

STEEL BEAM AND COLUMN CONNECTION

ONTARIO BUILDING CODE

9.17. Columns

9.17.1.1 Application

- (1) This Section applies to columns used to support,
 - (a) beams carrying loads from not more than 2 wood frame floors where,
 - (i) the supported length of joist bearing on such beams does not exceed 5 m (16 ft 5 in), and
 - (ii) the live load on any floor does not exceed 2.4 kPa (50 psf), or
 - (c) carport roof.

9.17.2.1. Location

- (1) Columns shall be centrally located on a footing conforming to Section 9.15.

9.17.2.2. Lateral Support

- (1) Columns shall be securely fastened to the supported member to reduce the likelihood of lateral differential movement between the column and the supported member.
- (2) Except as permitted by Sentence (3), columns shall be laterally supported,
 - (a) directly, or
 - (b) by connection to the supported members
- (3) Columns need not be provided with lateral support as described in Sentence (2) where,
 - (a) the length of the columns are not more than 600 mm (23 $\frac{5}{8}$ in) measured from the finished ground to the underside of the supported member, and
 - (b) the columns support a deck with no superstructure.

9.17.3.1. Size and Thickness

- (1) Except as permitted in Sentence (2), steel pipe columns shall have an outside diameter of not less than 73 mm (2 $\frac{7}{8}$ in) and a wall thickness of not less than 4.76 mm (3 $\frac{3}{16}$ in).

- (2) Columns of sizes other than a specified in Sentence (1) are permitted to be used where the loadbearing capacities are shown to be adequate.

9.17.3.3. Paint

- (1) Exterior steel columns susceptible to corrosion shall be treated on the outside surface with at least one coat of rust-inhibitive paint.

9.23.2.1. Strength and Rigidity

- (1) All members shall be so framed, anchored, fastened, tied and braced to provide the necessary strength and rigidity.

OBJECTIVE

Columns used to support horizontal structural elements, such as beams, shall be securely fastened to the supported beams and centrally located on the footing. The offset between the beam centerline and the column centerline must be limited to 25 mm (1 in) maximum or the assembly is required to be designed by a professional engineer. Occasionally, web stiffeners may be required due to the eccentric beam position or its high torsion forces.

Columns extending beyond one storey may require professional design. The column, beam, floor joists and wall framing assembly must be anchored and tied together to form a rigid frame. Refer to the accompanying illustration to help with the explanation of this Builder's Tip.

