

## SECTION 092116.23 - GYPSUM BOARD SHAFT WALL 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 gypsum board shaft-wall assemblies for the following:
  - 1. Shaft-wall enclosures.
  - 2. Chase enclosures.
  - 3. Horizontal enclosures.
- B. Related Sections include the following:
  - 1. Division 07 Section "Fire-Resistive Joint Systems" for head-of-wall assemblies that incorporate gypsum board shaft-wall assemblies.
  - 2. Division 09 Section "Gypsum Board" for gypsum wallboard materials and construction applicable to shaft wall assemblies.
  - 3. Division 09 Section "Non-Structural Metal Framing" for framing procedures applicable to gypsum board shaft wall assemblies.

#### 1.3 SUBMITTALS

- A. 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. STC-Rated Assemblies: Provide materials and construction identical to those of assemblies tested according to ASTM E 90 and classified according to ASTM E 413 by a testing and inspecting agency.
- C. 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. Wiring devices in shaft-wall assemblies.
3. Doors and other items penetrating shaft-wall assemblies.
4. Items supported by shaft-wall-assembly framing.
5. Mechanical work enclosed within shaft-wall assemblies.

#### 1.5 DELIVERY, 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 conditioned.
- C. Do not install panels that 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.

### 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. BPB America Inc.
  3. G-P Gypsum.

4. Lafarge North America Inc.
5. National Gypsum Company.
6. PABCO Gypsum.
7. Temple-Inland Forest Products Corporation.
8. 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. Type X: Manufacturer's proprietary liner panels with moisture-resistant paper faces.
    - a. Core: 1 inch (25.4 mm) thick.
    - b. Long Edges: Double bevel.
- B. Gypsum 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 C645/C645M, G40 (Z120), or equivalent corrosive resistant coating.

## 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.
    - 1. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
  - 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. Sound Attenuation Blankets: as specified in Division 07 Section "Sound Attenuation Insulation."
    - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
  - H. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."
    - 1. Provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- 2.6 GYPSUM BOARD SHAFT-WALL ASSEMBLIES – P1SH -
- A. Basis-of-Design Product: As indicated on Drawings by design designation of a qualified testing agency.
  - B. Fire-Resistance Rating: 2 hours.

- C. STC Rating: 51 minimum.
- D. Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated.
  - 1. Depth: 2-1/2 inches (64 mm); 4 inches (102 mm); 6 inches (152 mm).
  - 2. Minimum Base-Metal Thickness: 0.0179 inch (0.45 mm).
- E. Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches (51 mm) long and in depth matching studs.
  - 1. Minimum Base-Metal Thickness: 0.0179 inch (0.45 mm).
- F. 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.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  - 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.
    - c. Dietrich Metal Framing Corp.; SLP-TRK slotted track.
- G. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches (76 mm), in depth matching studs, and not less than 0.0329 inch (0.84 mm) thick.
- H. Room-Side Finish: Scheduled finish on gypsum board.
- I. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.
- J. Insulation: Sound attenuation blankets.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present, including hollow-metal frames, elevator hoistway door frames, 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 PREPARATION

- A. Sprayed Fire-Resistive Materials: Coordinate with gypsum board shaft-wall assemblies so both elements of Work remain complete and undamaged. Patch or replace sprayed fire-resistive materials removed or damaged during installation of shaft-wall assemblies to comply with requirements specified in Division 07 Section "Applied Fireproofing."
  - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runner tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches (610 mm) o.c.
- B. After sprayed fire-resistive materials are applied, remove only to extent necessary for installation of gypsum board shaft-wall assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

### 3.3 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 shaft-wall assembly framing.
  - 1. Where handrails directly attach to gypsum board shaft-wall assemblies, provide galvanized steel backing framing, of types specified in Division 09 Section "Non-Structural Metal Framing", accurately positioned and secured behind at least 1 gypsum board face-layer panel.
- D. Integrate stair hanger rods with gypsum board shaft-wall assemblies by locating cavity of assemblies where required to enclose rods.
- E. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetration and fire

protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.

- 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 and Article 3.6 "Installing Trim Accessories" under Division 09 Section "Gypsum Board", 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 (3mm) from the plane formed by faces of adjacent framing.

#### 3.4 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.
  - 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.

END OF SECTION 092116.23