

## SECTION 09 22 00

### SUPPORTS FOR PLASTER AND GYPSUM BOARD

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Metal stud system.
- B. Ceiling suspension system.
- C. Metal furring.

##### 1.02 RELATED SECTIONS

- A. Cold-formed lightgage metal structural framing (16 and 18 gage studs and joists) is specified in Section 05 40 00 - Cold-Formed Metal Framing.
- B. Gypsum wallboard is specified in Section 09 29 00 - Gypsum Board.

##### 1.03 MEASUREMENT AND PAYMENT

- A. General: Metal support systems for gypsum drywall construction will not be measured separately for payment but will be paid for as part of the Contract lump sum price for Architectural Work.

##### 1.04 REFERENCES

- A. American Society of Civil Engineers (ASCE):
  - 1. ASCE 7 Minimum Design Loads for Buildings and Other Structures
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C645 Specification for Non-Load Bearing (Axial) Steel Studs, Runners (Tracks), and Rigid Furring Channels for Screw Application of Gypsum Board
  - 2. ASTM C754 Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
  - 3. ASTM C1002 Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases
  - 4. ASTM E497 Practice for Installing Sound-Isolating Lightweight Partitions

##### 1.05 REGULATORY REQUIREMENTS

- A. In addition to the foregoing referenced standards, the regulatory requirements which govern the work of this Section include the following governing code:

1. California Code of Regulations (CCR), Title 24, Part 2, California Building Code, Chapters 25 and 25A, "Gypsum Board and Plaster."

**1.06 SUBMITTALS**

- A. Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Submit manufacturer's product data for ceiling suspension systems, including details of seismic bracing.

**1.07 QUALITY ASSURANCE**

- A. Installation: Comply with the applicable requirements of ASTM C754.
- B. Deflection: Unless otherwise indicated, allowable design deflection shall be L/360, based on requirements of ASCE 7.

**PART 2 - PRODUCTS**

**2.01 METAL STUD SYSTEM**

- A. Studs: Typically 20 gage, 22 gage, and 25 gage as indicated, galvanized punched "C" or channel studs, of sizes indicated, conforming to ASTM C645. Furnish studs with punch-outs for pipes and conduits and with provision for interlocking a 1-1/2 inch reinforcing channel. Furnish bridging, extension splice plates, and channel reinforcing as required for a complete installation.
- B. Floor and Ceiling Tracks: Unpunched channels of the same size and type as required for the studs installed therein, and of the same metal gage as studs.
- C. Bolts: 1/4-inch diameter galvanized steel machine bolts. Provide galvanized washers for bolt heads and nuts.
- D. Powder-Driven Fasteners: Low-velocity powder-driven fasteners, 1/4-inch or 3/8-inch diameter, with penetration of 3/4 inch, may be used for attaching floor and ceiling tracks in lieu of anchor bolts. Use washers with all inserts. Powder-driven fasteners will not be permitted for use on concrete curbs, at rough openings, along the edge of concrete or a concrete joint, or for penetrating metal decking.
- E. Expansion Bolts: Galvanized expansion type anchors with matching galvanized bolts, minimum 1/4-inch diameter, may be used for attaching floor and ceiling tracks in lieu of anchor bolts. Use washers under all bolt heads and nuts. Expansion bolts shall be located at least 4 inches from the edges or corners of concrete. Use of expansion bolts requires prior approval of the Engineer.
- F. Screws: Screws for securing splice plates to studs and stud legs to tracks and at other locations as required shall be Phillips-head, Type S, contoured, self-drilling, self-tapping, steel drywall screws, conforming to ASTM C1002, of required lengths.
- G. Backing Plates: Minimum 16 gage galvanized steel, 4 inches or more in height, and in lengths as required to span two or more stud spacings.

- H. Sealant: Provide interior sealant for floor and ceiling track beads at acoustical walls and partitions and other locations where indicated, meeting requirements specified in Section 07 90 00 - Joint Protection, for the location.
- I. Miscellaneous Items: Provide such miscellaneous components, channels, angles, bracing, hangers, and wire as required to complete the installation. Include proper type cell or flute closures for metal decking where partitions extend to underside of floor or roof decking above.

## **2.02 CEILING SUSPENSION SYSTEM**

- A. Field-Fabricated Ceiling Suspension System:
  - 1. Carrying Channels: Standard structural steel channels, hot-dipped galvanized, typically 1-1/2 inch section with flanges not less than 7/16-inch wide, weighing not less than 486 pounds per 1000 linear feet.
  - 2. Hanger Wires: Soft steel wire not less than 0.1620-inch nominal diameter (8 or 9 gage) with Class 2 zinc coating.
  - 3. Turnbuckles: Zinc-coated steel or wrought iron turnbuckles with hook and hook-end pulls.
  - 4. Furring Channels: 25 gage, electro-galvanized, roll-formed steel, hat- or trough-shaped channels, 7/8-inch deep, conforming to ASTM C645.
  - 5. Clips: Standard product of the gypsum board manufacturer, manufactured specifically for the purpose of fastening furring channels to carrying channels, of size required for size of carrying channels.
- B. Manufactured Ceiling Suspension System: The Contractor may provide a proprietary manufactured ceiling suspension system meeting indicated requirements, furnished complete with all components, anchors, fasteners, and accessories as required for a complete and finished installation.

## **2.03 METAL FURRING**

- A. 25 gage, electro-galvanized, standard drywall furring channels, hat- or trough-shaped furring channels, or z-furring channels, as indicated or required, conforming to ASTM C645.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Installation Standards: For details not indicated, comply with applicable requirements of the California Building Code, Chapter 25, and ASTM C754. For installation of framing for acoustical or sound-retardant partitions, comply with applicable requirements of ASTM E497.
- B. Metal Stud Systems:
  - 1. Provide tracks as continuous top and bottom supports and anchors for all studs. Apply two parallel continuous beads of acoustical sealant under each floor and ceiling track at sound-insulated partitions.

2. Install powder-driven fasteners in accordance with the fastener manufacturer's installation instructions and recommendations. Maximum penetration in post-tensioned slabs: 3/4 inch.
3. Install expansion bolts, where approved for use, in snug-fitting, smoothly drilled holes in accordance with the expansion-bolt manufacturer's installation instructions and recommendations. Anchors require specific acceptance by the Engineer before they may be used in post-tensioned slabs.
4. Locate and align floor tracks accurately. Secure to floor with anchor bolts, powder-driven fasteners, or expansion bolts at 24 inches on centers and not less than 6 inches from ends of each piece of floor track. Install anchors with washers.
5. Align ceiling tracks accurately by plumbing up from floor tracks. Fasten to structure above as specified for floor tracks for concrete or metal-deck soffits or as required by the type of construction. Provide bracing as required when tracks parallel ceiling furring channels.
6. Install metal studs in floor and ceiling tracks at a maximum spacing of 24 inches on center, unless indicated otherwise, and attach to tracks with screws or appropriate clips. Spliced studs will not be permitted.
7. Provide bridging between all studs as recommended by the manufacturer and as required by applicable codes.
8. Frame door jambs with two nested channel studs or 16 gage steel studs as specified in Section 05 40 00 - Cold-Formed Metal Framing. Install reinforcing channels above headers, carried to the second stud past each jamb member. Carry jamb members full height to structure above, unless indicated otherwise.
9. Install backing plates and reinforcing of the various types indicated or required for the mounting of all items on or in partitions, walls, or shafts. Exact position of backing work shall be as designated by the trade whose work will be fastened thereto. The end result shall be that all items attached to or in gypsum board surfaces shall be firmly and solidly mounted.
10. Frame all openings in partitions with stud sections or sills and header members. Secure stud sections or sills and header members, by screws, bolts, rivets, or welding as required.
11. Provide any miscellaneous steel sections indicated or required to complete the Work.
12. Erection technique shall result in plumb and straight walls with no waves or buckles or unevenness at joints. Finished walls shall be flat within plus or minus 1/8 inch in 8 feet when checked in any direction with an 8-foot straightedge and plumb to within plus or minus 1/8 inch.

C. Ceiling Suspension System, Field Fabricated or Manufactured System:

1. Install ceiling suspension system, hanger wires, carrying channels, and furring channels, as indicated and in accordance with the component manufacturer's installation instructions and detail drawings.

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2. Unless otherwise indicated, maximum spacing for hanger wires and carrying channels shall be 4 feet on centers.
  3. Fasten hanger wires securely to the structure above with proper anchors as recommended by the suspension system components' manufacturer and as required to meet applicable code requirements.
  4. Locate main runners (carrying channels) within 6 inches of parallel walls and cut them short of abutting walls 1/2 inch.
  5. Space furring channels 24 inches on center, unless indicated otherwise. Fasten furring channels to main runners with clips manufactured for the purpose.
  6. Provide support bracing, diagonal bracing, reinforcing, anchors and fasteners, channels, and any other miscellaneous components as indicated or required for a complete installation and as necessary to meet seismic requirements.
  7. At completion, ceiling systems shall be level in all directions within plus or minus 1/8 inch when checked with a transit or water level.
- D. Furring on Concrete and Masonry: Fasten hat-shaped or Z-type drywall furring channels securely to concrete and masonry with concrete nails, powder-driven fasteners, or expansion bolts in accordance with the drywall material manufacturer's instructions and recommendations. Concrete nails shall penetrate concrete a minimum of one inch. Nails, fasteners, or expansion bolts shall be installed with washers.

**END OF SECTION 09 22 00**