Ejercicios

Nombre del Alumno: Pablo Daniel Castro Herrera

Nombre del tema: Momentos

Parcial: II

Nombre de la Materia: Resistencia de los materiales

Nombre del profesor: Arq. Pedro Garcia

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 4

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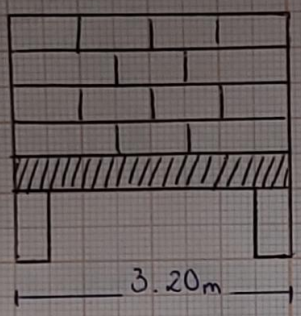


$h = \frac{L}{12} \rightarrow \frac{3.2\,m}{12} \rightarrow 0.26\ m$

$b = 0.5(h) \rightarrow 0.5(0.26) = 0.13m$

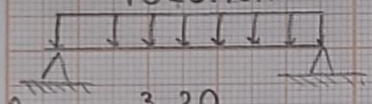
$2,400\ kg/m^2$ concreto refc

Concreto reforzado

Muro de Block = 270 kg/m

P.P. trabe = $0.26\,m \times 0.13\,m \times 2400\ kg/m^2 = 81.1\ kg/m$

P.P. muro = $5.70\,m(270\ kg/m) = 1539\ kg/m$



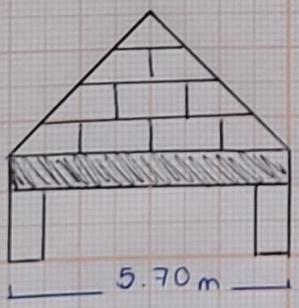
$M = \frac{1}{8} q L^2 = \frac{1}{8}\ 1620.12\,t/m(3.20\,m)^2 = 2073.75\ t \cdot m$

$R_A = R_B = \frac{q \cdot L}{2} = \frac{1620.1\,t/m(3.20\,m)}{2} = 2592.19\ t$

$\theta_A = \theta_B \frac{q L^3}{24 E I}$ $\quad \theta_A = \theta_B = \frac{1620.1\,t/m(3.20)^3}{24(3,100,000\,t/m^2)\ 0.0001904}$

$= 3.7476$

$F = \frac{5}{384} \cdot \frac{1620.12(3.20)^4}{3,100,000\,t/m^2 \cdot 0.0001904}$ $\quad F = 0.4684$



$h = \frac{L}{12} \rightarrow \frac{5.70}{12} = 0.47\ m$

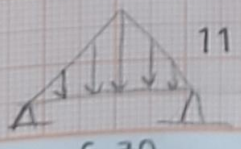
$b = 0.5(0.47) = 0.23\ m$

Concreto reforzado

Muro de block = 270 kg/m

P.P. trabe = $0.47\,m \times 0.23 \times 2400\ kg/m^2 = 259.44$

P.P. muro = $3.18\,m(270\ kg/m) = 858.6\ kg/m$



$$M = \frac{qL^2}{12}$$

$$M = \frac{1118.04\,(5.70)^2}{12} = 3027.093\ t \cdot m$$

$$R_A = R_B = \frac{qL}{4}$$

$$R_A = R_B = \frac{1118.04\,(5.70)}{4} = 1593.20\ t$$

$$\theta_A = \theta_B = \frac{5qL^3}{196 \cdot EI}$$

$$\theta_A = \theta_B = \frac{5\,(1118.04)\,(5.70)^3}{196 \cdot (3100000)\,0.002336} = 0.7293$$

$$F = \frac{qL^4}{120 \cdot EI} = \frac{1118.04\,(5.70)^4}{120\,(3100000)\,0.002336} \qquad F = 1.3581$$