

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Non-load-bearing steel framing members for the following applications:
 - a. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
 - b. Interior suspension systems (e.g., supports for ceilings, etc.).

1.2 SUBMITTALS

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

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by a testing and inspection agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with AISI S220 and ASTM C645, Section 10 for conditions indicated.
1. Steel Sheet Components: Comply with AISI S220 and ASTM C645, Section 10 requirements for metal, unless otherwise indicated.
 2. Protective Coating: Comply with AISI S220; ASTM A653/A653M, **G40 (Z120)**; or coating with equivalent corrosion resistance. Galvannealed products are unacceptable.
 - a. Coating demonstrates equivalent corrosion resistance with an evaluation report acceptable to authorities having jurisdiction.

2.2 SUSPENSION SYSTEM COMPONENTS

- A. Provide one of the following suspension systems:
1. Light gage metal framing with the following components:

- a. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, **0.0625-inch- (1.59-mm-)** diameter wire, or double strand of **0.0475-inch- (1.21-mm-)** diameter wire.
 - b. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, **0.162-inch (4.12-mm)** diameter.
 - c. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of **0.0538 inch (1.37 mm)** and minimum **1/2-inch- (12.7-mm-)** wide flanges.
 - d. Hat-Shaped, Rigid Furring Channels: ASTM C 645, **7/8 inch (22.2 mm)** deep, minimum base metal thickness of **0.0179 inch (0.45 mm)**.
2. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
 - a. Products:
 - 1) Armstrong World Industries, Inc.; Drywall Grid Systems.
 - 2) Chicago Metallic Corporation; 640-C Drywall Furring System.
 - 3) USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: AISI S220 and ASTM C645, Section 10.

1. Minimum Base-Metal Thickness: Provide actual thickness indicated below or manufacturer's standard "equivalent thickness" stud and runner meeting actual thickness span requirements.
 - a. Floor Mounted Partitions: 20 gage, **0.0312 inch (0.79 mm)**.
 - b. Hanging Partitions (bulkheads): 25 gage, **0.0179 inch (0.45 mm)**.

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

1. Minimum Base Metal Thickness: 25 gage, **0.0179 inch (0.45 mm)**.
2. Depth: **7/8 inch (22.2 mm)**.

C. Partial Wall (Pony Wall) Framing Connection Support: Provide one of the following based on height of partial wall and required lateral loading:

1. Light Duty: **3/8-inch (9.5-mm)** ASTM A36/A36M steel-plate ST50H stud connector designed to support out-of-plane loading of cantilevered partial wall systems that are unsupported at the top track.
 - a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich; Pony Wall LGPW Series or comparable product by a current member of the SFIA:
 - b. Minimum Base-Steel Thickness: **0.0538 inch (1.37 mm)**.
 - c. Size (Height; Width by Length): Height as required for height of wall with **2-3/8-by-5-1/2-inch (60-by-140-mm)** long plate.

2. Heavy Duty: **1/2-inch (12.7-mm)** ASTM A36/A36M steel-plate ST50H stud connector designed to support out-of-plane loading of cantilevered partial wall systems that are unsupported at the top track.
 - a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich; Pony Wall PW Series or comparable product by a current member of the SFIA:
 - b. Minimum Base-Steel Thickness: **0.0966 inch (2.45 mm)**.
 - c. Size (Height; Width by Length): Height as required for height of wall with **2-3/8-by-5-1/2-inch (60-by-140-mm)** long plate.

2.4 AUXILIARY MATERIALS

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

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated. Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

- A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement. Do not attach hangers to roof deck.
- B. Suspend hangers from building structural steel 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. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Do not attach hangers to roof deck.
- C. 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.
- D. 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.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install steel studs with bottom and top runner tracks anchored to substrates with fastener spacing not exceeding **24-inches (610-mm)** on center. Provide fasteners at corners and ends of tracks. Isolate system from building structure to prevent transfer of loading and deflections into metal support system, both vertically and horizontally.
- B. Reinforce hanging support of gypsum drops with **1 5/8-inch (41.27-mm)** black iron channels, or other steel channels approved by structural engineer, by threading through metal studs as low as practical. Do not locate at middle of stud. Support wire to be attached to top cord of joists/joist girders panel points or as indicated on drawings. Do not attach hangers to roof deck.
- C. Space steel studs and furring as indicated on Drawings.
- D. Steel Stud Spacing for Fascias and Soffits: As indicated on Drawings.
- E. Frame doors, recessed light fixtures and other openings with studs and runners, gage and number, and arrangement as manufacturer's recommends for size of opening, weight of doors, and height and stud size, unless otherwise indicated.
- F. Install supplementary framing, runners, furring, blocking and bracing at openings and terminations in gypsum drywall, and where required for support of other work which cannot be adequately supported on gypsum board alone.
- G. Install partial wall framing connection support inside the track or directly to the floor structure. Anchor to the floor as indicated on Drawings. Attach the studs to both flanges of the partial wall framing connection.
- H. 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.

END OF SECTION 09 22 16