

The story deflections are given by equation 12.8-15 as:

$$\delta_x = \frac{C_d \delta_{xe}}{I_e}$$

Where  $\delta_{xe}$  is the calculated elastic deflection. This is taken to be:

$$\delta_{xe} = \frac{F_x}{K_x}$$

Where  $F_x$  is the design story shear (§12.8.3) and  $K_x$  is the story stiffness. The story drift is the difference between story deflections:

$$\Delta_x = \delta_x - \delta_{x-1}$$

Equations 1 and 2 can substituted into this to get:

$$\Delta_x = \frac{C_d}{I_e} \left( \frac{F_x}{K_x} - \frac{F_{x-1}}{K_{x-1}} \right)$$

$K_x$  is then solved for:

$$K_x = \frac{F_x}{\frac{\Delta_x I_e}{C_d} + \frac{F_{x-1}}{K_{x-1}}}$$