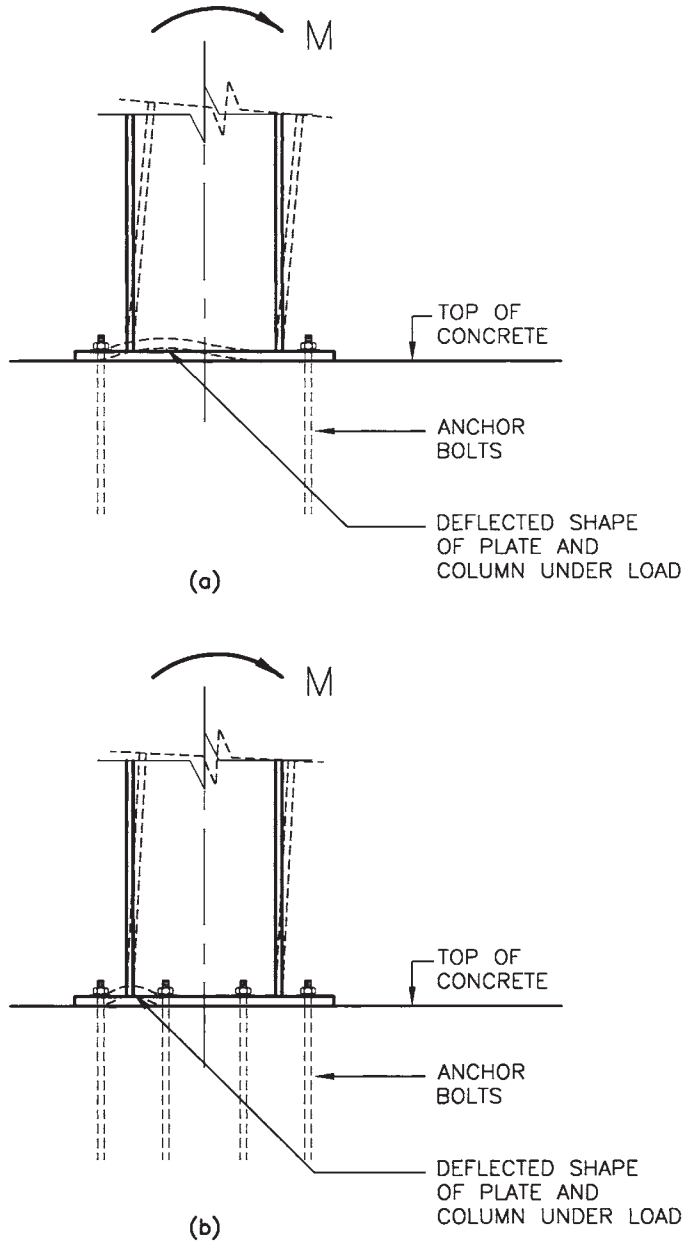

FIGURE 4.18 Details of column bases providing questionable fixity: (a) four bolts; (b) eight bolts.

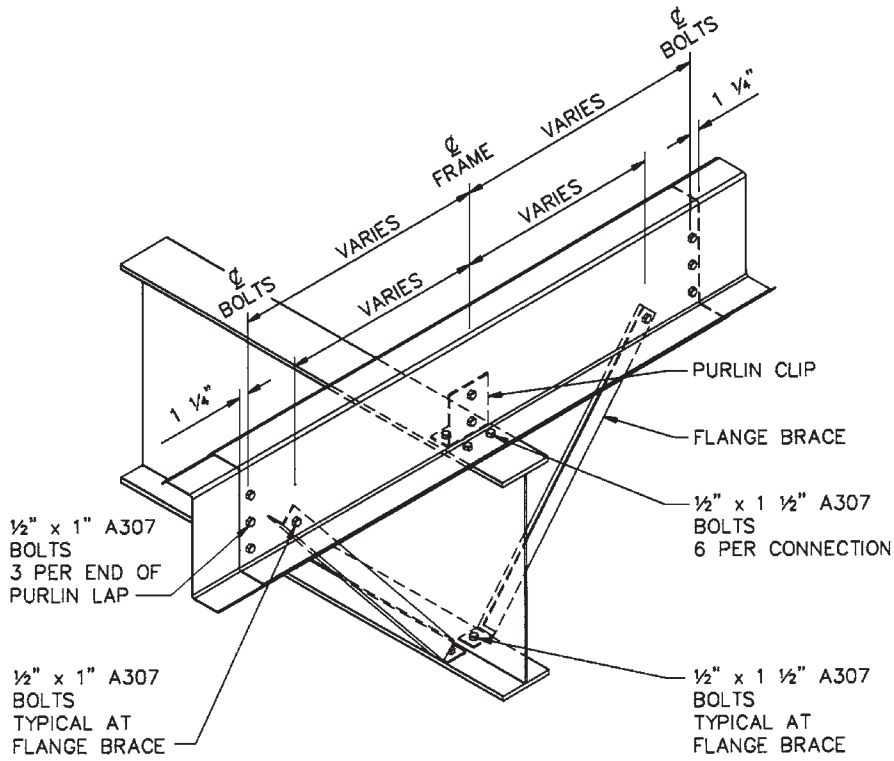

FIGURE 4.19 Typical flange brace at roof. (*VP Buildings*.)

pre-engineered framing. The prices, while somewhat out-of-date, are helpful for comparison purposes among the framing types.

In general, in a large facility that can tolerate interior columns and is unlikely to undergo drastic changes in layout, multispan rigid-frame construction should be tried first; it usually offers the lowest cost. If interior columns are objectionable, a clear-span system such as a single-span rigid frame should be considered. Smaller buildings can be economically framed with tapered beams or even lean-tos. Proprietary framing systems are difficult to specify for competitive bidding without severely restricting the competition and are most suitable for negotiated private work.

It helps to understand what is behind the client's clear-span requirements, as discussed in the previous chapter. Most clients would like a column-free plan that allows them unlimited flexibility; it's when the cost of that flexibility becomes clear that the budgets begin to vote. It is rather disheartening to see a building with huge clear spans—paid for dearly—promptly subdivided by the partitions erected by the owner. Whether intended as noise barriers or privacy screens separating various activities, each partition could have held a column and thus would have afforded some cost savings. Moreover, specifying buildings with unusually large clear spans restricts the list of bidders to the largest manufacturers able to produce heavy structures.

The architect, in consultation with the owner, has to decide whether straight, tapered, or other columns are appropriate for the project. While a utility or a manufacturing building can easily tolerate tapered columns of rigid frames, a plasterboard-clad library or a retail establishment probably would not. Trying to wrap a tapered column in sheetrock is usually not worth the effort and the cost; a system with straight columns could fit better even if slightly more expensive.