

STEEL CONSTRUCTION

A TEXT AND REFERENCE BOOK COVERING
THE DESIGN OF STEEL FRAME-
WORK FOR BUILDINGS

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Column Sections. Practically all rolled sections of steel may be used as columns or struts, but only a few of them are economical when used alone. Most columns are built up of several pieces. Fig. 144 shows a number of sections.

Section a. The *single angle* is not economical but may be used for a light load. When used, its radius of gyration must be taken about the diagonal axis.

Section b. *Two angles* make a satisfactory strut for short lengths and light loads. Usually angles with unequal legs are used, with the long legs parallel. The radii about both axes are nearly the same for most sizes. The value about the axis 2-2 can be varied somewhat by the use of fillers between the angles. Such fillers should be spaced two to three feet apart.

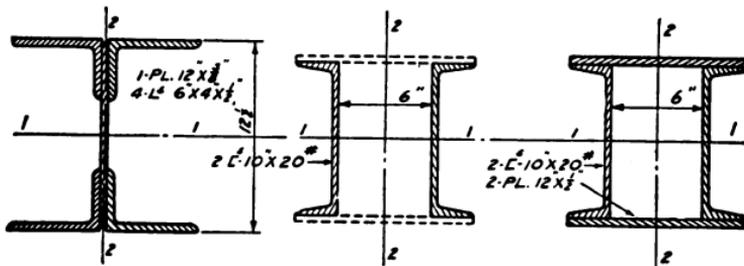


Fig. 143. Diagrams for Estimating Properties of Column Sections

Section c. The *star strut* is made of two angles with batten plates. The batten plates in each direction are spaced from two to four feet apart. They must be wide enough for two rivets in each end. The least radius is about the diagonal axis 3-3. In accordance with the rule, p. 180, this being a battened section, the unit stress should be only one-half that given by the formula. Consequently, the section is not economical but is suitable to use when the load is light. It is quite useful as a brace between trusses and other similar situations.

Section d. *Four angles* placed at the corners of a square and joined together with lacing bars can be made to have a large radius of gyration with a small area. This makes a column suitable for supporting light loads on a long length. It is not suitable for eccentric loads. The spacing of the angles may be made as great

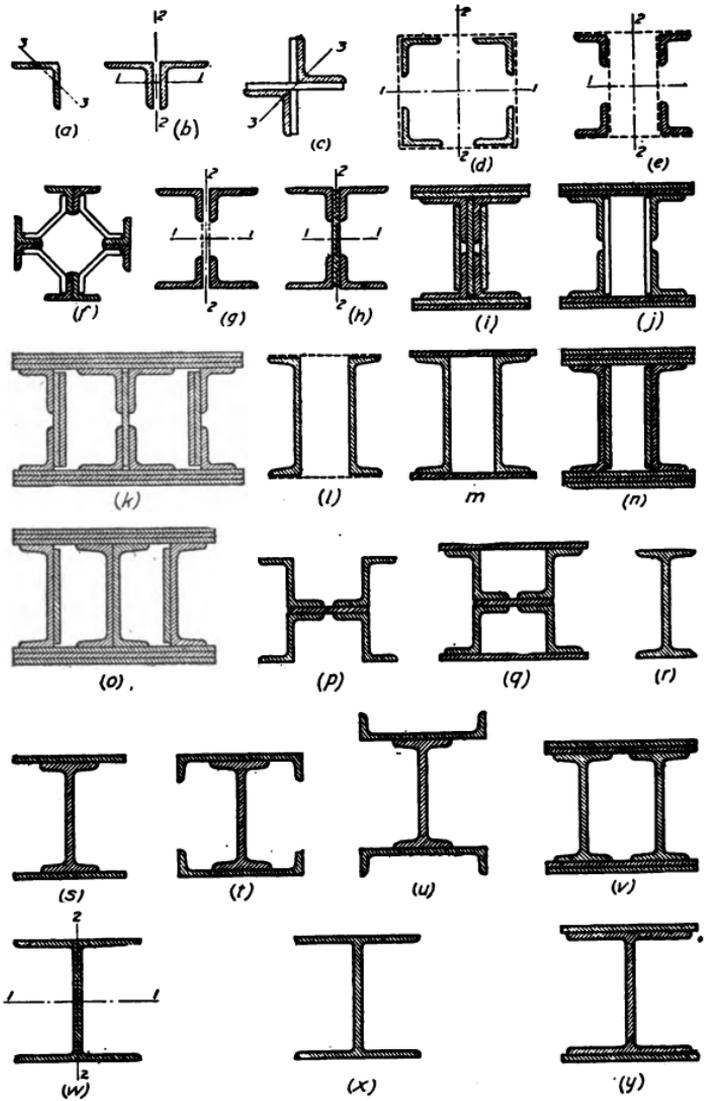


Fig. 144. Typical Column Sections