

## SECTION 09 21 16

### GYPSUM BOARD ASSEMBLIES

#### 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. Interior gypsum wallboard.

##### 1.3 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

##### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.

##### 1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory."
- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

##### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- 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. Gypsum Board and Related Products:
    - a. American Gypsum Co.
    - b. G-P Gypsum Corp.
    - c. National Gypsum Company.
    - d. United States Gypsum Co.

### 2.2 INTERIOR GYPSUM BOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Board: ASTM C 1396 / C1396M.
1. Core 5/8 inch, regular.
  2. Long edges: Tapered.
- C. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces for non-rated interior areas.
1. Core: 5/8 inch (12.7 mm), regular type.
  2. Long Edges: Tapered.
  3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- D. Moisture and mold-resistant Type X Gypsum Board:
1. Gypsum Board: ASTM C1396/C1396M, Type X, water-resistant gypsum wallboard and exterior gypsum.
  2. Basis of Design: Subject to compliance with project requirements, the design is based on the following: United States Gypsum Company, LLC, "USG Sheetrock® Brand UltraLight Panels Mold Tough® Firecode® X (UL Type ULX)"
  3. UL Type Designation: "ULX"
  4. ASTM E136 Noncombustibility: Meets or exceeds criteria.
  5. ASTM E84 Surface-Burning Characteristics:
    - a. Flame Spread: 15
    - b. Smoke Developed: 0

- c. Classification: Class A
- 6. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products:
  - a. Core Hardness: Not less than 11
  - b. Flexural Strength (lbf):
    - i. Parallel: Not less than 46
    - ii. Perpendicular: Not less than 147
  - c. Nail Pull Resistance (lbf): Not less than 87
  - d. Humidified Deflection: Not greater than 5/8 in.
  - e. Average Water Absorption: Not greater than 5% by weight after two-hour immersion.
- 7. ASTM D3273 Mold Resistance: Meet or exceed ASTM C1396 specifications.
- 8. Thickness: 5/8 inch
- 9. Long Edges: Tapered.

## 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
  - 2. Shapes:
    - a. Cornerbead: Use at outside corners.
    - b. LC-Bead (J-Bead): Use at exposed panel edges.
    - c. L-Bead: Use where indicated.
    - d. U-Bead: Use where indicated.
    - e. Expansion (Control) Joint: Use where indicated.

## 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
  - 3. Use setting-type compound for installing paper-faced metal trim accessories.
  - 4. Fill Coat: For second coat, use setting-type, sandable topping compound .
  - 5. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 6. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

## 2.5 EXTERIOR GYPSUM BOARD

- A. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum "DensGlass Sheathing" or a comparable product by one of the following:
    - a. CertainTeed Corp.
    - b. National Gypsum Company
    - c. USG Corporation
  - 2. Core: 5/8 inch (15.9 mm), Type X.
  - 3. Long Edges: Square.

## 2.6 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum "DensShield Tile Backer" or a comparable product by one of the following:
    - a. CertainTeed Corp.
  - 2. Core: 5/8 inch (15.9 mm), Type X.
  - 3. Mold Resistance: ASTM D 3273, score 10 as rated according to ASTM D 3274.

## 2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Fastening Adhesive:
  - 1. Wood: ASTM C 557.
  - 2. Steel: Adhesive recommended for attaching panels to steel framing.
- D. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- D. Attach gypsum panels to studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- E. Attach gypsum panels to framing provided at openings and cutouts.
- F. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members using resilient channels, or provide control joints to counteract wood shrinkage.
- G. Form control and expansion joints with space between edges of adjoining gypsum panels.
- H. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
  - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.

### 3.3 PANEL APPLICATION METHODS

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

### 3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

### 3.5 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840.
  - 1. Level 2: Panels that are substrate for fiberglass reinforced panels.
  - 2. Level 5: At panel surfaces that will be exposed to view unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in Section 09 91 23 "Painting".

END OF SECTION