ISAAC GABRIEL AGUILAR CANO

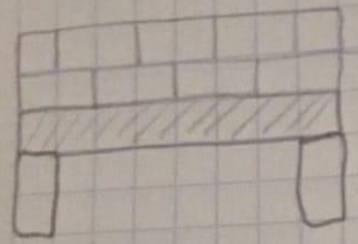
ARQ. PEDRO ALBERTO GARCIA LOPEZ

EJERCICIOS

RESISTENCIA DE LOS MATERIALES

4TO CUATRIMESTRE

ENTREGA:15/10/2023



Concreto reforzado = 2400 kg/m³
Muro de block = 270

$h = \frac{L}{12}$ $h = \frac{3.20m}{12} \rightarrow 0.266$ $0.25m$

$b = 0.5(h)$ $b = 0.5(0.25) \rightarrow 0.13$ $0.15m$

p.p trabe = $0.25m \times 0.15m$ $2400 kg/m^3$ = 90 kg/m

p.p muro = 5.70 (270 kg/m) = 1539 kg/m

q = 1629 kg/m → 1.629 ton/m

$M = \frac{qL^2}{8}$ $RA = RB$ $\frac{q.L}{2}$

$\emptyset A = \emptyset B = \frac{qL^3}{24EI}$ $f = \frac{5}{384} \cdot \frac{qL^4}{EI}$

$I_x = \frac{0.15m(0.25m)^3}{12} = 0.000195312\ m^4$

$M = \frac{1.629\ ton/m\ (3.20m)^2}{8}$

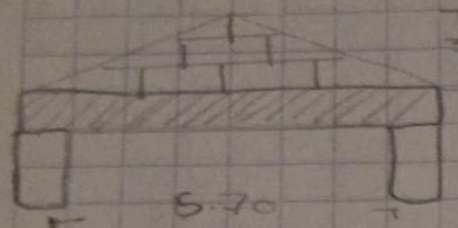
M > 2.085

$RA = RB = \frac{1.629\ ton/m\ (3.20m)}{2} = 2.606$

$\emptyset A = \emptyset B = \frac{1.629\ ton/m\ (3.20)^3}{24(0.000195\ 3m^4)(3{,}000{,}000\ t/m^2)}$

$\emptyset A = \emptyset B = 0.003673$

$f = 0.013020833 \cdot \frac{1.629\ ton/m\ (3.20m)^4}{3{,}000{,}000\ ton/m^2 \cdot 0.000195\ 3m^4} = 0.003673633$



Concreto Reforzado = 2400 kg/m³

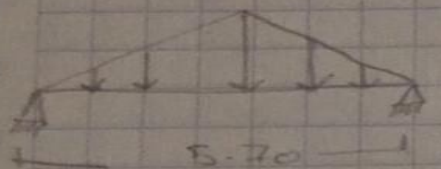
Muro de block = 270 kg/m

$h = \frac{L}{12}$ $h = \frac{5.70}{12} \rightarrow 0.475$ 0.50 m

$b = (0.5)h$ $b = (0.5)0.50 \rightarrow 0.237$ 0.25

$P.P\ trabe = (0.50m)(0.25m)(2400 kg/m^3)$

$= 300 kg/m$



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

$= 1.1586 ton/m$

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

$= 3.1382\ ton.m$

$M = \frac{qL^2}{12}$ $RA = RB = \frac{qL}{4}$

$RA = RE = \frac{1.158\ ton(5.70)}{4}$

$= 1.650 ton$

$\theta A = \theta B = \frac{5.q.l^3}{196EI}$ $I = \frac{qL^4}{120EI}$

$I_x = \frac{0.25m\ (0.50m)^3}{12} = 0.0026041666 m^4$

$\theta A = \theta E = \frac{5.(1.158\ ton_m)(5.70)^3}{196(3100000)(0.0026041m^4)} = 0.000677 m$

$= \frac{1.158 ton/m\ (5.70m)^4}{120(3100000 t/m^2)(0.0026041m^4)} = 0.001261$