

Columns in Frames

Trusses: The steel members are not connected by pins. However, to make analysis easier, all calculations are done under the assumptions of “pinned” connections. This is usually acceptable because the connections in trusses have some flexibility.

Buildings: In buildings and other frame structures, the connections between columns and beams are usually more rigid than the ones in trusses. Also a column is usually spanned continuously for several floors. Therefore, it is necessary to analyze columns in buildings such a way that the columns are not “pinned” or “rigidly connected.”

The connections at the end points of a column change the value of the effective length K depending on the types of connection. For example, the structure shown below illustrates how the beams above and below a column change the effective length factor. An approximate procedure to estimate K is explained later.

