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## SECTION 092116.23 - GYPSUM BOARD SHAFT WALL ASSEMBLIES

### **TIPS:**

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## PART 1 - GENERAL

### 1.1 SUMMARY

#### A. Section Includes:

1. Gypsum board shaft wall assemblies.

### 1.2 ACTION SUBMITTALS

- A. Product Data: For each component of gypsum board shaft wall assembly.
- B. Sustainable Design Submittals:

1. Environmental Product Declaration (EPD): For each product.
2. Product Certificates: For indigenous materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each indigenous material.
3. Environmental Product Declaration (EPD): For each product.
4. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each regional material.
5. Environmental Product Declaration: For each product.
6. Environmental Product Declaration (EPD): For each product.
7. Third-Party Certifications: Furnish products and materials with third-party verified Health Product Declarations (HPD).
8. Third-Party Certified Life Cycle Assessment: For each product.
9. GREENGUARD Gold product certification: For each product.

### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside in original, unopened containers or wrapped and stacked flat on a smooth, level surface, but not directly on concrete floors. Keep dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage to edges and corners. Stack panels flat and support them on risers on a flat platform to prevent sagging. When spacers are used, position to minimize warpage.

### 1.4 FIELD CONDITIONS

- A. Environmental Limitations: Comply with gypsum-shaftliner-board manufacturer's written instructions.
- B. Do not install finish panels 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 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated in accordance with ASTM E119 or CAN/ULC-S101 by an independent testing agency.

- B. STC-Rated Assemblies: Provide materials and construction identical to those of assemblies tested in accordance with ASTM E90 and classified in accordance with ASTM E413 by a testing and inspecting agency.
- C. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than **<Insert number>** percent.
- D. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than **[25]** **<Insert number>** percent.
- E. Regional Materials: Products to be manufactured within **500 miles (800 km)** of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within **500 miles (800 km)** of Project site.
- F. Regional Materials: Products to be manufactured within **100 miles (160 km)** of Project site.
- G. Regional Materials: Products to be manufactured within **100 miles (160 km)** of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within **100 miles (160 km)** of Project site.
- H. Indigenous Materials: Products to be manufactured within **100 miles (160 km)** of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within **500 miles (800 km)** of Project site. If materials are transported by rail or water, the distance transported by rail or water to be multiplied by 0.25 to determine the distance to Project site.
- I. Regional Materials: Products to be manufactured within **500 miles (800 km)** of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within **500 miles (800 km)** of Project site. If materials are transported by rail or water, the distance transported by rail or water to be multiplied by 0.25 to determine the distance to Project site.

## 2.2 GYPSUM BOARD SHAFT WALL ASSEMBLIES

- A. Fire-Resistance Rating: **[As indicated on Drawings]** **[1 hour]** **[2 hours]** **[3 hours]** **[4 hours]** **<Insert rating>**.
- B. STC Rating: **[As indicated on Drawings]** **[51, minimum]** **<Insert rating>**.
- C. Gypsum Shaftliner Board:
  - 1. Moisture- and Mold-Resistant Type X: ASTM C1396/C1396M; manufacturer's proprietary fire-resistive liner panels with ASTM D3273 mold-resistance score of 10 as rated in accordance with ASTM D3274, **1 inch (25.4 mm)** thick, and with double beveled long edges.
    - a. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed Gypsum; Saint-Gobain; M2Tech Shaftliner Type X or comparable product by one of the following:

- 1) Georgia-Pacific Gypsum LLC.
  - 2) National Gypsum Company.
  - 3) USG Corporation.
  - 4) **<Insert manufacturer's name>**.
2. Moisture- and Mold-Resistant, Fiberglass-Mat Faced: ASTM C1658/C1658M; manufacturer's proprietary fire-resistive liner panels with ASTM D3273 mold-resistance score of 10 as rated in accordance with ASTM D3274, **1 inch (25.4 mm)** thick, and with double beveled long edges.
- a. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed Gypsum; Saint-Gobain; GlasRoc Shaftliner Type X or comparable product by one of the following:
    - 1) Georgia-Pacific Gypsum LLC.
    - 2) USG Corporation.
    - 3) **<Insert manufacturer's name>**.
- D. Non-Load-Bearing Steel Framing, General: Complying with ASTM C645 requirements for metal unless otherwise indicated and complying with requirements for fire-resistance-rated assembly indicated.
1. Protective Coating: **[Coating with equivalent corrosion resistance of ASTM A653/A653M, G40 (Z120)] [ASTM A653/A653M, G40 (Z120), hot-dip galvanized] [ASTM A653/A653M, G60 (Z180), hot-dip galvanized]** unless otherwise indicated.
- E. Studs: Manufacturer's standard profile for repetitive, corner, and end members as follows:
1. Depth: **[As indicated] [2-1/2 inches (64 mm)] [4 inches (102 mm)] [6 inches (152 mm)]**.
  2. Minimum Base-Metal Thickness: **[As indicated] [0.018 inch (0.45 mm)] [0.030 inch (0.75 mm)] [0.033 inch (0.84 mm)] <Insert value>**.
- F. Runner Tracks: Manufacturer's standard J-profile track with manufacturer's standard long-leg length, but at least **[2 inches (51 mm)] <Insert dimension>** long and matching studs in depth.
1. Minimum Base-Metal Thickness: **[As indicated] [Matching steel studs] [0.018 inch (0.45 mm)] [0.021 inch (0.53 mm)] [0.030 inch (0.75 mm)] [0.033 inch (0.84 mm)] <Insert value>**.
- G. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. CEMCO; California Expanded Metal Products Co.

- b. ClarkDietrich.
  - c. Fire Trak Corp.
  - d. GCP Applied Technologies Inc.
  - e. Metal-Lite.
  - f. SCAFCO Steel Stud Company.
  - g. Steel Construction Systems.
  - h. The Steel Network, Inc.
  - i. **<Insert manufacturer's name>**.
- H. Elevator-Hoistway-Entrance Struts: Manufacturer's standard J-profile jamb strut with long-leg length of **3 inches (76 mm)**, matching studs in depth, and not less than [**0.033 inch (0.84 mm)**] **<Insert dimension>** thick.
- I. Finish Panels: [**As indicated.**] [**Gypsum board as specified in Section 092900 "Gypsum Board."**] [**Gypsum veneer plaster as specified in Section 092613 "Gypsum Veneer Plastering."**] [**Cementitious backer units as specified in Section 092900 "Gypsum Board."**] [**Cementitious backer units as specified in Section 093013 "Ceramic Tiling."**] **<Insert finish panels>**.
- J. Sound Attenuation Blankets: As specified in [**Section 092900 "Gypsum Board."**] [**Section 092613 "Gypsum Veneer Plastering."**]

## 2.3 AUXILIARY MATERIALS

- A. Provide auxiliary materials that comply with shaft wall manufacturer's written instructions.
- B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes as specified in [**Section 092900 "Gypsum Board"**] [**Section 092613 "Gypsum Veneer Plastering"**] that comply with gypsum board shaft wall assembly manufacturer's written instructions for application indicated.
- C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
- D. 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 allowable load or strength design capacities calculated in accordance with ICC-ES AC193 and ICC-ES ACI 318 greater than or equal to the design load, as determined by testing per ASTM E488/E488M conducted by a qualified testing agency.
  - 2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated in accordance with ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E1190 conducted by a qualified testing agency.
- E. Reinforcing: Galvanized-steel reinforcing strips with [**0.033-inch (0.84-mm)**] **<Insert dimension>** minimum thickness of base metal (uncoated).

- F. Acoustical Sealant: Section 079219 "Acoustical Joint Sealants."
- G. Gypsum Board Cants:
  - 1. Gypsum Board Panels: As specified in Section 092900 "Gypsum Board," [**Type X, 1/2- or 5/8-inch (13- or 16-mm)**] <Insert requirements> panels.
  - 2. Adhesive: Laminating adhesive as specified in Section 092900 "Gypsum Board."
  - 3. Non-Load-Bearing Steel Framing: As specified in Section 092216 "Non-Structural Metal Framing."

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- 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 Section 078100 "Applied Fire Protection."
- 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 and manufacturer's written installation instructions.
- B. Do not install in areas that are continuously or repeatedly exposed to excessive moisture or temperatures above **125 deg F (52 deg C)**.
- C. Do not bridge building expansion joints with shaft wall assemblies; frame both sides of expansion joints with furring and other support.
- D. 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, wall-mounted door stops, and similar items that cannot be supported directly by shaft wall assembly framing.

1. Elevator Hoistway: At elevator hoistway-entrance door frames, provide jamb struts on each side of door frame.
  2. Reinforcing: Provide where items attach directly to shaft wall assembly as indicated on Drawings; accurately position and secure behind at least one layer of face panel.
- E. Penetrations: 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 and 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.
- A. Shaftliner Joints: Joint compound to comply with ASTM C475.
1. No treatment of joints to be done until interior temperature has been maintained at a minimum of **50 deg F (10 deg C)** for at least 48 hours prior to joint treatment.
  2. Provide adequate ventilation during finishing of joints.
  3. No finishing is required on the shaft side of partition.
- B. Control Joints: Install control joints [**at locations indicated on Drawings**] [**in accordance with ASTM C840 and in specific locations approved by Architect**] while maintaining fire-resistance rating of gypsum board shaft wall assemblies.
- C. Sound-Rated Shaft Wall Assemblies: 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.
- D. Gypsum Board Cants: At projections into shaft [**exceeding 4 inches (102 mm)**] [**where indicated**], install gypsum board cants covering tops of projections.
1. Slope cant panels at least 75 degrees from horizontal. Set base edge of panels in adhesive and secure top edges to shaft walls at **24 inches (610 mm)** o.c. with screws fastened to shaft wall framing.
  2. Where non-load-bearing steel framing is required to support gypsum board cants, install framing at **24 inches (610 mm)** o.c. and extend studs from the projection to shaft wall framing.
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than **1/8 inch (3 mm)** 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