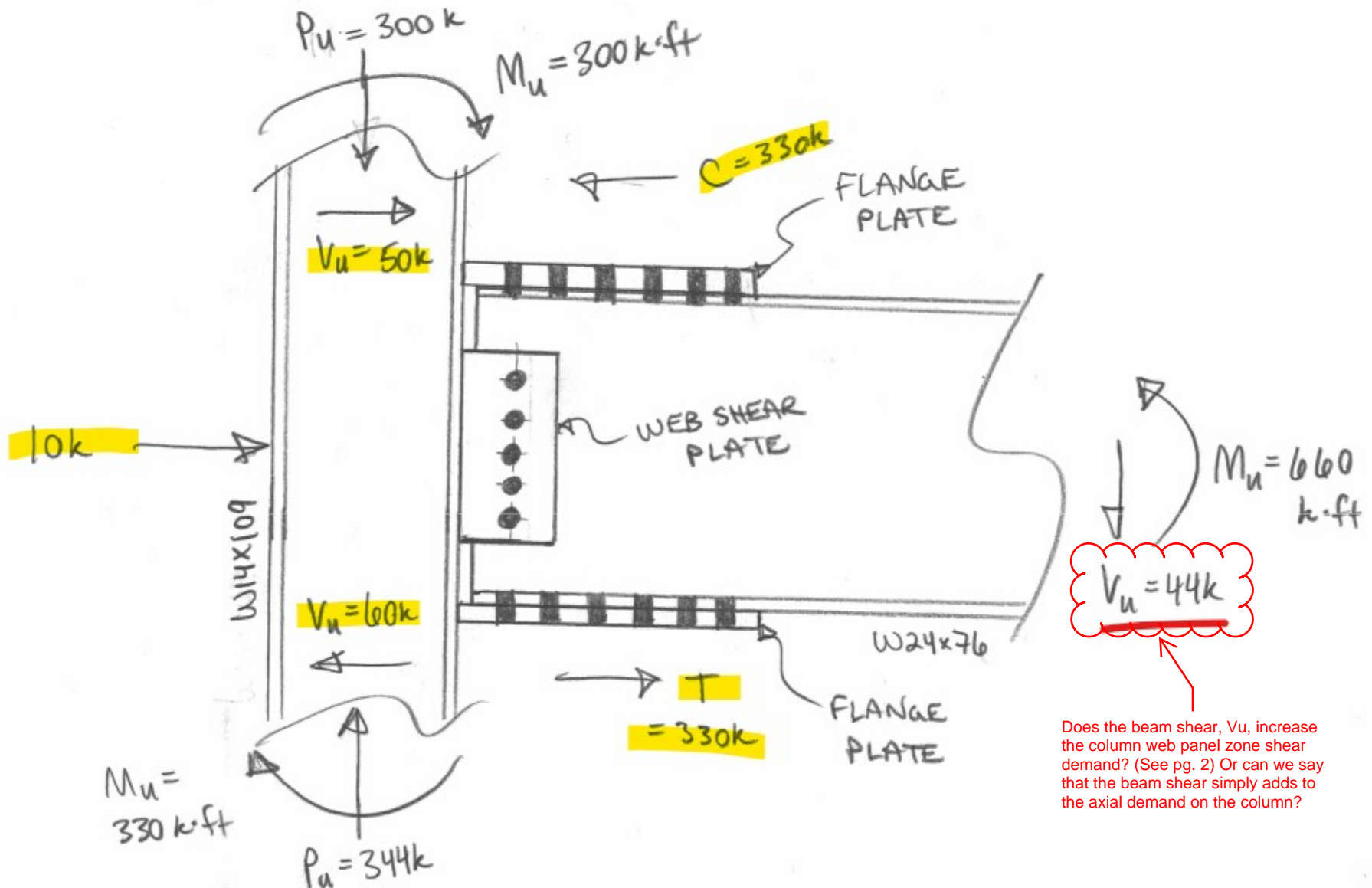


MOMENT CONNECTIONS : AISC 360-16 LRFD

FLANGE PLATE MOMENT CONNECTION



COLUMN WEB PANEL ZONE SHEAR: (J10.6) $\Phi = 0.9$

J10.6(a): $\alpha = 1.0$ (LRFD) $P_r = 344 \text{ k}$ REQUIRED AXIAL

$$P_y = F_y A_g = 50 \text{ ksi} (32 \text{ in}^2) = P_y = 1600 \text{ k}$$

$$\alpha P_r = 1.0(344 \text{ k}) = 344 \text{ k}, \quad 0.4 P_y = 0.4(1600 \text{ k}) = 640 \text{ k}$$

$$\alpha P_r = 344 \text{ k} < 0.4 P_y = 640 \text{ k}$$

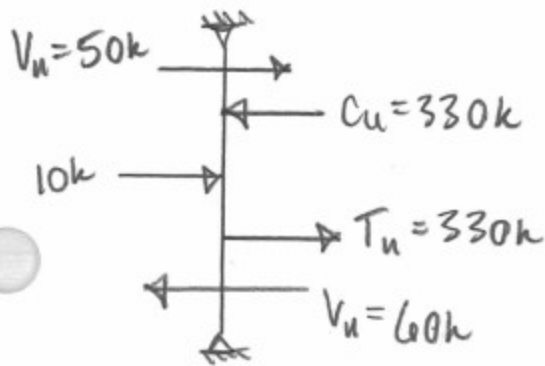
$$\therefore R_n = 0.6 F_y d_c t_w = 0.6 (50 \text{ ksi}) (14.3 \text{ in}) (0.525 \text{ in}) = 225.2 \text{ k}$$

$$\Phi R_n = 0.9(225.2 \text{ k}) =$$

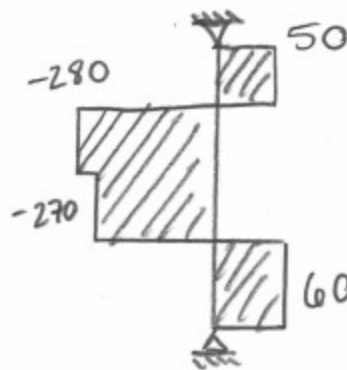
$$\Phi R_n = 202.7 \text{ k} < V_{u \max} = 280 \text{ k} \quad \underline{\underline{\text{No Good!}}}$$

COLUMN SHEAR DEMAND:

As shown: No beam shear, $V_u = 44 \text{ k}$, in column shear diagram. Beam shear becomes column axial force.



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SHEAR DIAGRAM

$V_u \text{ (k)}$

$$V_{u \max} = 280 \text{ k}$$

★ Need to design web doubler plates or diagonal stiffeners. ★