

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Non-load-bearing steel framing members for gypsum board assemblies.
 - 2. Gypsum board assemblies attached to steel framing.
 - 3. Cementitious backer units installed with gypsum board assemblies.
- B. Related Sections: The following Sections contain requirements that relate to this Section:

Section 05 40 00 - Cold-Form Metal Framing
Section 06 10 00 - Rough Carpentry

1.03 REFERENCES

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.
- B. ASTM C 840, Standard Specification for Application and Finishing of Gypsum Board.
- C. GA-216, Gypsum Association Recommended Specification for Application and Finishing of Gypsum Board.

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.

1.05 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 them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

1.06 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40° F. For adhesive attachment and finishing of gypsum board, maintain not less than 50° F for 48 hours before application and continuously after until dry. Do not exceed 95° F when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.01 STEEL FRAMING FOR WALLS AND PARTITIONS, FURRDOWNS AND CEILINGS

- A. General: Provide steel framing members complying with manufacturer's standard zinc protective coating.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90° and doubled over to form 3/16" wide min. lip (return), and complying with the following requirements for min. thickness of base (uncoated) metal and for depth:
 - 1. Thickness: 20 ga. unless otherwise indicated. 25 ga. Studs may be used at ceiling furrdowns.
 - 2. Thickness: 20 ga. for head runner, sill runner, jamb, and cripple studs at door and other openings unless noted otherwise.
 - 3. Thickness: As indicated.
 - 4. Depth: 3-5/8" unless otherwise indicated.
 - 5. Depth: 6" where indicated.
 - 6. Depth: As indicated.
- C. Deflection Track: Manufacturer's top runner complying with the requirements of ASTM C 645 and with 2" deep flanges for non-fire rated partitions where indicated on plans.
- D. Deflection and Firestop Track: Top runner designed to allow partition heads to expand and contract with movement of structure above while maintaining continuity of the assembly. Comply with requirements of ASTM C 645 except configuration, of thickness indicated for studs and width to accommodate depth of studs indicated with

h flanges offset at midpoint to accommodate gypsum board thickness. For fire rated partitions:

1. Offset Configuration: Shadow-line design with offset projecting out from depth of stud.
 2. Available Product: Subject to compliance with requirements, a product that may be incorporated in the Work includes, but is not limited to, "Fire Trak" manufactured by Fire Trak Corp. Furnish Fire Track-Slip Clips.
- E. Steel Rigid Furring Channels: ASTM C 645, hat shaped, depth and minimum thickness of base (uncoated) metal as follows:
1. Thickness: 25 ga. unless otherwise indicated.
 2. Depth: 7/8", 1-1/2", or as indicated on Drawings.
- F. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.
- G. Drywall Control Joint: CEMCO 093 zinc control joint 7/16" deep with 1/4 opening control joint. Use where control joint is required in drywall walls and ceilings. Install at door and window heads locations susceptible to cracking.
- H. Drywall Ceiling Suspension System: Chicago Metallic Drywall Grid 640 from Rockfon. Provide fasteners, accessory pieces, wall angles and channels as required for complete installation.

2.02 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board in widths of 48" and in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
- B. Gypsum Wallboard: ASTM C1396/C1396M and as follows:
1. Type: Regular for vertical surfaces, unless otherwise indicated.
 2. Type: Type X where required for fire-resistance-rated assemblies.
 3. Edges: Tapered.
 4. Thickness: 5/8" or as noted on the drawings.
- C. Gypsum Board Base Layer(s) for Multi-layer Applications: Gypsum wallboard, ASTM C1396/C1396M. Regular 5/8" thick for vertical surfaces, unless otherwise indicated.
- D. Moisture and Mold-Resistant Gypsum Board: ASTM C 1396/C1396M, with moisture and mold resistant core and paper surfaces.
1. Type: Georgia Pacific Gypsum Toughrock Mold-Guard Gypsum Board.
 2. Type: X where required for fire-resistance related assemblies.
 3. Edges: Tapered.

4. Thickness: 5/8" or as noted on the Drawings.
 5. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- E. Impact Resistant Gypsum Board: ASTM C1629.
1. Type: Georgia Pacific Gypsum, DensArmor Plus Abuse-Resistant Panel
 2. Edges: Tapered
 3. Thickness: 5/8"

2.03 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047. Formed steel sheet zinc coated by hot-dip process or rolled zinc.
1. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Cornerbead on outside corners, unless otherwise indicated.
 - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
 - c. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

2.04 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
- C. Joint Tape for Cementitious Backer Units: As recommended by cementitious backer unit manufacturer.
- D. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
1. Ready-Mixed Formulation: Factory-mixed product.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.

2.05 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834 and the following requirements:
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

2.06 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.
- C. Steel drill screws complying with ASTM C 1002 for the following applications:
 - 1. Fastening gypsum board to steel members less than 0.033" thick.
 - 2. Fastening gypsum board to wood members.
 - 3. Fastening gypsum board to gypsum board.
- D. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033" to 0.112" thick.
- E. Steel drill screws of size and type recommended by unit manufacturer for fastening cementitious backer units.
- F. Gypsum Board Nails: ASTM C514.
- G. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
 - 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
 - 2. Where partition framing and wall furring abut structure, except at floor.
 - a. Install deflection track top runner to attain lateral support and avoid axial loading for non-rated assemblies.
 - b. Install deflection and firestop track top runner at fire-resistance-rated assemblies where indicated. Attach jamb studs at openings to tracks using manufacturer's standard stud clip.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.03 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction. Where studs are installed directly against exterior walls, install asphalt felt strips or foam gaskets between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8" from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 - 1. Cut studs 1/2" short of full height to provide perimeter relief.
 - 2. For STC-rated and fire-resistance-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.

- D. Install steel studs and furring in sizes and at spacings indicated.
 - 1. Single-Layer Construction: Space studs 16" o.c., unless otherwise indicated.
 - 2. Multi-layer Construction: Space studs 24" o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
- F. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs. Install two studs at each jamb, unless otherwise indicated. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2" clearance from jamb stud to allow for installation of control joint.
- G. Frame openings, other than door openings, to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.

3.05 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
- B. Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16" of open space between panels. Do not force into place.
- D. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
- E. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- F. Attach gypsum panels to framing provided at openings and cutouts.
- G. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Instead, float gypsum panels over these members using resilient channels or provide control joints to counteract wood shrinkage.
- H. Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32" wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.

- I. Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels. Maximum spacing between control joints shall not exceed 30'-0".
- J. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect open concrete coffer, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffer, joists, and other structural members; allow 1/4" to 3/8" wide joints to install sealant.
- K. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4"- to 1/2" wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations. Space screws a maximum of 12" o.c. for vertical applications.

3.06 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application: Install gypsum wallboard panels as follows:
 - 1. On furredowns, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints. Stagger abutting end joints not less than one framing member in alternate courses of board.
- B. Multi-layer Application on Partitions/Walls: Apply gypsum board indicated for base layers and gypsum wallboard face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints. Stagger joints on opposite sides of partitions.
- C. Single-Layer Fastening Methods: Apply gypsum panels to supports by fastening with screws.
- D. Multi-layer Fastening Methods: Apply base layers of gypsum panels and face layer to base layers by fastening both base layers and face layers separately to supports with screws.

3.07 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install cornerbead at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
- D. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by Architect for visual effect.

3.08 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
- B. Apply joint tape at joints between gypsum boards, except where a trim accessory is indicated.
- C. Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Pre-fill open joints and rounded or beveled edges, using type of compound recommended by manufacturer.
- D. Apply joint compound in 3 coats (not including pre-fill of openings in base), and sand between last 2 coats and after last coat.
- E. For treatment of joints in glass mat, water-resistant gypsum board, comply with directions of gypsum board manufacturer.
- F. Finish cementitious backer units to comply with unit manufacturer's directions.
- G. Joints in partitions which are above ceilings shall be taped and made smoke tight.

3.09 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION

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