

PREDIMENSIONAMIENTO



PONENTE:

ING.ARQ. CARLOS M. APARICIO

BASURTO



Elementos prefabricados y no prefabricados

PREDIMENSIONAMIENTO

Consiste en proponer las dimensiones preliminares de las secciones y peraltes de cada uno de los elementos estructurales. También se les llama sección previa.

NO es un calculo estructural, es una sección aproximada a la definitiva.



Elementos prefabricados y no prefabricados

PREDIMENSIONAMIENTO

1. Trabe
2. Nervadura
3. Losa maciza
4. Losa reticular



Elementos prefabricados y no prefabricados

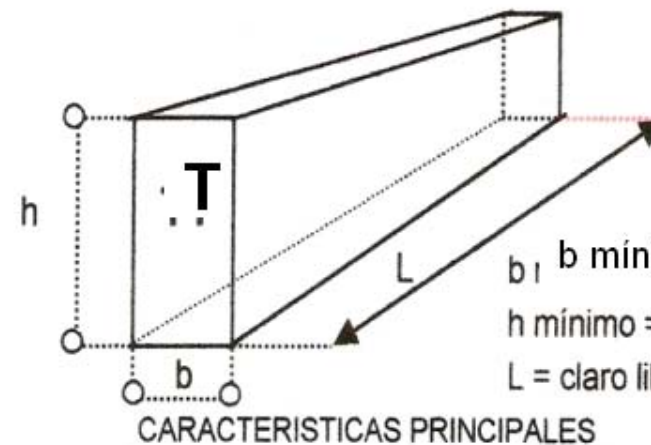
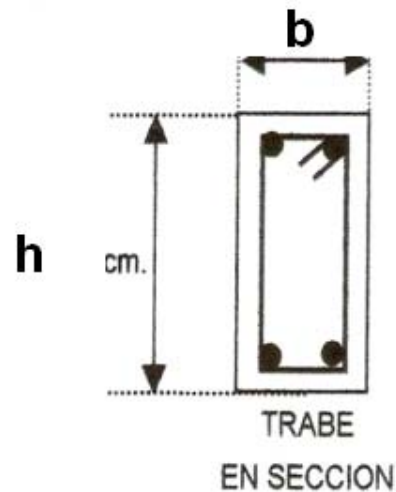
PREDIMENSIONAMIENTO

5. Columnas
6. Muro de carga
7. Vigüeta y bovedilla
8. Losa T y TT



Elementos prefabricados y no prefabricados

1. TRABE

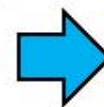


$b \geq b$ mínimo = Ancho del muro
 h mínimo = 20 cm.
 L = claro libre > 1.50 m.

$$b = \frac{L}{24} = \frac{8.00}{24} = 0.33 \text{ m}$$

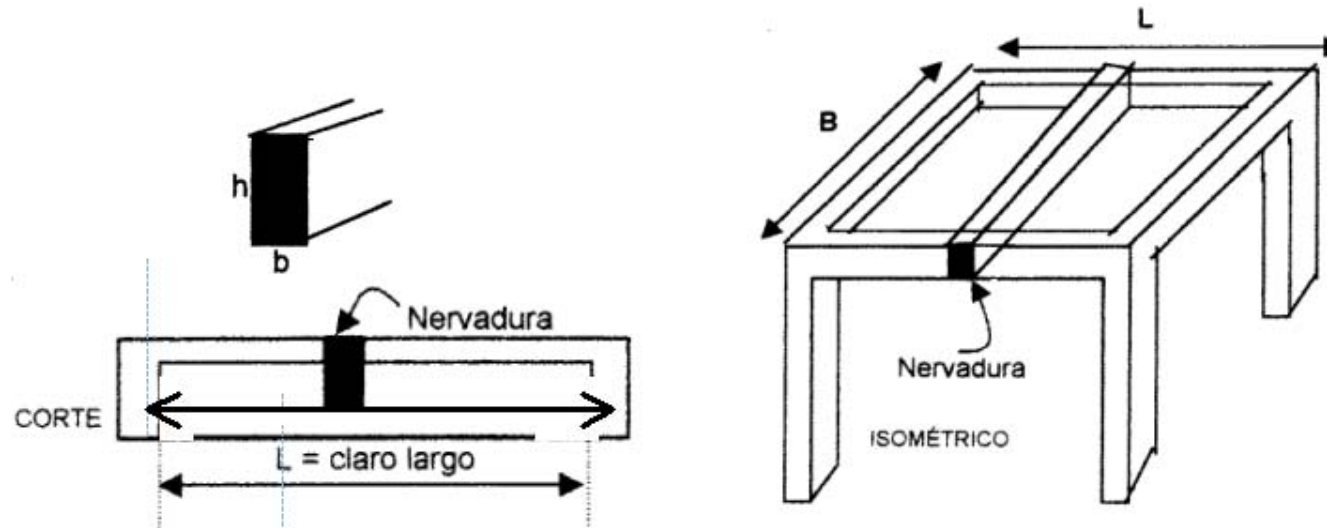
$$h = \frac{L}{12} = \frac{8.00}{12} = 0.67 \text{ m}$$

Usar. $b = 35$
 $h = 65$



T (35 x 65 cm)

2. NERVADURA

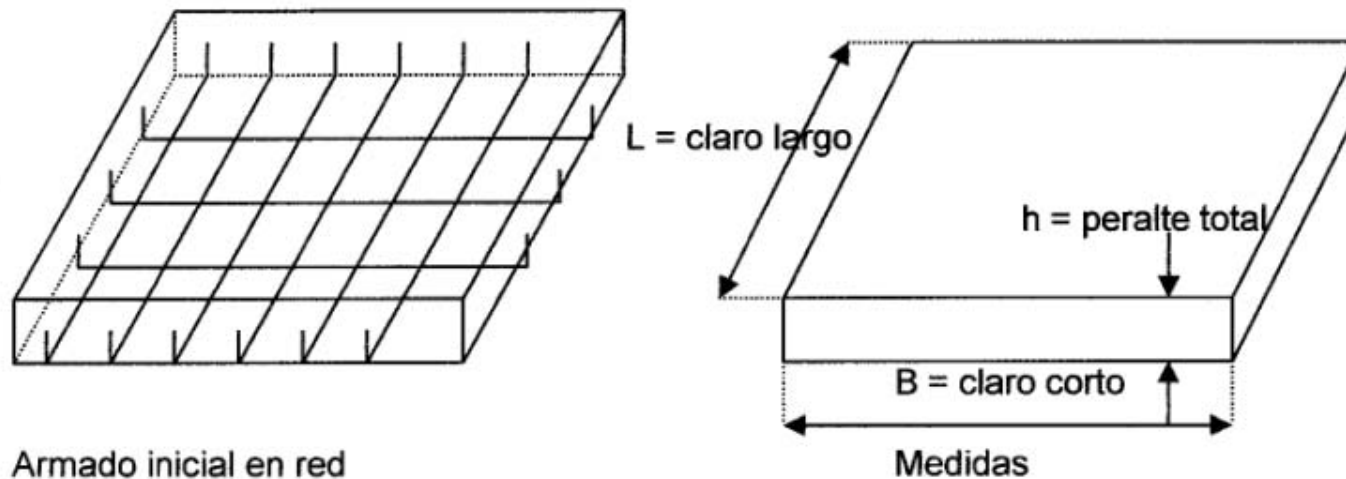


$$b = \frac{B}{30} = \frac{8.00}{30} = 0.27 \text{ m}$$

$$h = \frac{B}{12} = \frac{8.00}{12} = 0.67 \text{ m}$$

Usar. $b = 25$
 $h = 65$ N (25 x 65 cm)

3. LOSA MACIZA

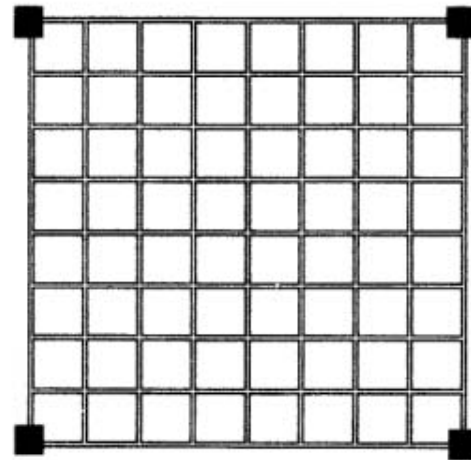


Armado inicial en red

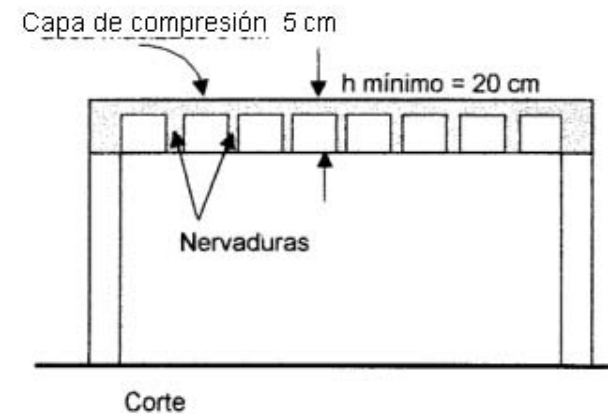
$$h = \frac{(L+B)/2}{40} = \frac{5.00}{40} = 0.13 \text{ m}$$

Usar. $h = 13$  LM (13 cm)


4. LOSA RETICULAR



Planta

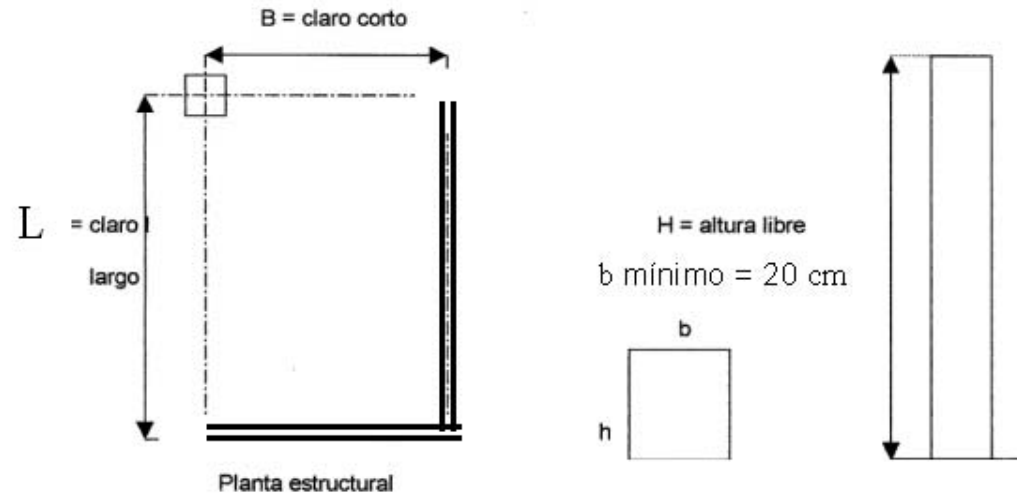


$$h = \frac{(L+B)/2}{25} = \frac{5.00}{25} = 0.20 \text{ m}$$

Usar. $h = 20$  LR (20 cm)

5. COLUMNA

Cuadrada y rectangular



$$b = \frac{B}{15} = \frac{4.00}{15} = 0.27 \text{ m}$$

$$h = \frac{L}{15} = \frac{6.00}{15} = 0.40 \text{ m}$$

$$b \text{ y } h = \frac{H}{15} = \frac{3.00}{15} = 0.20 \text{ m}$$

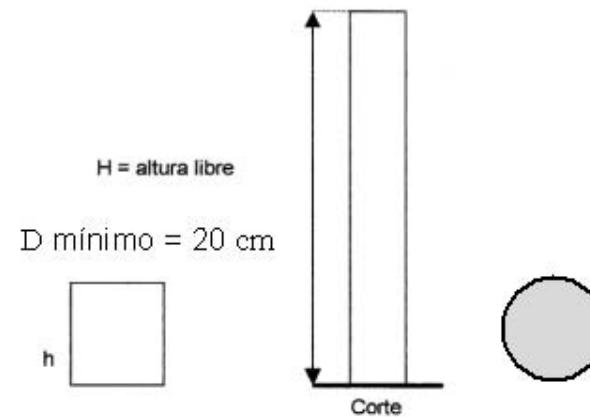
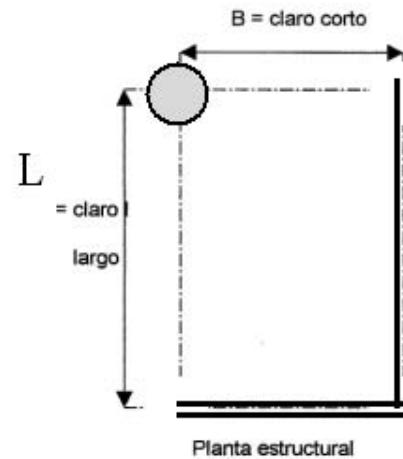
Usar: $b = 25$
 $h = 40$



C (25 x 40 cm)

5. COLUMNA

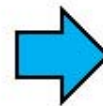
Circular



$$D = \frac{(L+B)/2}{15} = \frac{5.00}{15} = 0.33 \text{ m}$$

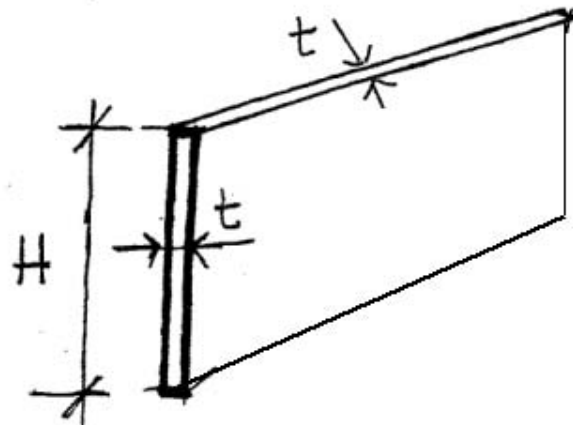
$$D = \frac{H}{15} = \frac{3.00}{15} = 0.20 \text{ m}$$

Usar: $D = 35$



C (35 cm ϕ)

6. MURO DE CARGA



t = espesor del muro de carga

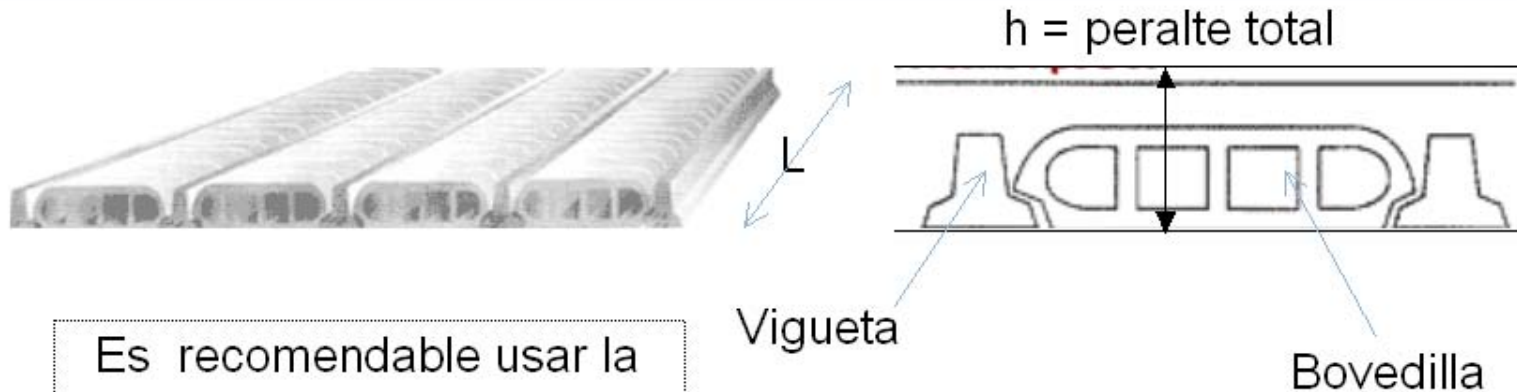
$$t = \frac{H}{20}$$

t mínimo = 10 cm

$$t = \frac{H}{20} = \frac{3.00}{20} = 0.15 \text{ m}$$

Usar: t = 15  M (15 cm)

7. VIGUETA Y BOVEDILLA

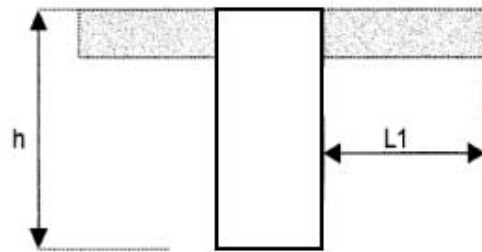


Es recomendable usar la Vigueta, en claros mayores de 4 m.
Rango: $L = 4.00$ a 10 m
 h mínimo = 20 cm

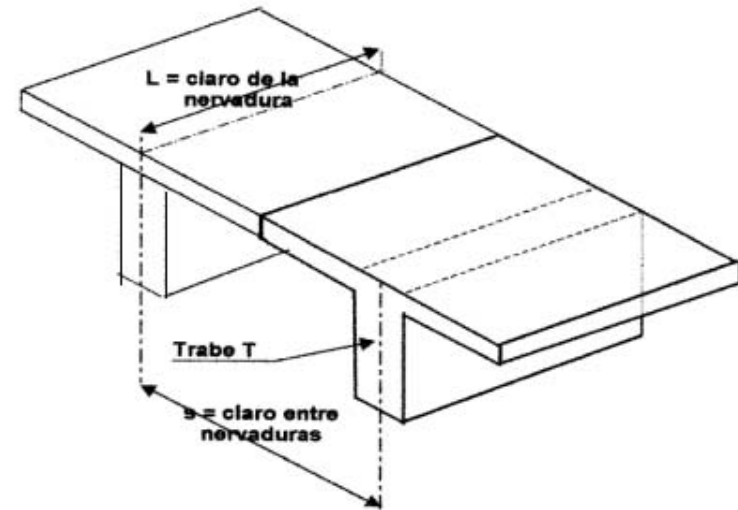
$$h = \frac{L}{30} = \frac{6.00}{30} = 0.20 \text{ m}$$

Usar: $h = 20$  V y B (20 cm)


8. LOSA T y TT



Es recomendable usar las losas T y TT, en claros mayores de 12 m.
Rango: L= 12.00 a 30 m
h mínimo = 50 cm



$$h = \frac{L}{25} = \frac{12.00}{25} = 0.48 \text{ m}$$

Usar: $h = 50$  LT (50 cm)