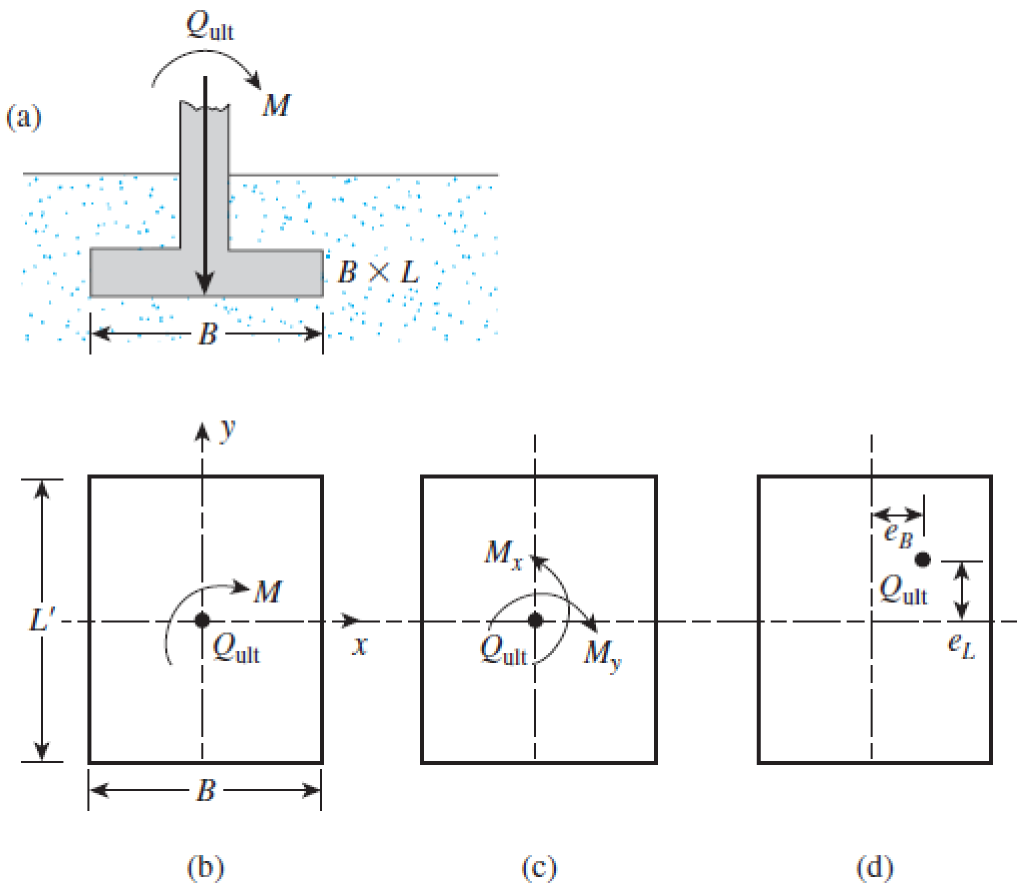
As before, to evaluate F_{cs}, F_{qs}, and $F_{\gamma s}$ (Table 3.4), we use the effective length L' and effective width B' instead of L and B, respectively. To calculate F_{cd}, F_{qd}, and $F_{\gamma d}$, we do



not replace B with B'. In determining the effective area A', effective width B', and effective length L', five possible cases may arise (Highter and Anders, 1985).

Case I. $e_L/L \geq \frac{1}{6}$ and $e_B/B \geq \frac{1}{6}$. The effective area for this condition is shown in Figure 3.20, or

$$A' = \tfrac{1}{2}B_1L_1 \tag{3.54}$$

where

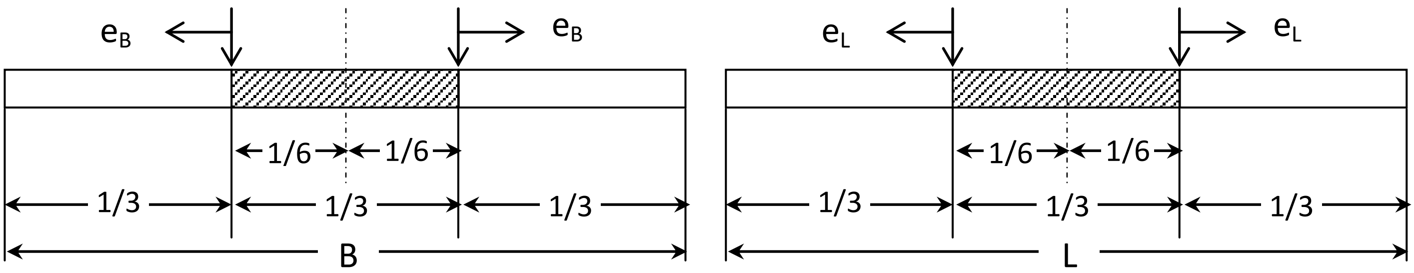
$$B_1 = B\left(1.5 - \frac{3e_B}{B}\right) \tag{3.55}$$

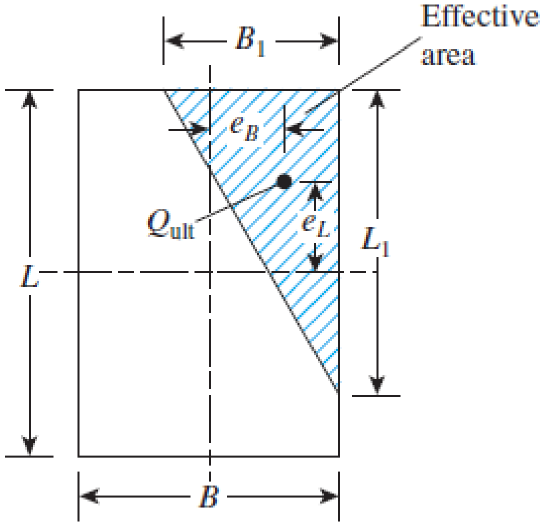
and

$$L_1 = L\left(1.5 - \frac{3e_L}{L}\right) \tag{3.56}$$

The effective length L' is the larger of the two dimensions B_1 and L_1. So the effective width is

$$B' = \frac{A'}{L'} \tag{3.57}$$





Case I

Case II. $e_L/L < 0.5$ and $0 < e_B/B < \frac{1}{6}$. The effective area for this case, shown in Figure 3.21a, is

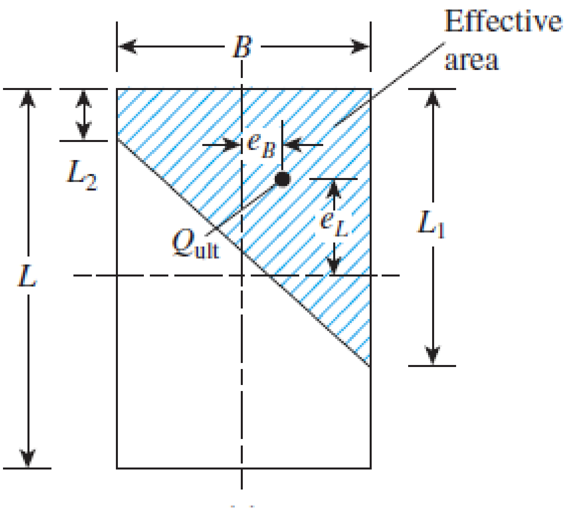
$$A' = \tfrac{1}{2}(L_1 + L_2)B \tag{3.58}$$

The magnitudes of L_1 and L_2 can be determined from Figure 3.21b. The effective width is

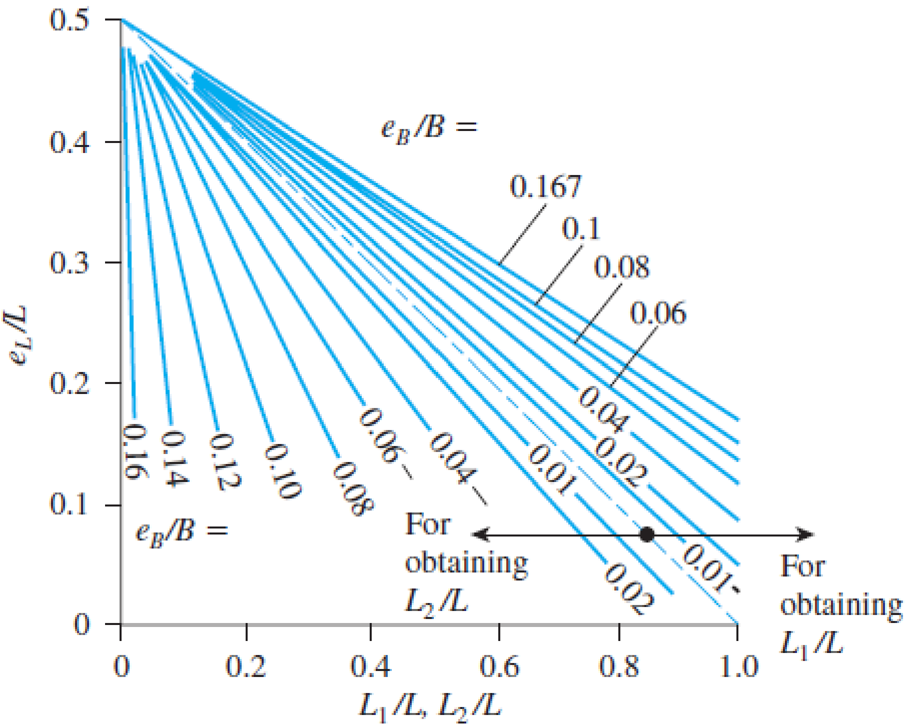
$$B' = \frac{A'}{L_1 \text{ or } L_2 \quad \text{(whichever is larger)}} \tag{3.59}$$

The effective length is

$$L' = L_1 \text{ or } L_2 \quad \text{(whichever is larger)} \tag{3.60}$$



Case II



(b)

Case III. $e_L/L < \frac{1}{6}$ and $0 < e_B/B < 0.5$. The effective area, shown in Figure 3.22a, is

$$A' = \frac{1}{2}(B_1 + B_2)L \tag{3.61}$$

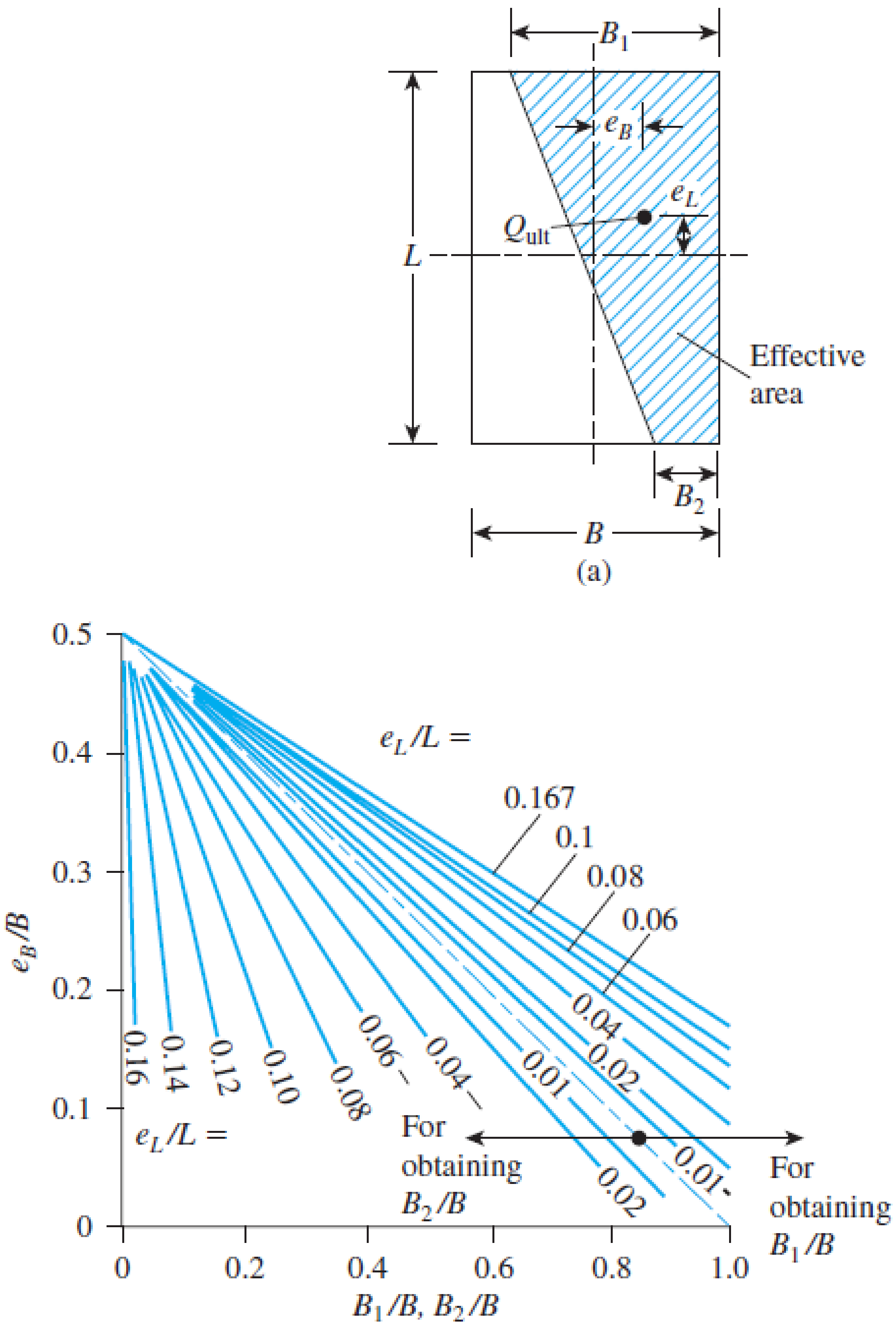
The effective width is

$$B' = \frac{A'}{L} \tag{3.62}$$

The effective length is

$$L' = L \tag{3.63}$$

The magnitudes of B_1 and B_2 can be determined from Figure 3.22b.



Case III

(a)

(b)