



JOSE MIGUEL ALFARO PEREZ

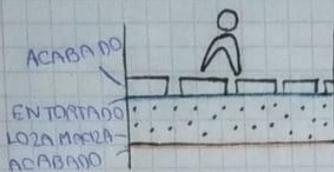
PEDRO ALBERTO GARCIA LOPEZ

ANALISIS DE ESTRUCTURAS

CUATRIMESTRE: 5°

LICENCIATURA EN ARQUITECTURA

INTRODUCCIÓN



Losa maciza de 10 cm

$2,400 \text{ kg}\cdot\text{m}^3 (0.10 \text{ m})$

240 kg/m^2

Acabado — 70 kg/m^2

Entortado — 30 kg/m^2

Losa Maciza — 240 kg/m^2

Yeso — 30 kg/m^2

CM Reglamento — 40 kg/m^2

CM 410 kg/m^2

CV 170 kg/m^2

→ $+90 \text{ kg/m}^2 = 500 \text{ kg/m}^2$

Total 580 kg/m^2



TEJA 50 kg/m²
 LOSA MACIZA 20%

- Losa Maciza — 240 kg/m²
- Teja — 50 kg/m²
- Encafrado — 30 kg/m²
- Yeso — 30 kg/m²
- CM Reglamenta — 40 kg/m²

$$\begin{array}{r} \text{CM } 390 \text{ kg/m}^2 \\ \text{cv } 60 \text{ kg/m}^2 \\ \hline \end{array} \rightarrow + 20 \text{ kg/m}^2 = 410 \text{ kg/m}^2$$

TOTAL 450 kg/m²

10 cm — 450 kg/m²

12 cm — 498 kg/m²

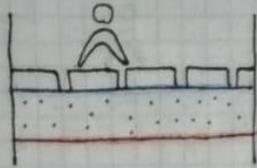
13 cm — 522 kg/m²

$$\begin{array}{r} 12 \text{ cm } 438 \rightarrow 458 \\ \text{cv } 60 \\ \hline \end{array}$$

Total 498 kg/m²

$$\begin{array}{r} 13 \text{ cm } 462 \rightarrow 482 \\ \text{cv } 60 \\ \hline \end{array}$$

Total 522 kg/m²



Losa Maciza de 12 cm
 $2,400 \text{ kg/m}^3 (0.12 \text{ m})$
 288 kg/m^2

Acabado — 70 kg/m^2

Entartado — 30 kg/m^2

Losa Maciza — 288 kg/m^2

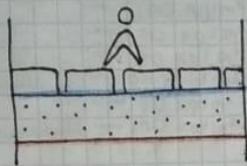
Yeso — 30 kg/m^2

CM de Reglamenta — 90 kg/m^2

CM $458 \text{ kg/m}^2 \rightarrow +190 \text{ kg/m}^2 = 548 \text{ kg/m}^2$

CV 170 kg/m^2

Total 628 kg/m^2



Losa Maciza de 13 cm
 $2,400 \text{ kg/m}^3 (0.13 \text{ m})$
 312 kg/m^2

- Acabado — 70 kg/m^2
- Entarjado — 30 kg/m^2
- Losa maciza — 312 kg/m^2
- Yeso — 30 kg/m^2
- CM de Reglamento — 70 kg/m^2

CM $482 \text{ kg/m}^2 \rightarrow 790 \text{ kg/m}^2 = 572 \text{ kg/m}^2$
 CV 170 kg/m^2

Total 652 kg/m^2

Baño de 10 cm

Relleno	—	100 kg/m ²
Acabado	—	70 kg/m ²
Entartado	—	30 kg/m ²
Losa Maciza	—	240 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²

$$\begin{array}{r} \text{C.M. } 510 \text{ kg/m}^2 \\ \text{C.V. } 170 \text{ kg/m}^2 \\ \hline \end{array} \rightarrow + 90 \text{ kg/m}^2 = 600 \text{ kg/m}^2$$

Total 680 kg/m²

BAÑO DE 12 cm

Relleno	—	100 kg/m ²
Acabado	—	70 kg/m ²
Entartado	—	30 kg/m ²
Losa Maciza	—	288 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²

$$\begin{array}{r} \text{C.M. } 558 \text{ kg/m}^2 \\ \text{C.V. } 170 \text{ kg/m}^2 \\ \hline \end{array} \rightarrow + 90 \text{ kg/m}^2 = 648 \text{ kg/m}^2$$

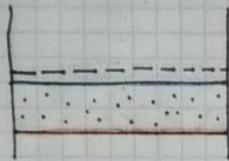
Total 728 kg/m²

BAÑO DE 13 cm

Relleno	—	100 kg/m ²
Acabado	—	70 kg/m ²
Entartado	—	30 kg/m ²
Losa Maciza	—	312 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²

$$\begin{array}{r} \text{C.M. } 582 \text{ kg/m}^2 \\ \text{C.V. } 170 \text{ kg/m}^2 \\ \hline \end{array} \rightarrow + 90 \text{ kg/m}^2 = 672 \text{ kg/m}^2$$

Total 752 kg/m²

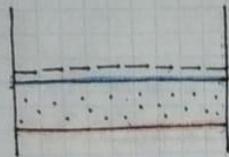


Azotea de 10 cm Pond 2%

Repleno	→	100 kg/m ²
Acabado	→	30 kg/m ²
Entofofado	→	70 kg/m ²
Losa Maciza	→	240 kg/m ²
Yeso	→	30 kg/m ²
CM Reglamento	→	40 kg/m ²

$$\begin{array}{l} \text{CM } 510 \text{ kg/m}^2 \rightarrow + 70 \text{ kg/m}^2 = 580 \text{ kg/m}^2 \\ \text{CV } 100 \text{ kg/m}^2 \end{array}$$

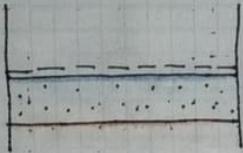
$$\text{Total } 610 \text{ kg/m}^2$$



Azotea de 12 cm pond 2%

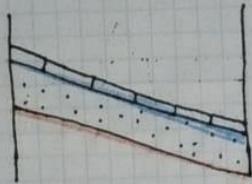
Relleno	—	100 kg/m ²
Acabado	—	70 kg/m ²
Entartrado	—	30 kg/m ²
Losa Maciza	—	288 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²

$$\begin{array}{l}
 \text{CM } 558 \text{ kg/m}^2 \rightarrow + 70 \text{ kg/m}^2 = 628 \text{ kg/m}^2 \\
 \text{Cv } 100 \text{ kg/m}^2 \\
 \hline
 \text{Total } 658 \text{ kg/m}^2
 \end{array}$$

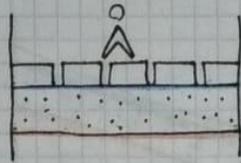


- Repleno → 100 kg/m²
- P.P. de losa de caseton → 295.5 kg/m²
- Acabado → 70 kg/m²
- Entartado → 30 kg/m²
- Yeso → 30 kg/m²
- CM Reglamenta → 70 kg/m²

$$\begin{array}{l} \text{CM } 565 \text{ kg/m}^2 \rightarrow +70 \text{ kg/m}^2 = 635 \text{ kg/m}^2 \\ \text{CV } 100 \text{ kg/m}^2 \\ \hline \text{Total } 665 \text{ kg/m}^2 \end{array}$$

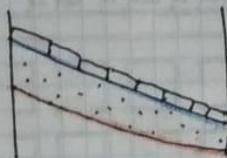


Entartado	—	30 kg/m ²
Teja	—	50 kg/m ²
P.P. Losa de caseton	—	295 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²
	CM	445 kg/m ² → +20 kg/m ² = 465 kg/m ²
	Cv	60 kg/m ²
		<hr/>
		Total 505 kg/m ²



Losa antepiso

Acabado	—	70 kg/m ²
Entartrado	—	30 kg/m ²
P.P. de losa de caseton	—	295.5 kg/m ²
Yeso	—	30 kg/m ²
CM Reglamento	—	40 kg/m ²
		CM 465 kg/m ² → 490 kg/m ² = 555 kg/m ²
		<u>CV 170 kg/m²</u>
		Total 635 kg/m ²



Losa Maciza 13 cm Pan. 20%.

Losa Maciza — 312 kg/m²

Teja — 50 kg/m²

Entartado — 30 kg/m²

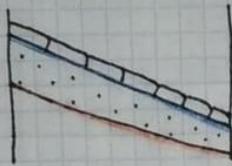
Yeso — 30 kg/m²

cm Reglamento — 40 kg/m²

cm 462 kg/m² → 20 kg/m² = 482 m²

CV 60 kg/m²

Total 522 kg/m²



Losa maciza de 12 cm Pond. 20%.

Losa maciza — 288 kg/m²

Tela — 50 kg/m²

Entartado — 30 kg/m²

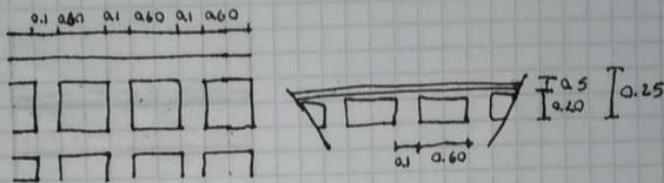
Yeso — 30 kg/m²

CM Reglamento — 40 kg/m²

CM 438 kg/m² → 20 kg/m² = 458 kg/m²

~~CM~~ 60 kg/m²

Total 498 kg/m²



Nervios verticales

$$0.10 \text{ m} \times 0.20 \text{ m} \times 2400 \text{ kg/m}^3 \text{ (2 piezas)} = 96 \text{ kg/m}^2$$

Nervios horizontales

$$0.10 \text{ m} \times 0.20 \text{ m} \times 0.80 \text{ m} \times 2400 \text{ kg/m}^3 \text{ (2 piezas)} = 76.8 \text{ kg/m}^2$$

Capa de compresión

$$1.0 \text{ m} \times 1.0 \text{ m} \times 0.05 \text{ m} \times 2400 \text{ kg/m}^3 = 120 \text{ kg/m}^2$$

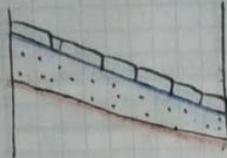
$$\Sigma = 292.8 \text{ kg/m}^2 \quad 15 \text{ kg/m}^3$$

$$0.60 \text{ m} \times 0.60 \text{ m} \times 0.20 \text{ m} \text{ (2.5 piezas)} \text{ (15 kg/m}^3)$$

$$+ 2.70 \text{ kg/m}^2$$

$$\frac{292.8 \text{ kg/m}^2}{295.5 \text{ kg/m}^2}$$

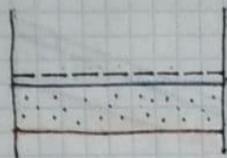
P.P. Losa de caseta 295.5 kg/m²



Teja 50 kg/m^2
 Losa maciza de 10 cm $\text{Pond. } 20\%$

- Losa maciza — 240 kg/m^2
- Teja — 50 kg/m^2
- Entartado — 30 kg/m^2
- Yeso — 30 kg/m^2
- CM Regiamento — 40 kg/m^2

$\text{C.V. } 390 \text{ kg/m}^2 \rightarrow 20 \text{ kg/m}^2 = 410 \text{ kg/m}^2$
 $\text{C.V. } 60 \text{ kg/m}^2$
 Total 450 kg/m^2



Azotea de 13 cm pond. 2%

Refranco → 100 kg/m²

Acabado → 70 kg/m²

Entarxada → 30 kg/m²

Losa maciza → 312 kg/m²

Yeso → 30 kg/m²

CM Reglamento → 40 kg/m²

CM 582 kg/m² → 70 kg/m² = 652 kg/m²

CV 100 kg/m²

Total 682 kg/m²