



Shear-Stress Equations

$$V_A = \frac{V}{A_c} + \frac{\gamma_{vx}(M_x - Vg_1) c_{AB}}{J_{cx}} + \frac{\gamma_{vy}(M_y - Vg_2) c_{AD}}{J_{cy}} \quad (\text{Eq. 3a})$$

$$V_D = \frac{V}{A_c} + \frac{\gamma_{vx}(M_x - Vg_1) c_{AB}}{J_{cx}} - \frac{\gamma_{vy}(M_y - Vg_2) (c_y + d/2 - c_{AD})}{J_{cy}} \quad (\text{Eq. 3b})$$

$$V_B = \frac{V}{A_c} - \frac{\gamma_{vx}(M_x - Vg_1) (c_x + d/2 - c_{AB})}{J_{cx}} + \frac{\gamma_{vy}(M_y - Vg_2) c_{AD}}{J_{cy}} \quad (\text{Eq. 3c})$$

$$\gamma_{vx} = 1 - \frac{1}{1 + 2/3 \left(\frac{c_x + d/2}{c_y + d/2} \right)^{1/2}} \quad (\text{Eq. 4a}); \quad \gamma_{vy} = 1 - \frac{1}{1 + 2/3 \left(\frac{c_y + d/2}{c_x + d/2} \right)^{1/2}} \quad (\text{Eq. 4b})$$

Critical-Section Properties

$$A_c = (c_x + c_y + d) d; \quad c_{AB} = \frac{(c_x + d/2)^2 d}{2A_c}; \quad c_{AD} = \frac{(c_y + d/2)^2 d}{2A_c}$$

$$J_{cx} = \frac{d(c_x + d/2)^3}{12} + \frac{(c_x + d/2)d^3}{12} + (c_y + d/2)dc_{AB}^2 + (c_x + d/2)d \left(\frac{c_x + d/2}{2} - c_{AB} \right)^2$$

$$J_{cy} = \frac{d(c_y + d/2)^3}{12} + \frac{(c_y + d/2)d^3}{12} + (c_x + d/2)dc_{AD}^2 + (c_y + d/2)d \left(\frac{c_y + d/2}{2} - c_{AD} \right)^2$$

Fig. 5.20 — Moment-Shear Interaction-Relationships for Corner Column Connections