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MATERIA:

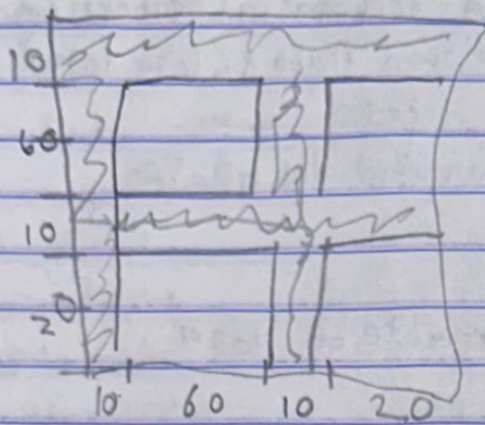
Analisis de estructuras

CUATRIMESTRE:

5

FECHA:

23/01/2024



Peso de caseton 15 kg/m^3

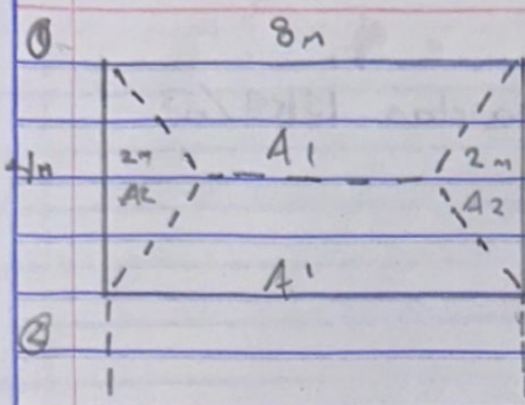
$$(0.1 \text{ m} \times 0.2 \text{ m} \times 0.1 \text{ m}) \times (2 \text{ piezas}) = 0.04 \text{ m}^3 \times 2400 \text{ kg/m}^3 = 96 \text{ kg/m}^2$$

$$(0.1 \text{ m} \times 0.2 \text{ m} \times 0.8 \text{ m}) \times (2 \text{ piezas}) = 0.032 \text{ m}^3 \times 2400 \text{ kg/m}^3 = 76.8 \text{ kg/m}^2$$

$$(10 \text{ m} \times 1 \text{ m} \times 0.05 \text{ m}) = 0.05 \text{ m}^3 \times 2400 \text{ kg/m}^3 = 120 \text{ kg/m}^2$$

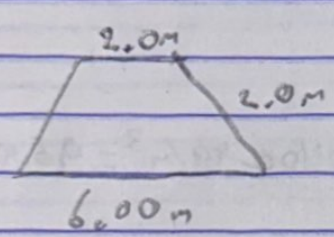
$$(10.80 \times 80 \times 20 \text{ m}) \times (2.5 \text{ piezas}) = 18 \text{ m}^2 (15 \text{ kg/m}^2) = 2.70 \text{ kg/m}^2$$

$$\text{Total} = 96 \text{ kg/m}^2 + 76.8 \text{ kg/m}^2 + 120 \text{ kg/m}^2 + 2.70 \text{ kg/m}^2 = 295.5 \text{ kg/m}^2$$



Area tributaria (geometrica)
 Peso = Area trabe x (Peso losa)
 $W = \frac{\text{peso}}{\text{longitud del apoyo}}$

Peralte de losa



$$\frac{\text{Perimetro} + R}{170} = \frac{20cm + 0.04m}{170} = 0.15m$$

$$\frac{D+b \times h}{2} = \frac{(6m + 2m + 2m)}{2} = 8m^2$$

losa 12cm entre piso

$$\text{Peso} = 8m^2 (648 \text{ kg/m}^2) = 5184 \text{ kg/m}^2$$

Entrepiso 10cm Habitacional Entrepiso 12cm habitacional

Acabado de piso	70 kg/m ²	70 kg/m ²
Entortado	30 kg/m ²	280 kg/m ²
losa 10 cm	240 kg/m ²	30 kg/m ²
Aplanado	30 kg/m ²	30 kg/m ²
reglamento	40 kg/m ²	40 kg/m ²
	410 kg/m ²	458 kg/m ²
cv habi →	190 kg/m ²	190 kg/m ²
	600 kg/m ²	648 kg/m ²

$$cvm = 190 \text{ kg/m}^2$$

$$cva = 100 \text{ kg/m}^2$$

$$290 \text{ kg/m}^2$$

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Azote 10cm Habitacional Azotea 12cm Habitacional

Acabado piso 70 kg/m² 70 kg/m²

Entortado 30 kg/m² 30 kg/m²

Acileno 100 kg/m² 100 kg/m²

losa 10cm 240 kg/m² 288 kg/m²

Aplicado 30 kg/m² 30 kg/m²

Reglamento 40 kg/m² 40 kg/m²

510 kg/m² 558 kg/m²

cv azotea 100 kg/m² cv azo 100 kg/m²

610 kg/m² 668 kg/m²

$$cvm = 100 \text{ kg/m}^2$$

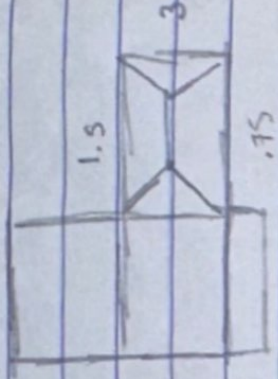
$$cvq = 70 \text{ kg/m}^2$$

$$170 \text{ kg/m}^2$$

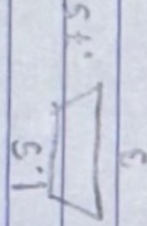
$$cvm = 100 \text{ kg/m}^2$$

$$cvq = 70 \text{ kg/m}^2$$

$$170 \text{ kg/m}^2$$



$$A1 = \frac{1 + B \times h}{2} = 1.6875$$



$$A2 = \frac{b \times h}{2} = 1.125 \text{ m}^2$$

Perda = 1.50

$$A1 = 1.6875 \times 600 \text{ kg/m}^2 = 1,012.50$$

$$A2 = 1.125 \text{ m}^2 \times 655 \text{ kg/m}^2 = 736.875$$

Carpa

$$A1 = \frac{1,012.50}{5} = 202.50$$

$$A2 = \frac{736.875}{5} = 147.375$$

Intrabe

$$\frac{L}{12} = \frac{3}{12} = 0.25 \text{ cm}$$

$$b = 0.5 \times 0.25 = 0.125$$

Peso propio

$$= 0.25 \times 0.125 \times 1 \times (2400) = 75 \text{ kg}$$

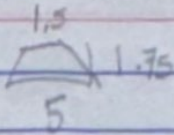
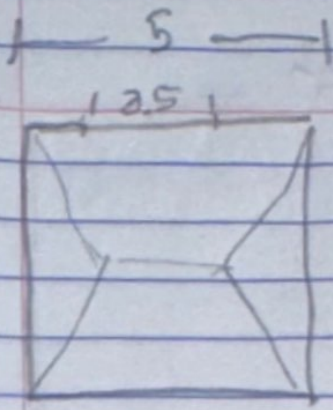
Peso del Pretel 90

$$90 \times 270 = 243$$

Cadena 72 kg

$$0.15 \times 0.20 \times 1 \times 2400 = 72 \text{ kg}$$

$$\frac{9}{170} + 0.04 = 0.09 \text{ cm}$$



$$b \times B \times h = 5.687 \text{ m}^2$$

$$B = \text{Arca AIC}$$

$$A1 = 5.687 \text{ m}^2 \times 655 \text{ kg/m}^2 = 3724 \text{ kg/m}^2$$

$$\textcircled{w} \frac{3724 \text{ kg/m}^2}{3.5} = 1.064$$

$$h_{\text{trapez}} \frac{L}{12} = \frac{3.5}{12} = 0.39 \text{ cm} = 40$$

$$b = 0.5 \times 0.40 \text{ cm} = 0.20 \text{ cm}$$

Peso propio

$$15 \times 30 \times 1 / (2400) = 1.08$$

Pretil

$$2 \times 270 = 540$$

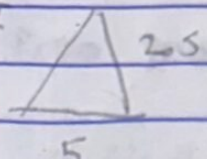
cadena

$$15 \times 20 \times 1 \times 2400 = 72 \text{ kg}$$

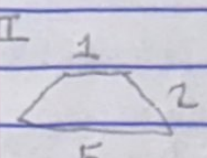
$$w = 1.784$$

$$Losa = 855$$

① Areas


$$A = \frac{5m(2.50)}{2} = 6.25 m^2$$

II


$$A = \frac{(5m + 1m) \times 2m}{2} = 6 m^2$$

② peso (Area \times P, Losa)

$$6.25 m^2 (855 K/m^2) = 5343.75 K/m^2$$

$$6 m^2 (855 K/m^2) = 5130.00 K/m^2$$

③ w $\left(\frac{\text{peso}}{\text{dist. apoyo}} \right)$

$$\frac{5343.75 K/m^2}{5m} = 1068.750 K/m$$

$$\frac{5130 K/m}{5} = 1026 K/m$$

④ h trabe $\left(\frac{L}{12} \right)$

$$\frac{4.15}{12} = 0.34 m$$

⑤ $B = 0.5(h) \rightarrow 0.5(0.34) = 0.17 m$