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

1. **GENERAL**
	* + 1. **SUMMARY**
				1. Section Includes:

Non-Structural steel framing systems for interior partitions.

*Note to Specifier: Retain the following paragraph if used*

* + - * 1. Related Requirements:

Section 054000 "Cold-Formed Steel Framing" for exterior and interior structural steel framing members.

* + - 1. **SUBMITTALS**
				1. Product Data: For each type of product.

Studs and Runners: Provide documentation that framing members' certification is according to SFIA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members”. SFIA's program certifies that studs and runners comply with the IBC, ASTM C 645, AISI S100, and AISI S220. Mechanical properties, coatings, dimensions, and labeling are checked.

*Note to Specifier: Retain the following paragraph if Buy America Act is part of project requirements*

Provide certification that products were Manufactured in USA and meet the specifications of the Buy America Provision of the American Recovery and Investment Act of 2009 (ARRA)

* + - * 1. Manufacturers’ height limiting tables indicating products provided.
				2. Evaluation Reports: Submit evaluation reports certified under an independent third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98, IAS Accreditation Criteria for Inspection Agencies.
				3. Manufacturer's Certification: Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.

*Note to Specifier retain the following paragraph when Sustainable Design is part of project requirements.*

* + - * 1. Sustainable Design Submittals:

Product Data for Credit MR 4.1 [**and Credit MR 4.2**]: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

Product Data for Credit MR 2.1 [**and Credit MR 2.2**]: For products diverted from disposal in landfills and incinerators, and where recycled resources are directed back to the manufacturing process. Include statement indicating percentage of materials diverted and recycled, and the costs associated with each.

Product Data for Credit MR 5: For products where product manufacturing is within a 500 mile radius of the jobsite and the point of extraction of the raw materials. Include a statement indicating the location and distances for the manufacturing plant and the point of extraction of raw materials in relation to the jobsite location.

*Note to Specifier retain the following paragraph if Building Information Modeling is part of project requirements.*

* + - * 1. Building Information Modeling:

Provide a [3D BIM model of the cold-formed steel framing](https://www.steelsmartsystem.com/steel-smart-framer-light-steel-framing-bim-software/) including all studs, tracks, bridging, and connectors.

* + - * 1. Delegated-Design by Specialty Structural Engineer (SSE). The design professional, individual or organization having responsibility for the design of the specialty items. This responsibility shall be in accordance with the state’s statues and regulations governing the professional registration and certification of architects or engineers.
			1. **QUALITY ASSURANCE**
				1. Provide certification of code compliance with the “Code Compliance Certification Program” implemented by the Steel Framing Industry Association (SFIA).

*Note to Specifier: Retain the following paragraph if ISO 9001 Certification is part of project requirements*

* + - * 1. Provide certification of ISO 9001 “Quality Management System” for manufacturing facility of non-structural steel framing and connectors.
1. **PRODUCTS**
	* + 1. **ACCEPTABLE MANUFACTURERS**
				1. Provide cold-formed steel framing products by The Steel Network, Inc. (TSN) (<https://www.steelnetwork.com/>); or comparable products by one of the Steel Framing Industry Association Members in good standing.
			2. **PERFORMANCE REQUIREMENTS**
				1. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-structural steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by, and displaying a classification label from, an independent testing agency acceptable to the authority having jurisdiction.

Construct fire-resistance rated partitions in compliance with tested assembly requirements [**indicated on drawings**].

Rated assemblies to be substantiated from applicable testing using proposed products, by Contractor.

*Note to Specifier: Retain the following paragraph if STC requirements are required*

* + - * 1. 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.
				2. 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)**].
				3. Design framing systems in accordance with American Iron and Steel Institute Publication S220 “North American Specification for the Design of Cold-Formed Steel Framing – Non-Structural Members”, except as otherwise shown or specified.
				4. Design loads: As indicated on the Architectural Drawings or 5 PSF minimum as required by the International Building Code.
				5. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads with a maximum deflection of <**insert** **number**> inches.
			1. **FRAMING SYSTEMS**

*Note to Specifier: Retain following if required by Sustainable Design*

* + - * 1. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
				2. Framing Members, General:

Protective Coating: Comply with ASTM C 645. Coatings shall have a protective coating meeting the requirements of ASTM A653/A653M, G40, or shall have a protective coating with an equivalent corrosion resistance.

Coatings providing equivalent corrosion resistance to a G40 shall demonstrate equivalent corrosion resistance with an evaluation report acceptable to the authority having jurisdiction.

*Note to Specifier: Any coating other than a G40 coating (such as an AZ-50, GF-30, conversion coating, etc., or any other coating are all considered to provide equivalent corrosion protection and must meet the above provision)*

* + - * 1. Studs and Runners: Comply with manufacturers’ for conditions indicated.

Steel Studs and Runners: SFIA Certified [EQ PrimeWall® Studs](https://www.steelnetwork.com/Product/PrimeWallEQStud) and [EQ PrimeWall® Track](https://www.steelnetwork.com/Product/PrimeWallEQTrack) by The Steel Network, Inc.

Minimum Base-Steel Thickness: indicated in the physical properties table of the submitted manufacturers literature, and cross referenced with the appropriate height determination table to meet required performance.

Depth: As Specified on the Architectural Drawings, and cross referenced with the appropriate height determination table to meet required performance.

Steel Studs and Runners: ASTM C 645 [PrimeWall® Studs](https://www.steelnetwork.com/Product/PrimeWallStud) and [PrimeWall® Track](https://www.steelnetwork.com/Product/PrimeWallTrack) by The Steel Network, Inc..

Minimum Base-Steel Thickness: indicated in the physical properties table of the submitted manufacturers literature, and cross referenced with the appropriate height determination table to meet required performance.

Depth: As Specified on the Architectural Drawings, and cross referenced with the appropriate height determination table to meet required performance.

Opening Jambs: [JamStud®](https://www.steelnetwork.com/Product/JamStud) by The Steel Network, Inc. used to frame single and multiple section jambs, of web depths required, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

* + - * 1. Slip-Type Head Joints: Where indicated, provide **[one of]** the following:

Vertical Deflection Connectors: used to accommodate upward and downward vertical displacement of primary structure through positive mechanical attachment to structure and screw attachment to stud web using break-away bushings or step-bushings to permit frictionless vertical movement. Having a valid ICC ES Report complying with ICC Acceptance Criteria AC261, such as ICC-ESR-2049 or equivalent lab testing:

[VertiClip® SLD](https://www.steelnetwork.com/Product/VertiClipSLD) Interior Head of Wall by The Steel Network, Inc., installed on studs into top runner, no bridging required at top of studs.

[VertiTrak® VTD](https://www.steelnetwork.com/Product/VertiTrackVTD) Interior Head of Wall Preassembled with Runner Track by The Steel Network, Inc., no bridging required at top of studs.

[VertiTrak® VT](https://www.steelnetwork.com/Product/VertiTrackVTD) Interior Head of Wall Slotted Runner Track by The Steel Network, Inc., no bridging required at top of studs.

Drift Connectors: used to accommodate upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to structure and screw attachment to stud web using step-bushings to permit frictionless vertical and horizontal movement. Having a valid ICC ES Report complying with ICC Acceptance Criteria AC261, such as ICC-ESR-2049 or equivalent lab testing:

[DriftClip® DSLD](https://www.steelnetwork.com/Product/DriftClipDSLD) Interior Head of Wall by The Steel Network, Inc., installed on studs into top runner, no bridging required at top of studs.

Single Long-Leg Runner System: top runner with 1.5-inch deep flanges (or as required) in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 18 inches of the top of studs to provide lateral bracing.

Double-Runner System: top runners, inside runner with 1.5-inch deep flanges (or as required) in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.

* + - * 1. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the 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.
				2. Curved Runner Tracks: Top and bottom runner manufactured to use in curved walls and horizontal and vertical arches; in thickness not less than indicated for studs and in width to accommodate depth of studs:

[CircleTrak®](https://www.steelnetwork.com/Product/CircleTrak) Curved Track by The Steel Network, Inc.

* + - * 1. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated; in thickness not less than indicated on drawings.

[BackIt®](https://www.steelnetwork.com/Product/BackIt) Solid Backing by The Steel Network, Inc. to support handrails and wall-mounted shelving.

[NotchTrak®](https://www.steelnetwork.com/Product/NotchTrakNT) Solid Bridging by The Steel Network, Inc.

* + - * 1. Wall Bridging: used to support framing members in weak-axis direction:

[BridgeBar®](https://www.steelnetwork.com/Product/BridgeBar) Bridging Channel by The Steel Network, Inc.

[BuckleBridge®](https://www.steelnetwork.com/Product/BuckleBridge) Solid Bridging by The Steel Network, Inc.

[NotchTrak®](https://www.steelnetwork.com/Product/NotchTrakNT) Solid Bridging by The Steel Network, Inc.

[PrimeWall® Cold-Rolled Channel](https://www.steelnetwork.com/Product/PrimeWallCold-RolledChannel) by The Steel Network, Inc.

* + - * 1. Bridging Connectors: used to secure bridging to studs:

[BridgeClip®](https://www.steelnetwork.com/Product/BridgeClip) Securing Bridging Member by The Steel Network, Inc.

* + - * 1. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

[PrimeWall® Furring Channel (Hat Channel)](https://www.steelnetwork.com/Product/PrimeWallFurringChannel) by The Steel Network, Inc.

Minimum Base-Steel Thickness: **[0.018 inch] [0.0296 inch**].

Depth: [**7/8 inch**][**1-1/2 inches**].

* + - * 1. Resilient Furring Channels: 1/2-inch deep, steel sheet members designed to reduce sound transmission.

[PrimeWall® Resilient Channel](https://www.steelnetwork.com/Product/PrimeWallResilientChannel) by The Steel Network, Inc.

* + - * 1. Carrying Channels: 0.054-inch uncoated-steel thickness, with minimum 1/2-inch wide flanges.

[PrimeWall® Cold-Rolled Channel](https://www.steelnetwork.com/Product/PrimeWallCold-RolledChannel) by The Steel Network, Inc.

Depth: 3/4 inch.

Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.0296 inch.

Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch diameter wire, or double strand of 0.048-inch diameter wire.

* + - * 1. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-steel thickness of 0.018 inch, and depth required to fit insulation thickness indicated.

[PrimeWall® Z-Furring Channel](https://www.steelnetwork.com/Product/PrimeWallZ-FurringChannel) by The Steel Network, Inc.

* + - * 1. Column and Beam Board Attachment Connectors: used to secure gypsum board or sheathing to structural steel columns and beams:

[GripClip®](https://www.steelnetwork.com/Product/GripClip) Drywall Gypsum Board Attachment by The Steel Network, Inc.

* + - 1. **AUXILIARY MATERIALS**
				1. General: Provide auxiliary materials that comply with referenced installation standards.

Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

* + - * 1. Isolation Strip at Exterior Walls: Provide the following:

Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

1. **EXECUTION**
	* + 1. **EXAMINATION**
				1. 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.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. **PREPARATION**

*Note to Specifier delete following paragraph if SFRM is not specified*

* + - * 1. Coordination with Sprayed Fire-Resistive Materials:

Before sprayed fire-resistive materials are applied, attach offset anchor plates, z-furring members, 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 o.c.

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 required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage. Repair or replace any fire-resistive materials as required.

* + - 1. **INSTALLATION, GENERAL**
				1. Installation Standard: ASTM C754.
				2. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
				3. Install bracing at terminations in assemblies.
				4. Do not bridge building control and expansion joints with non-structural steel framing members. Frame both sides of joints independently.
			2. **INSTALLING FRAMED ASSEMBLIES**
				1. Install framing system components to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

Single-Layer Application: [**16 inches**] [**24 inches**] o.c. unless otherwise indicated.

Multilayer Application: [**16 inches] [24 inches**] o.c. unless otherwise indicated.

Tile Backing Panels: 16 inches o.c. unless otherwise indicated.

*Note to Specifier delete following paragraph if not required*

* + - * 1. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
				2. Install studs so flanges within framing system point in same direction.
				3. 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 or above suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

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.

Door Openings: Securely fasten 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. Fasteners shall not exceed height from face of framing members more than specified in ASTM C840.

Install engineered single jamb at each door jamb or install two studs at each jamb if no framing member has been specifically engineered for the jamb.

Extend jamb studs through suspended ceilings and attach to underside of overhead structure if suspended ceiling system cannot withstand forces imposed by door swings.

If jamb studs cannot be attached to the overhead structure, the Design Professional should be consulted for bracing design.

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.

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.

Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

*Note to Specifier delete following if not required*

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

Curved Partitions:

Use specified curved track for curved partitions.

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 o.c. (or as required).

*Note to Specifier delete following paragraph if not required*

* + - * 1. Direct Furring:

Screw to wood framing.

Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

*Note to Specifier delete following paragraph if not required*

* + - * 1. Z-Furring Members:

Erect insulation, specified in Section 07210 "Building Insulation," vertically and hold in place with Z-furring members spaced 24 inches o.c.

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 o.c.

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 from corner and cut insulation to fit.

* + - * 1. Installation Tolerance: Install framing members plumb within ¼ inch in 10 ft-0 in.
				2. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

**END OF SECTION 092216**