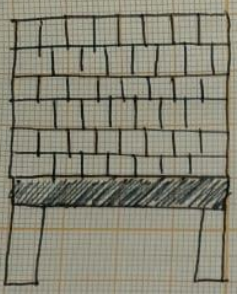


Concreto reforzado
Muro de Block = 270 kg/m

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

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

P.P trabe = $0.25\ m \times 0.15\ m \times 2{,}400\ kg/cm^2 = 90$

P.P muro = $5.70m\ (2.70 kg/m) = 1.539\ kg/m$

$$\begin{array}{r} 1539\ kg/m \\ +\ 90\ kg/m \\ \hline 1{,}629\ kg/m \end{array} = 1.629\ ton/m$$

1.629 ton/m

A ↓↓↓↓↓↓↓↓ B

3.20m

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

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

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

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

$\theta A = \theta B = \frac{q \times L^3}{24\ EI}$ $\frac{16.29(3.20m)^3}{24(3{,}100{,}000\ ton)(0.000195 m^4)}$ $\frac{55.3790}{14.5530.32}$

$f = \frac{5}{384} \cdot \frac{qL^4}{EI} = \frac{5}{384} \cdot \frac{1.629\ ton/m\ (3.20)^4}{(3{,}100{,}000\ \frac{ton}{m^2})(0.000195 m^4)}$ 0.003673

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

Concreto Reforzado

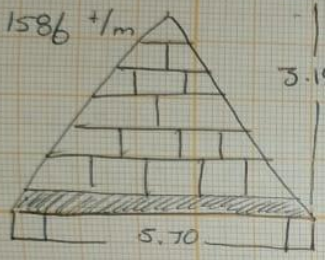
Muro de Block = 270 kg/m

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

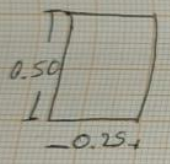
$b = 0.5(h) \rightarrow 0.5(0.50m) = 0.25\ m$

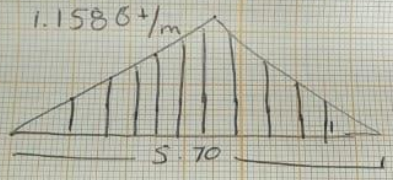
P.P Trabe → $0.50\ m \times 0.25\ m \times 2{,}400\ kg/m^2 = 300\ kg/m$

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



$858.6\ kg/m + 300\ kg/m = 1{,}158.6\ kg/m \rightarrow 1.1586\ ton/m$





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

$RA = RB = \frac{qL}{4} \rightarrow \frac{1.1586\ ton/m\ (5.70)^2}{4} = 1.651\ ton$

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

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

$\emptyset A = AB = \frac{5qL^3}{196 \cdot E \cdot I} \rightarrow \frac{5\ (1.1586\ ton/m)(5.70)^3}{196(3{,}100{,}000\ ton/m^2)(0.002604\ m^2)} = \frac{1072.823049}{1582190.4} = 0.00067$

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

$\frac{5.70m}{240} = 2.375\ cm$