## 2.02 SUSPENSION SYSTEM(S)

- A. Manufacturers:
  1. Armstrong World Industries, Inc; Product Prelude: [www.armstrong.com](http://www.armstrong.com).
  2. CertainTeed Corporation; Product \_\_\_\_: [www.certainteed.com](http://www.certainteed.com).
  3. Chicago Metallic Corporation; Product 200 Snap Grid: [www.chicagometallic.com](http://www.chicagometallic.com).
  4. USG; Product \_\_\_\_: [www.usg.com](http://www.usg.com).
  5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.
- C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; intermediate-duty.
  1. Profile: Tee; 15/16 inch wide face.
  2. Construction: Double web.
  3. Finish: White painted.

## 2.03 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
  1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
- C. Acoustical Insulation: Specified in Section 07 21 00.
  1. Size: To fit acoustical suspension system.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

### **3.02 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C 636/C 636M, ASTM E 580/E 580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- H. Do not eccentrically load system or induce rotation of runners.
- I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Use longest practical lengths.
  - 2. Overlap and rivet corners.

### **3.03 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
  - 1. Make field cut edges of same profile as factory edges.

### **3.04 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**END OF SECTION**

## SECTION 09 65 00

### RESILIENT FLOORING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Resilient tile flooring.
- B. Resilient base.
- C. Installation accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.

##### 1.03 REFERENCE STANDARDS

- A. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.
- B. ASTM F 1066 - Standard Specification for Vinyl Composition Floor Tile; 2004.
- C. ASTM F 1861 - Standard Specification for Resilient Wall Base; 2008.
- D. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; [www.baaqmd.gov](http://www.baaqmd.gov); 2002.
- E. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

##### 1.04 SUBMITTALS

##### 1.05 DELIVERY, STORAGE, AND HANDLING

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

##### 1.06 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

##### 2.01 TILE FLOORING

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness, and:
  - 1. Minimum Requirements: Comply with ASTM F 1066, of Class corresponding to type specified.
  - 2. Size: 12 x 12 inch.
  - 3. Thickness: 0.125 inch.
  - 4. Pattern: Marbleized.
  - 5. Manufacturers:
    - a. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
    - b. Mannington Mills, Inc; Product VCT-1: Commercial Essentials, Designer Series #295 Deep Fern (Field Tile), VCT-2: Commercial Essentials, Designer Series #133 Almondine (10% Accent): [www.mannington.com](http://www.mannington.com).

- c. Tarkett Inc: [www.tarkett.com](http://www.tarkett.com).
- d. Substitutions: See Section 01 60 00 - Product Requirements.

## 2.02 RESILIENT BASE

- A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
  - 1. Height: 4 inch.
  - 2. Thickness: 0.125 inch thick.
  - 3. Finish: Satin.
  - 4. Length: Roll.
  - 5. Color: Color as selected from manufacturer's standards.
  - 6. Accessories: Premolded external corners and end stops.
  - 7. Manufacturers:
    - a. Burke Flooring: [www.burkemercer.com](http://www.burkemercer.com).
    - b. Johnsonite, Inc: [www.johnsonite.com](http://www.johnsonite.com).
    - c. Roppe Corp; Product Matchmates: RB-1: 4" #109, Green Beige; RB-2: 6" #109 Green Beige: [www.roppe.com](http://www.roppe.com).
    - d. Substitutions: See Section 01 60 00 - Product Requirements.

## 2.03 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.
  - 1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Filler for Coved Base: Plastic.
- E. Sealer and Wax: Types recommended by flooring manufacturer.

## PART 3 EXECUTION

### 3.01 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 flooring to substrate.
- B. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.
- C. 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.
- D. 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.
- E. Verify that required floor-mounted utilities are in correct location.

### 3.02 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.

### **3.03 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.

### **3.04 TILE FLOORING**

- A. Install in accordance with manufacturer's instructions.
- B. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Set flooring in place, press with heavy roller to attain full adhesion.
- E. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.
- F. Where floor finishes 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. Before installation of flooring, secure metal strips with stainless steel screws.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.05 RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

### **3.06 CLEANING**

### **3.07 PROTECTION**

**END OF SECTION**

## SECTION 09 77 00

### FIBERGLASS REINFORCED PANELS

#### PART 1 - GENERAL

##### 1.01 Scope:

- A. Prefinished FRP (Fiberglass Reinforced Plastic) wall panels for decorative and/or sanitary environments.

##### 1.02 Qualifications:

- A. All materials unless otherwise indicated are to be Marlite® Brand.

##### 1.03 Environmental Conditions:

- A. Building should be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

##### 1.04 Delivery and Storage of Materials:

- A. Materials are to be factory packaged on strong pallets. All materials are to be stored lying flat, under cover and protected from the elements. Panels should be allowed to acclimate to room temperature (70°) for 48 hours prior to installation.

##### 1.05 Warranty

- A. All products shall be warranted to be free from defects for a period of 30 days after delivery.

#### PART 2 - PRODUCTS

##### 2.01 Manufacturer:

- A. Marlite FRP panels shall be as provided by Marlite, 202 Harger Street, Dover, OH 44622, (330) 343-6621
- B. Substitutions: See Section 01 60 00 - Product Requirements.

##### 2.02 Materials

- A. All Sanitary wall panels shall be:
- B. Marlite® Brand Artizan FRP.
  - 1. Architect to choose from standard color selections from the manufacturer.
  - 2. ACCESSORIES
    - a. All trim specified shall be heavy weight extruded aluminum 6063-T5 alloy prefinished at the factory. Specifier to select one (or more) trim profile(s).
    - b. Trim Profiles for .090" thick panels
    - c. A551 Inside Corner
    - d. A560 Outside Corner
    - e. A565 Division
    - f. A570 Edge
    - g. Trim Finish
      - 1) Factory oven-baked finish.
        - (a) Colors are available to coordinate with Marlite Artizan colorways.
        - (b) Specifier to select
    - h. Outside Corner Guard
      - 1) F 560 Stainless Steel
    - i. Outside Corner Guard Finish
      - 1) a. Stainless Steel

3. All PVC Base Molding shall be a Rigid extruded PVC with integral color.
  - a. 1. Base Profiles for .090" thick panels
    - 1) a. M 612 FRP Base Molding
    - 2) b. M 651 Inside Corner
    - 3) c. M 660 Outside Corner
    - 4) d. M 620 LH End Cap
    - 5) e. M 625 RH End Cap

### **PART 3 – EXECUTION**

#### **3.01 3.01 EXAMINATION**

- A. Open cartons and carefully inspect all panels.
- B. Contact Marlite with questions or problems
- C. PREPARATION
- D. A. Panels must be applied over a smooth , solid, flat, clean subwall such as drywall or plywood.

#### **3.02 CONDITIONING**

- A. Panels should be opened and allowed to acclimate for 48 hours prior to installation. Room temperature should be approximately 70° F.
- B. 097700-2
- C. Section 097700
- D. October, 2007
- E. Fiberglass Reinforced Panels

### **PART 3 – EXECUTION (CONTINUED)**

#### **4.01 INSTALLATION**

##### **4.02 A. Install all panels in strict accordance with manufacturer's installation instructions.**

- A. All moldings must provide for a minimum 1/8 inch expansion joint to insure proper installation.
  1. C-551 Marlite FRP Adhesive is available in 3 ½ gallon cans. A water- resistant, non-flammable adhesive, C-551 meets ASTM Specification C557.
  2. C-375 Marlite Construction Adhesive is available 3 ½ gallon cans. A strong, flexible, water-resistant , solvent based adhesive formulated for fast, easy application, C-375 meets ASTM Specification C557.
  3. Sealant
  4. Marlite® Brand MS-250 Clear Silicone Sealant
  5. Marlite® Brand MS-251 White Silicone Sealant
  6. Marlite® Brand Color Match Sealant, Colors available to coordinate with Marlite Artizan colorways. Specifier to choose.
  7. 3.04 Maintenance
  8. Wipe down using a damp cloth and mild soap solution or cleaner.
  9. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

**END OF SECTION**

## SECTION 09 90 00

### PAINTING AND COATING

#### PART 1 GENERAL

##### 1.01 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 and unless otherwise indicated, including the following:
  - 1. Exposed surfaces of steel lintels and ledge angles.
  - 2. Mechanical and Electrical:
    - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
    - b. In finished areas, paint shop-primed items.
    - c. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- 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.

##### 1.02 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; 2007.

##### 1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

##### 1.04 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.

## 1.05 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

### 2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
  - 1. Base Manufacturer: Benjamin Moore & Co.: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 2. Glidden Professional: [www.gliddenprofessional.com](http://www.gliddenprofessional.com).
  - 3. Pratt & Lambert Paints: [www.prattandlambert.com](http://www.prattandlambert.com).
  - 4. Sherwin Williams: [sherwinwilliams.com](http://sherwinwilliams.com).
- C. Substitutions: See Section 01 60 00 - Product Requirements.

### 2.02 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. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  - 3. Supply each coating material in quantity required to complete entire project's work from a single production run.
  - 4. 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.
- D. Colors: As indicated on drawings
  - 1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

**2.03 PAINT SYSTEMS - EXTERIOR**

## **2.04 PAINT SYSTEMS - INTERIOR**

- A. Paint CI-OP-3A - Concrete/Masonry, Opaque, Alkyd, 3 Coat:
  - 1. One coat of block filler.
  - 2. Semi-gloss: Two coats of alkyd enamel; Sherwin Williams.
- B. Paint GI-OP-3A - Gypsum Board/Plaster, Alkyd, 3 Coat:
  - 1. One coat of alkyd primer sealer.
  - 2. Eggshell: Two coats of alkyd enamel; Benjamin Moore, PT-1 #953, Feather Dawn, Walls.
  - 3. Flat: Two coats of alkyd enamel; Benjamin Moore, PT-4 #959, Antique Parchment, Ceiling.

## **PART 3 EXECUTION**

### **3.01 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. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  - 3. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.
  - 4. Exterior Wood: 15 percent, measured in accordance with ASTM D 4442.
  - 5. Concrete Floors and Traffic Surfaces: 8 percent.

### **3.02 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 or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and 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.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Concrete Floors and Traffic Surfaces to be Painted: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. 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.

- J. 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.

### **3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. 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.
- C. Apply products in accordance with manufacturer's instructions.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

### **3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

### **3.05 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

**END OF SECTION**