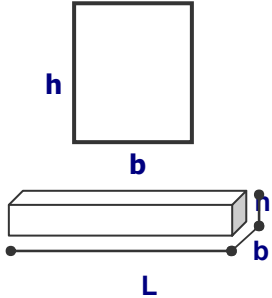


# Bajada de Cargas

Para el concreto tomamos:  $\gamma_c = 2440 \text{ Kg/m}^3$

## 4.2.1 Peso de traveses y cadenas

Peso de traveses:



Trabe	b (m)	h (m)	b*h (m <sup>2</sup> )	W <sub>propio</sub> (Kg/ml)	L (m)	W <sub>propio</sub> (kg)	W <sub>propio</sub> (ton)
T1	0.30	0.50	0.150	366.00	6.00	2,196.0	2.20
T2	0.40	0.60	0.240	585.60	6.00	3,513.6	3.51
T3	0.20	0.20	0.040	97.60	2.00	195.2	0.20

**Nota:** En el diagrama de distribución de cargas se observa que las traveses se clasifican en T1 y T2 como sigue:

Tipo	Traveses							
T1	A2-A3	D2-D3	B1-C1	B4-C4				
T2	B1-B2	B3-B4	C1-C2	C3-C4	A2-B2	C2-D2	A3-B3	C3-D3
T3	a2- b2	a3-b3						

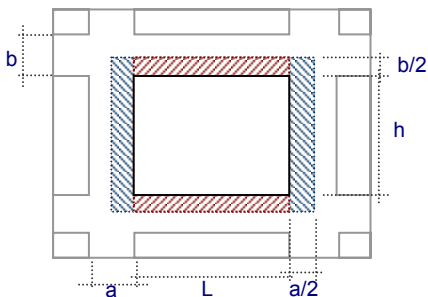
## 4.2.2 Peso de losas

Cálculo del peso propio unitario:

Losas de azotea:

Elemento	Cantidad (m)	$\gamma_{mat}$ (kg/m <sup>3</sup> )	C.Muerta (Kg/m <sup>2</sup> )
Impermeabilizante (Imperquim)	*Según proveedor		3.50
Enladrillado	0.02	1,500	30.00
Mortero cemento-arena	0.02	2,100	42.00
Terrado (tezontle)	0.1	1,350	135.00
Losas macizas	0.1	2,440	244.00
Instalaciones y plafón			45.00
<b>Total:</b>			<b>499.50</b>

Losas de entrepiso:



$a = 0.15 \text{ m}$   
 $b = 0.15 \text{ m}$   
 $h = 0.40 \text{ m}$   
 $L = 0.40 \text{ m}$

*Nervaduras:*

espesor de nervadura: 20 cm

Peso de nervadura =  $\frac{(((a*(h+b))+(b*L))*peralte)/((a+L)*(b+h))}{\gamma_c}$

Peso de nervadura = 229.88 Kg/m<sup>2</sup>

*Casetón de poliuretano:*

Peso del casetón: 0.2 Kg

Peso unitario = Peso/área

Peso unitario = 1.25 Kg/m<sup>2</sup>

Elemento	Cantidad (m)	$\gamma_{mat}$ (kg/m <sup>3</sup> )	C.Muerta (Kg/m <sup>2</sup> )
Mosaico de piso	0.02	3,000	60.00
Mortero cemento-arena	0.02	2,100	42.00
Nervadura de concreto		2,440	229.88
Capa de concreto	0.06	2,440	146.40
Casetón de poliuretano			1.25
Instalaciones y plafón			45.00
<b>Total:</b>			<b>524.53</b>

### Estimación de cargas vivas por unidad de área:

*Carga viva máxima sobre losa de azotea:*

Según Art. 199 del RCDF:

Pendiente	< 5%	$C_v = 100.00$	Kg/m <sup>2</sup>
	> 5%	$C_v = 40.00$	Kg/m <sup>2</sup>

Pendiente:	<	<input type="text" value="5%"/>	<b><math>C_v = 100.00</math></b>	<b>Kg/m<sup>2</sup></b>
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*Carga viva máxima sobre tableros de entrepiso:*

Según Art. 199 del RCDF:

<b><math>C_v = 250.00</math></b>	<b>Kg/m<sup>2</sup></b>
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### Peso de muros divisorios:

Tipo de muro: Paneles de yeso de 10 cm de espesor

Peso unitario : 65.00 Kg/m<sup>2</sup>

Altura de paneles: 3 m

Distribución de muros divisorios: 0.10 m /m<sup>2</sup> de losa

Peso muros divisorios = Peso unitario \*Área

<b>Peso muros divisorios =</b>	<b>19.50</b>	<b>Kg/ m<sup>2</sup></b>
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### Peso por tablero:

Lado

Base

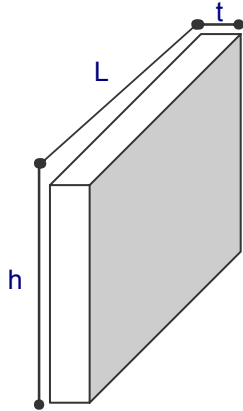
LOSAS DE ENTREPISO								
Tableros Losa	Base (m)	Lado (m)	Área (m <sup>2</sup> )	$W_{propio}$ (kg)	$W_{viva}$ (kg)	$W_{mdiv}$ (kg)	$W_{total}$ (kg)	$W_{total}$ (Ton)
I a IV y VI a IX	6.00	6.00	36.00	18,883.23	9,000.00	702.00	28,585.23	28.59

\* El tablero V no se considera en este análisis ya que es el correspondiente al cubo de escaleras y elevadores.

LOSA DE AZOTEA							
Tableros Losa	Base (m)	Lado (m)	Área (m <sup>2</sup> )	$W_{propio}$ (kg)	$W_{viva}$ (kg)	$W_{total}$ (kg)	$W_{total}$ (Ton)
I a IX	6.00	6.00	36.00	17,982.00	3,600.00	21,582.00	21.58

### 4.2.3 Peso de Muros Estructurales:

Peso de muros de carga:



Tipo de muro: De concreto armado

$h = 3.00$  m  
 $L = 6.00$  m  
 Espesor =  $0.20$  m

Área del panel =  $h * L = 18.00$  m<sup>2</sup>

$$W_{\text{panel}} = (\text{Volumen} * \gamma_c) / L_{\text{entre ejes}} = 1,464.00 \text{ Kg}$$

**$W_{\text{murocarga}} = 1.46 \text{ Ton/m}$**

### 4.2.4 Peso de Fachadas:

Peso de fachada = Peso unitario \* Área

**Tipo de fachada: Cristal**

Espesor: 10 mm = 1 cm  
 Peso unitario: 40.0 Kg/m<sup>2</sup> (incluye elementos de soporte)  
 Altura de paneles: 3.0 m  
 Crujias: B1-C1, B4-C4, A2-A3, D2-D3

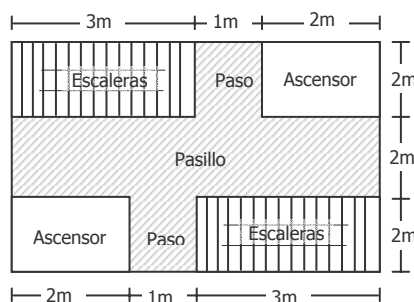
**Fachada de cristal = 120.00 Kg/m**

**Tipo de fachada: Aplanado de acabado aparente**

Material: Mortero cemento - arena 1:3  
 $\gamma = 1900$  Kg/m<sup>3</sup>  
 Espesor: 2.0 cm  
 Peso unitario: 38.0 Kg/m<sup>2</sup>  
 Altura de paneles: 3.0 m  
 Crujias: A1-B1, C1-D1, A4-B4, C4-D4, A1-A2, A3-A4, D1-D2, D3-D4

**Fachada aplanado = 114.00 Kg/m**

### 4.2.5 Peso del cubo de escaleras y elevadores:



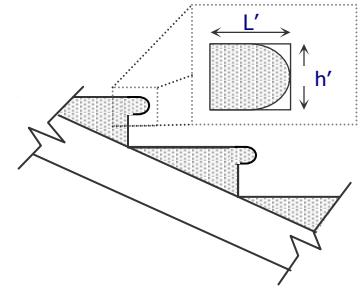
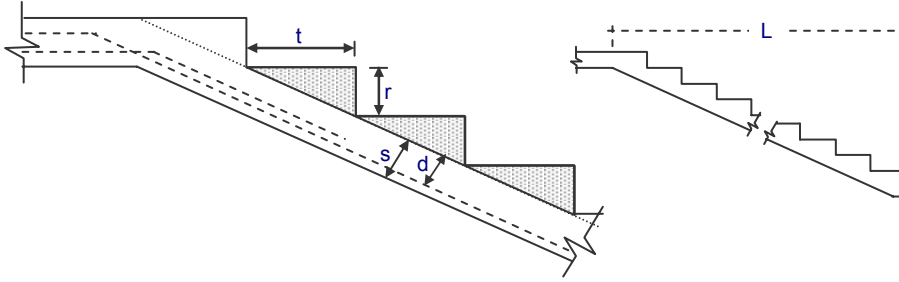
Planta del cubo de escaleras y elevadores

## Carga viva máxima sobre escaleras y ascensores:

Según Art.199 del RCDF:

$W_{Viva} =$	<b>350.00</b>	<b>Kg/m<sup>2</sup></b>
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### Peso de escaleras:



\* Para aumentar la longitud de la huella se propone un reborde

Dimensiones:

L =	3.00	m	
b =	2.00	m	(Ancho)
t =	0.20	m	(Huella)
r =	0.20	m	(Peralte)
s =	0.12	m	(Espesor de losa)
r' =	0.02	m	(recubrimiento)

h =	3.00	m
# escalones =	15.00	
h' =	0.05	m
L' =	0.05	m
Elementos por nivel =	2	

$$W_{escalones} = [(L/t)*((t*r)/2)*b*\gamma_c]$$

$$W_{escalones} = 1,464.00 \text{ Kg}$$

$$W_{losa} = (s*(h^2+L^2)^{1/2}*b*\gamma_c)$$

$$W_{losa} = 2,484.49 \text{ Kg}$$

$$W_{reborde} = ((L' * h' * b * \#_{escalones}) * \gamma_c)$$

$$W_{reborde} = 183.00 \text{ Kg}$$

$$W_{escalera} = W_{escalones} + W_{losa} + W_{reborde} + \text{Sobrecarga}_{RCDF} * L$$

$W_{escaleras} =$	<b>4,431.49</b>	<b>Kg</b>
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$$W_{Tescaleras} = 2*(W_{escaleras} + A_{escalera} * W_{vivas})$$

$W_{Tescaleras} =$	<b>13,063.0</b>	<b>Kg</b>
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### Peso de elevadores:

Las características y dimensiones de los ascensores son especificadas por el proveedor. Se eligió una propuesta de la empresa Ascensores Neuquen del cual se obtuvo el peso aproximado de una unidad instalada y en servicio:

$$W_{unidad} = 1,275 \text{ Kg}$$

$$\# \text{ Unidades por nivel} = 2 \text{ Unidades}$$

$W_{propio} =$	<b>1,275.0</b>	<b>Kg</b>
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$$W_{elevadores} = 2*(W_{unitario} + A_{elevadores} * W_{vivas})$$

$W_{elevador} =$	<b>5,350.0</b>	<b>Kg</b>
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### Peso de Pasillos y pasos peatonales:

#### a) Peso de Pasillo:

Dimensiones:

L =	6.00	m
b =	2.00	m

$$\text{Área} = L * b = 12.00 \text{ m}^2$$

$$*W_{Losa} = 524.53 \text{ Kg/m}^2$$

\*Se toma el mismo que la losa de entpiso por poseer las mismas características.

$$W_{pasillo} = (W_{losa} + W_{viva}) * A_{pasillo} + \text{Sobrecarga}_{RCDF} * L$$

$W_{pasillo} =$	<b>11,094.41</b>	<b>Kg</b>
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**b) Peso de Paso:**

Dimensiones:

$$L = 2.00 \text{ m}$$

$$b = 1.00 \text{ m}$$

$$\text{Área} = L * b = 2.00 \text{ m}^2$$

$$*W_{\text{Losa}} = 524.53 \text{ Kg/m}^2$$

\*Se toma el mismo que la losa de entrepiso por poseer las mismas características.

$$W_{\text{paso}} = (W_{\text{losa}} + W_{\text{viva}}) * A_{\text{pasillo}}$$

$W_{\text{paso}} = 1,749.07 \text{ Kg}$
---

**Peso total de paso peatonal:**

$$W_{\text{total}} = W_{\text{pasillo}} + 2 * W_{\text{paso}}$$

$W_{\text{total}} = 14,592.5 \text{ Kg}$
--

**Peso total de cubos de escaleras y elevadores:**

$$W_{\text{cubos}} = W_{\text{escaleras}} + W_{\text{elevador}} + W_{\text{pasospeatonales}}$$

$$W_{\text{escaleras}} = 13,062.98 \text{ Kg}$$

$$W_{\text{elevador}} = 5,350.00 \text{ Kg}$$

$$W_{\text{pasos peatonales}} = 14,592.55 \text{ Kg}$$

$W_{\text{cubos}} = 33,005.53 \text{ Kg} = 33.01 \text{ Ton}$
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#### 4.2.7 Peso por trabe:

##### Nivel 5

(Azotea)

Trabe	Tipo	L (m)	W propio (kg)	W losas (kg)	W fachada (kg)	Suma (kg)	W trabes (Kg/m)
A2-A3	T1	6.00	2,196.0	5,396	720.0	8,312	1,385
B1-B2	T2	6.00	3,513.6	10,791		14,305	2,384
B3-B4	T2	6.00	3,513.6	10,791		14,305	2,384
C1-C2	T2	6.00	3,513.6	10,791		14,305	2,384
C3-C4	T2	6.00	3,513.6	10,791		14,305	2,384
D2-D3	T1	6.00	2,196.0	5,396	720.0	8,312	1,385
B1-C1	T1	6.00	2,196.0	5,396	720.0	8,312	1,385
A2-B2	T2	6.00	3,513.6	10,791		14,305	2,384
a2-b2	T3	2.00	195.2	5,995		6,190	3,095
C2-D2	T2	6.00	3,513.6	10,791		14,305	2,384
A3-B3	T2	6.00	3,513.6	10,791		14,305	2,384
a3-b3	T3	2.00	195.2	5,995		6,190	3,095
C3-D3	T2	6.00	3,513.6	10,791		14,305	2,384
B4-C4	T1	6.00	2,196.0	5,396	720.0	8,312	1,385

##### Nivel 4

Trabe	Tipo	L (m)	W propio (kg)	W losas (kg)	W fachada (kg)	Suma (kg)	W trabes (Kg/m)
A2-A3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-B2	T2	6.00	3,513.6	14,293		17,806	2,968
B3-B4	T2	6.00	3,513.6	14,293		17,806	2,968
C1-C2	T2	6.00	3,513.6	14,293		17,806	2,968
C3-C4	T2	6.00	3,513.6	14,293		17,806	2,968
D2-D3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-C1	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
A2-B2	T2	6.00	3,513.6	14,293		17,806	2,968
a2-b2	T3	2.00	195.2	3,970		4,165	2,083
C2-D2	T2	6.00	3,513.6	14,293		17,806	2,968
A3-B3	T2	6.00	3,513.6	14,293		17,806	2,968
C3-D3	T2	6.00	3,513.6	14,293		17,806	2,968
a3-b3	T3	2.00	195.2	3,970		4,165	2,083
B4-C4	T1	6.00	2,196.0	7,146	720.0	10,062	1,677

##### Nivel 3

Trabe	Tipo	L (m)	W propio (kg)	W losas (kg)	W fachada (kg)	Suma (kg)	W trabes (Kg/m)
A2-A3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-B2	T2	6.00	3,513.6	14,293		17,806	2,968
B3-B4	T2	6.00	3,513.6	14,293		17,806	2,968
C1-C2	T2	6.00	3,513.6	14,293		17,806	2,968
C3-C4	T2	6.00	3,513.6	14,293		17,806	2,968
D2-D3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677

B1-C1	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
A2-B2	T2	6.00	3,513.6	14,293		17,806	2,968
a2-b2	T3	2.00	195.2	3,970		4,165	2,083
C2-D2	T2	6.00	3,513.6	14,293		17,806	2,968
A3-B3	T2	6.00	3,513.6	14,293		17,806	2,968
C3-D3	T2	6.00	3,513.6	14,293		17,806	2,968
a3-b3	T3	2.00	195.2	3,970		4,165	2,083
B4-C4	T1	6.00	2,196.0	7,146	720.0	10,062	1,677

## Nivel 2

Trabe	Tipo	L (m)	W propio (kg)	W losas (kg)	W fachada (kg)	Suma (kg)	W trabes (Kg/m)
A2-A3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-B2	T2	6.00	3,513.6	14,293		17,806	2,968
B3-B4	T2	6.00	3,513.6	14,293		17,806	2,968
C1-C2	T2	6.00	3,513.6	14,293		17,806	2,968
C3-C4	T2	6.00	3,513.6	14,293		17,806	2,968
D2-D3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-C1	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
A2-B2	T2	6.00	3,513.6	14,293		17,806	2,968
a2-b2	T3	2.00	195.2	3,970		4,165	2,083
C2-D2	T2	6.00	3,513.6	14,293		17,806	2,968
A3-B3	T2	6.00	3,513.6	14,293		17,806	2,968
C3-D3	T2	6.00	3,513.6	14,293		17,806	2,968
a3-b3	T3	2.00	195.2	3,970		4,165	2,083
B4-C4	T1	6.00	2,196.0	7,146	720.0	10,062	1,677

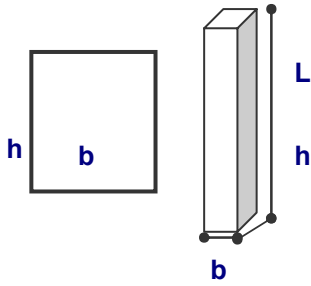
## Nivel 1

Trabe	Tipo	L (m)	W propio (kg)	W losas (kg)	W fachada (kg)	Suma (kg)	W trabes (Kg/m)
A2-A3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-B2	T2	6.00	3,513.6	14,293		17,806	2,968
B3-B4	T2	6.00	3,513.6	14,293		17,806	2,968
C1-C2	T2	6.00	3,513.6	14,293		17,806	2,968
C3-C4	T2	6.00	3,513.6	14,293		17,806	2,968
D2-D3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-C1	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
A2-B2	T2	6.00	3,513.6	14,293		17,806	2,968
a2-b2	T3	2.00	195.2	3,970		4,165	2,083
C2-D2	T2	6.00	3,513.6	14,293		17,806	2,968
A3-B3	T2	6.00	3,513.6	14,293		17,806	2,968
C3-D3	T2	6.00	3,513.6	14,293		17,806	2,968
a3-b3	T3	2.00	195.2	3,970		4,165	2,083
B4-C4	T1	6.00	2,196.0	7,146	720.0	10,062	1,677

Trabe	Tipo	L (m)	W <sub>propio</sub> (kg)	W <sub>losas</sub> (kg)	W <sub>fachada</sub> (kg)	Suma (kg)	W <sub>trabes</sub> (Kg/m)
A2-A3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-B2	T2	6.00	3,513.6	14,293		17,806	2,968
B3-B4	T2	6.00	3,513.6	14,293		17,806	2,968
C1-C2	T2	6.00	3,513.6	14,293		17,806	2,968
C3-C4	T2	6.00	3,513.6	14,293		17,806	2,968
D2-D3	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
B1-C1	T1	6.00	2,196.0	7,146	720.0	10,062	1,677
A2-B2	T2	6.00	3,513.6	14,293		17,806	2,968
a2-b2	T3	2.00	195.2	3,970		4,165	2,083
C2-D2	T2	6.00	3,513.6	14,293		17,806	2,968
A3-B3	T2	6.00	3,513.6	14,293		17,806	2,968
C3-D3	T2	6.00	3,513.6	14,293		17,806	2,968
a3-b3	T3	2.00	195.2	3,970		4,165	2,083
B4-C4	T1	6.00	2,196.0	7,146	720.0	10,062	1,677



#### 4.2.8 Peso por columna:



Columna Tipo	b (m)	h (m)	L (m)	a*b (m <sup>2</sup> )	Peso (Kg/ml)	Peso (Kg)
C1	0.30	0.30	3.00	0.09	219.60	658.80
C2	0.35	0.35	3.00	0.12	298.90	896.70

#### Nivel 5 (Azotea)

Columna	Tipo	W propio (kg)	W trabes (kg)	Suma (kg)	Acumulado (Ton)
A2	C1	658.8	11,308	11,967	11.97
A3	C1	658.8	11,308	11,967	11.97
B1	C1	658.8	11,308	11,967	11.97
B2	C2	896.7	14,305	15,201	15.20
B3	C2	896.7	14,305	15,201	15.20
B4	C1	658.8	11,308	11,967	11.97
C1	C1	658.8	11,308	11,967	11.97
C2	C2	896.7	14,305	15,201	15.20
C3	C2	896.7	14,305	15,201	15.20
C4	C1	658.8	11,308	11,967	11.97
D2	C1	658.8	11,308	11,967	11.97
D3	C1	658.8	11,308	11,967	11.97

#### Nivel 4

Columna	Tipo	W propio (kg)	W trabes (kg)	Suma (kg)	Acumulado (Ton)
A2	C1	658.8	13,934	14,593	26.56
A3	C1	658.8	13,934	14,593	26.56
B1	C1	658.8	13,934	14,593	26.56
B2	C2	896.7	17,806	18,703	33.90
B3	C2	896.7	17,806	18,703	33.90
B4	C1	658.8	13,934	14,593	26.56
C1	C1	658.8	13,934	14,593	26.56
C2	C2	896.7	17,806	18,703	33.90
C3	C2	896.7	17,806	18,703	33.90
C4	C1	658.8	13,934	14,593	26.56
D2	C1	658.8	13,934	14,593	26.56
D3	C1	658.8	13,934	14,593	26.56

**Nivel 3**

Columna	Tipo	W propio (kg)	W trabes (kg)	Suma (kg)	Acumulado (Ton)
A2	C1	658.8	13,934	14,593	41.15
A3	C1	658.8	13,934	14,593	41.15
B1	C1	658.8	13,934	14,593	41.15
B2	C2	896.7	17,806	18,703	52.61
B3	C2	896.7	17,806	18,703	52.61
B4	C1	658.8	13,934	14,593	41.15
C1	C1	658.8	13,934	14,593	41.15
C2	C2	896.7	17,806	18,703	52.61
C3	C2	896.7	17,806	18,703	52.61
C4	C1	658.8	13,934	14,593	41.15
D2	C1	658.8	13,934	14,593	41.15
D3	C1	658.8	13,934	14,593	41.15

**Nivel 2**

Columna	Tipo	W propio (kg)	W trabes (kg)	Suma (kg)	Acumulado (Ton)
A2	C1	658.8	13,934	14,593	55.75
A3	C1	658.8	13,934	14,593	55.75
B1	C1	658.8	13,934	14,593	55.75
B2	C2	896.7	17,806	18,703	71.31
B3	C2	896.7	17,806	18,703	71.31
B4	C1	658.8	13,934	14,593	55.75
C1	C1	658.8	13,934	14,593	55.75
C2	C2	896.7	17,806	18,703	71.31
C3	C2	896.7	17,806	18,703	71.31
C4	C1	658.8	13,934	14,593	55.75
D2	C1	658.8	13,934	14,593	55.75
D3	C1	658.8	13,934	14,593	55.75

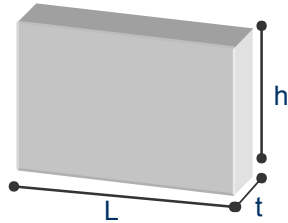
**Nivel 1**

Columna	Tipo	W propio (kg)	W trabes (kg)	Suma (kg)	Acumulado (Ton)
A2	C1	658.8	13,934	14,593	70.34
A3	C1	658.8	13,934	14,593	70.34
B1	C1	658.8	13,934	14,593	70.34
B2	C2	896.7	17,806	18,703	90.01
B3	C2	896.7	17,806	18,703	90.01
B4	C1	658.8	13,934	14,593	70.34
C1	C1	658.8	13,934	14,593	70.34
C2	C2	896.7	17,806	18,703	90.01
C3	C2	896.7	17,806	18,703	90.01
C4	C1	658.8	13,934	14,593	70.34
D2	C1	658.8	13,934	14,593	70.34
D3	C1	658.8	13,934	14,593	70.34

**Planta Baja**

<b>Columna</b>	<b>Tipo</b>	<b>W<sub>propio</sub> (kg)</b>	<b>W<sub>trabes</sub> (kg)</b>	<b>Suma (kg)</b>	<b>Acumulado (Ton)</b>
A2	C1	658.8	13,934	14,593	84.93
A3	C1	658.8	13,934	14,593	84.93
B1	C1	658.8	13,934	14,593	84.93
B2	C2	896.7	17,806	18,703	108.72
B3	C2	896.7	17,806	18,703	108.72
B4	C1	658.8	13,934	14,593	84.93
C1	C1	658.8	13,934	14,593	84.93
C2	C2	896.7	17,806	18,703	108.72
C3	C2	896.7	17,806	18,703	108.72
C4	C1	658.8	13,934	14,593	84.93
D2	C1	658.8	13,934	14,593	84.93
D3	C1	658.8	13,934	14,593	84.93

#### 4.2.9 Peso por muro:



Muro	t (m)	h (m)	Peso (Kg/ml)
Carga	0.20	3.00	1,464.00

Nivel 5 (Azotea)									
Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
A3 - A4	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
B2 - B3	6.00	8,784.0	10,791.0		8,251.4		27,826	27.83	4,637.73
C2 - C3	6.00	8,784.0	10,791.0		8,251.4		27,826	27.83	4,637.73
D1 - D2	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
D3 - D4	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
A1 - B1	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
C1 - D1	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
B2 - a2	2.00	2,928.0	2,398.0	3,095.1	4,125.7		12,547	12.55	6,273.40
b2 - C2	2.00	2,928.0	2,398.0	3,095.1	4,125.7		12,547	12.55	6,273.40
B3 - a3	2.00	2,928.0	2,398.0	3,095.1	4,125.7		12,547	12.55	6,273.40
b3 - C3	2.00	2,928.0	2,398.0	3,095.1	4,125.7		12,547	12.55	6,273.40
A4 - B4	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25
C4 - D4	6.00	8,784.0	5,395.5			684.0	14,864	14.86	2,477.25

Nivel 4									
Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
A3 - A4	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
B2 - B3	6.00	8,784.0	7,146.3		8,251.4		24,182	52.01	4,030.28
C2 - C3	6.00	8,784.0	7,146.3		8,251.4		24,182	52.01	4,030.28
D1 - D2	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
D3 - D4	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
A1 - B1	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
C1 - D1	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
B2 - a2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	23.27	5,362.22
b2 - C2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	23.27	5,362.22
B3 - a3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	23.27	5,362.22
b3 - C3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	23.27	5,362.22
A4 - B4	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05
C4 - D4	6.00	8,784.0	7,146.3			684.0	16,614	31.48	2,769.05

Nivel 3									
Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
A3 - A4	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
B2 - B3	6.00	8,784.0	7,146.3		8,251.4		24,182	76.19	4,030.28
C2 - C3	6.00	8,784.0	7,146.3		8,251.4		24,182	76.19	4,030.28
D1 - D2	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05

D3 - D4	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
A1 - B1	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
C1 - D1	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
B2 - a2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	34.00	5,362.22
b2 - C2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	34.00	5,362.22
B3 - a3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	34.00	5,362.22
b3 - C3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	34.00	5,362.22
A4 - B4	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05
C4 - D4	6.00	8,784.0	7,146.3			684.0	16,614	48.09	2,769.05

### Nivel 2

Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
A3 - A4	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
B2 - B3	6.00	8,784.0	7,146.3		8,251.4		24,182	100.37	4,030.28
C2 - C3	6.00	8,784.0	7,146.3		8,251.4		24,182	100.37	4,030.28
D1 - D2	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
D3 - D4	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
A1 - B1	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
C1 - D1	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
B2 - a2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	44.72	5,362.22
b2 - C2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	44.72	5,362.22
B3 - a3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	44.72	5,362.22
b3 - C3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	44.72	5,362.22
A4 - B4	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05
C4 - D4	6.00	8,784.0	7,146.3			684.0	16,614	64.71	2,769.05

### Nivel 1

Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
A3 - A4	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
B2 - B3	6.00	8,784.0	7,146.3		8,251.4		24,182	124.55	4,030.28
C2 - C3	6.00	8,784.0	7,146.3		8,251.4		24,182	124.55	4,030.28
D1 - D2	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
D3 - D4	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
A1 - B1	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
C1 - D1	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
B2 - a2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	55.44	5,362.22
b2 - C2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	55.44	5,362.22
B3 - a3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	55.44	5,362.22
b3 - C3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	55.44	5,362.22
A4 - B4	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05
C4 - D4	6.00	8,784.0	7,146.3			684.0	16,614	81.32	2,769.05

PB									
Muro	L (m)	W <sub>propio</sub> (Kg)	W <sub>losas</sub> (Kg)	W <sub>T3</sub> (Kg)	W <sub>cubos</sub> (Kg)	W <sub>fachada</sub> (Kg)	Suma (kg)	Acumulado (Ton)	W <sub>muros</sub> (Ton)
A1 - A2	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
A3 - A4	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
B2 - B3	6.00	8,784.0	7,146.3		8,251.4		24,182	148.73	4,030.28
C2 - C3	6.00	8,784.0	7,146.3		8,251.4		24,182	148.73	4,030.28
D1 - D2	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
D3 - D4	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
A1 - B1	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
C1 - D1	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
B2 - a2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	66.17	5,362.22
b2 - C2	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	66.17	5,362.22
B3 - a3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	66.17	5,362.22
b3 - C3	2.00	2,928.0	1,588.1	2,082.7	4,125.7		10,724	66.17	5,362.22
A4 - B4	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05
C4 - D4	6.00	8,784.0	7,146.3			684.0	16,614	97.94	2,769.05

Cargas totales en columnas			
Nivel	Carga por nivel (Kg)	Carga acumulada (Kg)	Carga acumulada (Ton)
5	156,540.00	156,540.00	156.54
4	191,556.17	348,096.17	348.10
3	191,556.17	539,652.35	539.65
2	191,556.17	731,208.52	731.21
1	191,556.17	922,764.69	922.76
PB	191,556.17	1,114,320.87	1,114.32
		<b>1,114,320.87</b>	<b>1,114.32</b>

Cargas totales en muros			
Nivel	Carga por nivel (Kg)	Carga acumulada (Kg)	Carga acumulada (Ton)
5	224,747.93	224,747.93	224.75
4	224,175.63	448,923.56	448.92
3	224,175.63	673,099.20	673.10
2	224,175.63	897,274.83	897.27
1	224,175.63	1,121,450.46	1,121.45
PB	224,175.63	1,345,626.10	1,345.63
		<b>1,345,626.10</b>	<b>1,345.63</b>

Cargas totales en la estructura			
Nivel	Carga por nivel (Kg)	Carga acumulada (Kg)	Carga acumulada (Ton)
5	381,287.93	381,287.93	381.29
4	415,731.81	797,019.74	797.02
3	415,731.81	1,212,751.54	1,212.75
2	415,731.81	1,628,483.35	1,628.48
1	415,731.81	2,044,215.16	2,044.22
PB	415,731.81	2,459,946.97	2,459.95
		<b>2,459,946.97</b>	<b>2,459.95</b>

### Comprobación de la Bajada de Cargas

Número de niveles: 13

Elemento	W <sub>propio</sub> (Ton)	Elementos X Nivel	Peso X Nivel (Ton)	Peso por planta tipo	
				Azotea	Entrepiso
Trabe T1	2.196	4	8.78	8.78	8.78
Trabe T2	3.514	8	28.11	28.11	28.11
Trabe T3	0.195	2	0.39	0.39	0.39
Columna C1	0.659	8	5.27	5.27	5.27
Columna C2	0.897	4	3.59	3.59	3.59
*Losa azotea	21.582	9	194.24	194.24	
*Losa entrepiso	28.585	8	228.68		228.68
Cubo escaleras	33.006	1	33.01	33.01	33.01
Muros Carga	8.784	11.33	99.55	99.55	99.55
Fachada Cristal	0.720	4	2.88	2.88	2.88
Fachada Aplanado	0.684	8	5.47	5.47	5.47
			<b>Sumas:</b>	<b>381.29</b>	<b>415.73</b>

\*Incluye peso por muros divisorios y cargas vivas.

<b>Nivel</b>	<b>Peso (ton)</b>	<b>Acumulado (ton)</b>
5	381.29	381.29
4	415.73	797.02
3	415.73	1,212.75
2	415.73	1,628.48
1	415.73	2,044.22
PB	415.73	2,459.95
		<b>2,459.95</b>