

GYPSUM BOARD SYSTEMS**SECTION 09260****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Metal stud wall framing.
- B. Gypsum board; water-resistant gypsum backing board where indicated on the drawings..

1.02 RELATED SECTIONS

- A. Section 05400 - Metal framing 18 gauge and heavier.
- B. Section 06100 - Carpentry: Wood blocking.
- C. Section 09900 - Painting: Surface finish.

1.03 REFERENCES

- A. ASTM C36 - Gypsum Wallboard
- B. ASTM C79 - Gypsum Sheathing Board
- C. ASTM C442 - Gypsum Backing Board and Core Board
- D. ASTM C645 - Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.
- E. ASTM C754 - Installation of Framing Members to Receive Screw Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.
- F. ASTM C840 - Application and Finishing of Gypsum Board
- G. ASTM C1002 - Steel Drill Screws for the Application of Gypsum Board
- H. GA-201 - Gypsum Board for Walls and Ceilings
- I. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on metal framing, gypsum board, profiled trim, and joint tape and compound.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with GA-216 and GA-600.
- B. Maintain one copy of each document on site.
- C. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.
- D. Single-Source Responsibility for Panel and Finishing Products: Obtain each type of gypsum board and finishing panel products from a single manufacturer.
- E. Provide framing to limit deflection to $L/240$ at 5 psf interior load with no change of indicated stud depth or spacing and height indicated on the Drawings.

1.06 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section with minimum five (5) years documented experience.

1.07 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.
- C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.08 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C840 and with gypsum board manufacturer's recommendations.
- B. Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40°F (4°C). For adhesive attachment and finishing of gypsum board, maintain not less than 50°F (10°C) for 48 hours prior to application and continuously after until dry. Do not exceed 95°F (35°C) when using temporary heat sources.
- C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS**2.01 PARTITION AND WALL FRAMING MATERIALS**

- A. Steel Studs and Runners: Galvanized members, ASTM C645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 - 1. Thickness: 25 gauge except 20 gauge at door jambs and at cement backing board applications.
 - 2. Depth: As indicated.
- B. Steel Rigid Furring Channels: ASTM C645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
 - 1. Depth: 7/8 inch unless otherwise indicated.
 - 2. Thickness: 25 gauge.
- C. 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 and ASTM C514, C1002, and GA-216.

2.02 GYPSUM BOARD MATERIALS

- A. Gypsum Board: ASTM C36; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges; Type X all locations.
- B. Thickness: Provide gypsum board in thicknesses indicated or, if not otherwise indicated, in either 1/2 inch or 5/8 inch thicknesses to comply with ASTM C840 for application system and support spacing indicated.
- C. Water Resistant Gypsum Type: Comply with ASTM C630 and provide where gypsum board is a substrate for wallcovering; provide standard taper long-edge profile.

2.03 ACCESSORIES

- A. Accessories for Interior Installation: Corner beads, edge trim and control joints complying with ASTM C1047 and shall be sheet steel coated with zinc by hot-dip or electrolytic processes.
- B. Shapes indicated below by reference to Fig. 1 designations in ASTM C1047:
 - 1. Cornerbead on outside corners, unless otherwise indicated.
 - 2. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.

3. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
 4. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.
- C. Joint Materials: ASTM C475; GA 201 and GA 216; reinforcing tape, joint compound, adhesive and water.
- D. Fasteners: ASTM C1002, Type S12, W and GA-216.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that site conditions are ready to receive work and opening dimensions are as instructed by the manufacturer.

3.02 METAL WALL FRAMING INSTALLATION

- A. Install framing in accordance with ASTM C754 and C840, GA-201, GA-216, and GA-600.
- 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 "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
1. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.
- D. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.
- E. Install steel studs and furring in sizes and at spacings indicated, but not less than that required by the referenced steel framing installation standard, to comply with maximum deflection and minimum loading requirements specified.
- F. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.
- G. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attached 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. Use 20 gauge studs at openings.

- H. Extend stud framing of partitions through the ceiling to the structure above where shown or indicated. Maintain clearance under structural building members to avoid deflection transfer to studs.
- I. Blocking: Nail wood blocking to studs. Bolt or screw steel channels to studs. Install blocking for support of casework and countertops.
- J. Where partition and wall framing abuts overhead structure.
 - 1. Provide stud manufacturers standard slip type joints with double track at head, one secured to structure and other placed to slip within the track so no direct contact with structure will prevent any damage due to deflection and will also attain lateral support and avoid axial loading of the structure transferring to the partition.

3.03 WALL FURRING INSTALLATION

- A. Erect wall furring for direct attachment to solid back-up walls.
- B. Erect furring channels horizontally; space maximum 16 inches on center, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.

3.04 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in accordance with ASTM C840, GA-201, GA-216 and GA-600.
- B. Install wall/partition board panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board. At stairwells and other high walls, install panels horizontally with end abutting joints over studs and staggered.
- 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 inch 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. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Avoid joints at corners of framed openings where possible.
- E. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.

- F. Use screws when fastening gypsum board to metal furring or framing.
- G. Install edge trim where edge of gypsum panels would otherwise be exposed or semi-exposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
 - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
 - 2. Install L-bead where edge trims can only be installed after gypsum panels are installed.
- H. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
- I. At areas indicated for wallcovering, install water resistant gypsum board complying with ASTM C840. Apply horizontally with uncut edge at bottom or work, 1/4 inch above fixture lip. Seal cut edges of each piece with water resistant sealant before installation and seal around pipe penetrations and similar cut-outs in each sheet.

3.05 JOINT TREATMENTS

- A. Tape, fill and sand joints, edges, and corners to produce specified surface finish, ready to receive finishes where indicated on the drawings, and as follows in accordance with ASTM C840 and GA-214:
 - 1. Level 1: At ceiling plenum areas and concealed areas, embed tape at joints, unless a higher level finish is required for fire-resistant rated assemblies and sound-rated assemblies.
 - 2. Level 2: At panels that are substrates for tile finish and acoustical tiles, embed tape and apply separate first coat of joint compound to tape, fasteners and trim flanges.
 - 3. Level 3: Where indicated or required by indicated assembly, embed tape and apply separate first and fill coats of joint compound to tape, fasteners and trim flanges.
 - 4. Level 4: Where panels are exposed to view including panels to receive wallcovering, embed tape and apply separate first, fill and finish coats of joint compound to tape, fasteners, accessories and trim flanges. Touch up and sand between coats and after last coat as needed to produce a continuous smooth surface free of visual defects and ready to receive indicated finish.
 - 5. Level 5: Where indicated on the drawings and/or specified herein, embed tape and apply separate first fill and finish coats of joint compound to tape, fasteners, accessories and trim flanges. Additionally, apply a thin, uniform skim coat of joint compound over entire surface. For skim coat, use finish coat joint compound or Tuff- Hide by U.S. Gypsum spray applied, for smooth finish with no evidence of substrate joints. Touch up and sand between coats and after last coat as needed to produce a continuous smooth surface free of visual defects and ready to receive indicated finish.
 - 6. At partition indicated with sound blankets and/or STC rating, tape and float all joints full height of partitions.

7. At exterior walls, tape and float all joints full height of wall whether receiving finishes or not.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

3.11 TOLERANCES

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

END OF SECTION



SUSPENDED ACOUSTICAL CEILINGS**SECTION 09511****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system and perimeter trim.
- B. Acoustical panels, square edge.

1.02 RELATED SECTIONS

- A. Division 15 : Air diffusion devices in ceiling system.
- B. Division 16: Light fixtures in ceiling system.

1.03 REFERENCES

- A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- C. ASTM E1264 - Classification of Acoustical Ceiling Products.
- D. Ceilings and Interior Systems Contractors Association CISCA - Acoustical Ceilings: Use and Practice.
- E. UL - Fire Resistance Directory and Building Material Directory.

1.04 SYSTEM DESCRIPTION

- A. Suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to system.
- C. Product Data: Provide data on metal grid system components and acoustical units.
- D. Samples: Submit two samples full size illustrating material and finish of acoustical units.
- E. Samples: Submit two samples each, 12 inches long, of suspension system main runner, cross runner and edge trim.
- F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.06 QUALIFICATIONS

- A. Grid Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assembly and combustibility requirements for materials.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Maintain uniform temperature of minimum 60 degrees F, 16 degrees C, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.09 SEQUENCING

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Install acoustical units after interior wet work is dry.

1.10 EXTRA MATERIALS

- A. Furnish under provisions of Section 01700.
- B. Provide 5 percent of total acoustical unit area of extra panels to Owner.

PART 2 - PRODUCTS

2.01 METAL SUSPENSION SYSTEM MATERIALS

- A. Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated.
- C. Attachment Devices: Size for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
 - 1. Corrosion Protection: Carbon steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC service condition (mild).
- D. Wire Hangers, Braces and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated Carbon Steel Wire: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper.
 2. Size: Select wire diameter so that its stress at 3 times the hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than the yield stress of wire, but provide not less than 0.106 inch (2.69 mm) diameter wire.
- E. Sheet Metal Edge Moldings and Trim: Type and profile indicated, or if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
- F. Steel Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from prepainted or electrolytic zinc-coated, cold-rolled steel sheet, with prefinished metal caps on flanges; other characteristics as follows:
1. Structural Classification: Intermediate-duty system.
 2. End Condition of Cross Runners: Override (stepped) type.
 3. Cap Material and Finish: Steel sheet painted white.
 4. Face Width: 15/16".
- G. Accessories: Stabilizer bars, clips, splices, edge moldings, hold down clips as required for suspended grid system.
- H. Support Channels and Hangers: Galvanized steel; size and type to suit application, and ceiling system flatness requirement specified.

2.02 MANUFACTURERS - ACOUSTICAL UNITS

- A. Acoustical Panels: ASTM E1264, Type 3, Form 2, Class 25 conforming to the following:
1. Size: 24 x 24 inches.
 2. Thickness: 5/8 inches.
 3. Composition: Mineral.
 4. Light Reflectance: .85 percent.
 5. NRC Range: .50 to .60.
 6. CAC Range: 35.
 7. Surface Burring Characteristics: Class A.
 8. Edge: Square.
 9. Surface Color: White.
 10. Surface Finish: Non-directional fine fissured pattern equal to "Minaboard Fine Fissure #1729, HumiguardPlus" by Armstrong and approved "ClimaPlus" by US Gypsum.
 11. Warranty: 15 years with no visible sag at 104 degrees F/95% relative humidity

2.03 ACCESSORIES

- A. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636 manufacturer's instructions and as supplemented in this section.
- B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
 - 1. Space hangers not more than 16" at end and 48" between each runner.
- C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- D. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- E. Supply hangers or inserts for installation to Section with instructions for their correct placement.
- F. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of the supporting structure or of the ceiling suspension system.
- G. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- H. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three (3) tight turns. Connect hangers either directly to structures or to inserts, eye screws, or other devices that are secure, that are appropriate for substrate, and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
- I. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- J. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- K. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- L. Do not eccentrically load system, or produce rotation of runners.
- M. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.

1. Screw attach moldings to substrate at intervals not over 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.18 mm in 3.66 m). Miter corners accurately and connect securely.
 2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- N. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

3.03 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
 1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
- C. Install units after above ceiling work is complete.
- D. Install acoustical units level, in uniform plane, and free from twist, warp and dents.
- E. Cut panels to fit irregular grid and perimeter edge trim.
- G. Coordinate insulation and other components as part of fire rated assembly.

3.04 ERECTION TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION



