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PROJECT
CLIENT
PROJECT NUMBER SHEET NUMBER 6
CALCULATED BY DATE

Per AISC 13th, Appendix 6

6.3 Beams

→ Lateral Bracing

$$P_{br} = 2N_i (C_b P_f) C_t C_d / \phi L_b$$

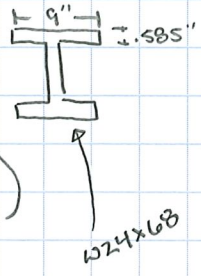
N_i = 4 - 3/n for discrete bracing
= $4 - \frac{3}{5}$ (8' o.c. braces)
= 3.6

C_b = 1.0 (conservative)

$$P_f = \frac{\pi^2 E I_{yc}}{L_b^2}$$

$$= \frac{\pi^2 (29{,}000)\left(\frac{.585 \times 9^3}{12}\right)}{(8'(12''))^2}$$

= 1103k



$$C_t = 1 + \frac{1.2}{n}$$
$$= 1 + \frac{1.2}{5}$$
$$= 1.24$$

C_d = 1.0 (single curvature)

Stiffness

$$P_{br} = \frac{2(3.6)(1103^k)(1.24)(1.0)}{(8'(12''))}$$

= 102.6k/in

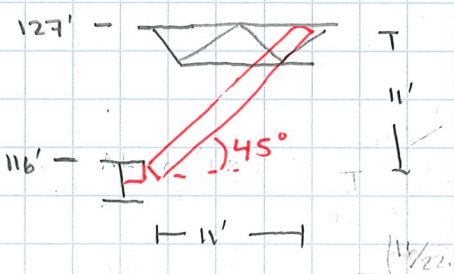
Strength

$$P_{br} = .01 M_u C_t C_d / h_o$$

$$= \frac{.01(353.73^{k\cdot ft})(1.24)(1.0)}{\left(23.7'' - \frac{.585''}{2}\right)}$$

h_o: distance between flange centroid

P_{br} = 2.248k



L = 15.6'

$$k = \frac{AE}{L}$$

$$102.6^k/_{in} = \frac{A(29000^{ksi})}{15.6^{ft}(12''/1')}$$

$A_{min} = .662 in^2$