ANALISIS DE MATERIALES Y SISTEMAS CONSTRUCTIVOS
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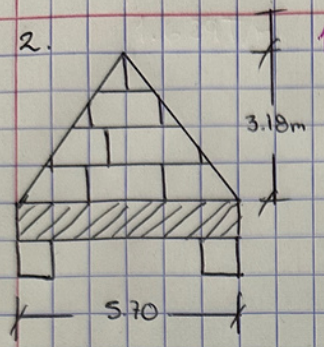
2.



1.1586 T/m

Concreto reforzado
muro de block

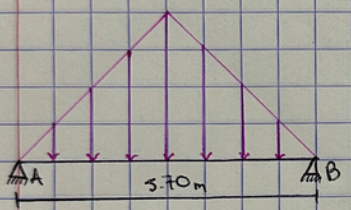
$h = \frac{L}{12} \rightarrow \frac{5.70m}{12} = 0.475m$

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

P.P trabe $\rightarrow 0.5m \times 0.25m \times 2400 kg/m^2 = 300 kg/m$

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

$858.6 kg/m + 300 kg/m = 1.1586 ton/m$



$M = \frac{q \cdot L^2}{12} \rightarrow \frac{1.1586 ton/m (5.70)^2}{12} = 3.136 ton/m$

$RA = RB = \frac{qL}{4} \quad \frac{1.1586 ton/m (5.70)}{4} = 1.651 ton$

$E = 3,100,000 ton/m^2$

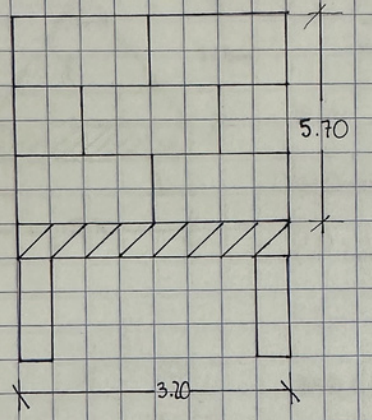
$I_x = \frac{bh^3}{12} = \frac{0.25m(0.50)^3}{12} = 0.002604 m^4$

$\emptyset A = \emptyset B = \frac{5qL^3}{196 \cdot EI} \quad \frac{5(1.1586 T/m)(5.70)^3}{196(3,100,000 t/m^2)(0.002604 m^4)} = \frac{1072.823049}{1582190.4} = 0.0006780$

$F = \frac{qL^4}{120EI} \quad \frac{1.1586 T/m (5.70m)^4}{120(3,100,000 t/m^2)(0.002604 m^4)} = 0.001262m = 12.62cm$

$Aper = \frac{L}{240} \quad \frac{570m}{240} = 2.375cm$

1. 1.629T/m



Concreto reforzado
muro de block = 270 kg/m

$h = \frac{L}{12} \rightarrow \frac{3.20m}{12} = 0.2666m$

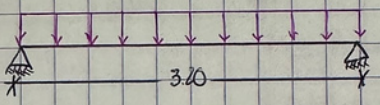
$b = 0.5(h) \rightarrow 0.5(0.25m) = 0.125m$

P.P trabe = 0.25m x 0.15m x 2400 kg/m³ = 90 kg/m

P.P muro = 5.70m (2.70 kg/m) = 1539 kg/m

1539 kg/m + 90 kg/m =

1.629 ton/m



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

$RA = RB = \frac{q \times L}{2} \rightarrow \frac{1.629 \text{ ton/m } (3.20m)^2}{2} = 2.606 \text{ ton}$

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

$I_x = \frac{bh^3}{12} \rightarrow \frac{(0.15m)(0.25m)^3}{12} = 0.000019531m^4$

$\varnothing A = \varnothing B = \frac{q \times L^3}{24EI} \rightarrow \frac{1.629 (3.20m)^3}{24 (3,100,000)(0.000019531m^4)} = \frac{53.379072}{14,530.32} = 0.003673$

$F = \frac{5}{384} \cdot \frac{qL^4}{EI} \rightarrow \frac{5}{384} \cdot \frac{1.629 \text{ ton/m } (3.20)^4}{(3,100,000 \frac{ton}{m^2})(0.000019531m^4)} = 0.003673m = 86.730cm$

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