POSITIVE MOMENT

CHORD MEMBER #7 Consists of 2 - 3" x 2" x 0.37" angles

Area = 3.66 sq. in.

D_t = 29.5 in. f_y = 36,000 psi

B_{eff} = 64.0 in. f_s = 22,000 psi

t = 4.00 in. f_{cc} = psi

y_1 = 2.00 in.

y_2 = 5.96 in. d_3 = 22.25 in.

y_3 = 28.94 in. c_1 = 6.69 in.

d_1 = 4.69 in. c_2 = 22.81 in.

d_2 = 0.73 in.

$$I_s = (I_c + A_c d_1^2) + (I_{TCA} + A_{TCA} d_2^2) + I_{BCA} + A_{BCA} d_3)$$

$$\bar{y} = \frac{(A_c y_1 + A_{TCA} y_2 + A_{BCA} y_3)}{(A_c + A_{TCA} + A_{BCA})}$$

$\bar{y}$ = 6.69 in.

I_s = 2,214 in.^{4} (C 2878)

Resisting Moment = $f_s \times \frac{I_s}{c_2}$ = 2,133,000 in. lbs.

Composite Design Top Chord Check

Applicable Moment = 2,133,000 in. lbs. f_c = 3,000 psi

f'_c = 1,350 psi

$f'_{cc} = \frac{Mc_1}{15I_s}$ = 430 psi

Maximum Positive Moment = 2,133,000 in. lbs.

Design of Web f_y = 36,000 psi

Use 0.92" DIA. Area = 0.67 sq. in.