SECTION 092216 - NON-STRUCTURAL METAL FRAMING

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

Non-load-bearing steel framing systems for interior partitions.

Suspension systems for interior ceilings and soffits.

Grid suspension systems for gypsum board ceilings.

* + - * 1. Related Requirements:

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

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

Studs and Runners: Provide documentation that framing members' code compliance is verified by independent third party testing to meet the following standards: International Building Code (IBC), ASTM C 645, and American Iron and Steel Institute (AISI) *North American Standard for Cold-Formed Steel Framing - Nonstructural Members* (AISI S220).

* + - * 1. LEED Submittals:

Product Data for Credit MR 4: 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.

1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS
				1. 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.
				2. 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.
				3. Horizontal Deflection: For wall assemblies, limited based on cladding listed below and a horizontal loading of 5 lbf/sq. ft. Overall deflection shall be limited to:

Gypsum board finishes: 1/120 of wall height.

Metal panel systems: 1/180 of wall height.

Gypsum board with critical or brittle paint finishes: 1/240 of wall height.

Tile or stucco or veneer plaster or thin brick: 1/360 of wall height.

Brick or stone or masonry veneer: 1/600 of wall height.

* + - 1. FRAMING SYSTEMS
				1. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.

For material less than 0.033” thick, provide rolled safety edge on studs, and hemmed safety edge on tracks, channels, and accessories, to prevent injury to workers.

Protective Coating: Any of the following, as listed in ASTM A1003, table 1, are permitted:

ASTM A 653/A 653M, G40 (Galvanized).

ASTM A792/A792M, AZ50 (Galvalume).

ASTM A875/A875M, T1-25 or T2-100 (Galfan).

ASTM A879/A879M, 20Z/20Z (Electro-galvanized).

ASTM A1046 (Zinc-Aluminum-Magnesium Alloy - ZAM).

Other coatings claiming equivalent corrosion resistance are not permitted.

* + - * 1. Studs and Runners: ASTM C 645.

Steel Studs and Runners:

Basis-of-Design Product: Subject to compliance with requirements, provide The EDGE™ by Super Stud Building Products, Inc.

Minimum Base-Metal Thickness:

As required by performance requirements for horizontal deflection.

For abuse-resistant gypsum products, or cement-based sheathing products, use The EDGE™ Super 20, minimum thickness = 0.0220 inches.

Depth: As indicated on Drawings.

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

Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous sheathing attachment located within 12 inches of the top of studs to provide lateral bracing.

Slotted track: minimum 2.5 inch legs with 1.5 inch tall by 0.22 inch wide slots with maximum 1 inch spacing along length of track. Track products must comply with Underwriters Laboratories (UL) head-of-wall designs listings HW-D-0632 and HW-D-0633.

Basis-of-Design Product: Subject to compliance with requirements, provide Super Stud Building Products, Inc. Slotted Track. Equivalent slotted track products permissible from the following manufacturers:

Super Stud Building Products, Inc.

CEMCO

Safti-Seal, Inc.

ClarkDietrich

Marino\Ware

* + - * 1. Cold-Rolled Channel Bridging: Where sheathing does not extend full height of wall each flange, cold-rolled channel (CRC) Bridging may be required. CRC shall be steel, 0.0538-inch (54 mil, 16 gauge) minimum base-metal thickness, 1-1/2 inch deep with minimum 1/2-inch- wide flanges.

Clip Angle: Not less than 1-1/2 by 1-1/2 inches by 0.068-inch-thick, galvanized steel.

* + - * 1. Hat-Shaped, Rigid Furring Channels: compliant with ASTM C 645.
				2. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.

Basis-of-Design Product: Subject to compliance with requirements, provide Super Stud Building Products, Inc. RC1 or RC2.

Configuration: Asymmetrical single leg (RC1) or two-legged (hat-shaped, RC2).

* + - * 1. Z-Shaped Furring: With nonslotted web, face flange of minimum 1 inch, wall attachment flange of 1 inch, minimum uncoated-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.
			1. SUSPENSION SYSTEMS
				1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
				2. Hanger Attachments to Concrete:

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.

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.

* + - * 1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
				2. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
				3. Carrying Channels: cold-rolled channel (CRC), commercial-steel sheet with a base-metal thickness of 0.0538 inch (54 mil, 16 gauge), minimum 1-1/2 inch depth, and minimum 1/2-inch- wide flanges.
				4. Hat-Shaped, Rigid Furring Channels: compliant with ASTM C 645.
				5. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.

Basis-of-Design Product: Subject to compliance with requirements, provide Super Stud Building Products, Inc. RC1 or RC2.

Configuration: Asymmetrical single leg (RC1) or two-legged (hat-shaped, RC2).

* + - * 1. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

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:

Armstrong World Industries, Inc.

Chicago Metallic Corporation.

United States Gypsum Company.

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
				1. 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.

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

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

Before sprayed fire-resistive materials are applied, attach z-furring channels, offset anchor plates, or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where z-furring or offset anchor plates are required, provide channels or 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 are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

* + - 1. INSTALLATION, GENERAL
				1. Installation Standard: ASTM C 754.

Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.

Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.

Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.

Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

* + - * 1. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
				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-load-bearing steel framing members. Frame both sides of joints independently.
			1. INSTALLING FRAMED ASSEMBLIES
				1. Install steel framing members so that cut exposed edges are kept to a minimum. For steel framing materials less than 0.033” thick, provide rolled safety edge on studs and hemmed safety edge on tracks, channels, and accessories to prevent injury to workers.
				2. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
				3. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
				4. Install studs so flanges within framing system point in same direction.
				5. 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.

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: 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. Install two studs at each jamb unless otherwise indicated.

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.

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

Curved Partitions:

Bend track to uniform curve and locate straight lengths so they are tangent to arcs.

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 on center.

* + - * 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 on center.

* + - * 1. 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.
			1. INSTALLING SUSPENSION SYSTEMS
				1. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
				2. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
				3. Suspend hangers from building structure as follows:

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.

Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

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.

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.

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.

Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.

Do not connect or suspend steel framing from ducts, pipes, or conduit.

* + - * 1. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
				2. 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.
				3. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216