

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.
 3. Sheet metal security liner panels.
2. Types of items not described in this Section
 1. Exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.
 2. Blanket insulation for acoustical, thermal, or fire-resistant purposes.

1.2 ACTION SUBMITTALS

1. Product Data: For each type of product.

1.3 INFORMATION SUBMITTALS

1. Evaluation Reports: For dimpled steel studs and runners and firestop tracks.

PART 2 - PRODUCTS

2.1 DESCRIPTION

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. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

2.2 FRAMING SYSTEMS

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: 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: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, Z120, hot-dip galvanized, unless otherwise indicated.
3. Studs and Runners: ASTM C 645. Use either steel studs and runners or dimpled steel studs and runners.
 1. Steel Studs and Runners:
 1. Minimum Base-Metal Thickness: 0.45 mm.

2. Depth: As indicated on Drawings.
2. Dimpled Steel Studs and Runners:
 1. Minimum Base-Metal Thickness: 0.38 mm.
 2. Depth: As indicated on Drawings.
4. Slip-Type Head Joints: Where indicated, provide one of the following:
 1. Single Long-Leg Runner System: ASTM C 645 top runner with 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 305 mm of the top of studs to provide lateral bracing.
 2. Double-Runner System: ASTM C 645 top runners, inside runner with 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.
 3. 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.
5. 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.
6. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 1. Minimum Base-Metal Thickness: 0.79 mm.
7. Cold-Rolled Channel Bridging: Steel, 1.34 mm minimum base-metal thickness, with minimum 13 mm wide flanges.
 1. Depth: 38 mm.
 2. Clip Angle: Not less than 38 by 38 mm, 1.72 mm thick, galvanized steel.
8. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.45 mm.
 2. Depth: 22.2 mm.
9. Resilient Furring Channels: 13 mm deep, steel sheet members designed to reduce sound transmission.
 1. Configuration: Asymmetrical.
10. Cold-Rolled Furring Channels: 1.34 mm uncoated-steel thickness, with minimum 13 mm wide flanges.
 1. Depth: 19 mm.
 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.8 mm.
 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 1.59 mm diameter wire, or double strand of 1.21 mm diameter wire.
11. Z-Shaped Furring: With slotted or nonslotted web, face flange of 31.8 mm, wall attachment flange of 22 mm, minimum uncoated-metal thickness of 0.45 mm, and depth required to fit insulation thickness indicated.

2.3 SUSPENSION SYSTEMS

1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 1.59 mm diameter wire, or double strand of 1.21 mm diameter wire.
2. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
 1. Type: Cast-in-place anchor, designed for attachment to concrete forms, post installed, chemical anchor or post installed, expansion anchor.
2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.
3. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 4.12 mm in diameter.
4. Flat Hangers: Steel sheet, 25 by 5 mm by length indicated.
5. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 1.34 mm and minimum 13 mm wide flanges.
 1. Depth: 64 mm.
6. Furring Channels (Furring Members):
 1. Cold-Rolled Channels: 1.34 mm uncoated-steel thickness, with minimum 13 mm wide flanges, 19 mm deep.
 2. Steel Studs and Runners: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.45 mm.
 2. Depth: As indicated on Drawings.
 3. Dimpled Steel Studs and Runners: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.38 mm.
 2. Depth: As indicated on Drawings.
 4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 22 mm deep.
 1. Minimum Base-Metal Thickness: 0.45 mm.
 5. Resilient Furring Channels: 13 mm deep members designed to reduce sound transmission.
 1. Configuration: Asymmetrical.

2.4 SHEET METAL SECURITY LINER PANELS

1. Liner Panel: sheet metal of 1.99 mm minimum bare metal thickness, commercial quality consisting of one of the following:
 1. Zinc coated sheet steel to ASTM A 653/A 653M, with Z275 designation zinc coating;
 2. Aluminum-zinc alloy coated sheet steel to ASTM A 792/A 792M, grade 33 or 37 with AZ150 coating, regular spangle surface, not chemically treated for paint finish.

2.5 AUXILIARY MATERIALS

1. 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.
2. Isolation Strip at Exterior Walls: Provide the following:
 1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 3.2 mm thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 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.

3.2 PREPARATION

1. Coordination with Spray Applied Fireproofing Materials:
 1. Before sprayed fireproofing 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 610 mm o.c.
 2. After sprayed fireproofing 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.

3.3 INSTALLATION, GENERAL

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

3.4 INSTALLING FRAMED ASSEMBLIES

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.
 1. Space studs as follows:
 1. Single-Layer Application: 406 mm o.c. unless otherwise indicated.
 2. Multilayer Application: 406 mm o.c. unless otherwise indicated.
 3. Tile Backing Panels: 406 mm o.c. unless otherwise indicated.
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 suspended ceilings. Continue framing around ducts penetrating 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.

1. Install two studs at each jamb unless otherwise indicated.
2. Install cripple studs at head adjacent to each jamb stud, with a minimum 13 mm clearance from jamb stud to allow for installation of control joint in finished assembly.
3. 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.
 1. 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:
 1. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 2. 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 150 mm o.c.
4. 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 610 mm o.c.
5. Z-Furring Members:
 1. Erect insulation specified in other Sections vertically and hold in place with Z-furring members spaced 610 mm 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 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 305 mm from corner and cut insulation to fit.
6. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 3 mm from the plane formed by faces of adjacent framing.

3.5 INSTALLING SUSPENSION SYSTEMS

1. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
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:
 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.
 1. 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.

1. 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.
4. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
 5. Installation Tolerances: Install suspension systems that are level to within 3 mm in 3.6 m measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.
- 3.6 INSTALLING SHEET METAL SECURITY LINER PANELS
1. Install sheet metal security liner panels in locations indicated.
 2. Prepare sheet metal security liner panel with 9.5 mm holes for installation, plug welded to the room-exterior side of metal studs vertically or screw-fasten to the room-exterior side of wood studs; at 400 mm o.c. and horizontally at 300 mm o.c. maximum.

END OF SECTION