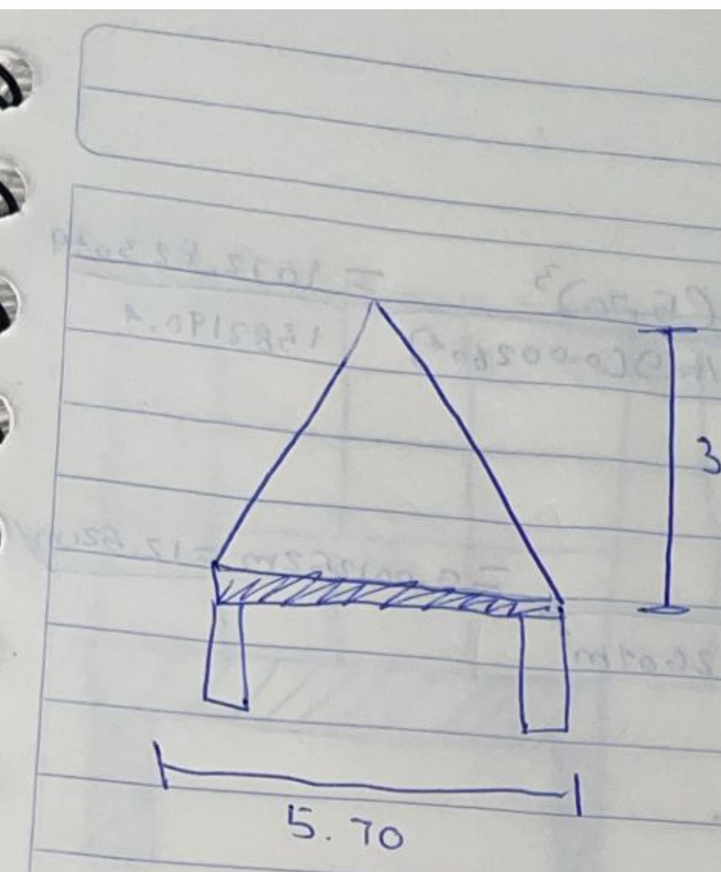
Alumno: Edgar Daniel Santiago Guillen

Licensiatura: Arquitectura

Profesor: ARQ Pedro García López

Cuatrimestre: 4to

Materia: Resistencia de materiales



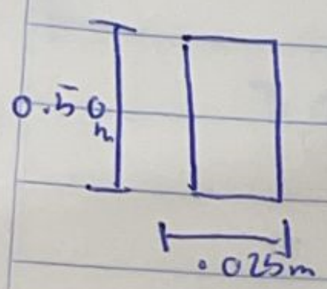
Concreto reforzado
Muro de block = 270 kg/m

$h = \frac{L}{12} = \frac{5.70m}{12} = 0.475m$

$b = 0.5(h) \rightarrow 0.5(0.50m) = 0.25m$

pp. trabe → 0.50 m x 0.25 m x 2400 kg/

= 300 kg/m

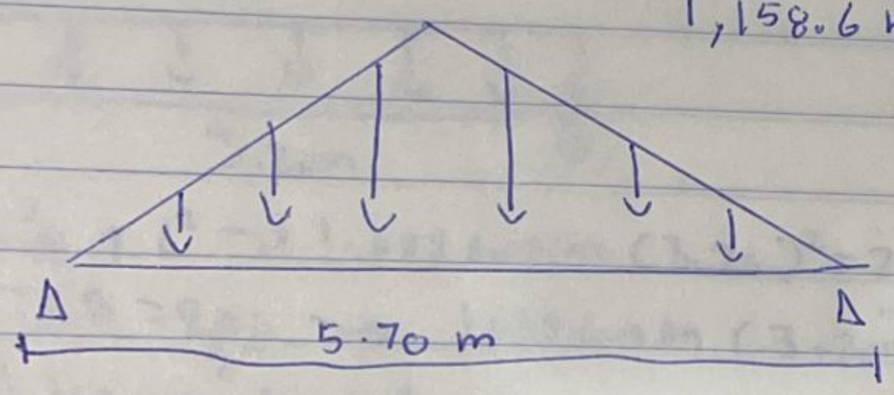


P.P. muro → 3.18m (270 kg/m) = 858.6 kg/m

+ 858.6 kg/m

300 kg/m

1,158.6 kg/m → 1,158.6 kg/m



$M = \frac{q * L^2}{12} \rightarrow 1,1586 \text{ ton/m} (5.70)^2 = 3.136 \text{ ton/m}$

$\Sigma R_A = R_B = \frac{qL}{4} \rightarrow 1.1586 \text{ ton/m} (5.70) = 1.651 \text{ ton}$

$E = 3,100.000 \text{ ton/m}^2$

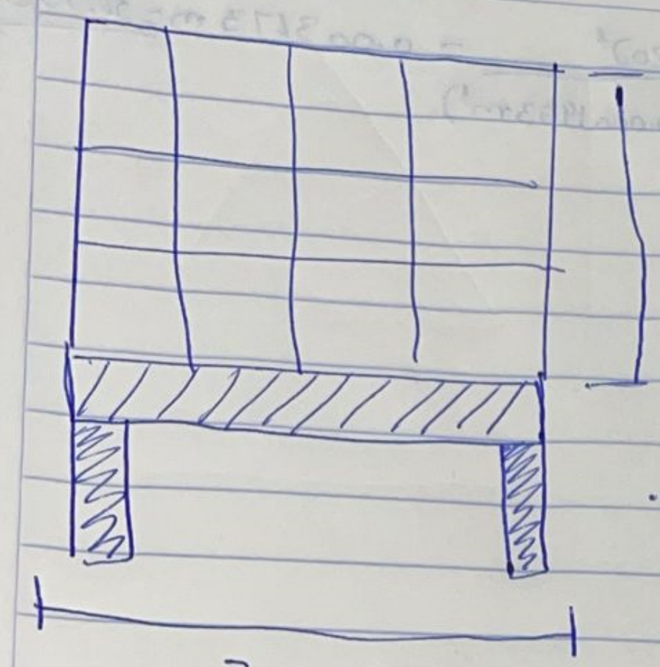
$I_X = \frac{bh^3}{12} \rightarrow 0.25m (0.50)^3 = 0.002604 m^4$

$$\varnothing A = eB = \frac{5qL^3}{19c \cdot E \cdot I} \longrightarrow \frac{5(1.1586\,ton/m)(5.70)^3}{19c(3,100.000\,ton/m^2)(0.00260^4)} = \frac{1072.8230^{19}}{1582190.1}$$

$$= 0.0006780$$

$$F = \frac{qL^4}{120EI} \longrightarrow \frac{1.1586\,ton/m\,(5.70m)^4}{120\,(3,100,000\,ton/m^2)(0.002601m^4} = 0.001252m = 12.52cm$$

$$\Delta per = \frac{L}{240} \longrightarrow \frac{570m}{240} = 2.375\ cm$$



Concreto reforzado

muro de Blocks = 270 kg/m

$h = \frac{L}{12} \rightarrow \frac{3.20m}{12} = 0.266m$

$b = 0.5(h) \rightarrow 0.5(0.25m) = 0.125m$

P.P trabe = 0.25 m x 0.15m x 2,400 mg/cm²

= 90 kg/m

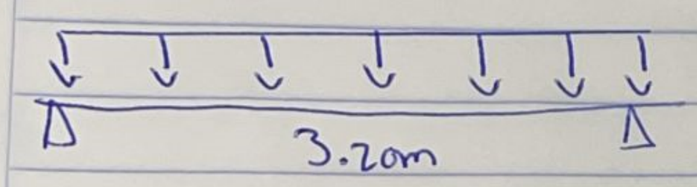
P.P. muro 5.70m (270 kg/m) = 1.539 kg/m

1.539 kg/m

90 kg/m → 1.629 ton/m

1.629 kg/m

1.629 ton/m



$M = \frac{1}{8} q L^2 \rightarrow 1.629 \text{ ton/m} (3.20)^2 = 2.085 \text{ ton} \cdot m$

$P.A = RB = \frac{q * L}{2} \rightarrow 1629 \text{ ton/m} (3.20m) = 2.606 \text{ ton}$

$E = 3,100,000 \text{ tcn/m}^2$

$I x = \frac{bh^3}{(2)} \rightarrow (0.15m)(0.25m)^3 = 0.000195 3 m^4$

$\theta A = \theta B = \frac{q * L^3}{24EI} = \frac{1.629 (3.20m)^3}{24 (3,100,000 \frac{\text{tom}}{m^2})(0.000195 3 m^4)} = \frac{53.379672}{14.53032} = 0.003673$

$F = \frac{5}{384} \cdot \frac{qL^4}{EI} \rightarrow \frac{5}{384} \cdot 1.62$

$$F = \frac{5}{384} \cdot \frac{wL^4}{EI} \rightarrow \frac{5}{384} \cdot \frac{1.629\ ton/m\ (3.20)^4}{(3,100,000\ ton/m^2)(0.000.1953\ m^4)} = 0.003673\ m = 36.73\ cm$$

$$\Delta per. \frac{L}{240} \rightarrow \frac{320\ cm}{240} = 1.33\ cm$$