

SECTION 09 29 00 GYPSUM BOARD

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American National Standards Institute (ANSI): A118.9, Test Methods and Specifications for Cementitious Backer Units.
2. ASTM International (ASTM):
 - a. A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - b. C208, Standard Specification for Cellulosic Fiber Insulating Board.
 - c. C475/C475M, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - d. C514, Standard Specification for Nails for the Application of Gypsum Board.
 - e. C645, Standard Specification for Nonstructural Steel Framing Members.
 - f. C665, Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - g. C754, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - h. C840, Standard Specification for Application and Finishing of Gypsum Board.
 - i. C1002, 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.
 - j. C1047, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - k. C1177/C1177M, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - l. C1178/C1178M, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel.
 - m. C1396/C1396M, Standard Specification for Gypsum Board.
 - n. D4977, Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion.
 - o. D5420, Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).

- p. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
- q. E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- r. E119, Standard Test Methods for Fire Tests of Building Construction and Materials.
- s. E413, Classification for Rating Sound Insulation.
- t. E695, Standard Test Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading.
- 3. Gypsum Association (GA):
 - a. 214, Recommended Levels of Gypsum Board Finish.
 - b. 216, Application and Finishing of Gypsum Panel Products.
- 4. UL: UL Fire Resistance Directory.

1.02 SUBMITTALS

A. Action Submittals:

- 1. Product Data: Manufacturer's list of items and materials proposed for use, with descriptive literature for each system used.
- 2. Shop Drawings:
 - a. Control joint pattern proposed for gypsum board. Provide plan drawing showing each wall and ceiling control joint.
 - b. Control joint pattern proposed for gypsum soffit.
 - c. Locations where rubber base are to be installed.
 - d. Suspended Gypsum Ceiling: Anchorage and bracing drawings and/or catalog information, as required by Section 01 88 15, Anchorage and Bracing, for loads shown on General Structural Notes on the Drawings.
- 3. Samples: Two 2-1/2-inch wide strips of base material proposed for use.

B. Informational Submittals:

- 1. Suspended Gypsum Ceiling: Anchorage and bracing calculations as required by Section 01 88 15, Anchorage and Bracing, for loads shown on General Structural Notes on the Drawings.
- 2. Sustainable Design: In accordance with Section 01 81 13, Sustainable Design Requirements for Non-LEED™ Projects, document sustainability performance for items listed below.
 - a. Product Data for Recycled Materials:
 - 1) A complete list of materials and quantities.
 - 2) Percentages of post-consumer and pre-consumer recycled content of all materials.

- b. Product Data for Low Emitting Materials-Adhesives, and Sealants:
 - 1) A complete list of adhesives and sealants used inside the building envelope during construction.
 - 2) Manufacturer's literature documenting VOC content of each product, and compliance with requirements of South Coast Air Quality Management District (SCAQMD) Rule No. 1168.

1.03 QUALITY ASSURANCE

- A. General: Regardless of the minimum specifications herein, utilize materials and applications recommended by manufacturer.
- B. Applicator's Qualifications: Use only workers regularly employed in this type of work who can show experience in application of similar materials and specific systems specified.
- C. Single Source Responsibility: Use gypsum board and related joint treatment materials from a single manufacturer for each type used.
- D. Fire-Test-Response Characteristics: Provide materials and construction identical to those tested in the assembly indicated or scheduled on the Drawings, according to ASTM E119 or UL Fire Resistance Directory or in listing of other testing agencies acceptable under local building code.
- E. Mock-up: Prepare a minimum 4-foot by 4-foot Sample panel on framing, to demonstrate aesthetic effects and qualities of materials and execution. Simulate finished lighting conditions for review of mockups. The acceptable panel shall serve as a standard of workmanship by which similar work will be evaluated.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver fire-rated materials bearing testing agency label and required fire classification numbers.
- B. Storage:
 - 1. Store materials inside, under cover, stacked flat, off floor.
 - 2. Stack gypsum board so that long lengths are not over short lengths.
 - 3. Avoid overloading floor system of storage area.
 - 4. Store adhesives and finishing compounds in dry areas; protect against freezing at all times.
 - 5. Store base materials in original containers at not less than 70 degrees F ambient temperature not less than 24 hours immediately before installation.

1.05 ENVIRONMENTAL CONDITIONS

A. Temperature:

1. In areas receiving gypsum board installation, maintain minimum temperature of 40 degrees F for 48 hours before, during, and after gypsum board application. Maintain minimum temperature of 50 degrees F for 48 hours before, during, and after application of adhesive methods of attachment and finishing compounds until drying is complete.
2. In areas receiving base installation maintain ambient temperature in space between 70 degrees F and 90 degrees F for not less than 24 hours before and 48 hours after installation. Maintain minimum temperature of 55 degrees F after base is installed, except as specified above.

B. Ventilation:

1. Provide ventilation during and following adhesives and joint treatment applications.
2. Use temporary air circulators in enclosed areas lacking natural ventilation.
3. Under slow drying conditions, allow additional drying time between coats of joint treatment.
4. Protect installed materials from drafts of ambient air during hot, dry weather.
5. Protect materials from drying too rapidly during hot and dry weather.

PART 2 PRODUCTS

2.01 GYPSUM BOARD

A. Physical Characteristics:

1. Regular Board (GWB): ASTM C1396/C1396M, Type X, 5/8-inch thick with tapered edges.
2. Water-Resistant Board (WRB): ASTM C1396/C1396M, 5/8-inch thick with tapered edges.
3. Abuse Resistant Board (ARWB): ASTM C1396/C1396M, Type X, 5/8-inch thick.
4. Screws: 1/5 inch No. 6 bugle head steel screw with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.

B. Functional Characteristics: None.

C. Performance Characteristics:

1. Sustainable Material Requirements:

- a. Recycled Content of Products: Provide products with a minimum combined recycled content of 8 percent and a minimum post-consumer recycled content of 5 percent.

2.02 TILE BACKING PANELS

A. Physical Characteristics:

1. Cementitious Backer Board (CBB):

- a. Aggregated portland cement panel reinforced with vinyl-coated, woven fiberglass mesh embedded in both surfaces meeting ANSI A118.9.
- b. Thickness: 1/2-inch.

B. Functional Characteristics: None.

C. Performance Characteristics:

1. Sustainable Material Requirements:

- a. Recycled Content of Products: Provide products with a minimum combined recycled content of 8 percent and a minimum post-consumer recycled content of 5 percent.

2.03 FASTENERS

A. Physical Characteristics:

1. Gypsum Board:

- a. Screws: ASTM C1002, self-drilling, self-tapping, bugle head, for use with power-driven tool. Type S, 1 inch long for gypsum board to sheet metal.

2. Cementitious Backer Board:

- a. Screws: ASTM C1002, self-drilling, self-tapping, bugle head, for use with power-driven tool.
 - 1) Type S-12, 1-1/4 inch, for 14-gauge to 20-gauge steel framing; 1-15/16 inch.

B. Functional Characteristics: None.

C. Performance Characteristics: None.

2.04 JOINT TREATMENT MATERIALS

A. Physical Characteristics:

1. Tape:
 - a. General Interior Applications: ASTM C475/C475M, perforated paper tape.
 - b. Cementitious Backer Board: 2-inch wide 10 by 10 open weave glass mesh tape as recommended by manufacturer.
2. Compound:
 - a. General Interior Applications: ASTM C475/C475M, all-purpose, ready-mixed compound.
 - b. Water-Resistant GWB and Soffit Boards: Chemically curing, polyindurate type material as recommended by manufacturer.

B. Functional Characteristics: None.

C. Performance Characteristics: None.

2.05 ANCILLARY MATERIALS

A. Physical Characteristics:

1. Adhesives: As recommended by gypsum board manufacturer for intended use. Use adhesives that have VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Sound Attenuation Blankets: ASTM C665, Type I (no facing), 3 inches thick.
3. Acoustical Sealant: Nonsetting and nonstaining with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Functional Characteristics: None.

C. Performance Characteristics: None.

2.06 TRIM ACCESSORIES

A. Physical Characteristics:

1. Corner Bead: ASTM C1047, zinc-coated metal, 0.0125 inch thick, 1-1/4 inches by 1-1/4 inches.
2. Edge Trim: Rigid vinyl; configuration to provide a flush edge at exposed drywall ends.

3. Metal Control Joint:
 - a. ASTM C1047, zinc-coated metal, 0.013 inch thick.
 - b. Include removeable plastic strip that is removed after joint compound and finish are completed.

B. Functional Characteristics: None.

C. Performance Characteristics: None.

2.07 RESILIENT BASE

A. Manufacturers and Products:

1. Johnsonite/Tarkett; Traditional Wall Base.
2. Or equal.

B. Physical Characteristics:

1. General: ASTM F1861, uniform in 0.125 inch thickness and in as long lengths as practicable to suit conditions of installation.
2. Factory premolded internal and external corners to match base when available.
3. Rubber Base: Type TP, Group 2.
4. Style: Cove.
5. 4 inches high.

C. Functional Characteristics: None.

D. Performance Characteristics: Recycled Content: Minimum pre-consumer recycled content of 20 percent.

2.08 NONSTRUCTURAL METAL FRAMING MEMBERS

A. As specified in Section 09 22 16, Nonstructural Metal Framing.

2.09 DRY WALL CEILING SUSPENSION SYSTEM

A. Manufacturers and Products:

1. Armstrong World Industries, Inc.; Furring Systems/Drywall.
2. Or equal.

B. Physical Characteristics: Furnish manufacturer's pre-engineered drywall ceiling suspension system including of main runners, cross tees, and furring channels.

C. Functional Characteristics: None.

- D. Performance Characteristics: Furnish manufacturer's complete system for Seismic Design Category indicated in General Structural Notes as shown on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect surfaces to receive gypsum board and related materials before beginning work and report to Contracting Officer any defects in such work which will adversely affect the quality of work specified herein.

3.02 PREPARATION

- A. General: Provide, install, and maintain necessary scaffold, staging, trestles, planking, and temporary heating, lighting, and ventilation as necessary for duration of gypsum board work.
- B. Protection: Protect work of other trades.
- C. Coordination:
 - 1. Coordinate work with that of other trades. Check specifications and drawings of other trades to determine parts of work requiring coordination.
 - 2. Cut and repair gypsum board systems for installation of omitted work.
- D. Surface Preparation: Repair defective surfaces prior to starting work. Prepare as specified for application of specific materials.

3.03 ERECTION OF DRY WALL CEILING SUSPENSION SYSTEM

- A. Follow manufacturer's printed instructions.
- B. Hangers:
 - 1. Space not over 4 feet OC in direction of runners and within 6 inches of ends of runners.
 - 2. Securely attach to structure above and provide for full saddle tie to main runner at indicated height.
 - 3. Connections shall develop full strength of hanger wire.
- C. Bracing:
 - 1. Securely brace ceiling areas against sway.
 - 2. Where required by code, install for seismic control.
 - 3. Prevent runner and furring channels from contacting masonry walls.

- D. Where ducts interfere with normal spacing of hangers and carrying channels, install additional hangers and channels to properly suspend ceiling.

3.04 ERECTION OF LIGHT-GAUGE NONSTRUCTURAL METAL FRAMING

- A. As specified in Section 09 22 16, Nonstructural Metal.

3.05 APPLICATION OF GYPSUM BOARD

- A. Inspection and Preparation:

1. Check framing for accurate spacing and alignment.
2. Verify spacing of installed framing does not exceed maximum allowable for thickness of gypsum board to be used.
3. Verify frames are set for thickness of gypsum board to be used.
4. Do not proceed with installation of gypsum board until deficiencies are corrected and surfaces to receive gypsum board are acceptable.
5. Repair protrusions of framing, twisted framing members, or unaligned members before installation of gypsum board is started.

- B. General:

1. Meet requirements of ASTM C840 and GA 216.
2. Joints: Use gypsum board of maximum lengths to minimize end joints. Stagger end joints when they occur. Locate end joints as far as possible from center of wall or ceiling. Abut gypsum board without forcing. Neatly fit ends and edges of gypsum board. Do not place butt ends against tapered edges.
3. Support ends and edges of gypsum board panels on framing or furring members except for face layer of double layer and where ends are back blocked and floated.
4. Use metal edge trim where gypsum board abuts another material, at corners, and where shown or noted on the Drawings.
5. Use cementitious backer board in toilet, shower, and janitor room walls behind ceramic tile and elsewhere as shown.
6. Follow manufacturer's recommendation of good practice.

- C. Over Framing:

1. Apply gypsum board first to ceiling and then to walls for single layer horizontal application.
2. Use vertical application for fire-rated walls.
3. Fasten gypsum board securely to framing using double nailing, screw, or adhesive method.

D. Fireproofing:

1. Install fireproofing of columns, beams, and shaft walls as shown.
2. Close tops of duct and pipe shafts, and elevator hoistways with horizontal metal framing and gypsum board to provide 1-hour rated assembly.

3.06 INSTALLATION OF CEMENTITIOUS BACKER BOARD (CBB)

- A. Follow manufacturer's printed instructions for erection, cutting, attachments, and joint treatment.
- B. Verify framing is installed at maximum 16 inches OC, and necessary blocking to support fixtures and accessories has been installed. Where backing plates or straps are used, space out from framing to ensure a smooth finish application. Do not proceed until defects are corrected and are acceptable.
- C. Precut boards to required sizes and make necessary cutouts. Fasten with appropriate fasteners. Space fasteners 6 inches OC maximum or as directed by manufacturer. Fit ends closely but not forced together. Maintain 1/4-inch spacing between edge of board and fixture. Caulk all joints and corners that are to receive tiles. Apply 2-inch glass fiber tape over joints and corners embedded with tile setting mortar.

3.07 JOINT SYSTEM FOR GYPSUM WALLBOARD

- A. Interior Gypsum Board: Conform to ASTM C840.
- B. Required: On exposed gypsum board, under ceramic tile and wall covering, and behind casework.
- C. Prefill: Fill V-grooves formed by abutting rounded edges of gypsum board with prefill joint compound. Fill V-joint flush and remove excess compound beyond groove. Leave clear depression to receive tape. Permit prefill joint compound to harden prior to application of tape.
- D. Taping and Finishing Joints:
 1. Taping or Embedding Coat: Apply compound in thin, uniform layer to joints and angles to be reinforced. Apply reinforcing tape immediately. Center tape over joint and seat tape into compound. Leave approximately 1/64-inch to 1/32-inch compound under tape to provide bond. Apply skim coat immediately following tape embedment but not to function as fill or second coat. Fold tape and embed in angles to provide true angle. Dry embedding coat prior to application of fill coat.
 2. Filling Coat: Apply joint compound over embedding coat. Fill taper flush with surface. Apply fill coat to cover tape. Feather out fill coat

beyond tape and previous joint compound line. For joints with no taper, feather out at least 4 inches on either side of tape. Do not apply fill coat on interior angles. Allow fill coat to dry prior to application of finish coat.

3. Finishing Coat: Spread joint compound evenly over and beyond fill coat on joints. Feather to smooth uniform finish. Apply finish coat to taped angles to cover tape and taping compound. Sand final application of compound to provide surface ready for decoration.
4. Filling and Finishing Depressions: Apply joint compound as first coat to fastener depressions. Apply at least two additional coats of compound after first coat is dry. Leave filled and finished depressions level with plane of surface.

E. Finishing Beads and Trim:

1. First Fill Coat: Apply joint compound to bead and trim. Feather out from ground to plane of the surface. Dry compound prior to application of second fill coat.
2. Second Fill Coat: Apply joint compound in same manner as first fill coat. Extend beyond first coat onto face of gypsum board. Dry compound prior to application of finish coat.
3. Finish Coat: Apply joint compound to bead and trim. Extend beyond second fill coat. Feather finish coat from ground to plane of surface. Sand finish coat to provide flat surface ready for decoration.

3.08 FINAL FINISHES FOR GYPSUM WALLBOARD

A. Levels of Finish: Conform to GA 214.

B. Level 1:

1. Taping or embedding coat only.
2. Use in concealed areas, and where indicated, unless a higher level is required for fire-resistive or sound-rated assemblies.

C. Level 2:

1. Taping, filling, and finishing coats.
2. Use on water-resistant gypsum backing board.

D. Level 3:

1. Taping, filling, and finishing coats.
2. Use on surfaces indicated to have spray texture or ceramic tile.

E. Level 4:

1. Taping, filling, and finishing coats plus two separate coats applied over joints, angles, fastener heads, and trim accessories.
2. Sand between coats and after last coat.
3. Use on surfaces indicated to receive wall coverings.

F. Level 5:

1. Same as Level 4, plus a thin, smooth, uniform skim coat of joint compound, or product specially formulated for this purpose, over entire surface.
2. Produce surfaces free of tool marks and ridges, ready for decoration.
3. Use on surfaces not indicated otherwise, those indicated to receive gloss, semi-gloss, and nontextured flat paints, and where indicated.

3.09 INSTALLATION OF BASE

A. General: Remove defects in wall and floor that would prevent level and true installation of base material.

1. Install base around perimeter of room or space, where shown.
2. Unroll base material and cut into accurate lengths as desired or as required for minimum number of joints.
3. Match edges at seams or double cut adjoining lengths to give continuous appearance.
4. Install with tight butt joints with no joint widths greater than 1/64 inch.

B. Base:

1. Apply adhesive and firmly adhere to wall surfaces.
2. Press down so bottom cove edge follows floor profile.
3. Ensure top and bottom edges of base are in firm contact with walls and floors.
4. Form internal and external corners by using premolded corners.
5. Scribe base accurately to abutting materials.

3.10 ADJUST AND CLEAN

A. Clean: Remove droppings or texture overspray from walls, windows, and floor, leaving room clean for following trades.

B. Nail Pop: Repair nail pop by driving new nail approximately 1-1/2 inches from nail pop and reseal nail. When face paper is punctured, drive new nail or screw approximately 1-1/2 inches from defective fastening and remove defective fastening. Fill damaged surface with compound.

C. Ridging:

1. Do not repair ridging until condition has fully developed, approximately 6 months after installation or one heating season.
 - a. Sand ridges to reinforcing tape without cutting through tape.
 - b. Fill concave areas on both sides of ridge with topping compound.
 - c. After fill is dry, blend in topping compound over repaired area.
2. Fill cracks with compound and finish smooth and flush.

END OF SECTION

