

**SECTION 09 21 16.23
GYPSUM BOARD SHAFT WALL ASSEMBLIES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies gypsum board shaft-wall assemblies for the following:
1. Shaft-wall enclosures.
 2. Chase enclosures.

1.2 RELATED WORK

- A. Metal Framing for gypsum shaftwall assemblies: Section 09 22 16, NON-STRUCTURAL METAL FRAMING.
- B. Accessories for gypsum board assemblies: Section 09 29 00, GYPSUM BOARD.
- C. Firestopping: Section 07 84 00, FIRESTOPPING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Data: For each gypsum board shaft-wall assembly indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Resistance Ratings: Provide materials and construction identical to those of assemblies with fire-resistance ratings determined according to ASTM E 119 by a testing and inspecting agency.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures for installing gypsum board shaft-wall assemblies including, but not limited to, the following:
1. Fasteners proposed for anchoring nonstructural steel framing to building structure.
 2. Mechanical work enclosed within shaft-wall assemblies.

1.5 STORAGE AND HANDLING

- A. Deliver materials in original packages, containers, and 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.
- C. Stack panels flat on leveled supports off floor or slab to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations; Comply with ASTM C 840 requirements or with gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditions.
- C. Do not install panels are wet, moisture damaged, or mold damaged.
 - 1. Indications that panels are wet or moisture-damaged include, but are not limited to, discoloration, sagging, and irregular shape.
 - 2. Indications that panels are mold-damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - C 11-08.....Terminology Relating to Gypsum and Related Building Materials and Systems
 - C 475-02.....Joint Compound and Joint Tape for Finishing Gypsum Board
 - C 840.....Application and Finishing of Gypsum Board
 - C 954-07.....Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Stud from 0.033 in. (0.84mm) to 0.112 in. (2.84mm) in thickness
 - C 1396-06.....Gypsum Board
 - C 1047-05.....Accessories for Gypsum Wallboard and Gypsum Veneer Base
 - E 84-08.....Surface Burning Characteristics of Building Materials
 - E 119.....Standard Test Methods for Fire Tests of Building Construction and MaterialsOther ASTM standards referenced in this Section.
- C. Underwriters Laboratories, Inc. (UL):
 - Fire Resistance Directory

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. American Gypsum Company.
 2. G-P Gypsum.
 3. National Gypsum Company.
 4. USG Corporation.

2.2 GYPSUM BOARD SHAFT-WALL ASSEMBLIES, GENERAL

- A. Provide materials and components complying with requirements of fire-resistance-rated assemblies indicated.
1. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt joints.
 2. Provide auxiliary materials complying with gypsum board shaft-wall assembly manufacturer's written recommendations.

2.3 PANEL PRODUCTS

- A. Gypsum Liner Panels: Comply with ASTM C 442/C 442M.
1. Moisture- and Mold-Resistant Type X: Manufacturer's proprietary liner panels with moisture- and mold-resistant core and surfaces; comply with ASTM D 3273.
 - a. Core: 1 inch thick.
 - b. Long Edges: Double bevel.
- B. Gypsum Board: As specified in Division 09 Section GYPSUM BOARD.
- C. Water-Resistant Gypsum Backing Board: As specified in Division 09 Section GYPSUM BOARD.

2.4 NON-LOAD-BEARING STEEL FRAMING

- A. Framing Members: Comply with ASTM C 754 for conditions indicated.
- B. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
1. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized, unless otherwise indicated.

2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced product standards and manufacturer's written recommendations.
- B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in Division 09 Section GYPSUM BOARD that comply

with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.

- C. Gypsum Board Joint-Treatment Materials: As specified in Division 09 Section GYPSUM BOARD.
- D. Laminating Adhesive: Adhesive or joint compound recommended by manufacturer for directly adhering gypsum face-layer panels and gypsum-base face-layer panels to backing-layer panels in multilayer construction.
 - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- F. Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.
 - 1. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
 - 2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- G. Acoustical Sealant: As specified in Division 07 Section JOINT SEALANTS.

2.6 GYPSUM BOARD SHAFT-WALL ASSEMBLIES

- A. Fire-Resistance Rating: As indicated.
- B. Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated.
 - 1. Depth: As indicated.
 - 2. Minimum Base-Metal Thickness: 0.0329 inch.
- C. Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches long and in depth matching studs.
 - 1. Minimum Base-Metal Thickness: Matching steel studs.
- D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness

not less than indicated for studs and in width to accommodate depth of studs.

2. Products: Subject to compliance with requirements, provide one of the following:

- a. Dietrich Metal Framing; The System by Metal-Lite, Inc.
 - b. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
- E. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches, in depth matching studs, and not less than 0.0329 inch thick.
- F. Room-Side Finish: As indicated.
- G. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present, including cast-in anchors, and structural framing. Examine for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire resistance-rated assemblies indicated, manufacturer's written installation instructions, and the following:
 1. ASTM C 754 for installing steel framing except comply with framing spacing indicated.
 2. Division 09 Section GYPSUM BOARD for applying and finishing panels.
- B. Do not bridge architectural or building expansion joints with shaft-wall assemblies; frame both sides of expansion joints with furring and other support.
- C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaftwall assembly framing.

- E. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetrations.
- F. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.
- G. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- H. Control Joints: Install control joints according to ASTM C 840, while maintaining fire-resistance rating of gypsum board shaft-wall assemblies.
- I. Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly. Install acoustical sealant to withstand dislocation by air-pressure differential between shaft and external spaces; maintain an airtight and smoke-tight seal; and comply with ASTM C 919 requirements or with manufacturer's written instructions, whichever are more stringent.
- J. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.3 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, or mold damaged.

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