Università di Pisa

Scuola di Ingegneria

Corso di Laurea Magistrale Strutturale e Edile

master COPY

TEORIA delle STRUTTURE I

Riccardo Barsotti

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Università di Pisa

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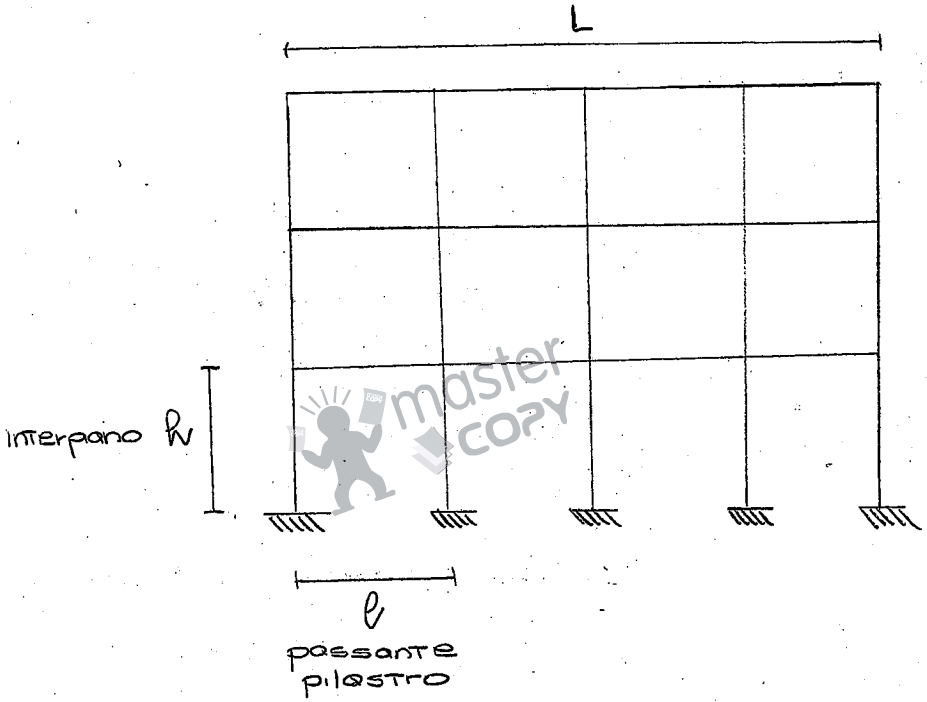
Corso di Laurea Magistrale Strutturale e Edile

TEORIA delle STRUTTURE I

Riccardo Desideri

TEORIA DELLE STRUTTURE I

30 SETTEMBRE



ogni maglia chiusa (12) ha 3gdL

↓

telaio 36v staticamente non determinato

↓

metodo delle Forze non e' applicabile

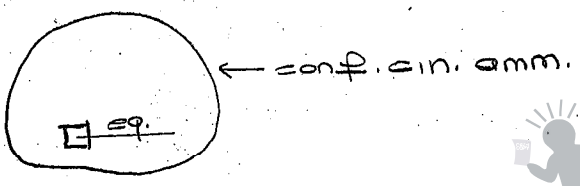
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<u>metodo degli spostamenti</u>

problema: progetto e predimensionamento

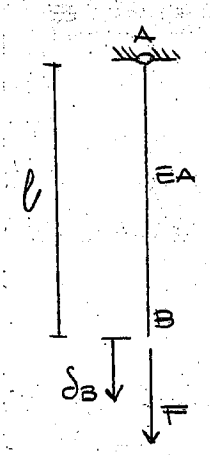
- Analisi limite
- Dinamica strutture
- Piastre e gusci

Il metodo degli spostamenti determina configurazione deformata:



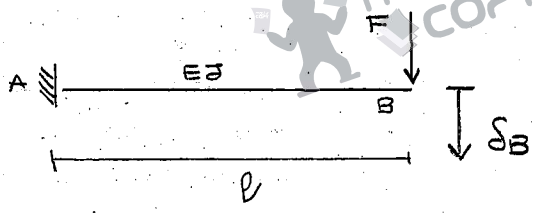
<u>RIGIDEZZA</u>: capacita' di un elemento strutturale di opporsi a una variazione di forma

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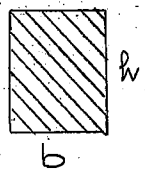
$$\delta_B = \frac{F \cdot \ell}{EA}$$

$$K_a = \frac{EA}{\ell}$$ rigidezza assiale



$$\delta_B = \frac{F\ell^3}{EJ}$$

$$K_f = \frac{3EJ}{\ell^3}$$ rigidezza flessionale

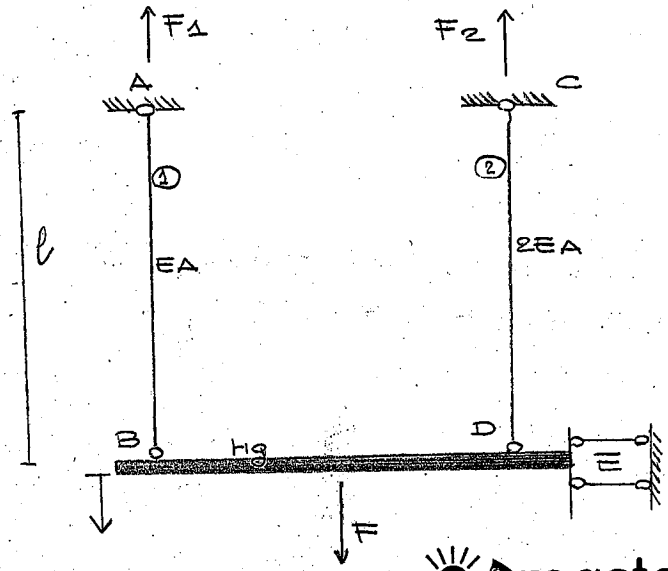


$$J = \frac{bh^3}{12} \; ; \; A = bh$$

$$\frac{K_a}{K_f} = \frac{Ebh}{\ell} \cdot \frac{\ell^3}{3E\frac{bh^3}{12}} = 4\left(\frac{\ell}{h}\right)^2$$

$K_a \gg K_f$ → suppongo che trave sia inestensibile

problema staticamente non determinato

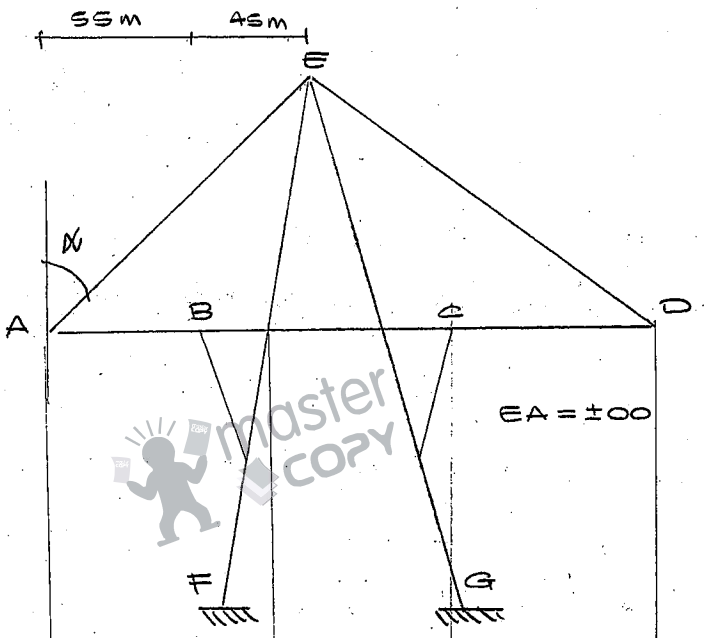


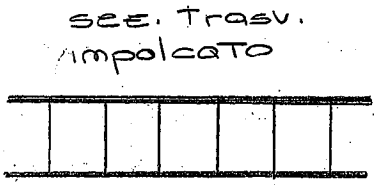
- $F_1 = \frac{EA}{\ell}$
- $F_2 = \frac{2EA}{\ell}$

spostamento BDE deve essere uguale quindi su ① e ② la forza F si ripartisce:

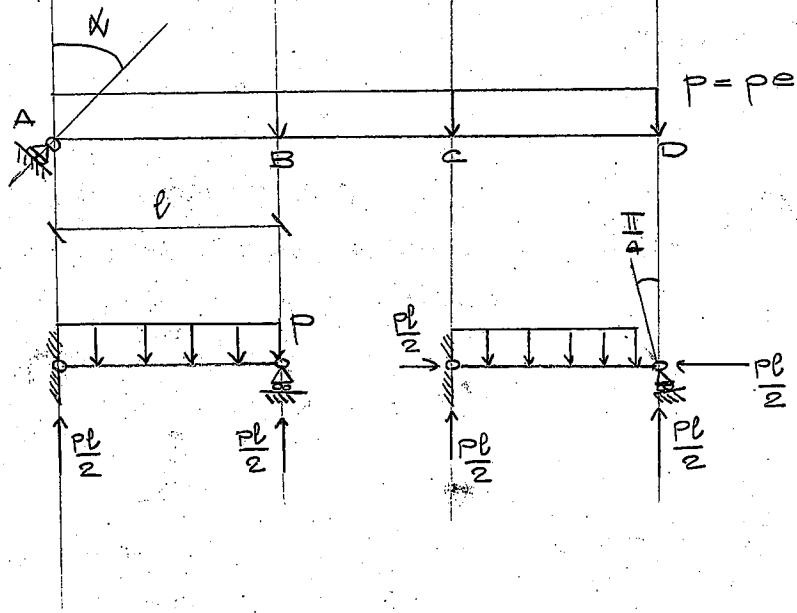
$$F_1 = \frac{F}{3} \; ; \; F_2 = \frac{2F}{3}$$

Viadotto sul Polcevera





p = peso proprio



Se considero solo taglio e momento:

