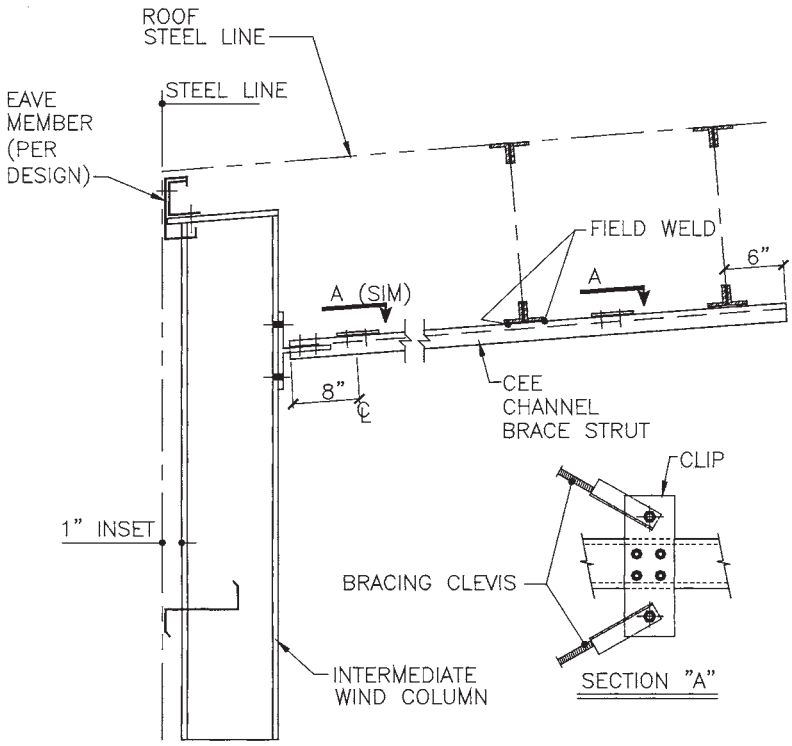

FIGURE 5.51 Lateral support detail for sidewall wind column with flush inset and open-web joist purlins. (*Nucor Building Systems.*)

Either section is structurally acceptable, but the 10 × 2.5 Z 13 G section weighs less than 8 × 3.5 Z 12 G section (4.606 versus 5.690 lb/ft), while offering greater rigidity (see Table B.6 in Appendix B).

The listed girt capacities assume full lateral bracing of the girt flanges. Therefore, the contract documents should require installation of either interior liner panels or discrete girt bracing at a maximum spacing of 6.25 ft (at one-quarter points of the span).

Note that the girts in the outer bays of the building may have to be designed for a larger wind loading than the girts in intermediate bays, so a larger girt size or a closer spacing might be needed at those locations.

5.8 HOT-ROLLED STEEL GIRTS

Hot-rolled steel girts are specified for the same reasons hot-rolled purlins are—higher load-carrying capacity and the designer's familiarity (sometimes bordering on distrust of cold-formed construction in general). Made of channel or wide-flange beam sections, these girts can be especially useful for spanning long distances and for custom framing around large windows and overhead doors. Since continuity is difficult to achieve with hot-rolled girts anyway, these sections are frequently designed with flush or semiflush insets.

While the weight of cold-formed C and Z girts is small, hot-rolled framing is rather heavy, tends to sag, and needs to be supported at regular intervals by the appropriately named sag rods. A channel

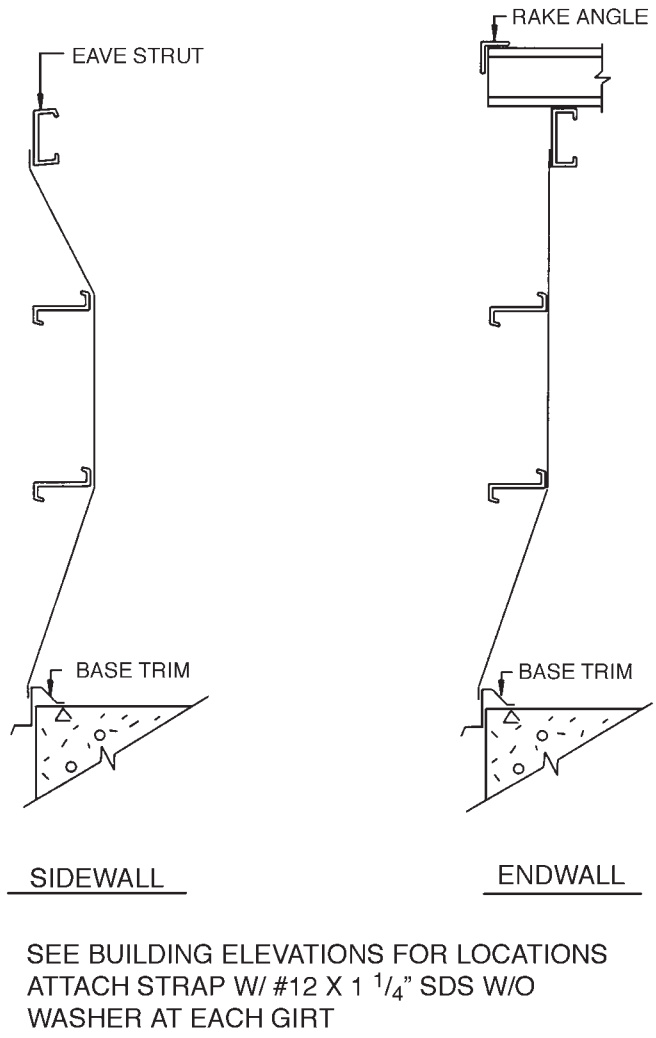

FIGURE 5.52 Sag strap installation. (*A&S Building System.*)

girt is commonly analyzed as a simple-span beam for wind loading and as a continuously supported beam for gravity load, which consists of the girt's own weight and that of any supported wall materials. Sag rods are ultimately supported by the eave girt, also a hot-rolled member.

The issue of lateral bracing for hot-rolled girts is as important as for cold-formed girts. With through-fastened metal siding, the girts can usually be considered braced at their exterior flanges. Room finishes such as liner panels or drywall carried on steel studs or furring, can provide bracing for the interior flanges, which otherwise are deemed unbraced.

There are two ways to design a sag-rod supported girt with unbraced interior flange. The first approach simply assumes that the interior flange is unsupported from column to column and neglects any bracing contribution of the sag rods. The steel sections engineered under this assumption are so heavy that both clients and contractors tend to question their design.