
SECTION 09 21 00

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Provide gypsum board systems including gypsum board, light gage metal framing, suspension system for gypsum board systems, joint treatment, acoustical accessories, and general accessories for complete installation.
- B. Related Sections:
 - 1. Section 05 40 00: Cold-formed structural metal framing, 18 gage and heavier.
 - 2. Section 07 21 00: Building thermal insulation.
 - 3. Section 07 84 00: Firestopping.
 - 4. Section 09 30 00: Cementitious backer unit tile substrates.

1.2 REFERENCES

- A. ASTM C754: Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water-Resistant Backing Board.
- B. ASTM C840: Application and Finishing of Gypsum Board.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Openings: Obtain dimensions and locations from other trades and provide openings and enclosures for accessories, specialties, equipment, and ductwork.

1.4 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature for framing, insulation, gypsum board, and acoustical accessories.
- B. Samples: Submit samples of special texture finish.
- C. Manufacturer's Certification: Furnish manufacturer's certification indicating products comply with Contract Documents and applicable codes.

1.5 QUALITY ASSURANCE

- A. Sustainability Requirements: Comply with CALGreen requirements including those relative to finish material pollution control for adhesives, sealants, and caulks.
- B. Level 4 Finish Mock-Up: Provide Level 4 finish mock-up not less than 100 square feet in location acceptable to Architect. Approved mock-up may be incorporated into Project.
- C. Special Texture Finish Mock-Up: Provide special texture finish mock-up not less than 100 square feet in location acceptable to Architect. Approved mock-up may be incorporated into Project.

1.6 PROJECT CONDITIONS

- A. Do not begin installation of interior gypsum board until space is enclosed, space is not exposed to other sources of water, and space is free of standing water.
- B. Maintain areas to receive gypsum board at minimum 50-degree F for 48 hours prior to application and continuously after application until drying of joint compound is complete; comply with ASTM C840.
- C. Immediately remove from site gypsum board for interior use exposed to water, including gypsum board with water stains, with signs of mold, and gypsum board with mildew.

PART 2 - PRODUCTS**2.1 SYSTEMS MANUFACTURERS**

- A. National Gypsum Co.
- B. Georgia-Pacific Corp.
- C. United States Gypsum Co., USG Corp.
- D. Substitutions: Refer to Section 01 25 00.

2.2 MATERIALS

- A. System Description: Provide gypsum board assemblies including gypsum board, light gage metal framing, suspension system for gypsum board systems, joint treatment, acoustical accessories, and general accessories.
 - 1. Systems Responsibility: Provide products manufactured by or recommended by manufacturer of gypsum board to maintain single-source responsibility for system.
- B. Performance Requirements: Perform gypsum board systems work in accordance with recommendations of ASTM C754 and ASTM C840 unless otherwise specified.
 - 1. Loads: Comply with California Building Code requirements for design of metal framing for gypsum board systems.
 - a. Deflection: Maximum L/240 typical, L/360 where tile or plaster are indicated.
 - 2. Large Format Tile: Comply with Tile Council of North America (TCNA) requirements for metal framing at maximum 16" on center and for maximum deflection of L/720 where large format tile as defined by TCNA is indicated.
- C. Regulatory Requirements:
 - 1. Fire-Rated Assemblies: Provide systems listed in applicable code or by Underwriter's Laboratory, Gypsum Association (GA) File No's in GA-600 Fire Resistance Design Manual or other listing approved by applicable authorities.
 - 2. Seismic Requirements: Comply with code requirements for seismic bracing.

- D. Framing: Comply with ASTM C754, 20 gage and lighter unless otherwise indicated; provide gages as recommended by manufacturer for spans and loads indicated and as required by applicable codes.
 - 1. Studs: ASTM C645, screw-type Cee-shaped.
 - a. Shaft Walls: Cee-T or Cee-H shaped studs.
 - 2. Runners: Match studs.
 - 3. Furring Members: ASTM C645, screw-type, hat-shaped.
 - a. Sound Rated Assemblies: Provide resilient channels where indicated and where required to provide required sound transmission classifications.
 - 4. Channels: ASTM C754.
 - 5. Hangers: ASTM A641, Class 1 wire not less than sizes in Table No. 5 of ASTM C754 and as required by applicable codes; hanger rods, flat hangers, and angle-type hangers as required.
 - 6. Suspension System: ASTM C635, suspension system composed of main beams and cross furring members interlocking to form supporting network; recommended by gypsum board system manufacturer.
 - 7. Fasteners and Anchorages: As recommended by gypsum board system manufacturer.
- E. Gypsum Board: Comply with ASTM C840; maximum permissible lengths; ends square cut, tapered edges on boards to be finished.
 - 1. Typical: ASTM C1396, Type X, fire rated gypsum board, unless otherwise indicated.
 - 2. First Layer at Double Layer Applications: ASTM C1396 or ASTM C442, Type X, fire rated gypsum backing board.
 - 3. Gypsum Core Board/Gypsum Liner Board: ASTM C442, Type X, 1" thick; mildew and mold resistant.
 - 4. Mold Resistant Gypsum Board: Provide at high humidity areas not covered with tile including but not limited to kitchens, bathrooms, showers, laundries, and basements.
 - a. USG/Sheetrock Mold Tough Firecode Core.
 - b. Georgia Pacific/ToughRock Mold-Guard Fireguard X.
 - c. National Gypsum/Gold Bond XP Fire-Shield Gypsum Board.
 - d. Substitutions: Refer to Section 01 25 00.
 - 5. Tile Substrates: Cementitious backer units specified in Section 09 30 00 - Tiling.

6. Cementitious Backer Units for Fiberglass Wall Panels and Paneled Shower/Tub Surrounds: ANSI A118.9 aggregated Portland cement with woven glass-fiber mesh on both faces; approximately 1/2" thick; UL rated for fire rated assemblies.

- a. Manufacturers:

- 1) National Gypsum Co./PermaBase Cement Board.
- 2) USG Industries, Durabond Division/Durock.
- 3) Custom Building Products/Wonderboard.
- 4) James Hardie Building Products/Hardibacker.
- 5) Substitutions: Refer to Section 01 25 00.

- b. Contractor Option Coated Glass Mat Backer Units: Georgia Pacific/DenShield, UL fire rated as required to maintain integrity of fire rated assemblies.

7. Sheathing: Silicone treated glass mat gypsum sheathing, ASTM C1177, Type X, 5/8" thick unless otherwise indicated.

- a. Manufacturers:

- 1) Georgia Pacific/DensGlass Gold.
- 2) Substitutions: Refer to Section 01 25 00.

F. Gypsum Board Accessories: Comply with ASTM C840.

1. Provide protective coated steel corner beads and edge trim; type designed to be concealed in finished construction by tape and joint compound.
2. Corner Beads: Manufacturer's standard metal beads.
3. Edge Trim: "J", "L", "LK", or "LC" casing beads.
4. Reinforcing Tape, Joint Compound, Adhesive, Water, Fasteners: Types recommended by system manufacturer and conforming to ASTM C475.
 - a. Typical Joint Compound: Chemical hardening type for bedding and filling, ready-mixed or powder vinyl type for topping.
5. Control Joints: Back to back casing beads.
 - a. Back control joints with 4 mil thick polyethylene air seal.
6. Surface Texture Coat: Provide manufacturer's standard texture finish materials as required to match approved samples and mock-up; materials to have maximum flame spread of 25 and smoke developed of 450, ASTM E84.
 - a. High Ceiling (Only) Texture: Match USG/Imperial QT Texture Finish ceiling texture; maximum flame spread of 25.

G. Acoustical Accessories:

1. Acoustical Insulation: Preformed mineral fiber, ASTM C665, Type I; friction fit type without integral vapor barrier; as required to meet STC ratings indicated, or of thickness indicated.
2. Acoustical Sealant: ASTM C919, type recommended for use in conjunction with gypsum board. Paintable, non-shrinking and non-cracking where exposed, nondrying, nonskinning, nonstaining, and nonbleeding where concealed.
 - a. Acoustical Sealant Manufacturers:
 - 1) USG/Sheetrock Acoustical Sealant.
 - 2) Tremco/Acoustical Sealant.
 - 3) Pecora/AC-20.
 - 4) Substitutions: Refer to Division 1.
3. Electrical Box Pads: Provide at outlet, switch and telephone boxes in walls with acoustical insulation.
 - a. Electrical Box Pad Manufacturers for Non-Fire Rated Partitions:
 - 1) Harry A. Lowry & Associates (800.772.2521)/Lowry's Electrical Box Pads.
 - 2) Tremco Sheet Caulking (650.572.1656).
 - 3) Fire rated partition material manufacturers.
 - 4) Substitutions: Refer to Section 01 25 00.
 - b. Electrical Box Pad Manufacturers for Fire Rated Partitions:
 - 1) Hevi-Duty Nelson (800.331.7325)/Fire Rated FSP Firestop Putty Pads.
 - 2) Specified Technologies, Inc. (800.992.1180)/Fire Putty Pads.
 - 3) Hilti, Corp./Hilti Box Pads.
 - 4) Substitutions: Refer to Section 01 25 00.

- H. Fire Rated Assembly Accessories: Provide materials and accessories as required to comply with fire rating requirements of UL, GA or other listing approved by applicable authorities.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Metal Framing Erection: Erect metal framing in accordance with ASTM C754 and manufacturer's recommendations.
1. Install members true to lines and levels to provide surface flatness with maximum variation of 1/8" in 10'-0" in any direction.
 2. Door Opening Framing: Install double studs at door frame jambs; install runners on each side of opening at frame head height between jamb studs and adjacent studs.

3. Install metal framing backing where required for support of fixtures, cabinets, accessories and hardware.
 4. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work which is to be placed in or behind partition framing; allow items to be installed after framing is complete.
- B. Ceiling Framing Installation: Erect in accordance with ASTM C754 and manufacturer's recommendations.
1. Coordinate location of hangers with other work; provide trapeze supports and steel bracing as required to support ceiling.
 2. Install ceiling furring independent of walls, columns, and above-ceiling work.
 3. Space main carrying channels at maximum 48" on center, not more than 6" from perimeter walls.
 - a. Lap splices minimum 12" and secure together 2" from each end of splice.
 4. Place furring channels perpendicular to carrying channels at maximum 24" on center and not more than 2" from perimeter walls.
 5. Lap splices minimum 8" and secure together 2" from each end of splice.
 6. Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing; extend bracing minimum 24" past each end of openings.
 7. Laterally brace entire suspension system.
- C. Gypsum Board Installation: Install in accordance with ASTM C840 and manufacturer's recommendations.
1. Use screws when fastening gypsum board to furring and to framing.
 2. Erect gypsum board with ends and edges occurring over firm bearing.
 - a. Ensure joints of second layer do not occur over joints of first layer in double layer applications.
 3. For fire rated systems comply with requirements for fire ratings.
 4. Place control joints to be consistent with lines of building spaces and as directed by Architect.
 - a. Provide where system abuts structural elements.
 - b. Provide at dissimilar materials.
 - c. Lengths exceeding 30'-0" in partitions.
 - d. Ceiling areas exceeding 50'-0" or 2500 square feet.
 - e. Wings of "L", "U" and "T" shaped ceilings.

5. Place corner beads at external corners; use longest practical lengths.
6. Place edge trim where gypsum board abuts dissimilar materials.
7. Tape, fill, and sand exposed joints, edges, corners and openings to produce surface ready to receive finishes; feather coats onto adjoining surfaces.
8. Finishing: Comply with Gypsum Association (GA) "Levels of Gypsum Board Finish".
 - a. GA Level 4 (Typical): Provide three coat finishing and sanding is required for surfaces indicated to be painted; provide flush, smooth joints and surfaces ready for applied paint finishes.
 - b. Special Texture Finish Coat (High Ceilings): Apply special texture coating over surface indicated to be textured in accordance with manufacturer's recommendations; three coat finishing not required.
9. Remove and replace defective work.

D. Acoustical Accessories Installation:

1. Place acoustical insulation tight within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
2. Place acoustical sealant within partitions in accordance with manufacturer's recommendations; install acoustical sealant at gypsum board perimeter at:
 - a. Metal Framing: One or two beads.
 - b. Base layer and face layer.
 - c. Penetrations of partitions.
3. Tolerance: Maximum 1/4" space between gypsum board at floor, ceiling, and penetrations and sealed with acoustical sealant.
4. Install electrical box pads with pads molded and pressed on back and all sides of box, closing openings, in accordance with manufacturer's instructions, for complete acoustical barrier.
5. Pressurized Chambers: Install drywall assemblies airtight at air shafts, stairs, air plenums and where indicated on Drawings.
 - a. Comply with requirements for HVAC system for air pressure requirements.

END OF SECTION