

Section 9.24. Sheet Steel Stud Wall Framing

9.24.1. General

9.24.1.1. Application

- 1) This Section applies to sheet steel studs for use in non-*loadbearing* exterior and interior walls.
- 2) Where *loadbearing* steel studs are used, they shall be designed in conformance with Part 4.

9.24.1.2. Material Standards

- 1) Steel studs and runners shall conform to AISI S201, “North American Standard for Cold-Formed Steel Framing – Product Data.”

9.24.1.3. Metal Thickness

- 1) Metal thickness specified in this Section shall be the minimum base steel thickness exclusive of coatings.

9.24.1.4. Screws

- 1) Screws for the application of cladding, sheathing or interior finish materials to steel studs, runners and furring channels shall conform to
 - a) ASTM C 954, “Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness,” or
 - b) ASTM C 1002, “Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.”

9.24.1.5. Cladding, Sheathing and Interior Finish Required

- 1) Cladding or sheathing, and interior finish shall be installed on steel stud framing and shall be fastened with screws
 - a) spaced at the appropriate spacing described in Section 9.29., and
 - b) penetrating not less than 10 mm through the metal.

9.24.2. Size of Framing

9.24.2.1. Size and Spacing of Studs in Interior Walls

- 1) Except as required in Articles 9.24.2.3. and 9.24.2.4., the size and spacing of steel studs for non-*loadbearing* interior walls shall conform to Table 9.24.2.1.

Table 9.24.2.1.
Steel Studs for Non-Loadbearing Interior Walls⁽¹⁾
 Forming Part of Sentence 9.24.2.1.(1)

Steel Studs for Non-Loadbearing Interior Walls ⁽¹⁾	Maximum Stud Spacing, mm	Maximum Wall Height, m
Forming Part of Sentence 9.24.2.1.(1)	400	3.0
	600	2.7
32 × 64	300	4.4
	400	4.0
	600	3.5
32 × 89	300	5.2
	400	4.6
	600	3.9

Table 9.24.2.1. (continued)
Steel Studs for Non-Loadbearing Interior Walls⁽¹⁾
 Forming Part of Sentence 9.24.2.1.(1)

Steel Studs for Non-Loadbearing Interior Walls ⁽¹⁾	Maximum Stud Spacing, mm	Maximum Wall Height, m
32 × 152	300	6.6
	400	5.8
	600	4.9

Notes to Table 9.24.2.1.:

- (1) The values in the Table are based on a single layer of 12.7 mm gypsum panel sheathing installed on each side of the studs. Where one side is not accessible, gypsum panels on only one side will suffice. The values are also based on attaching gypsum panel sheathing using screws not smaller than No. 6 spaced at a maximum of 300 mm at edges and at intermediate supports.

9.24.2.2. Thickness of Studs

- 1) Except as required in Article 9.24.2.4., steel studs in non-*loadbearing* interior walls shall have a metal thickness of not less than 0.46 mm.

9.24.2.3. Runners

- 1) Runners for interior and exterior non-*loadbearing* walls shall have a thickness not less than the thickness of the corresponding studs and shall have not less than 30 mm flanges.

9.24.2.4. Openings in Fire Separations

- 1) Where openings for doors in non-*loadbearing fire separations* required to have a *fire-resistance rating* do not exceed 1 200 mm in width,
- the width of steel studs shall be not less than 63 mm, and
 - the metal thickness shall be not less than 0.46 mm.
- 2) Where openings described in Sentence (1) exceed 1 200 mm in width,
- the width of steel studs shall be not less than 91 mm, and
 - the metal thickness shall be not less than 0.85 mm.
- 3) The distance to the first stud beyond the jamb of any door opening in a *fire separation* required to have a fire-resistance rating shall not exceed 400 mm.
- 4) Where the distance between the framing over the opening referred to in Sentence (3) and the top runner exceeds 400 mm in such walls, intermediate support shall be installed at intervals of not more than 400 mm above the opening.

9.24.2.5. Size and Spacing of Studs in Exterior Walls

- 1) The size and spacing of non-*loadbearing* steel studs for exterior walls shall conform to Table 9.24.2.5.

Table 9.24.2.5.
Size and Spacing of Steel Studs for Non-Loadbearing Exterior Walls
 Forming Part of Sentence 9.24.2.5.(1)

Minimum Stud Size, mm	Minimum Metal Thickness, mm	Maximum Stud Length, m		
		Spacing of Studs		
		300 mm o.c.	400 mm o.c.	600 mm o.c.
30 × 91	0.53	3.0	2.4	–
30 × 91	0.69	3.3	2.7	2.4
30 × 91	0.85	3.6	3.0	2.7
30 × 91	1.0	4.0	3.3	3.0

9.24.3. Installation

9.24.3.1. Installation of Runners

- 1) Runners shall be provided at the tops and bottoms of walls.
- 2) Runners required in Sentence (1) shall be securely attached to the *building* at approximately 50 mm from the ends, and at intervals of not more than 600 mm o.c. for interior walls and 300 mm o.c. for exterior walls.
- 3) Fasteners used for attachment described in Sentence (2) shall consist of the equivalent of 63 mm nails or 25 mm screws.
- 4) Studs at openings and which are not full wall height shall be supported by a runner at the ends of the studs, securely fastened to the full length studs at the sides of the opening.

9.24.3.2. Fire-Rated Walls

- 1) Steel studs used in walls required to have a *fire-resistance rating* shall be installed so that there is not less than a 12 mm clearance between the top of the stud and the top of the runner to allow for expansion in the event of fire.
- 2) Except as provided in Article 9.24.3.6., studs in walls referred to in Sentence (1) shall not be attached to the runners in a manner that will prevent such expansion.
- 3) Framing above doors with steel door frames in non-loadbearing *fire separations* required to have a *fire-resistance rating* shall consist of 2 runners on the flat fastened back to back. (See Note A-9.24.3.2.(3).)
- 4) The upper runner required in Sentence (3) shall be bent at each end to extend upwards not less than 150 mm and fastened to the adjacent studs.
- 5) A gypsum board filler piece, the width and length of the runner, shall be provided between the door frame referred to in Sentence (3) and the adjacent runner.

9.24.3.3. Orientation of Studs

- 1) Steel studs shall be installed with webs at right angles to the wall face and, except at openings, shall be continuous for the full wall height.

9.24.3.4. Support for Cladding Materials

- 1) Corners and intersections of walls shall be constructed to provide support for the cladding materials.

9.24.3.5. Framing around Openings

- 1) Studs shall be doubled on each side of every opening where such openings involve more than one stud space, and shall be tripled where the openings in exterior walls exceed 2.4 m in width.
- 2) Studs described in Sentence (1) shall be fastened together by screws, crimping or welding to act as a single structural unit in resisting transverse loads.

9.24.3.6. Attachment of Studs to Runners

- 1) Studs shall be attached to runners by screws, crimping or welding around wall openings and elsewhere where necessary to keep the studs in alignment during construction.
- 2) Where clearance for expansion is required in Article 9.24.3.2., attachment required in Sentence (1) shall be applied between studs and bottom runners only.

9.24.3.7. Openings for Fire Dampers

- 1) Openings for *fire dampers* in non-loadbearing *fire separations* required to have a *fire-resistance rating* shall be framed with double studs on each side of the opening.
- 2) The sill and header for openings described in Sentence (1) shall consist of a runner track with right angle bends made on each end so as to extend 300 mm above the header or below the sill and fastened to the studs.
- 3) The openings described in Sentence (1) shall be lined with a layer of gypsum board not less than 12.7 mm thick fastened to stud and runner webs.