SECTION 09 21 16.23 - GYPSUM BOARD SHAFT WALL ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Shaft-wall enclosures.
2. Chase enclosures.
3. Stair enclosures.
4. Horizontal enclosures.

1.2 SUBMITTALS

A. Product Data: For each gypsum board shaft-wall assembly indicated.

B. LEED Submittals:

1. Credit EQ 4.1: Product Data for adhesives, including printed statement of VOC content.
2. Credit MR 4.1 and Credit MR 4.2: Product Data indicating percentages by weight of postconsumer and preconsumer recycled content for sound attenuation insulation.

   a. Include statement indicating costs for each product having recycled content.

1.3 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of 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.
9. or approved equal

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 thick.
   b. Long Edges: Double bevel.

2. Moisture- and Mold-Resistant Type X: Manufacturer's proprietary liner panels and 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."

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 Veneer Plastering" that comply with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.

C. Gypsum Base Joint-Reinforcing Materials: As specified in Division 09 Section "Gypsum Veneer Plastering."

D. Gypsum Veneer Plaster: As specified in Division 09 Section "Gypsum Veneer Plastering."

E. Gypsum Board Joint-Treatment Materials: As specified in Division 09 Section "Gypsum Board."

F. 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).

G. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

H. 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.

I. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing), produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

2.6 GYPSUM BOARD SHAFT-WALL ASSEMBLIES

A. Basis-of-Design Product: As indicated on Drawings by design designation of a qualified testing agency.

B. Fire-Resistance Rating: As indicated.

C. STC Rating: As indicated.

D. 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.

E. 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.

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.

G. 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.

H. Room-Side Finish: As indicated.

I. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.

J. Insulation: Sound attenuation blankets.

PART 3 - EXECUTION

3.1 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 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.

3.2 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 shaft-wall assembly framing.

1. At elevator hoistway entrance door frames, provide jamb struts on each side of door frame.
2. Where handrails directly attach to gypsum board shaft-wall assemblies, provide galvanized steel reinforcing strip with 0.0312-inch minimum thickness of base (uncoated) metal, accurately positioned and secured behind at least 1 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 in specific locations approved by University, 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. In elevator shafts where gypsum board shaft-wall assemblies cannot be positioned within 4 inches of the shaft face of structural beams, floor edges, and similar projections into shaft, install 1/2- or 5/8-inch- thick, gypsum board cants covering tops of projections. No recesses allowed (at steel beams especially).

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 o.c. with screws fastened to shaft-wall framing.
2. Where steel framing is required to support gypsum board cants, install framing at 24 inches o.c. and extend studs from the projection to shaft-wall framing.

K. 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.

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 09 21 16.23