

FIGURE 5.23 Purlin bracing by angles attached to purlins with self-drilling screws.

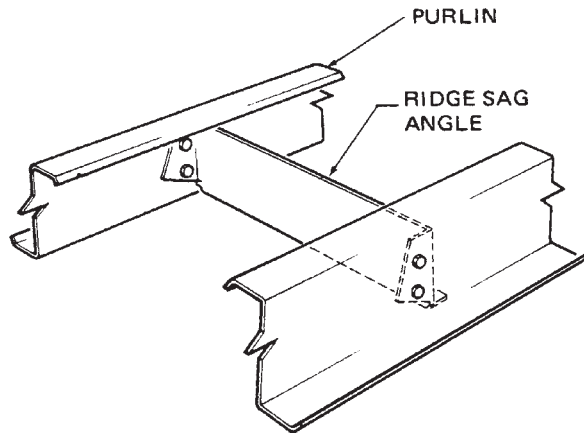


FIGURE 5.24 Ridge angle. (Butler Manufacturing Co.)

At the eave, parallel bracing is usually attached to the eave strut, either directly or by crisscrossing the purlin braces (Fig. 5.25). Some manufacturers use special adjustable sag angles between the eave strut and the first purlin (Fig. 5.26) to facilitate purlin alignment. The adjustability is provided at the purlin end, where the sag angle becomes a threaded rod with two nuts.

A simple shifting of the purlin brace to the bottom flange of the eave strut (Fig. 5.25a) is not very effective in providing purlin stability, because the degree of the eave strut's torsional resistance can vary widely, as discussed in the next section. Crisscrossing the bracing (Fig. 5.25b) has a better chance

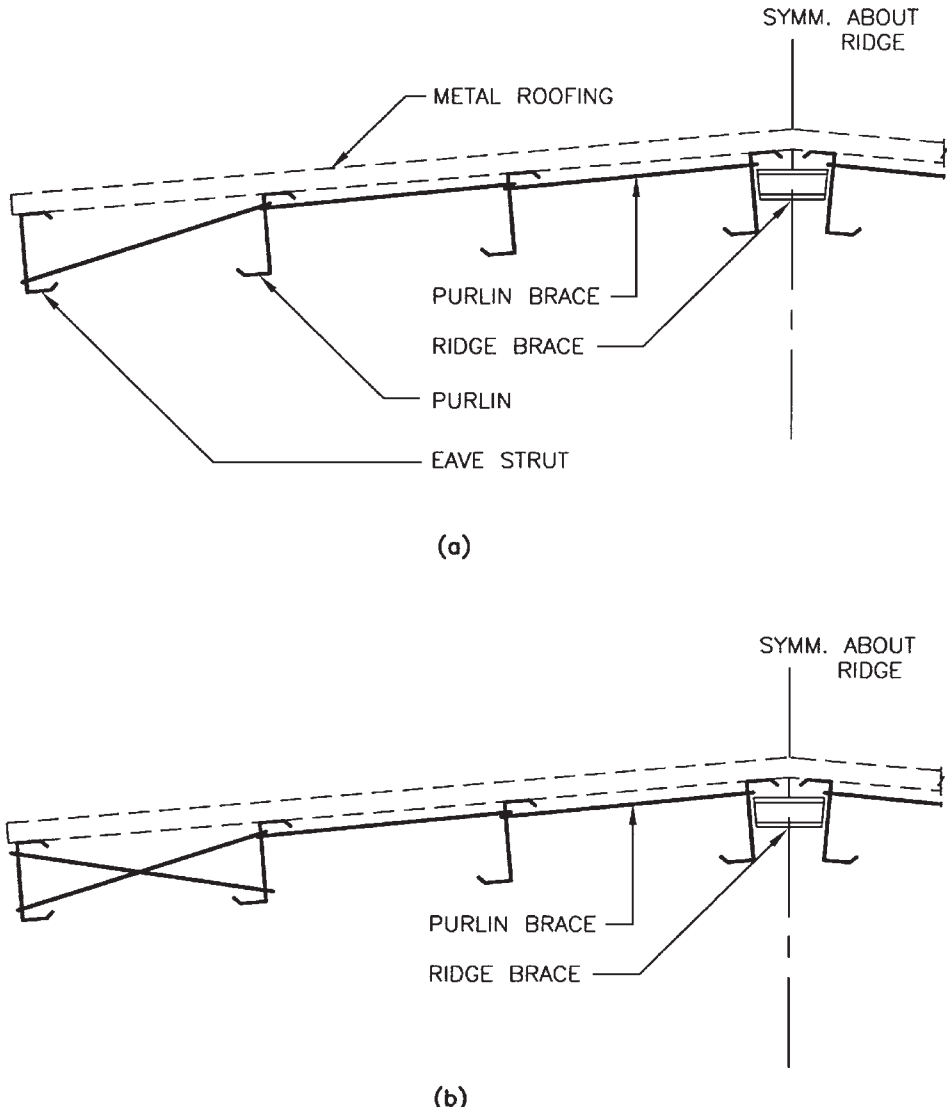


FIGURE 5.25 Anchorage of parallel bracing at the eave: (a) shifting bracing to the bottom chord of eave strut; (b) crisscrossing at the eave strut.

of success, but only when one of the crossed braces can function as a compression member. For this reason, crisscrossing can be effective when sag angles are used, but ineffective with flat straps.

An even better design is to place solid blocking between the eave strut and the first Z purlin (such as the channel of Fig. 5.17). The blocking provides superior resistance to torsion and lateral buckling of both those members.

For wide buildings, crisscrossing at the eaves and attachments at the ridge may not be sufficient, and the angle braces may have to be crisscrossed in some interior bays too, to keep the purlins stable and reduce the bracing forces (Fig. 5.27).