

SECTION 092116 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal stud wall framing.
- B. Acoustic insulation.
- C. Gypsum wallboard.
- D. Joint treatment and accessories.
- E. Acoustic Shielding.

1.2 RELATED REQUIREMENTS

- A. Section 061001 - Rough Carpentry - Architecture: Wood blocking product and execution requirements.
- B. Section 072100 - Thermal Insulation: Acoustic insulation.
- C. Section 078400 - Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.
- D. Section 079200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

1.3 REFERENCE STANDARDS

- A. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing.
- B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- D. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- E. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
- F. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.

- I. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
- J. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- K. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- L. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- M. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
- N. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels.
- O. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- P. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- Q. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- R. ASTM E413 - Classification for Rating Sound Insulation.
- S. GA-216 - Application and Finishing of Gypsum Panel Products.

1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- C. Installer's Qualification Statement.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.
- B. Manufacturer Qualifications: Member of Steel Stud Manufacturers Association (SSMA): www.ssma.com/#sle.

PART 2 PRODUCTS

2.1 METAL FRAMING MATERIALS

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.

- B. Manufacturers - Metal Framing, Connectors, and Accessories:
 - 1. ClarkDietrich: www.clarkdietrich.com.
 - 2. Marino: www.marinoware.com.
 - 3. SCAFCO Corporation: www.scafco.com.
 - 4. Substitutions: See Section 016000 - Product Requirements.
- C. All framing members to be from one manufacturer.
- D. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
 - 1. **Minimum 20ga (0.76 mm / 30 mil) actual member thickness; 20ga "equivalent" member thickness is not acceptable.**
 - 2. Studs: C-shaped.
 - a. Products:
 - 1) Basis of Design: ClarkDietrich; ProSTUD 30mil Drywall Stud: www.clarkdietrich.com.
 - 3. Runners: U shaped, sized to match studs.
 - 4. Ceiling Channels: C-shaped.
 - 5. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.
- E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection and prevent rotation of studs while maintaining structural performance of partition.
 - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
 - 2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
 - 3. Provide components UL-listed for use in UL-listed fire-resistance-rated head of partition joint systems indicated on drawings.
- F. Non-structural Framing Accessories:
 - 1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
 - 2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
- G. Grid Suspension Systems: Steel grid system of main tees and support bars connected to structure using hanging wire.
 - 1. Main Tees: 16ga C-shaped Channels.
 - 2. Support Bars: 16ga Furring Channels.
 - 3. Accessories: Metal furring channel clips.
 - 4. Products:
 - a. Basis of Design Manufacturer: ClarkDietrich: www.clarkdietrich.com.

2.2 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. CertainTeed Corporation: www.certainteed.com.
 - 2. Georgia-Pacific Gypsum: www.gpgypsum.com.
 - 3. National Gypsum Company: www.nationalgypsum.com.

4. USG Corporation: www.usg.com.
 5. Substitutions: See Section 016000 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 2. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 3. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
 4. Paper-Faced Products for Rated Partitions:
 - a. CertainTeed Corporation; Type X Gypsum Panel: www.certainteed.com.
 - b. Georgia-Pacific Gypsum; ToughRock Fireguard X: www.gpgypsum.com.
 - c. National Gypsum Company; Gold Bond Fire-Shield Gypsum Board: www.nationalgypsum.com.
 - d. USG Corporation; USG Sheetrock Brand Firecode X Panels: www.usg.com.
 5. Paper-Faced Products for Non-Rated Partitions:
 - a. CertainTeed Corporation; Certainteed Regular Gypsum Panel: www.certainteed.com.
 - b. Georgia-Pacific Gypsum; ToughRock Lite-Weight Gypsum Board: www.gpgypsum.com.
 - c. National Gypsum Company; Gold Bond Gypsum Board: www.nationalgypsum.com.
 - d. USG Corporation; USG Sheetrock Brand Panels: www.usg.com.
 6. Mold Resistant Paper Faced Products for Rated Partitions:
 - a. CertainTeed Corporation; M2Tech Type X Gypsum Panel: www.certainteed.com.
 - b. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard: www.gpgypsum.com.
 - c. National Gypsum Company; Gold Bond XP Fire Shield Gypsum Board: www.nationalgypsum.com.
 - d. USG Corporation; USG Sheetrock Brand EcoSmart Panels Mold Tough Firecode X: www.usg.com.
 7. Mold Resistant Paper Faced Products for Non-Rated Partitions:
 - a. CertainTeed Corporation; M2Tech Gypsum Panel: www.certainteed.com.
 - b. Georgia-Pacific Gypsum; ToughRock Mold-Guard: www.gpgypsum.com.
 - c. National Gypsum Company; Gold Bond XP Gypsum Board: www.nationalgypsum.com.
 - d. USG Corporation; USG Sheetrock Brand EcoSmart Panels Mold Tough: www.usg.com.

2.3 GYPSUM BOARD ACCESSORIES

- A. Acoustic Shielding: Complete system from one manufacturer; including 1/8 inch thick Viscoelastic Polymer Material sheets, tape, and necessary components; applied between studs and gypsum board.
1. Sound Transmission Class (STC): Minimum of 25, calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2. Fire Resistance: Where fire-resistance rating is specified for the wall in which the acoustical shielding membrane is mounted, provide assemblies that have been tested in accordance with ASTM E119 for the same rating as the wall.
3. Products:
 - a. Basis of Design: Blok16 by Acoustiblok, Inc.; www.acoustiblok.com.
 - b. Substitutions: See Section 016000 - Product Requirements.
- B. Beads, Joint Accessories, and Other Trim: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
 1. Corner Beads: Low profile, for 90 degree outside corners.
- C. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 1. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 2. Products:
 - a. Approved by board material manufacturer.
 3. Joint Compound: Drying type, vinyl-based, ready-mixed.
 - a. Products:
 - 1) Approved by board material manufacturer.
- D. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- E. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.2 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C1007/AISI S220 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
 1. Level ceiling system to a tolerance of 1/1200.
 2. Laterally brace entire suspension system.
- C. Studs: Space studs at 16 inches on center.
 1. Extend partition framing to structure in all locations.
 2. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- E. Standard Wall Furring: Install at concrete and masonry walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 16 inches on center.
 - 1. Orientation: Vertical.
 - 2. Spacing: At 16 inches on center.
- F. Blocking: Install wood blocking for support of:
 - 1. Framed openings.
 - 2. Wall-mounted cabinets.
 - 3. Plumbing fixtures.
 - 4. Toilet partitions.
 - 5. Toilet accessories.
 - 6. Wall-mounted door hardware.

3.3 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Place continuous bead at perimeter of each layer of gypsum board.
 - 3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.4 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Installation on Metal Framing: Use screws for attachment of gypsum board.

3.5 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
 - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.

3.6 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use paper joint tape, embed with setting type joint compound and finish with drying type joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 - 3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.7 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet, non-cumulative, in any direction.

END OF SECTION 092116