



INTEGRATED
DESIGN
SOLUTIONS

Project _____

NUM. _____

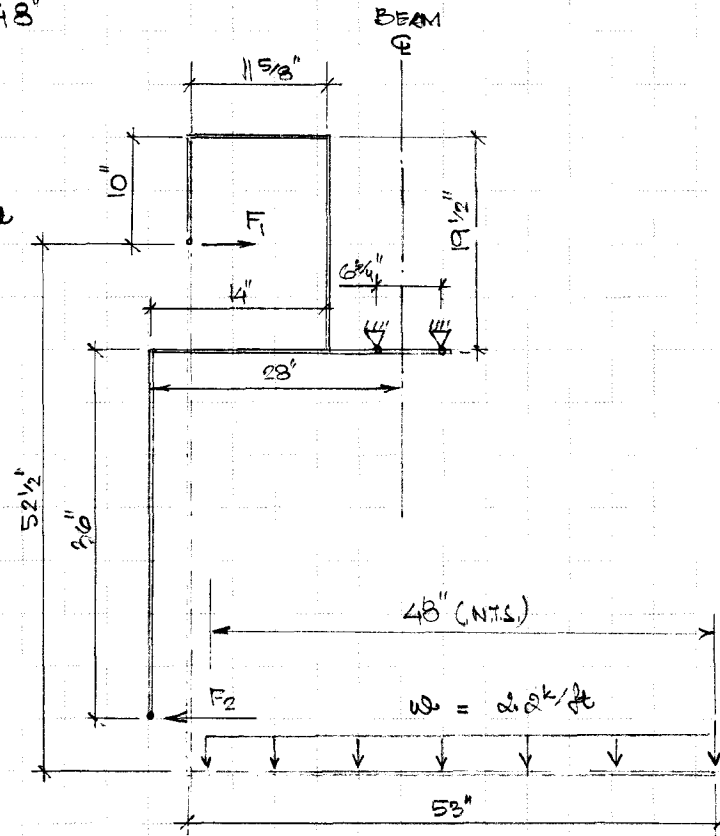
DATE: _____

By _____

SHEET _____ OF _____

40 Panel, width = 4' = 48"
Panel load, $P = 17\text{ k/ft}$
 $= 8.5\text{ k}$

$$\therefore \text{UDL, } w = \frac{8.5}{4'} = 2.125\text{ k/ft}$$



①

FORM FBD:

$$\sum F_y = 0 \Rightarrow 2.125 \times 48 = R_v$$

$$\therefore R_v = 8.8\text{ k}$$

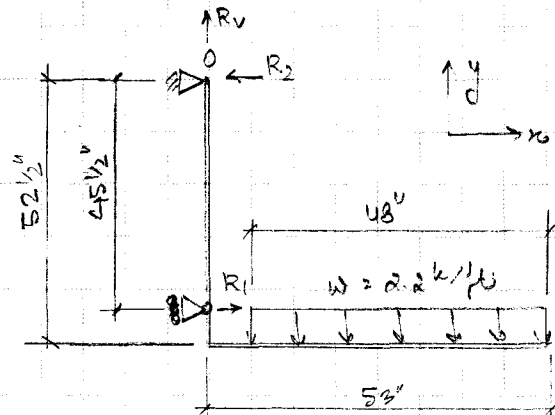
$$\sum F_x = 0 \Rightarrow R_1 + R_2 = 0$$

$$\therefore R_1 = -R_2 \text{ (opposite dir.)}$$

$$\sum M_o = 0$$

$$\therefore 2.125 \times \frac{48}{12} \times 29' - R_1 \times 45.5' = 0$$

$$\therefore R_1 = 5.6\text{ k} = R_2$$



②

FRAME FBD (cont. on next page).



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$$\sum F_y = 0$$

$$\therefore R_1 + R_2 = 8.8^k \quad \text{--- (1)}$$

$$\sum F_x = 0$$

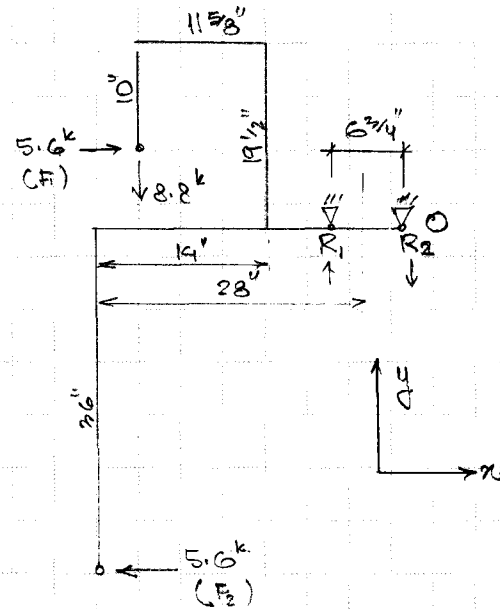
$$\Rightarrow F_1 = F_2 \quad \text{--- True.}$$

$$\sum M_O = 0$$

$$\therefore 5.6^k \times 26'' + 5.6^k \times 9.5'' - 8.8^k \times 29'' + R_1 \times 6.75'' = 0$$

$$\Rightarrow R_1 = \frac{0.4^k}{6.75} = 0.06^k$$

$$\therefore R_2 = 8.8 - 0.06 = 8.7^k$$



What will be the torsional moments on beam ??