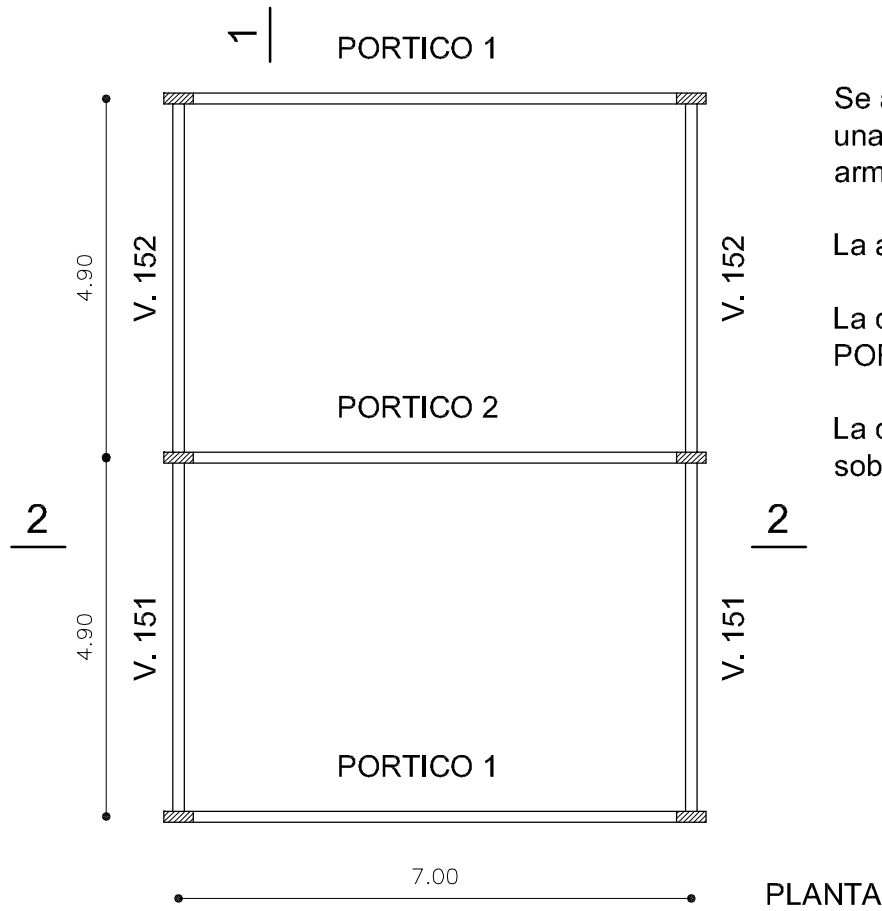


## ESTABILIDAD DE LAS CONSTRUCCIONES II

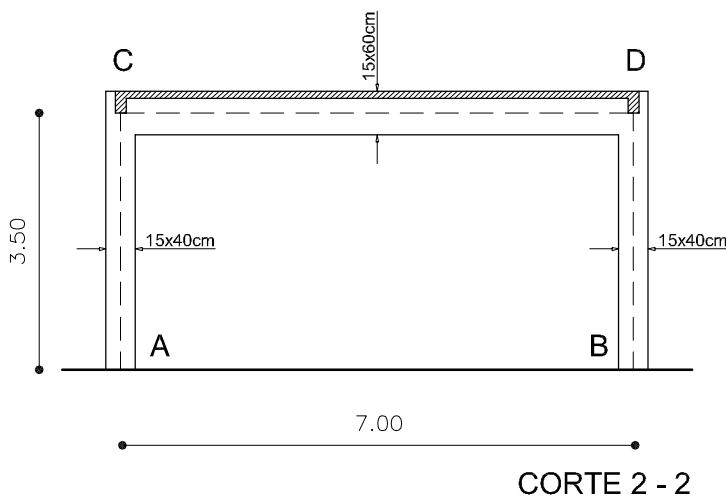
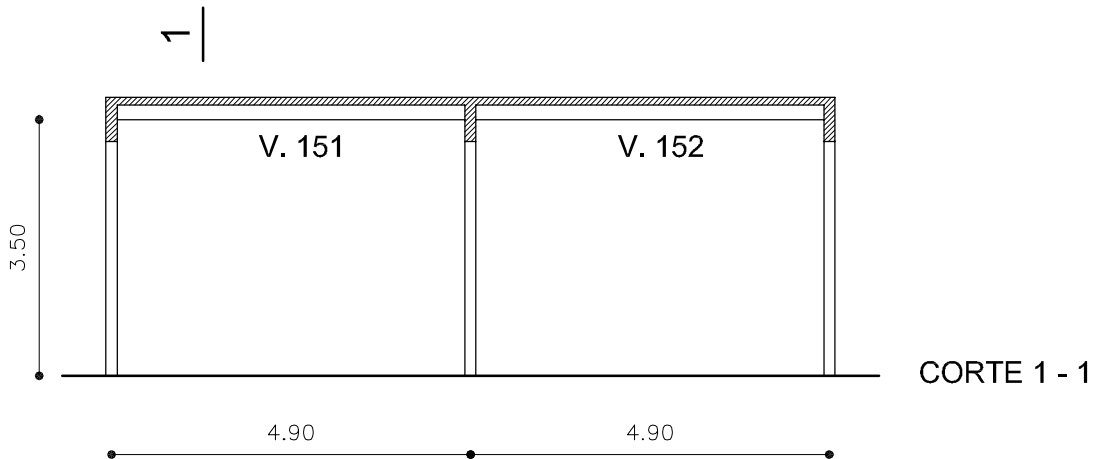


Se adjunta la planta y dos cortes de una estructura construida en hormigón armado.

La altura de la losa es 11cm.

La descarga de cada losa sobre el PORTICO 2 es de 1503daN / m.

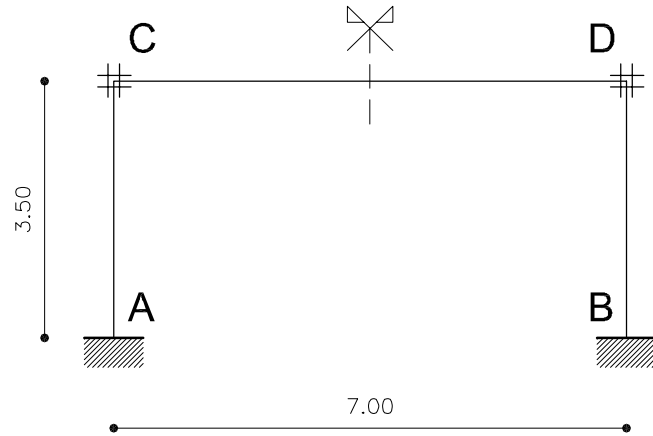
La descarga de las vigas 151-152 sobre el PORTICO 2 es de 4000daN.



Se pide:

Estudiar el pórtico central (PORTICO 2), con tramos verticales de 15 x 40 cm de sección y el tramo horizontal de 15 x 60 cm. Trazar los diagramas de sollicitaciones, indicar las reacciones en los apoyos.

**PORTICO**



**Tramos AC - DB :**

p.p.=0,15x0,40x2500=150 daN/m

**Tramo CD :**

p.p.=0,15x0,49x2500=184 daN/m

desc. losas=1503x2=3006 daN/m

Total=3190 daN/m

**Inercias AC - DB :**

$$I_1 = \frac{15 \times 40^3}{12} = 80000 \text{ cm}^4$$

**Inercia CD :**

$$\left. \begin{aligned} \xi &= \frac{15}{81} = 0,185 \\ \xi' &= \frac{11}{60} = 0,183 \end{aligned} \right\} \psi = 0,356$$

$$b_e = 6 \cdot h_f + b_w = 6 \times 11 + 15 = 81 \text{ cm}$$

$$I_2 = \frac{0,356 \times 81 \times 60^3}{12} = 519048 \text{ cm}^4$$

**Inercias relativas :**

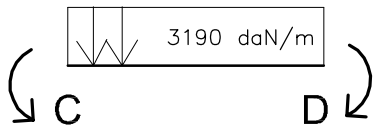
$$I_{r1} = 1$$

$$I_{r2} = \frac{519048}{80000} = 6,48$$

TRAMO	I	Ir	α	L	χ	χ'	r
1	80000	1	1	3,5	0,286		0,38
2	519048	6,48	1	7,0	0,926	0,463	0,62

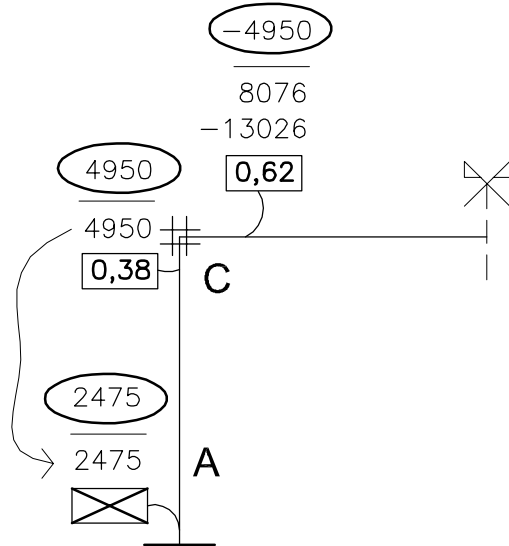
↓  
Caso de simetría por tramo  
 $\chi' = \chi \cdot (1 - \beta)$

M.E.P.

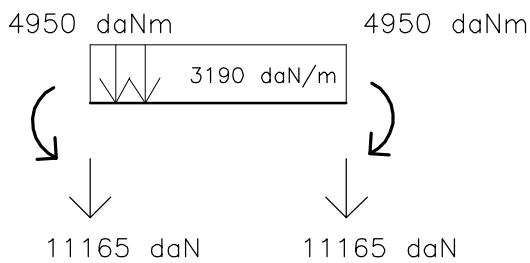


$$M.E.P. = \frac{p \cdot l^2}{12} = \frac{3190 \times 7^2}{12} = 13026 \text{ daNm}$$

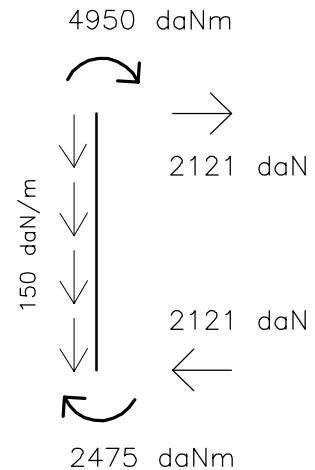
1° CROSS



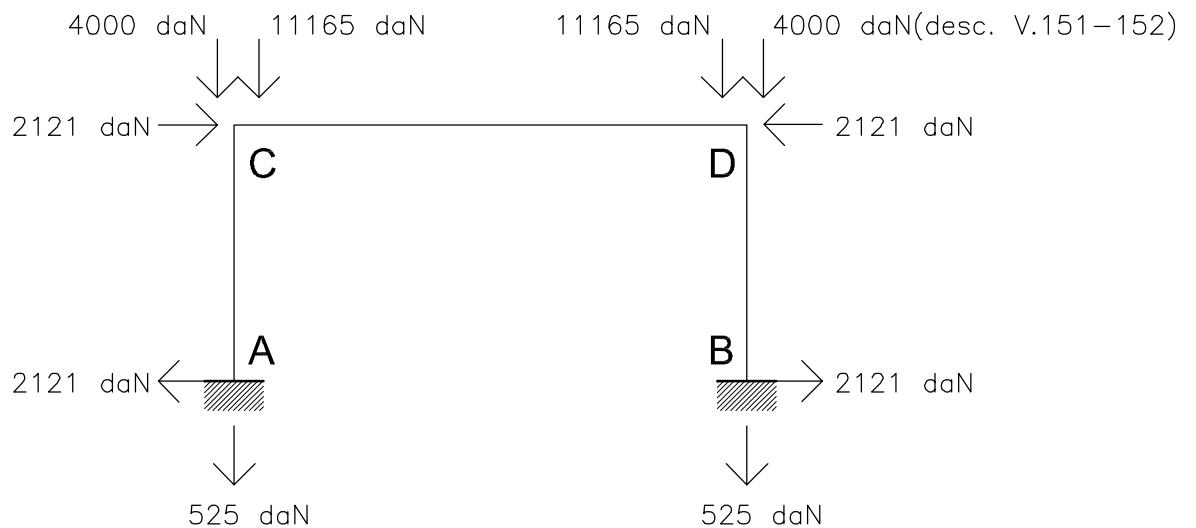
DESCARGAS CD



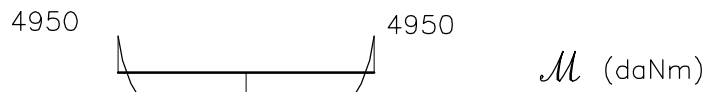
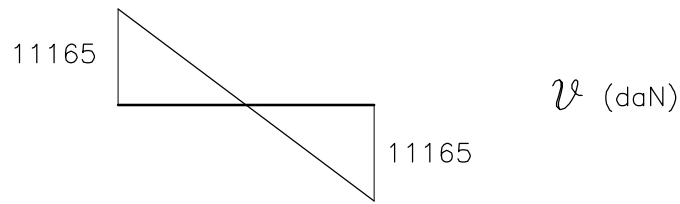
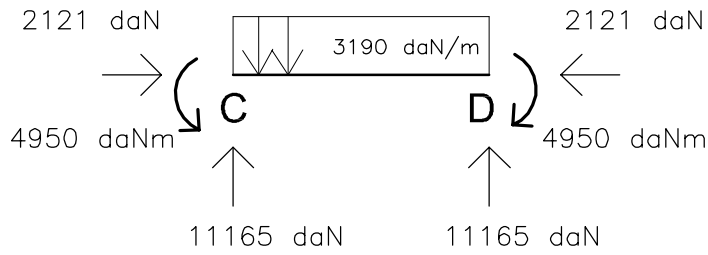
DESCARGAS AC



CAMINOS MATERIALES



# DIAGRAMAS



$$M_o = 4950 - \frac{11165 \times 3,5}{2} = -14589$$

$$M_o = -14589$$

