



Fig. 5.12.8

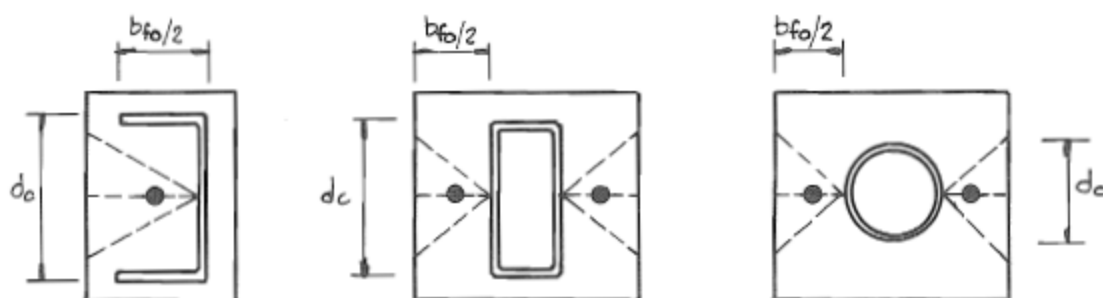


Fig. 5.12.9

For the suggested method for other than I-sections to be valid, the length of the yield lines must be similar to that for I-sections in Fig. 5.12.7, that is $b_{fo}/2$. Redefining that length as $b_{fo}/2$ (so as to distinguish it from the actual half flange width for an I-section), it is suggested that the same equation may be used for all sections by rewriting the equation in terms of b_{fo} rather than b_{fo} , where $b_{fo}/2$ (and hence b_{fo}) may be defined as shown in Fig. 5.12.9.

The only alternative to the method proposed by Murray for I-sections—and herein extended to other sections—is to assume that the tension in the anchor bolts spreads out to act over an effective width of plate (b_e), so that that effective width of plate acts as a cantilever in bending. Reference 12.11 suggests a 45 degree angle of dispersion—as in Fig. 5.12.10.

The design moment is then $M^* = \frac{N_1^*}{n_b} \times b_t$

where

N_1^* = design tension force on column member

n_b = number of anchor bolts

The design moment capacity of the plate whose effective width is b_e is then

$$M_s = \frac{0.9 \times b_e t_p^2 \times f_{yi}}{4}$$

so that $N_s = N_1^* \leq 0.225 \times b_e t_p^2 \times f_{yi} \times \frac{n_b}{b_t}$

For the case of tension in the column member, the welds connecting the column to the base plate must have sufficient strength. Weld strength is assessed using Section 3.2 of this Manual.

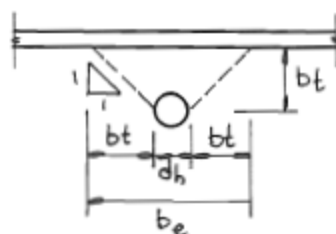


Fig. 5.12.10