SECTION 092116.23 - GYPSUM BOARD SHAFT WALL ASSEMBLIES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS
				1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			2. SUMMARY
				1. Section Includes:

Gypsum board shaft wall assemblies.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each component of gypsum board shaft wall assembly.
				5. Sustainable Design Submittals:
			2. DELIVERY, STORAGE, AND HANDLING
				1. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and support them on risers on a flat platform to prevent sagging.
			3. FIELD CONDITIONS
				1. Environmental Limitations: Comply with gypsum-shaftliner-board manufacturer's written instructions.
				2. Do not install finish panels until installation areas are enclosed and conditioned.
				3. Do not install panels that are wet, moisture damaged, or mold damaged.

Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.

Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS

Indicate fire-resistance ratings of specific assemblies on Drawings or in "Gypsum Board Shaft Wall Assemblies" Article.

* + - * 1. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

Retain "STC-Rated Assemblies" paragraph below if shaft wall is part of STC-rated assemblies.

* + - * 1. STC-Rated Assemblies: Provide materials and construction identical to those of assemblies tested according to ASTM E90 and classified according to ASTM E413 by a testing and inspecting agency.
			1. GYPSUM BOARD SHAFT WALL ASSEMBLIES

Copy this article and re-edit for each assembly.

Consider inserting drawing designation in Article title as a means of identifying location of each gypsum board shaft wall assembly application on Drawings.

Design designations of a qualified testing agency should be indicated on Drawings to identify each assembly. Two or more different design designations may be listed for a single condition to increase competition. Coordinate requirements specified in this article with design designations indicated.

* + - * 1. Fire-Resistance Rating: [**As indicated on Drawings**] [**1 hour**] [**2 hours**] [**3 hours**] [**4 hours**] <**Insert rating**>.

Retain "STC Rating" paragraph below if required to reduce airborne sound transmission.

* + - * 1. STC Rating: [**As indicated on Drawings**] [**51, minimum**] <**Insert rating**>.
				2. Gypsum Shaftliner Board:

Retain "Type X" or "Moisture- and Mold-Resistant Type X" subparagraph below.

Type X: ASTM C1396; manufacturer's proprietary fire-resistive liner panels with paper faces, 1 inch thick, with double beveled long edges.

Moisture- and Mold-Resistant Type X: ASTM C1396; manufacturer's proprietary fire-resistive liner panels with ASTM D3273 mold-resistance score of 10 as rated according to ASTM D3274, 1 inch thick, and with double beveled long edges.

Moisture- and Mold-Resistant, Fiberglass-Mat Faced: ASTM C1658; manufacturer's proprietary fire-resistive liner panels with ASTM D3273 mold-resistance score of 10 as rated according to ASTM D3274, 1 inch thick, and with double beveled long edges.

* + - * 1. 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.

First option in "Protective Coating" subparagraph below is the default for ASTM C645; second option provides the same level of protection as the first but mandates hot-dip galvanizing; third option may be retained for greater corrosion protection. See "Corrosion Protection of Steel Framing" Article in the Evaluations.

Protective Coating: [**Coating with equivalent corrosion resistance of ASTM A653, G40**] [**ASTM A653, G40, hot-dip galvanized**] [**ASTM A653, G60 , hot-dip galvanized**] unless otherwise indicated.

* + - * 1. Studs: Manufacturer's standard profile for repetitive, corner, and end members as follows:

Depth: [**As indicated**] [**2-1/2 inches** ] [**4 inches**] [**6 inches**].

Second option in "Minimum Base-Metal Thickness" subparagraph below is for traditional 25 gage, third option is for traditional 20 gage nonstructural, and fourth option is for traditional 20-gage structural studs. Note that thicknesses offered by various manufacturers differ. See "Steel Sheet Thicknesses" Article in the Evaluations.

Minimum Base-Metal Thickness: [**As indicated**] [**0.018 inch**] [**0.030 inch**] [**0.033 inch**] <**Insert value**>.

* + - * 1. Runner Tracks: Manufacturer's standard J-profile track with manufacturer's standard long-leg length, but at least [**2 inches**] <**Insert dimension**> long and matching studs in depth.

Third option in "Minimum Base-Metal Thickness" subparagraph below is for traditional 25 gage, fourth option is for traditional 24 gage, fifth option is for traditional 20 gage nonstructural, and sixth option is for traditional 20-gage structural studs. Note that thicknesses offered by various manufacturers differ. See "Steel Sheet Thicknesses" Article in the Evaluations.

Minimum Base-Metal Thickness: [**As indicated**] [**Matching steel studs**] [**0.018 inch**] [**0.021 inch**] [**0.030 inch**] [**0.033 inch**] <**Insert value**>.

"Firestop Tracks" paragraph below specifies firestop tracks for isolating the top of shaft wall framing from structure above in specific fire-resistance-rated assemblies. Products may need additional materials to achieve a fire-resistance rating; verify with manufacturer. If retaining, revise to coordinate with rated assemblies and indicate design designations of assemblies on Drawings.

* + - * 1. 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.

Retain "Elevator-Hoistway-Entrance Struts" paragraph below if required.

* + - * 1. Elevator-Hoistway-Entrance Struts: Manufacturer's standard J-profile jamb strut with long-leg length of 3 inches, matching studs in depth, and not less than [**0.033 inch**] <**Insert dimension**> thick.
				2. 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**>.

Retain "Sound Attenuation Blankets" paragraph below if applicable.

* + - * 1. Sound Attenuation Blankets: As specified in [**Section 092900 "Gypsum Board."**] [**Section 092613 "Gypsum Veneer Plastering."**]
			1. AUXILIARY MATERIALS
				1. Provide auxiliary materials that comply with shaft wall manufacturer's written instructions.
				2. 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.
				3. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
				4. 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.

Retain "Expansion Anchors" subparagraph below if expansion anchors are acceptable. Verify allowable load capacity with Project's Structural Engineer. Insert specific load requirements and names of acceptable products if required.

Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E488 conducted by a qualified testing agency.

Retain "Power-Actuated Anchors" subparagraph below if power-actuated fasteners are acceptable. Verify allowable load capacity with Project's Structural Engineer.

Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E1190 conducted by a qualified testing agency.

Fully detail support for items, such as handrails, that are attached to shaft wall assemblies; "Reinforcing" paragraph below is an example only. If retaining, indicate size and locations of reinforcing plates on Drawings.

* + - * 1. Reinforcing: Galvanized-steel reinforcing strips with [**0.033-inch**] <**Insert dimension**> minimum thickness of base metal (uncoated).
				2. Acoustical Sealant: Section 079219 "Acoustical Joint Sealants."

Retain "Gypsum Board Cants" paragraph below for installation of gypsum board cants over projection into shafts. Alternatively, cants can be specified in Section 055000 "Metal Fabrications."

* + - * 1. Gypsum Board Cants:

Gypsum Board Panels: As specified in Section 092900 "Gypsum Board," [**Type X, 1/2- or 5/8-inch**] <**Insert requirements**> panels.

Adhesive: Laminating adhesive as specified in Section 092900 "Gypsum Board."

Non-Load-Bearing Steel Framing: As specified in Section 092216 "Non-Structural Metal Framing."

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
				2. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
				3. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. PREPARATION

Retain this article for sprayed fire-resistive materials.

* + - * 1. 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."
				2. 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.
			1. INSTALLATION
				1. General: Install gypsum board shaft wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated and manufacturer's written installation instructions.

Retain first paragraph below for building expansion joints with gypsum board shaft wall assemblies. Include details on Drawings showing expansion-joint construction and locations.

* + - * 1. Do not bridge building expansion joints with shaft wall assemblies; frame both sides of expansion joints with furring and other support.
				2. 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.

Fully detail elevator hoistway openings in shaft wall assemblies. Manufacturers' written instructions for framing elevator hoistway-entrance door openings differ. Revise to suit Project and assemblies selected. Insert requirements for other openings to suit Project.

Elevator Hoistway: At elevator hoistway-entrance door frames, provide jamb struts on each side of door frame.

Fully detail support for items, such as handrails, that are attached to shaft wall assemblies; "Reinforcing" subparagraph below is an example only. If retaining, indicate size of reinforcing plate on Drawings.

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.

On Drawings, fully detail items penetrating shaft wall assemblies.

* + - * 1. 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.

See "Crack Control" Article in the Evaluations for discussion of assemblies subjected to differential structural movements.

* + - * 1. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels while maintaining continuity of fire-rated construction.

If retaining "Firestop Tracks" paragraph below, indicate locations and details of firestop tracks on Drawings.

* + - * 1. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

Generally, retain first option in "Control Joints" paragraph below and indicate joints on Drawings to comply with ASTM C840 requirements for spacing control joints.

* + - * 1. Control Joints: Install control joints [**at locations indicated on Drawings**] [**according to ASTM C840 and in specific locations approved by Director’s Representative**] while maintaining fire-resistance rating of gypsum board shaft wall assemblies.

Retain "Sound-Rated Shaft Wall Assemblies" paragraph below for sound-rated shaft walls or delete if sound or air leakage is not a concern.

* + - * 1. 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.

Retain "Gypsum Board Cants" paragraph below for installation of gypsum board cants over projection into shafts. Alternatively, cants can be specified in Section 055000 "Metal Fabrications."

* + - * 1. Gypsum Board Cants: At projections into shaft [**exceeding 4 inches**] [**where indicated**], install gypsum board cants covering tops of projections.

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.

Where non-load-bearing 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.

"Installation Tolerance" paragraph below is based on recommendation for metal framing in ASTM C840.

* + - * 1. 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.
			1. PROTECTION
				1. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
				2. Remove and replace panels that are wet, moisture damaged, or mold damaged.

Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.

Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092116.23