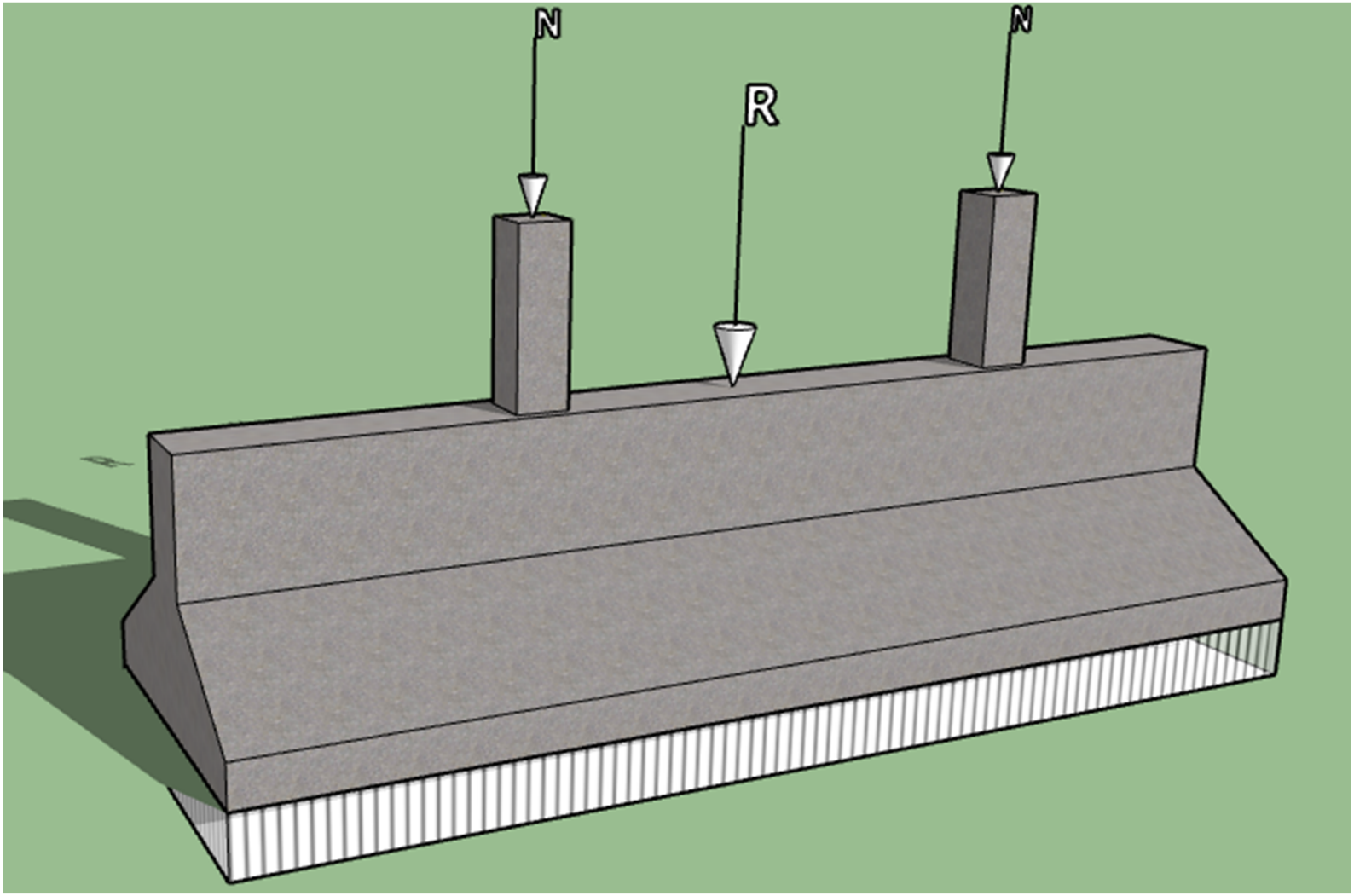
CIMENTACIONES 74.11
GEOTECNIA APLICADA 94.09

BASES COMBINADAS

Ing. Pedro M. Fernández (2019)

BASES COMBINADAS



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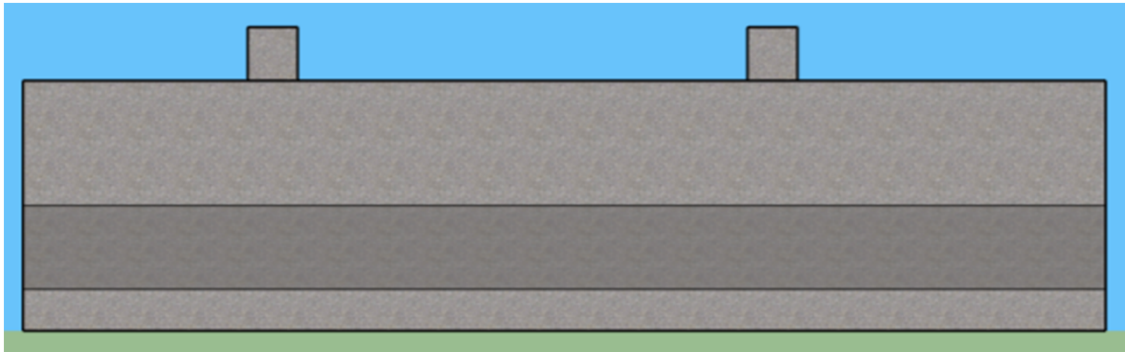

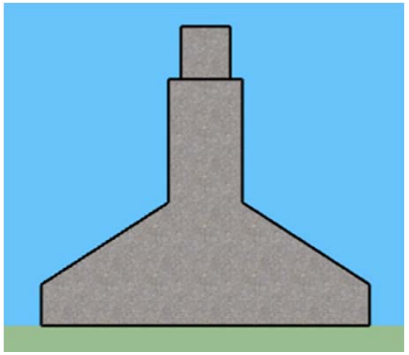

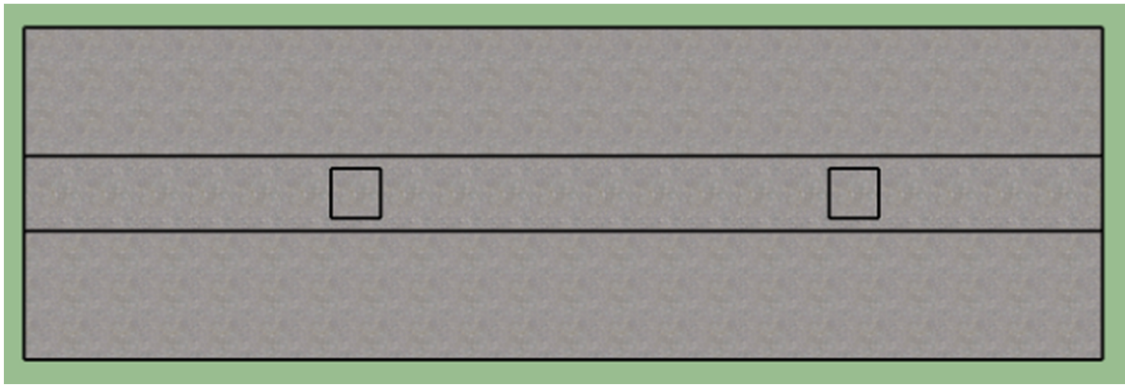

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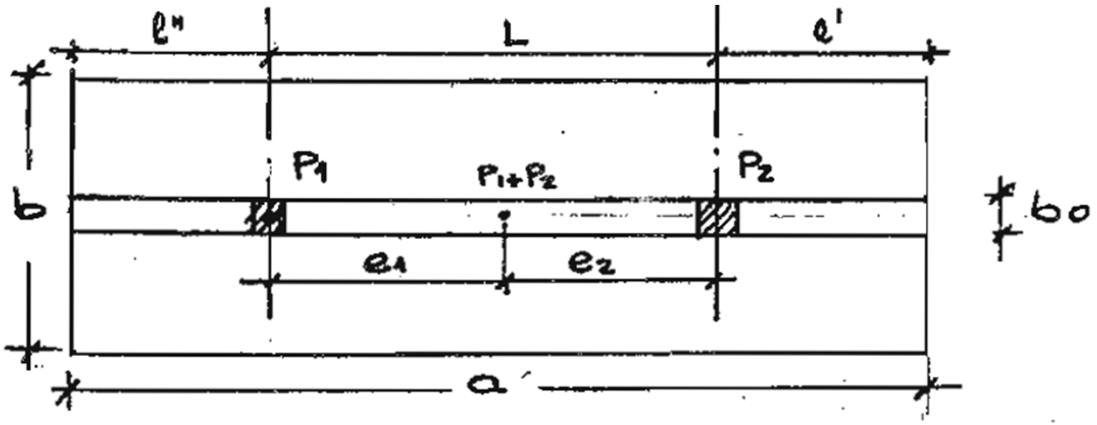
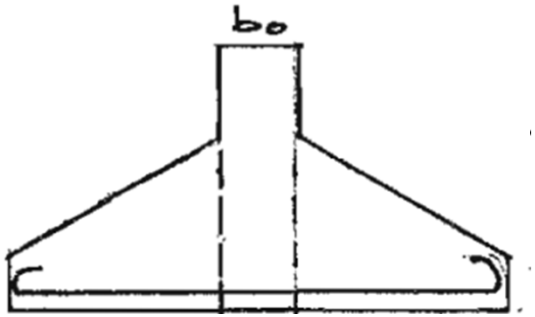




- **Longitud característica** (Ver Cap. Fundaciones flexibles):

$$L_0 = \sqrt[4]{(4\,E\,J)/(b\,k)}$$

- **Condición de rigidez:**

$$L/L_0 \leq \pi/2$$
$$L'/L_0 \leq \pi/4$$
$$L''/L_0 \leq \pi/4$$

BASES COMBINADAS

Objetivo de diseño: El centro de gravedad de la superficie debe coincidir con el centro de presiones.

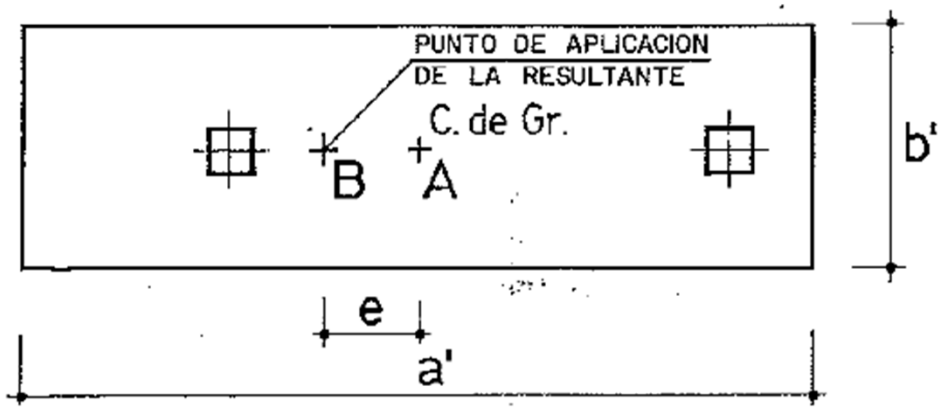
$$S = \frac{N_1 + N_2 + G}{\sigma_{adm}} \longrightarrow a\,,b$$

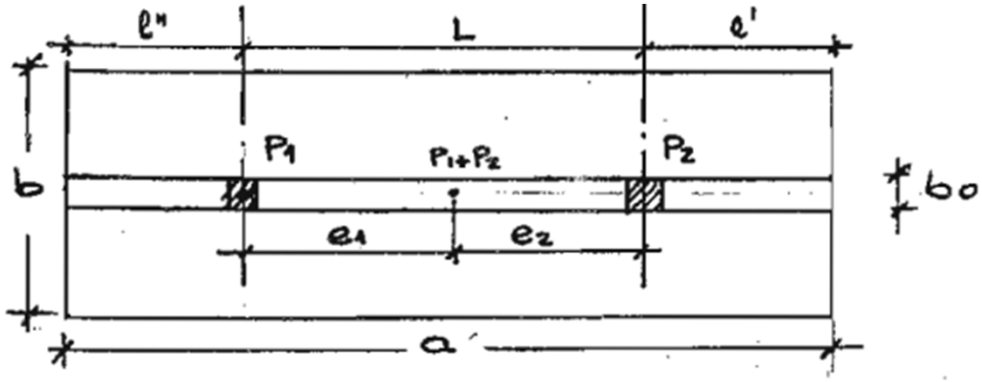
$$e_1 = \frac{N_2\,L}{N_1 + N_2}$$

$$e_1 + e_2 = L$$

$$L' = \frac{a}{2} - e_2$$

$$L'' = a - L - L'$$





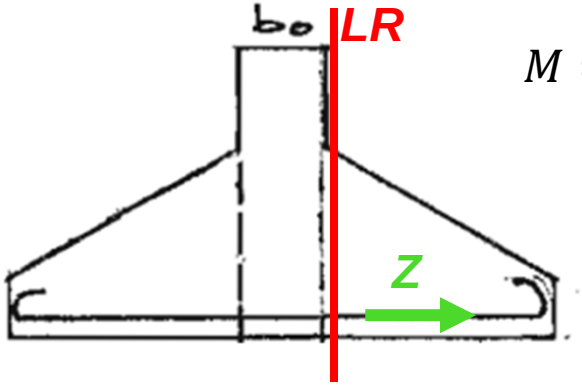
BASES COMBINADAS

Criterios de geometría:

$$D = (b - b_0)/3$$

$$z = \max(25cm; 0.2\ D)$$

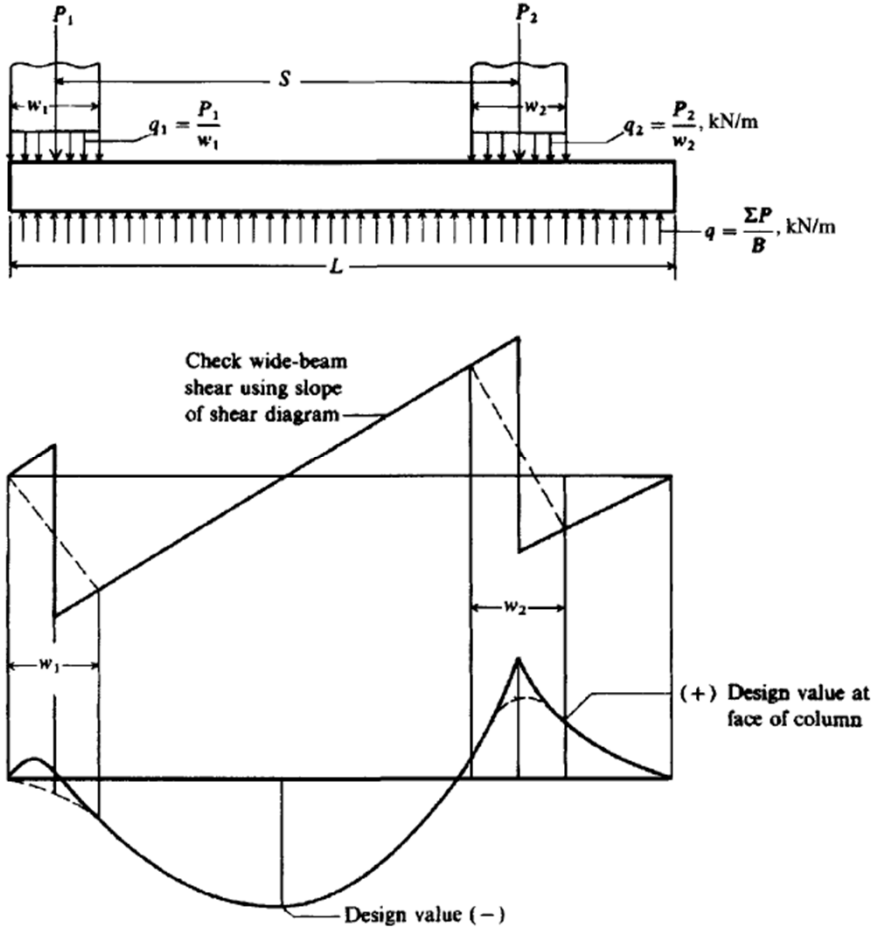
Dimensionamiento de la base:
"Método Líneas de rotura"

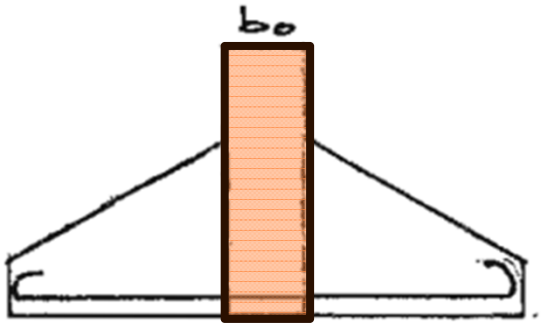


$$M = \frac{(b - b_0)^2}{8}\ \sigma_t$$

BASES COMBINADAS

Dimensionamiento de la viga a flexión y corte





Procedimiento

1. Estimación de los lados de la base «a y b»

σ_{adm}= dato Sup= $1.1\ (N1 + N2)/\sigma_{adm}$

2. Resultante, e_1 y e_2

$$e_1 = \frac{N_2\ L}{N_1 + N_2} \qquad e_1 + e_2 = L \qquad L' = \frac{a}{2} - e_2 \qquad L'' = a - L - L'$$

3. Zapata

$$D = (b - b_0)/3$$

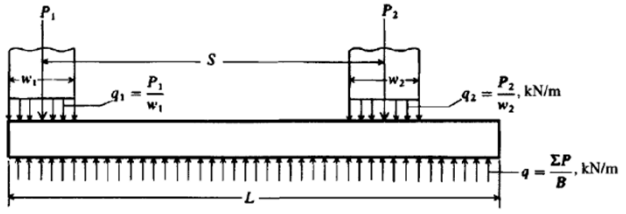
$$z = \max(25cm; 0.2\ D)$$

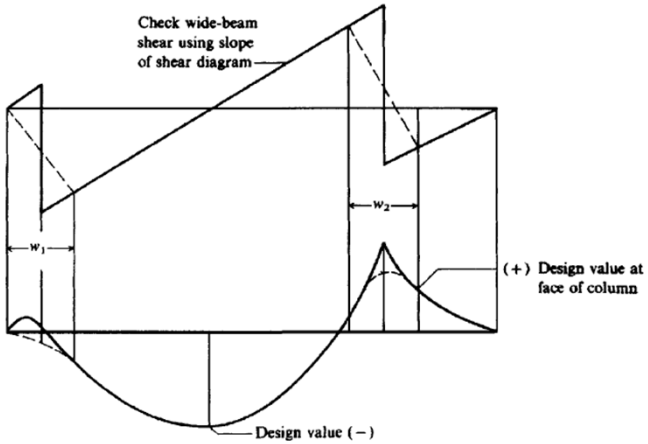
$$M = \frac{(b - b_0)^2}{8}\ \sigma_t \qquad \sigma_t = (N_1 + N_2)\ /\ a\ .\ b$$

$$As_p = \frac{1.2\ .\ M}{0.8\ .\ h\ .\ \phi\ .\ fy}$$

El cálculo de solicitaciones debe llevarse adelante en estados últimos.

4. Diagramas de cargas, corte y momentos





5. Sección de la viga

Adoptar D_v

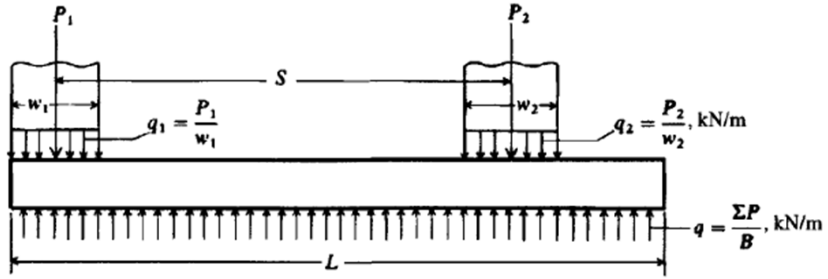
$D_{viga} \geq Dba_{se} + b_0/2$

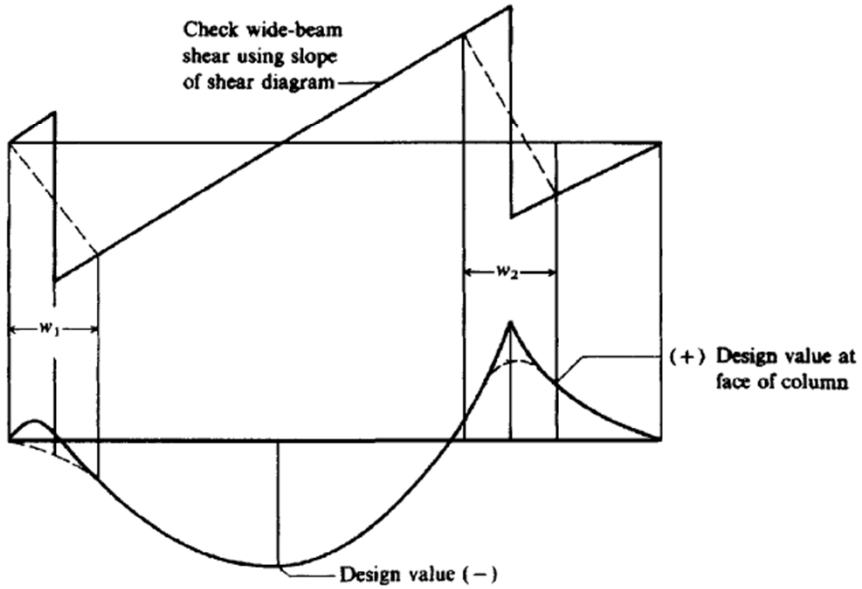
$D_{viga} \geq L/3$

6. Dimensionamiento de armaduras de viga (flexión y corte)

$$As_p = \frac{1.2 \,.\, M}{0.8 \,.\, h \,.\, \phi \,.\, fy}$$

El cálculo de solicitaciones debe llevarse adelante en estados últimos.





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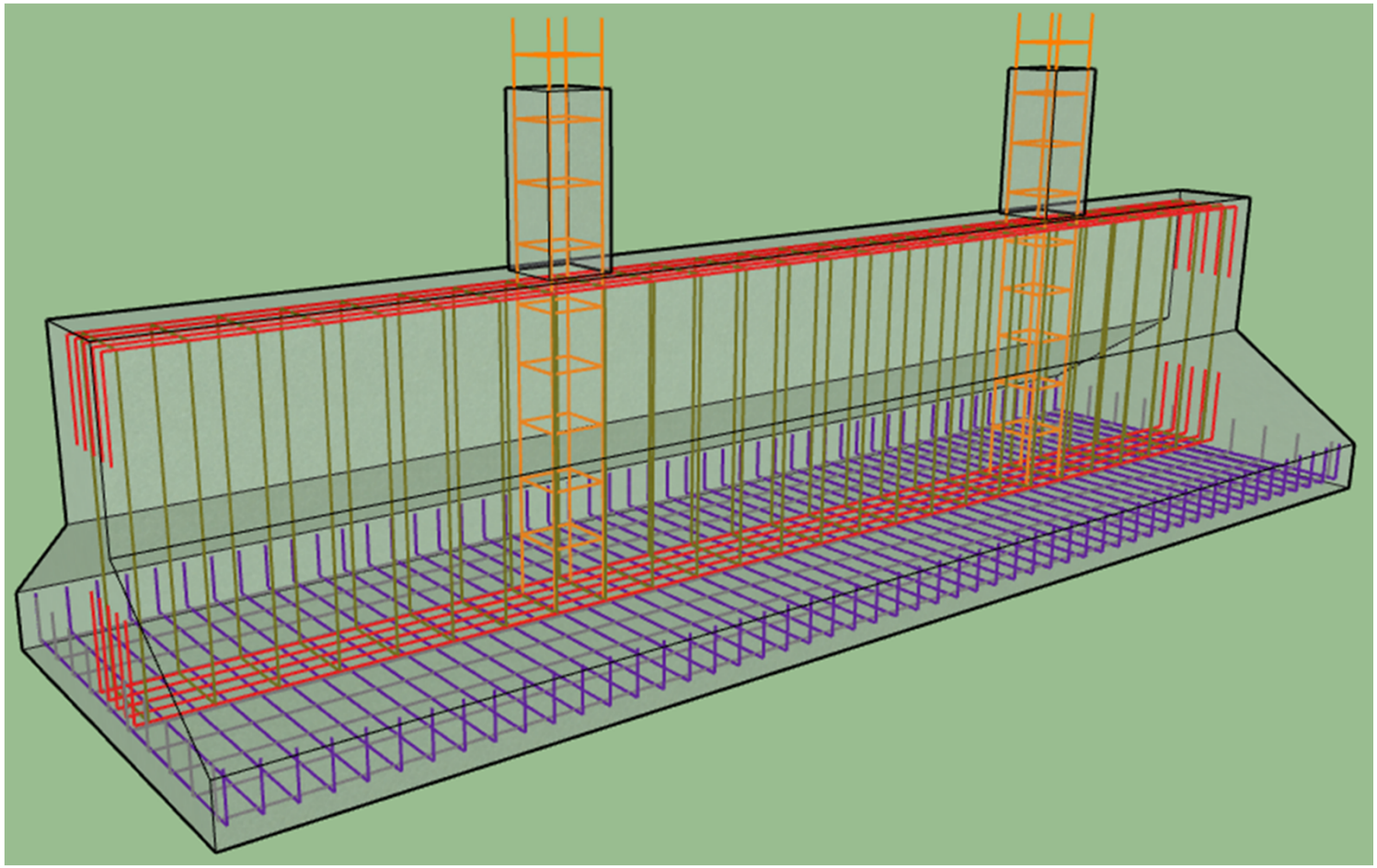

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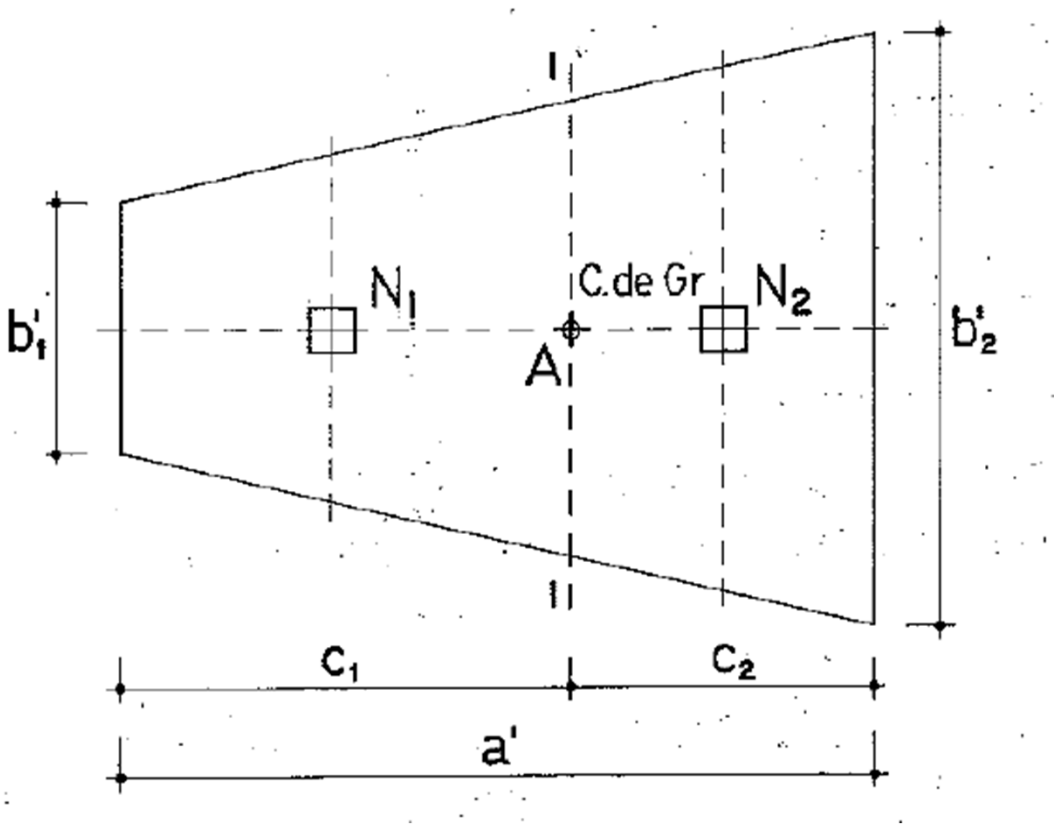

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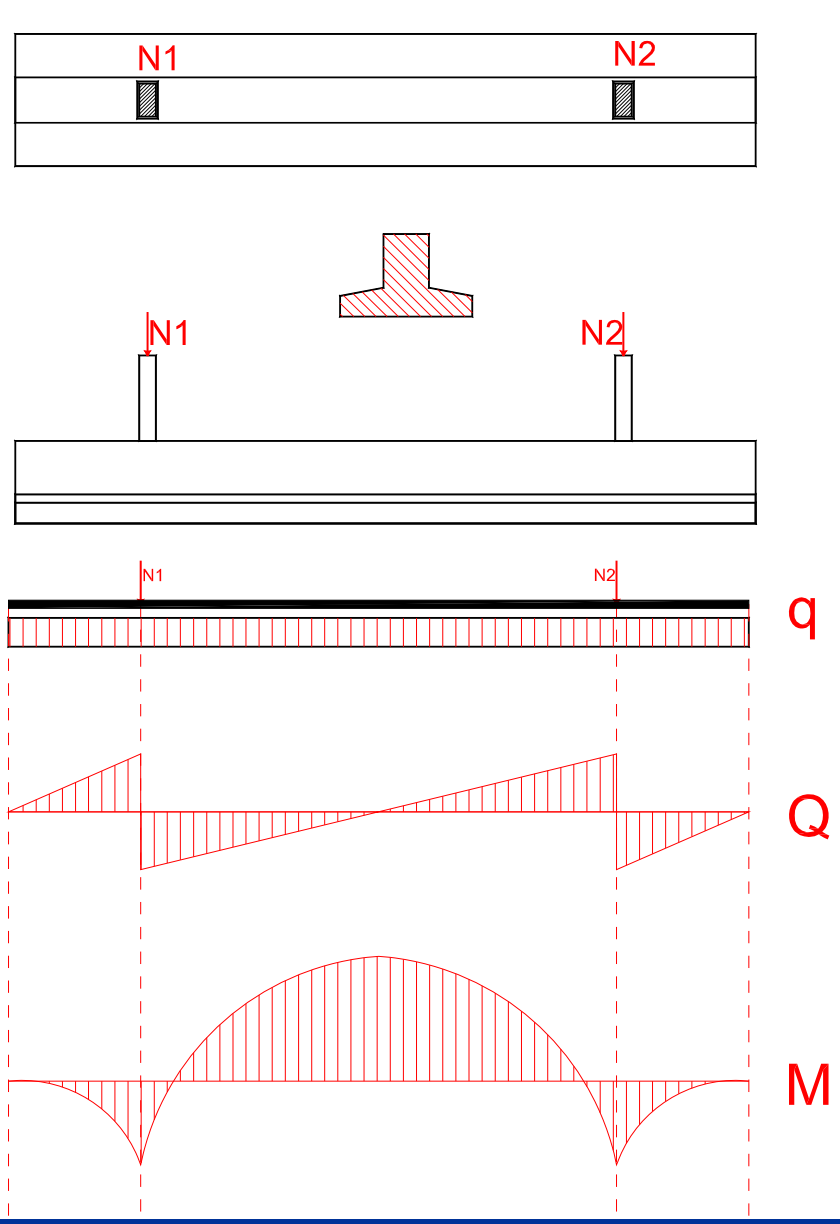

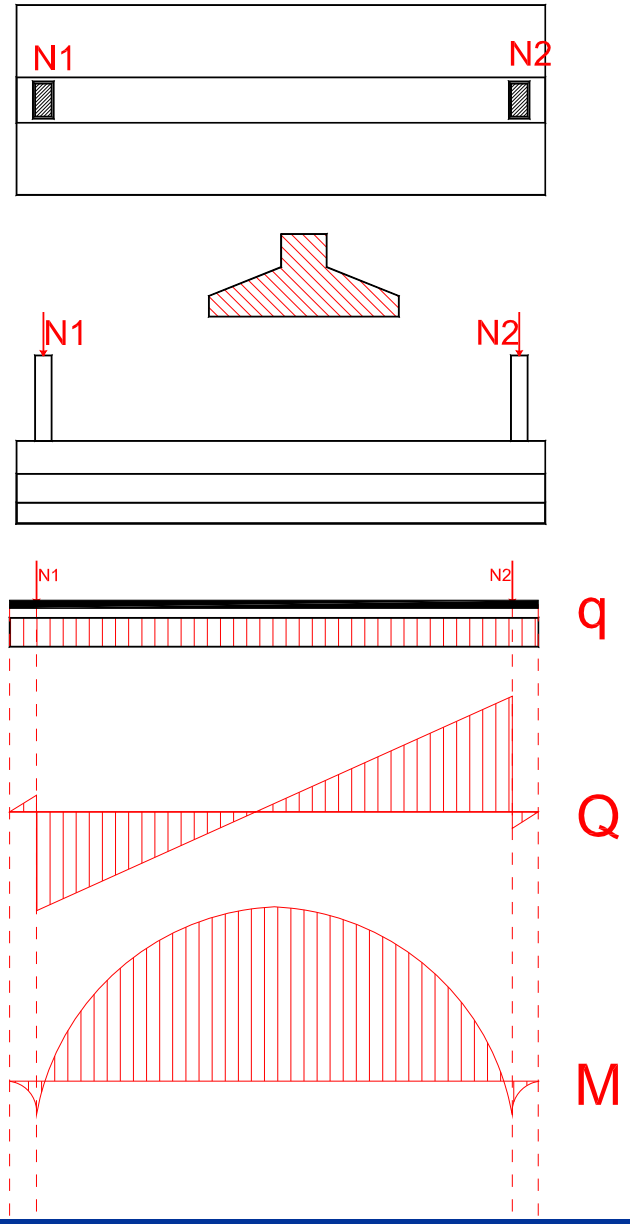

FIN

GRACIAS POR SU ATENCION !!!