

Prima esercitazione progettuale  
Progetto di un solaio laterocementizio

Esempio numerico di applicazione del  
**Metodo di Hardy-Cross**  
per l'analisi del solaio

**Dati Geometrici**

- $L_{sb} = 1.15 \text{ m}$
- $L_1 = 5.25 \text{ m}$
- $L_2 = 6.10 \text{ m}$
- $L_3 = 4.40 \text{ m}$

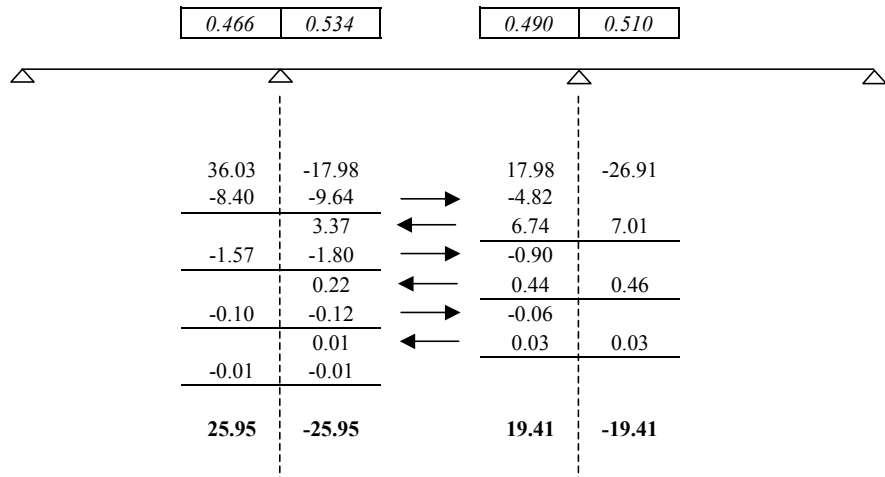
**- Valori dei carichi**

- $g_k + g_k' = 5.80 \text{ kN/m}$
- $g_{k, sb} + g_{k, sb}' = 4.30 \text{ kN/m}$
- $F_k = 1.50 \text{ kN}$
- $q_k = 2.00 \text{ kN/m}$
- $q_{k, sb} = 4.00 \text{ kN/m}$
- $H_k = 1.00 \text{ kN}$

**- Combinazioni di carico allo SLU**

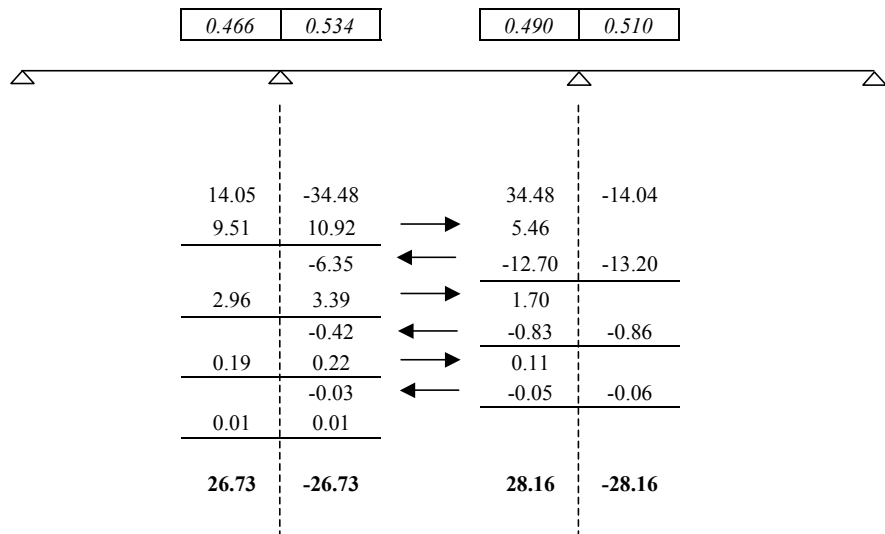
**- COMBINAZIONE 1 (SLU):**

- $p_{sb} = 4.30 \text{ kN/m}$
- $F_d = 1.50 \text{ kN}$
- $H_d = 0.00 \text{ kN}$
- $m = 4.57 \text{ kNm}$
- $p_1 = 11.12 \text{ kN/m}$
- $p_2 = 5.80 \text{ kN/m}$
- $p_3 = 11.12 \text{ kN/m}$



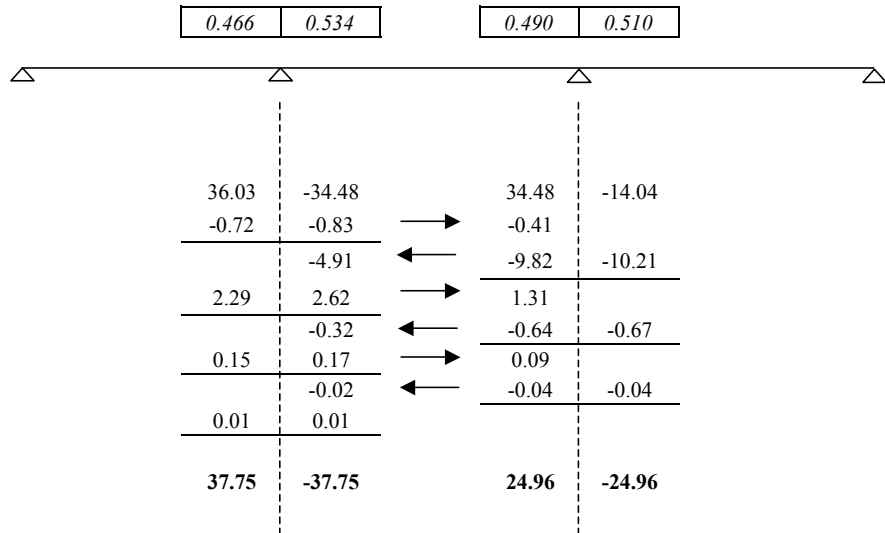
**- COMBINAZIONE 2 (SLU):**

- $p_{sb} = 12.02 \text{ kN/m}$
- $F_d = 2.10 \text{ kN}$
- $H_d = 1.50 \text{ kN}$
- $m = 11.86 \text{ kNm}$
- $p_1 = 5.80 \text{ kN/m}$
- $p_2 = 11.12 \text{ kN/m}$
- $p_3 = 5.80 \text{ kN/m}$



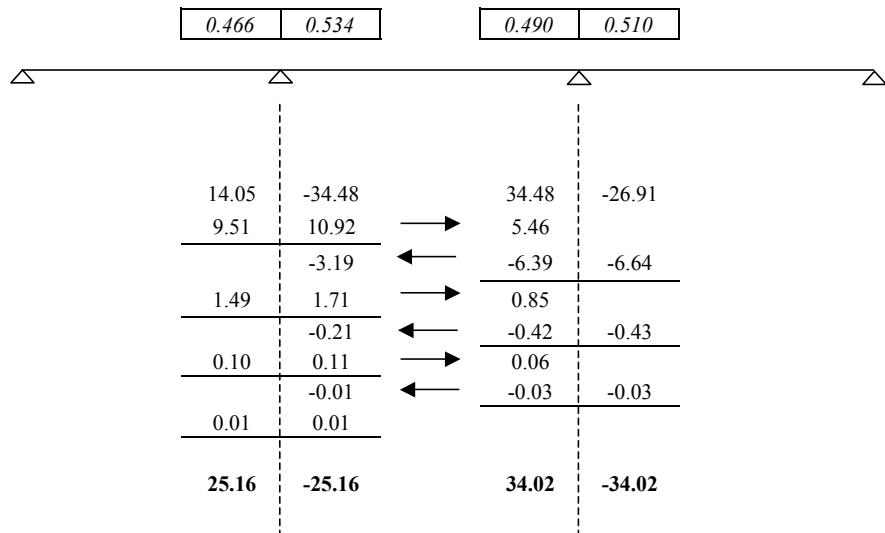
- COMBINAZIONE 3 (SLU):

- $p_{sb} = 4.30 \text{ kN/m}$
- $F_d = 1.50 \text{ kN}$
- $H_d = 0.00 \text{ kN}$
- $m = 4.57 \text{ kNm}$
- $p_1 = 11.12 \text{ kN/m}$
- $p_2 = 11.12 \text{ kN/m}$
- $p_3 = 5.80 \text{ kN/m}$



- COMBINAZIONE 4 (SLU):

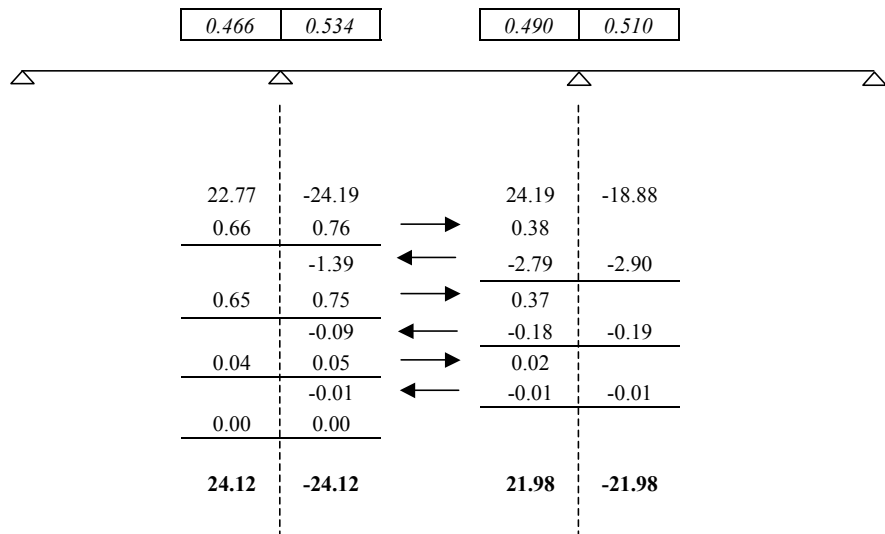
- $p_{sb} = 12.02 \text{ kN/m}$
- $F_d = 2.10 \text{ kN}$
- $H_d = 1.50 \text{ kN}$
- $m = 11.86 \text{ kNm}$
- $p_1 = 5.80 \text{ kN/m}$
- $p_2 = 11.12 \text{ kN/m}$
- $p_3 = 11.12 \text{ kN/m}$



- Combinazioni di carico allo SLS

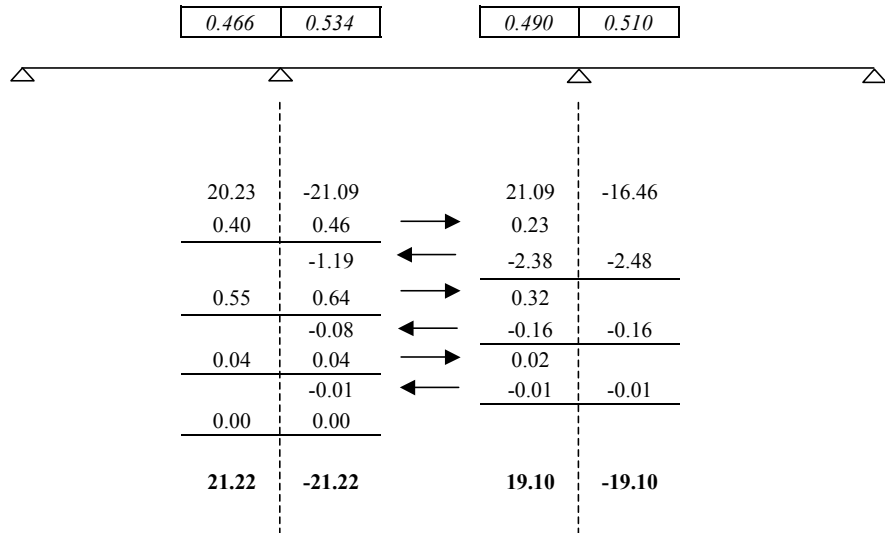
- COMBINAZIONE RARA:

- $p_{sb} = 8.30 \text{ kN/m}$
- $F_d = 1.50 \text{ kN}$
- $H_d = 1.00 \text{ kN}$
- $m = 8.21 \text{ kNm}$
- $p_1 = 7.80 \text{ kN/m}$
- $p_2 = 7.80 \text{ kN/m}$
- $p_3 = 7.80 \text{ kN/m}$



- COMBINAZIONE FREQUENTE:

0.50  
 $p_{sb} = 6.30 \text{ kN/m}$   
 $F_d = 1.50 \text{ kN}$   
 $H_d = 0.50 \text{ kN}$   
 $m = 6.39 \text{ kNm}$   
 $p_1 = 6.80 \text{ kN/m}$   
 $p_2 = 6.80 \text{ kN/m}$   
 $p_3 = 6.80 \text{ kN/m}$



- COMBINAZIONE QUASI-PERMANENTE:

0.20  
 $p_{sb} = 5.10 \text{ kN/m}$   
 $F_d = 1.50 \text{ kN}$   
 $H_d = 0.20 \text{ kN}$   
 $m = 5.30 \text{ kNm}$   
 $p_1 = 6.20 \text{ kN/m}$   
 $p_2 = 6.20 \text{ kN/m}$   
 $p_3 = 6.20 \text{ kN/m}$

