

SECTION 09 21 19

GYPSUM BOARD SHAFT WALL ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Gypsum board shaft wall assemblies.
 - a. Stairwell enclosures.
 - b. Service shaft enclosures for piping, ductwork, air plenums, electrical and similar services.
 - c. Elevator shaft enclosures.
 - d. Structural column enclosures.
 - e. Chute enclosures for linen, trash, and similar uses.
 - f. Area separation walls.
2. Metal framing and accessories.
3. Gypsum board wall products and accessories.

1.2 DEFINITION

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined.

1.3 ACTION SUBMITTALS

- A. Product Data: Technical data for each component of gypsum board shaft wall assembly.
- B. Shop Drawings: Submit full scale drawings indicating special or unusual conditions relating to the shaft wall system specified not addressed in manufacturer's product data.
- C. Calculations: Submit calculations verifying steel partition stud minimum base metal thickness and depth compliance with Code and ASTM C645 for height, load, and deflection.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Certification signed by manufacturers of gypsum board and framing assembly components to certify products comply with specified requirements.
- B. Product Test Reports: Submitted from independent testing indicating and interpreting test results relative to compliance of shaft wall systems with acoustical, fire resistance and structural performance requirements.

- C. Research/Evaluation Reports: For firestop tracks post installed anchors and power actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Stack panels flat and support on risers on a flat platform to prevent sagging.
- C. Handle panels to prevent damage to edges, ends and surfaces. Do not bend or damage metal corner beads, trim, track, and studs.

1.6 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 Ratings: Fire resistive rated assemblies identical to those indicated by reference in GA 600 or to UL design designations, including those incorporating elevator door others framing, whose fire resistance has been determined by ASTM E 119 by an independent testing agency.
- B. Structural Performance Characteristics: Engineer shaft wall systems to withstand lateral design loadings, positive and negative air pressure, of 5.0 psf. for maximum heights of partitions required with deflection not to exceed L/240 of wall height.
- C. 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 and to achieve minimum STC Ratings indicated.

2.2 GYPSUM BOARD SHAFT WALL ASSEMBLIES

- A. Fire Resistance Rating: Indicated on Drawings.
- B. STC Rating: As Indicated on Drawings, 51, minimum.
- C. Shaft Wall Systems: Assembly consisting of gypsum shaft wall boards inserted between U- or J-shaped metal floor and ceiling tracks; with specially shaped studs engaged in tracks and fitted between shaftliner boards; and gypsum boards on finished side or sides applied to studs in number of layers, thickness, and arrangement indicated.
 - 1. Studs: I, CH, double-E, or CT profile for repetitive members, corner and end members, and fire resistance rated assembly indicated.
 - a. Depth: As indicated, 2-1/2 inches minimum.
 - b. Minimum Base Metal Thickness: As required to meet performance requirements, 0.018 inch, minimum.
 - 2. Firestop Tracks: Provide firestop track at head of shaft wall on each floor level.
 - 3. Room Side Finish: One or two layer(s) of 5/8 inch thick gypsum board as indicated on room side.
 - 4. Shaft Side Finish: One layer of 5/8 inch of gypsum where finish is indicated on shaft side.
 - 5. Cavity Insulation: Sound attenuation blankets in thickness required to meet indicated STC ratings.
- D. Gypsum Shaftliner Board:
 - 1. Moisture and Mold Resistant Type X: ASTM C 1396/C 1396M; fire resistive liner panels with ASTM D 3273 mold resistance score of 10 as rated according to ASTM D 3274, 1 inch (25.4 mm) thick, and with double beveled long edges.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) American Gypsum Company; M-Glass Shaft Liner with mold and Moisture Resistance.
 - 2) CertainTeed Corp.; GlasRoc Shaft Liner Type X.
 - 3) Georgia-Pacific Gypsum LLC, Subsidiary of Georgia Pacific; Dens-Glass Ultra Shaftliner.
 - 4) National Gypsum Company; Gold Bond Brand EXP Extended Exposure Shaftliner.
 - 5) USG Corporation; Sheetrock Glass-Mat Liner Panels.
 - b. Thickness: 1 inch (25 mm).
 - c. Long Edges: Double bevel.
 - d. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
 - 2. Moisture and Mold Resistant, Fiberglass Mat Faced: ASTM C 1658/C 1658M; fire resistive liner panels with ASTM D 3273 mold resistance score of 10 as rated according to ASTM D 3274, 1 inch (25.4 mm) thick, and with double beveled long edges.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) American Gypsum.
 - 2) Georgia-Pacific Gypsum LLC.
 - 3) USG Corporation.
- E. Nonload Bearing Steel Framing: Complying with ASTM C 645 requirements for metal unless otherwise indicated and complying with requirements for fire resistance rated assembly indicated.
1. Protective Coating: ASTM A 653/A 653M, G60 (Z180), hot dip galvanized unless otherwise indicated.
- F. Studs: Standard profile for repetitive, corner, and end members:
1. Depth: Indicated on Drawings.
 2. Minimum Base Metal Thickness: 0.033 inch (0.84 mm).
- G. Runner Tracks: J profile track with long edge length, but at least 2 inches (51 mm) long and matching studs in depth.
1. Minimum Base Metal Thickness: Matching steel studs.
- H. 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. Fire Trak Corp.; Fire Trak System.
 - b. Grace Construction Products; FlameSafe FlowTrak System.
 - c. Metal-Lite, Inc.; The System.
 - d. Steel Network Inc. (The); VertiClip SLD Series.
- I. Elevator Hoistway Entrance Struts: 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)] thick.
- J. Finish Panels: As indicated..
- K. Sound Attenuation Blankets: Unfaced glass or slay mineral fiber blanket complying with ASTM C 665 for Type I, produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
- L. Auxiliary Materials: Provide auxiliary materials that comply with shaft wall manufacturer's written instructions.
1. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes as specified in Section 09 29 00 that comply with gypsum board shaft wall assembly manufacturer's written instructions for application indicated.
 2. Control Expansion Joint:
 - a. Control Joint Trim: ASTM C1047, provide #93 Zinc Control Joint (ZNCJ) by Clark Dietrich.
 - b. Fire Rated Control Joint Backer: 0.0179 inch minimum thickness, ASTM A 653 hot dipped galvanized, ASTM C 645 flat steel strap backer plates with

- an affixed cured intumescent strip to maintain fire ratings behind control joints in fire rated partitions.
- 1) Manufacturer: Subject to compliance with requirements, provide one of the following:
 - a) BlazeFrame CJB series (Control Joint Backer) by Clark Dietrich for horizontal and vertical control joints.
 - b) Fire Rated Control Joint for Horizontal and Vertical Joints: FAS-093X by Cemco.
 - c. Fire Stop Fire Rated Backer: 0.0296 inch minimum thickness, ASTM A 653 hot dipped galvanized, ASTM C 645 flat steel strap backer plate with an affixed cured intumescent strip to maintain fire ratings behind architectural reveal moldings in fire rated partitions.
 - 1) Manufacturer: Subject to compliance with requirements, provide the following:
 - a) Horizontal and Vertical Joint behind Reveals: BlazeFrame FSB series (Flat Strap Backer) by Clark Dietrich.
 3. Reveal Molding: Vertical or horizontal recessed reveal fabricated from extruded aluminum.
 - a. Dimension: 1/2 inch wide x 5/8 inch deep (13 mm by 16 mm).
 - b. Basis of Design: Subject to compliance with requirements, provide DRM-625-50 by Fry Reglet.
 4. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 5. 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.
 - a. 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 E 488/E 488M conducted by a qualified testing agency.
 - b. 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 E 1190 conducted by a qualified testing agency.
 6. Reinforcing: Galvanized steel reinforcing strips with 0.033 inch (0.84 mm) minimum thickness of base metal (uncoated).
 7. Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, gunnable synthetic rubber sealant complying with requirements specified in Section 07 90 20.
 8. Sound Attenuation Blankets: Unfaced glass or slag mineral fiber blanket complying with ASTM C 665 for Type I,
 9. Gypsum Board Cants:
 - a. Gypsum Board Panels: Refer to Section 09 29 00, Type X, 1/2 inch or 5/8 inch (13 mm or 16 mm) panels.
 - b. Adhesive: Laminating adhesive; refer to Section 09 29 00.

- c. Nonload Bearing Steel Framing: Refer to Section 09 29 50.
- d. Steel Reinforcing Strip: Refer to Section 05 50 00.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the work. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- B. Proceed with installation after correcting unsatisfactory conditions.

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 07 81 00.
- B. After sprayed fire resistive materials are applied, remove 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. 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 bridge 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, 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.
- D. Integrate stair hanger rods with shaft wall system by locating cavity of system as necessary to enclose rods.
- 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 shaft wall system from transfer of structural loading to system, both horizontally and vertically and to prevent cracking of panels while maintaining continuity of fire rated construction. Provide slip or cushioned type joints to attain lateral support and avoid axial loading. Comply with details shown and with manufacturer's instructions.
- G. Seal gypsum board shaft walls at perimeter which abuts other work and at joints and penetrations. Install acoustical sealant to withstand dislocation by air pressure differential between shaft and external spaces; comply with manufacturer's instructions and ASTM C 919.
- H. Firestop Tracks: Where indicated, install to maintain continuity of fire resistance rated assembly indicated.
- I. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect while maintaining fire resistance rating of gypsum board shaft wall assemblies.
- J. 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.
- K. Gypsum Board Cants: At projections into shaft exceeding 4 inches (102 mm) and 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 nonload 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.
- L. 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

This page intentionally left blank.