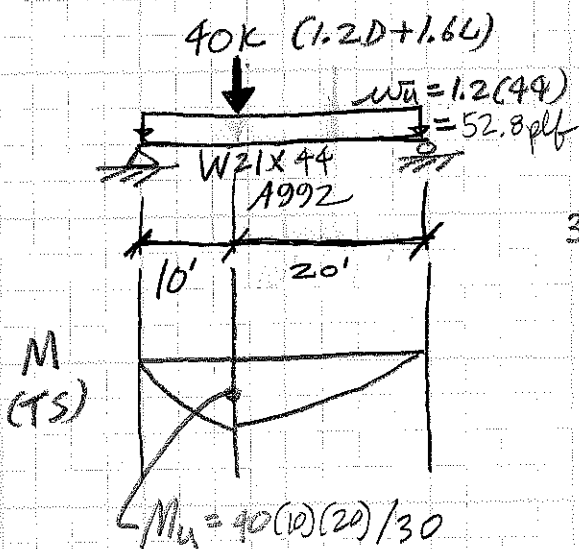


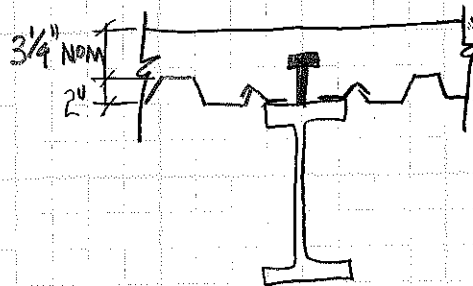
EXAMPLE:



M
(TS)

$$M_u = 40(10)(20)/30 + (0.0528)(15')(10) - (0.0528)(10')^2/2 = 272 \text{ k'}$$

- Select # of studs to have 50% \pm compoz.
- Evaluate $M_u \leq \phi M_n$



$f'_c = 3 \text{ ksi}$
 $w_c = 110 \text{ pcf}$
 $3/4" \text{ STUDS}$
 $b_e = 90"$

$$a. E_c = 110^{1.5} \sqrt{3} = 2000 \text{ ksi}$$

$$Q_n = \min \left\{ \begin{array}{l} 0.5(0.442) \sqrt{3(2000)} = 17.1 \text{ K} \leftarrow \\ (1)(0.75)(0.442)(65) = 21.5 \text{ K} \end{array} \right.$$

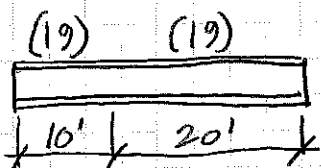
$$C_{max} = \frac{90"}{45"} \quad A_c = 2(45) + (3/4)(90) = 383 \text{ in}^2$$

$$C_{max} = 0.85(3)(383) = 975 \text{ K}$$

$$T_{max} = (50)(13) = 650 \text{ K}$$

$$V_{max} \approx 0.5(650) = 325 \text{ K}$$

$$n_{req} = 325/17.1 = 19 \text{ studs between } M=0 \text{ \& } M=M_u$$

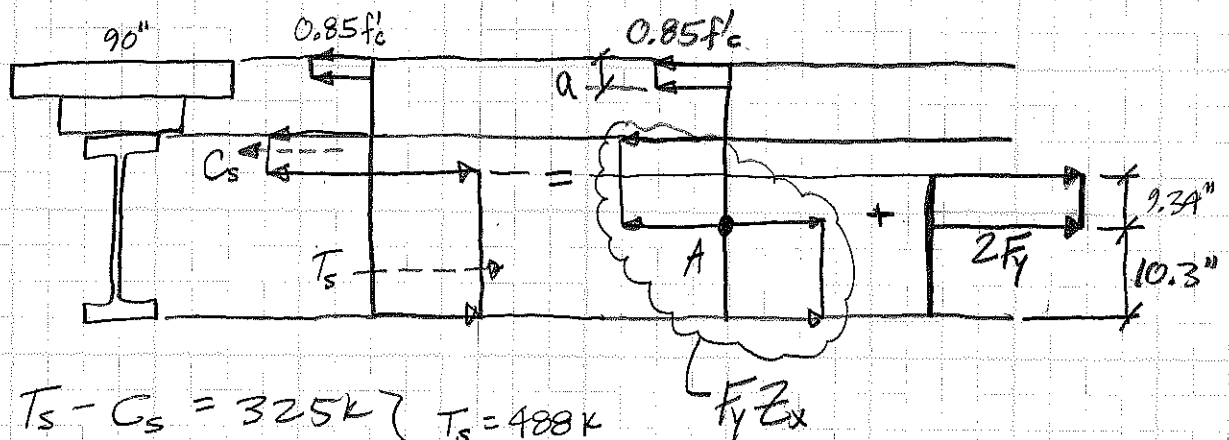


$$\begin{array}{l} \text{1st } 10': \\ \text{SPACING} \approx (10')(12)/(20 \text{ spaces}) = 6" \\ \text{MIN SPACING} = 6d_s = 6(3/4") = 4 1/2" \text{ OK} \\ \text{Last } 20': \\ \text{SPACING} \approx 12" \text{ OK} \end{array}$$

Project

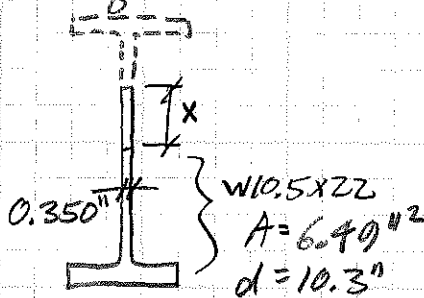
By Date

$$b. V' = (19)(17.1) = 325 \text{ k}$$



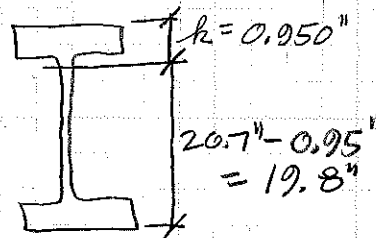
$$\begin{aligned} T_s - C_s &= 325 \text{ k} \\ T_s + C_s &= 650 \text{ k} \end{aligned} \quad \begin{aligned} T_s &= 488 \text{ k} \\ C_s &= 163 \text{ k} \end{aligned}$$

cl PNA in flg? $163 \text{ k} = 50(6\frac{1}{2}")(a_s) \Rightarrow a_s = 0.502" > t_f$
 Elev of PNA: 0.502" IN WEB



$$488 \text{ k} = 50(6.49) + (50)(0.35)(x)$$

$$x = 9.34"$$



PNA IS $9.34" + 10.3" = 19.6"$, so just below fillet.

$$0.85(3)(95)(a) = 325 \text{ k} \Rightarrow a = 1.34"$$

ΣM_A :

$$\begin{aligned} M_n &= [(325)(10.3 + 5\frac{1}{4} - 1.34/2) + 50(95.4) - \\ &\quad 2(50)(0.35)(9.34)(9.34/2)](1/2) \\ &= 673 \text{ k}' \end{aligned}$$

$$\phi M_n = (0.9)(673) = 606 \text{ k}' > M_u = 272 \text{ k}' \quad \underline{\text{OK}}$$