

## **SECTION 092216 - NON-STRUCTURAL METAL FRAMING**

### **PART 1 - GENERAL**

#### **0.1 SUMMARY**

- A. Section Includes:
  - 1. Non-load-bearing steel framing systems for interior partitions.
  - 2. Suspension systems for interior ceilings and soffits.
  - 3. Grid suspension systems for gypsum board ceilings.

#### **0.2 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

#### **0.3 INFORMATIONAL SUBMITTALS**

- A. Evaluation Reports: For embossed steel studs and runners and firestop tracks, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

### **PART 2 - PRODUCTS**

#### **0.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. CEMCO; California Expanded Metal Products Co.
  - 2. ClarkDietrich Building Systems.
  - 3. Marino\WARE.

#### **0.2 PERFORMANCE REQUIREMENTS**

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft. (239 Pa).

#### **0.3 FRAMING SYSTEMS**

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized unless otherwise indicated.

- B. Studs and Runners: ASTM C 645. Use either steel studs and runners or embossed steel studs and runners.
- a. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection.
  - b. Depth: 3-5/8 inches (92 mm), unless otherwise indicated.
2. Embossed Steel Studs and Runners:
- a. Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements.
  - b. Depth: 3-5/8 inches (92 mm), unless otherwise indicated.
- C. Slip-Type Head Joints: For top-track interface (head joint), provide the following:
1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BlazeFrame Industries.
    - b. CEMCO; California Expanded Metal Products Co.
    - c. Fire Trak Corp.
    - d. Metal-Lite; The System.
    - e. Steel Network, Inc. (The).
- E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base-Metal Thickness: 0.0296 inch (0.752 mm).
- F. Cold-Rolled Channel Bridging: Steel, 0.0538-inch (1.367-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
1. Depth: 1-1/2 inches (38 mm) unless otherwise indicated.
  2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch- (1.72-mm-) thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Minimum Base-Metal Thickness: 0.0296 inch (0.752 mm).
  2. Depth: As indicated on Drawings.
- H. Cold-Rolled Furring Channels: 0.053-inch (1.34-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
1. Depth: 3/4 inch (19 mm) unless otherwise indicated.
  2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch (0.8 mm).

3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- I. Resilient Sound Isolation Wall Clips: 1-inch (25-mm) deep molded neoprene shapes to engage hat-shaped furring channels, with metal ends and screw fasteners for anchoring to substrate; designed to reduce sound transmission by isolating furring from supports.
  1. Basis-of-Design Product: Kinetics Noise Control, Dublin OH (614-889-0480, [www.kineticsnoise.com](http://www.kineticsnoise.com)); Model IsoMax.

#### 0.4 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- B. Hanger Attachments to Concrete:
  1. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488/E 488M conducted by a qualified testing agency.
  2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch (4.12 mm) in diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25 by 5 mm) by length indicated.
- E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.367 mm) and minimum 1/2-inch- (13-mm-) wide flanges.
  1. Depth: 2-1/2 inches (64 mm), unless otherwise indicated.
- F. Furring Channels (Furring Members):
  1. Cold-Rolled Channels: 0.0538-inch (1.367-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges, 3/4 inch (19 mm) deep.
  2. Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.0296 inch (0.752 mm), 20 gauge.
    - b. Depth: 3-5/8 inches (92 mm), unless otherwise indicated.
  3. Embossed Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.0190 inch (0.483 mm).
    - b. Depth: 3-5/8 inches (92 mm), unless otherwise indicated.
  4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22 mm) deep.
    - a. Minimum Base-Metal Thickness: 0.0296 inch (0.752 mm).

- G. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Armstrong World Industries, Inc.
    - b. Chicago Metallic Corporation.
    - c. United States Gypsum Company.

#### 0.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
  - 1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.
  - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

### PART 3 - EXECUTION

#### 0.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

#### 0.2 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Stud Spacing: 16 inches (406 mm) o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.

- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb unless otherwise indicated.
    - b. If control joints are indicated or required at heads of doors, install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Install to maintain continuity of fire-resistance-rated assembly indicated.
  5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
1. Screw to wood framing.
  2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

### 0.3 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system

members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

- a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
- 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- 5. Do not attach hangers to steel roof deck.
- 6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
- 7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
- 8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION