# SECTION 092216 - NON-STRUCTURAL METAL FRAMING

**TIPS:**

To view non-printing **Editor's Notes** that provide guidance for editing, click on Masterworks/Single-File Formatting/Toggle/Editor's Notes.

To read **detailed research, technical information about products and materials, and coordination checklists**, click on Masterworks/Supporting Information.

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### 1.2 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.

B. Related Requirements:

1. Section 054000 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Studs and Runners: Provide documentation that framing members' certification is according to CSSA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members."

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For [**Engineered high strength steel equivalent steel studs and runners**] [**firestop tracks**], from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 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**] [**1/360**] of the wall height based on horizontal loading of [**5 lbf/sq. ft. (239 Pa)**] [**10 lbf/sq. ft. (480 Pa)**].

2.2 FRAMING SYSTEMS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than [**25**] <**Insert value**> percent.

B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM A 1103 requirements for metal unless otherwise indicated.
2. Protective Coating: [**ASTM A 653/A 653M, G40 (Z120)**] [**ASTM A 653/A 653M, G60 (Z180)**], hot-dip galvanized unless otherwise indicated.

C. Studs and Runners: ASTM C 645.[ **Use either conventional thickness ViperStud steel studs and runners or ViperStud engineered high strength drywall Studs (Viper25 & Viper20)**

**steel studs and runners**] [**or**] [**Marino\WARE proprietary StudRite Steel Framing (with continuous triangular lip reinforced knockouts)**].

1. Steel Studs and Runners:

   a. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; [**Viper20**] [**Viper25**], ViperStud Drywall Framing or comparable product by one of the following:

      1) CEMCO; California Expanded Metal Products Co.
      2) Telling Industries.
      3) <**Insert manufacturer's name**>.

   b. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**As required by performance requirements for horizontal deflection**] [**0.0147 inch (0.37 mm)**] [**0.0195 inch (0.50 mm)**] [**0.0209 inch (0.53 mm)**].

   c. Depth: [**As indicated on Drawings**] [**3-5/8 inches (92 mm)**] [**6 inches (152 mm)**] [**4 inches (102 mm)**] [**2-1/2 inches (64 mm)**] [**1-5/8 inches (41 mm)**].

2. Engineered High Strength Equivalent Gauge Steel Studs and Runners:

   a. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; ViperStud or comparable product by one of the following:

      1) CEMCO; California Expanded Metal Products Co.
      2) Phillips Manufacturing Co.
      3) Telling Industries.
      4) <**Insert manufacturer's name**>.

   b. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**As required by horizontal deflection performance requirements**] [**0.0147 inch (0.373 mm)**] [**0.0190 inch (0.483 mm)**] **<Insert thickness>**.

   c. Depth: [**As indicated on Drawings**] [**3-5/8 inches (92 mm)**] [**6 inches (152 mm)**] [**4 inches (102 mm)**] [**2-1/2 inches (64 mm)**] [**1-5/8 inches (41 mm)**].

D. Slip-Type Head Joints: Where indicated, provide[ **one of**] the following:

1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to runners while allowing [**1-1/2-inch (38-mm)**] [**2-inch (51-mm)**] [**2-1/2-inch (64-mm)**] [**3-inch (76-mm)**] **<Insert dimension>** minimum vertical movement.

   a. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; Deflex (WSC) or comparable product by one of the following:

      1) CEMCO; California Expanded Metal Products Co.
      2) Steel Network, Inc. (The).
      3) <**Insert manufacturer's name**>.

2. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (51-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
3. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (51-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
4. 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.

    a. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; [**FAS Track**] [**or**] [**SLT Slotted Track**] or comparable product by one of the following:

        1) Blazeframe Industries.
        2) CEMCO; California Expanded Metal Products Co.
        3) ClarkDietrich Building Systems.
        4) Metal-Lite.
        5) Perfect Wall, Inc.
        6) Steel Network, Inc. (The).
        7) Telling Industries.
        8) <**Insert manufacturer's name**>.

E. 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. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; FAS Track or comparable product by one of the following:

    a. Blazeframe Industries.
    b. CEMCO; California Expanded Metal Products Co.
    c. ClarkDietrich Building Systems.
    d. Fire Trak Corp.
    e. Metal-Lite.
    f. Perfect Wall, Inc.
    g. Steel Network, Inc. (The).
    h. <**Insert manufacturer's name**>.

F. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE or comparable product by one of the following:

    a. CEMCO; California Expanded Metal Products Co.
    b. Telling Industries.
    c. <**Insert manufacturer's name**>.

2. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**0.0179 inch (0.455 mm)**] [**0.0269 inch (0.683 mm)**] [**0.0296 inch (0.752 mm)**] [**0.0329 inch (0.836 mm)**] <**Insert thickness**>.

G. 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. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE or comparable product by one of the following:

a. CEMCO; California Expanded Metal Products Co.
b. Telling Industries.
c. <**Insert manufacturer's name**>.

2. Depth: [**As indicated on Drawings**] [**1-1/2 inches (38 mm)**] <**Insert depth**>.

3. 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.

H. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE or comparable product by one of the following:

a. CEMCO; California Expanded Metal Products Co.
b. Telling Industries.
c. <**Insert manufacturer's name**>.

2. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**0.0179 inch (0.455 mm)**] [**0.0296 inch (0.752 mm)**] [**0.0329 inch (0.836 mm)**] <**Insert thickness**>.

3. Depth: [**As indicated on Drawings**] [**7/8 inch (22.2 mm)**] [**1-1/2 inches (38 mm)**].

I. Resilient Furring Channels: 1/2-inch- (13-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE; [**RC1**] [**or**] [**RC-Max**] or comparable product by one of the following:

a. CEMCO; California Expanded Metal Products Co.
b. Telling Industries.
c. <**Insert manufacturer's name**>.

2. Configuration: [**Asymmetrical**] [**or**] [**hat shaped**].

J. Cold-Rolled Furring Channels: 0.053-inch (1.34-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges.

1. Depth: [**As indicated on Drawings**] [**3/4 inch (19 mm)**] <**Insert depth**>.
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.

K. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 7/8 inch (22 mm), minimum uncoated-metal thickness of 0.0179 inch (0.455 mm), and depth required to fit insulation thickness indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marino\WARE or comparable product by one of the following:

a. CEMCO; California Expanded Metal Products Co.
b. Telling Industries.
c. <**Insert manufacturer's name**>.

## 2.3 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, [**in size indicated on Drawings**] [**1 by 3/16 inch (25 by 5 mm) by length indicated**] <**Insert size**>.

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: [**As indicated on Drawings**] [**2-1/2 inches (64 mm)**] [**2 inches (51 mm)**] [**1-1/2 inches (38 mm)**].

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: [**As indicated on Drawings**] [**0.0179 inch (0.455 mm)**] [**0.0269 inch (0.683 mm)**] [**0.0296 inch (0.752 mm)**] [**0.0329 inch (0.836 mm)**].
b. Depth: [**As indicated on Drawings**] [**1-5/8 inches (41 mm)**] [**2-1/2 inches (64 mm)**] [**3-5/8 inches (92 mm)**].

3. Engineered High Strength Steel Equivalent Gauge Steel Studs and Runners: ASTM C 645.

a. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**0.0147 inch (0.373 mm)**] [**0.0190 inch (0.483 mm)**] <**Insert thickness**>.
b. Depth: [**As indicated on Drawings**] [**1-5/8 inches (41 mm)**] [**2-1/2 inches (64 mm)**] [**3-5/8 inches (92 mm)**].

4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22 mm) deep.

a. Minimum Base-Metal Thickness: [**As indicated on Drawings**] [**0.0179 inch (0.455 mm)**] [**0.0296 inch (0.752 mm)**] [**0.0329 inch (0.836 mm)**] <**Insert thickness**>.

5. Resilient Furring Channels: 1/2-inch- (13-mm-) deep members designed to reduce sound transmission.

a. Configuration: [**Asymmetrical**] [**or**] [**hat shaped**].

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.
d. <**Insert manufacturer's name**>.

## 2.4 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

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches (610 mm) o.c.
2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
4. 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.

## 3.4 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. Single-Layer Application: [**As required by horizontal deflection performance requirements**] [**16 inches (406 mm) o.c.**] [**24 inches (610 mm) o.c.**] unless otherwise indicated.
2. Multilayer Application: [**As required by horizontal deflection performance requirements**] [**16 inches (406 mm) o.c.**] [**24 inches (610 mm) o.c.**] unless otherwise indicated.
3. Tile Backing Panels: [**As required by horizontal deflection performance requirements**] [**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. 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: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. Curved Partitions:

    a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
    b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches (150 mm) o.c.

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. Z-Shaped Furring Members:

1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced [**24 inches (610 mm)**] <**Insert dimension**> o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (305 mm) from corner and cut insulation to fit.

G. 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.

## 3.5 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.

1. Hangers: [**48 inches (1219 mm)**] <**Insert dimension**> o.c.
2. Carrying Channels (Main Runners): [**48 inches (1219 mm)**] <**Insert dimension**> o.c.
3. Furring Channels (Furring Members): [**16 inches (406 mm)**] [**24 inches (610 mm)**] <**Insert dimension**> o.c.

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**] **<Insert deflection limit>**.

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**] **<Insert requirements>**.

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)**] **<Insert dimensions>** measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216