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RESISTENCIA DE MATERIALES DE CONSTRUCCION

LICENCIATURA EN ARQUITECTURA

MOMENTOS

1.1586

Concreto reforzado.

T
3.15m
⊥

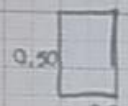
Muro de block = 270 kg/m

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

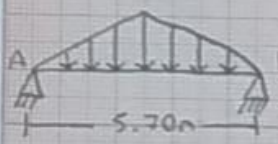
$b = 0,5\ (h) \rightarrow 0,5\ (0.50m) = 0.25m$

P.P trabe = 0.50m x 0.25m x 2,400 kg/m² = 300 kg/m

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



858.6 kg/m + 858.6 kg/m
800 kg/m
1,158.6 kg/m → 1.1586 ton/m



$M = \frac{qL^2}{12} \rightarrow \frac{1.1586\ ton/m\ (5.70)^2}{12} = 3.136\ ton.m$

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

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

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

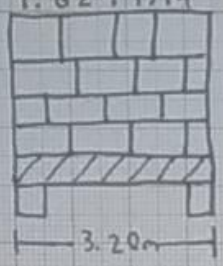
$\theta A = \theta B = \frac{5qL^3}{196 \cdot E \cdot I} \rightarrow \frac{5(1.1586\ ton/m)(5.70)^3}{196(3,100,000\ ton/m^2)(0.002604m^4)}$

0.0006780

$t = \frac{qL^4}{120LI} \rightarrow \frac{1.1586\ ton/m\ (5.70m)^4}{120(3,100000\ ton/m^2)(0.002604m^4)}$

$\Delta\ Pi = \frac{L}{240} \rightarrow \frac{5.70m}{240} = 2.375cm$

Rayter



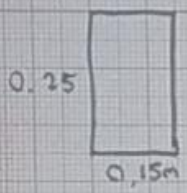
Concreto reforzado
muro de bock = 270 kg/m

$n \cdot \frac{L}{12} \rightarrow \frac{320\,m}{12} = 0.2666\,m$

$b = 0.5\,(n) \rightarrow 0.5(0.25) = 0.125\,m$

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

90 kg/m



P. P muro = 5.70 m (270 kg/m) = 1,539 kg/m

1,539 kg/m
90 kg/m
1,629 kg/m → 1,629 ton/m

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

$RA = RB = \frac{q \cdot L}{2} \rightarrow \frac{1.629\ ton/m\ (3.20m)}{2} = 2.601\ ton$

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

$I x = \frac{bh^3}{12} \rightarrow \frac{(0.15m)(0.25m)^3}{12} = 0.000195\,3m^4$

$\theta A = \theta B = \frac{q L^3}{24 E I} \rightarrow \frac{1.629\,(3.20m)^3}{24\,(3,100,000\ ton/m^2)(0.0001953m^4)} = \frac{53.379072}{19,530.32}$

0.003673

$F = \frac{5}{384} = \frac{q L^4}{E I} \rightarrow \frac{5}{384} \cdot \frac{1.629\ ton/m\ (3.20)^4}{(3,100,000\ ton/m^2)(0.0001953\,m^4} = 0.003673m$

36.730m

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