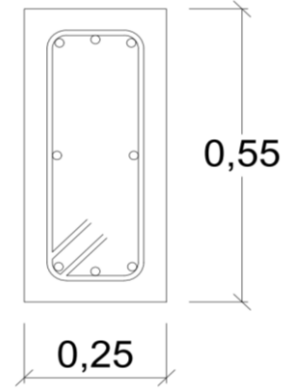


MEDIDAS

Peralte =	55 cm	Predimensionamiento si la viga es de concreto: $h_{libre}/10 = 0$ cm $0.70 \cdot H_{viga} = 30$ cm $l_{dg} \text{ tracción} = 40$ cm $0.4 \cdot L = 25$ cm
Base =	25 cm	
Altura libre =	0.00 m	
$e_x =$	0 cm	
$f'c =$	210 kg/cm ²	$\epsilon_y = 0.0021$
$f_y =$	4200 kg/cm ²	$\epsilon_{cu} = 0.003$
$A_g =$	1,375 cm ²	$E_s = 2.1E+6$ kg/cm ²
$I_g =$	346,615 cm ⁴	$E_c = 217,371$ kg/cm ²
Peso total =	0.0 kg	$n = 9.66$



Solicitaciones de carga en la base de la columna

Fuerza	Z. Superior	Z. Inferior	Abacos	Z. Superior	Z. Inferior
Carga axial: Pu	6.24	6.24 Ton	Pu/ f'c Ag	0.022	0.022
Carga horizontal: Vu	4.12	Ton	Mu/ f'c Agh	0.000	0.000
Distribuida muro	0.00	Ton / m	$\rho_t m$	0.10	0.20
Distribuida columna	0.00	Ton / m	ρ_t	0.004	0.009
Momento-viga princ.	0.00	Ton-m			
Momento- Vu + wu	0.00	Ton-m			
Momento total: Mu	0.00	0.00 Ton-m			

CUANTIA DE LA COLUMNA

Cantidad	diametro pulg	distancia cm	db cm	As cm2	As cm2
3	5/8	5.9	1.59	2.00	6.00
0	1/2	5.9	1.27	1.29	0.00
0	5/8	15.9	1.59	2.00	0.00
1	5/8	17.5	1.59	2.00	2.00
1	5/8	37.5	1.59	2.00	2.00
0	5/8	15.9	1.59	2.00	0.00
0	3/8	43.2	0.95	5.10	0.00
3	5/8	49.1	1.59	2.00	6.00

As requerido:

As super.	5.84 cm ²
As infer.	11.69 cm ²
As mín.	13.75 cm ²
As colocada	4.115 5.84375
As ₂ super.	8.00 cm ²
As ₁ infer.	8.00 cm ²
As total	16.00 cm ²

CUMPLE

Colocación de acero 1: 22.8 cm < 25 cm **SE PUEDE COLOCAR**
 Colocación de acero 2: 22.8 cm < 25 cm **SE PUEDE COLOCAR**

DIAGRAMA DE INTERACCIÓN

ϕP_n	ϕM_n	Pu (Ton)	Mu (Ton)
173	0	6.2	0.0
154	14	0.0	0.0
77	22	76.6	22.3
0	18		
-60	0	ϕM_{nc}	17.1

Valores a tabular:

c =	7.50 +
Pn =	39.0 Ton
Cc =	28.4 Ton
$\alpha =$	6.00 +
Pn =	21.0 Ton

Condición: $\Sigma M_{nc} > 1.4 \Sigma M_{nv}$ 3.9 **CUMPLE**

EFFECTOS DE ESBELTEZ DE ELEMENTOS A COMPRESIÓN

Límite 28
 $k l_u/r = 0$ COLUMNA CORTA **NO ES NECESARIO VERIFICAR PANDEO**

RESISTENCIA NOMINAL A FLEXIÓN

Si $\phi P_n > 0.1 f'c A_g$ ó ϕP_b (la menor)
 $0.1 f'c A_g = 28.9$ Ton
 $\phi P_b = 76.6$ Ton
 $\phi P_n = 6.2$ Ton
 $\phi P_n \text{ máx} = 173$ Ton **CUMPLE**

Estribos : f 3/8", 1 @ 0.05, 6 @ 0.10, Resto @ 0.25

$A_{sh\ min} = 0.09 s h_c f_c / f_{yh} = 0.59 \text{ cm}^2$

$A_{sh\ colocado} = 2(A_s\ 3/8") = 2.84 \text{ cm}^2$ **CUMPLE**

Estribos : ϕ 3/8", 1 @ 0.05, 6 @ 0.10, Resto @ 0.25

