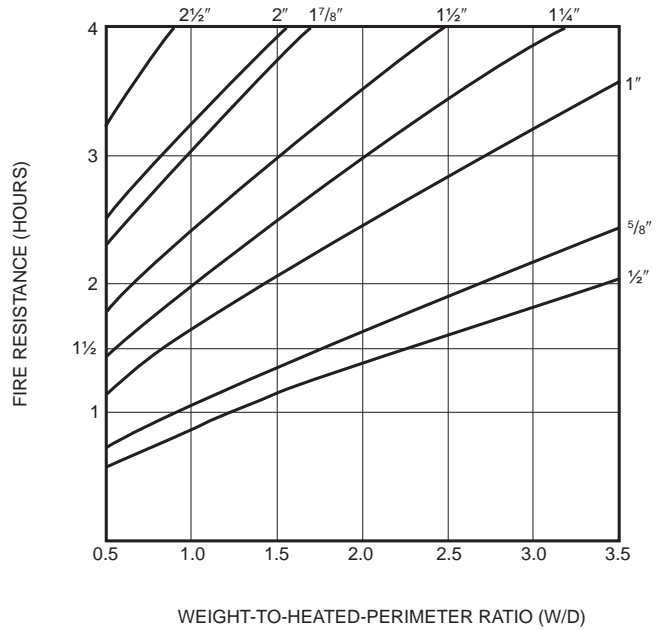


FIGURE 722.5.1(3)

GYPSUM-PROTECTED STRUCTURAL STEEL COLUMNS WITH STEEL STUD/SCREW ATTACHMENT SYSTEM

For SI: 1 inch = 25.4 mm, 1 foot = -305 mm.

1. Structural steel column, either wide flange or tubular shapes.
2. $1\frac{5}{8}$ -inch deep studs fabricated from 0.0179-inch minimum thickness galvanized steel with $1\frac{5}{16}$ or $1\frac{7}{16}$ -inch legs. The length of the steel studs shall be $\frac{1}{2}$ inch less than the height of the assembly.
3. Type X gypsum board or gypsum panel products in accordance with ASTM C177, C1178, C1278, C1396 or C1658. The total thickness of gypsum board or gypsum panel products calculated as h in Section 722.5.1.2 shall be applied vertically to an individual column using one of the following methods:
 1. As a single layer without horizontal joints.
 2. As multiple layers with horizontal joints not permitted in any layer.
 3. As multiple layers with horizontal joints staggered not less than 12 inches vertically between layers and not less than 8 feet vertically in any single layer. The total required thickness of gypsum board or gypsum panel products shall be determined on the basis of the specified fire-resistance rating and the weight-to-heated-perimeter ratio (W/D) of the column.
4. Galvanized 0.0149-inch minimum thickness steel corner beads with $1\frac{1}{2}$ -inch legs attached to the gypsum board or gypsum panel products with 1-inch-long Type S screws spaced 12 inches on center.
5. No. 18 SWG steel tie wires spaced 24 inches on center.
6. Sheet metal angles with 2-inch legs fabricated from 0.0221-inch minimum thickness galvanized steel.
7. Type S screws, 1 inch long, shall be used for attaching the first layer of gypsum board or gypsum panel product to the steel studs and the third layer to the sheet metal angles at 24 inches on center. Type S screws $1\frac{3}{4}$ inches long shall be used for attaching the second layer of gypsum board or gypsum panel product to the steel studs and the fourth layer to the sheet metal angles at 12 inches on center. Type S screws $2\frac{1}{4}$ inches long shall be used for attaching the third layer of gypsum board or gypsum panel product to the steel studs at 12 inches on center.



For SI: 1 inch = 25.4 mm, 1 pound per linear foot/inch = 0.059 kg/m/mm.

FIGURE 722.5.1(4)

FIRE RESISTANCE OF STRUCTURAL STEEL COLUMNS PROTECTED WITH VARIOUS THICKNESSES OF TYPE X GYPSUM WALLBOARD

- a. The W/D ratios for typical wide flange columns are listed in Table 722.5.1(1). For other column shapes, the W/D ratios shall be determined in accordance with Section 722.5.1.1.

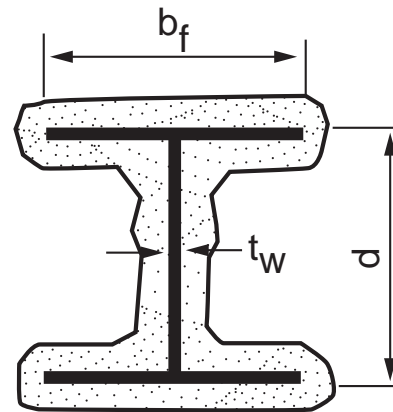


FIGURE 722.5.1(5)

WIDE FLANGE STRUCTURAL STEEL COLUMNS WITH SPRAYED FIRE-RESISTANT MATERIALS