

Subject: SBB29d - New York 5-Tube Bridge Rail Weight Per Foot Calculations

**8'-3" Post Spacing**

1.) Input Information

$$L_{\text{span}} := 8\text{ft} + 3\text{in} \quad \text{Post Spacing}$$

Post Size W6x25

$$BP_{\text{thk}} := 1.25\text{in}$$

$$BP_{\text{area}} := 10\text{in} \cdot 14\text{in}$$

$$L_{\text{post}} := 4.75\text{ft} - 1.25\text{in}$$

$$\text{Post}_{\text{unitwt}} := 25 \frac{\text{lbf}}{\text{ft}}$$

$$\gamma_{\text{steel}} := 490 \frac{\text{lbf}}{\text{ft}^3}$$

$$\text{Rail}_{\text{unitwt1}} := 14.53 \frac{\text{lbf}}{\text{ft}} \quad \text{HSS6x6x3/16}$$

$$\text{Rail}_{\text{unitwtlow}} := 12.21 \frac{\text{lbf}}{\text{ft}} \quad \text{HSS5x3x1/4}$$

$$\text{Post}_{\text{wt}} := L_{\text{post}} \cdot \text{Post}_{\text{unitwt}} + (BP_{\text{thk}} \cdot BP_{\text{area}} \cdot \gamma_{\text{steel}})$$

$$\text{Rail}_{\text{wtperfoot}} := \frac{\text{Rail}_{\text{unitwt1}} \cdot L_{\text{span}} \cdot 2 + (\text{Post}_{\text{wt}}) + 35\text{lbf} + (\text{Rail}_{\text{unitwtlow}} \cdot L_{\text{span}} \cdot 3)}{L_{\text{span}}}$$

$$\text{Rail}_{\text{wtperfoot}} = 90.026 \cdot \frac{\text{lbf}}{\text{ft}} \quad \text{Say } 90 \text{ lb/ft}$$