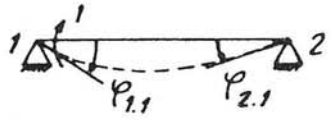
TABELLA I

coefficienti di influenza per il metodo delle forze
Le rotazioni e gli spostamenti sono riferiti agli estremi delle aste-

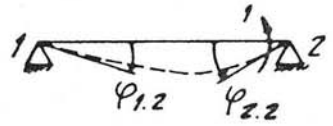
Coefficienti dovuti a forze e momenti unitari

I



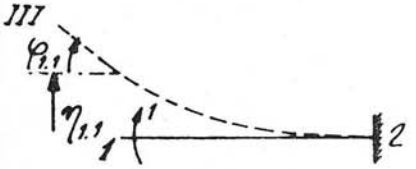
$$\varphi_{1.1} = \frac{\ell}{3EJ} \qquad \varphi_{2.1} = \frac{\ell}{6EJ}$$

II



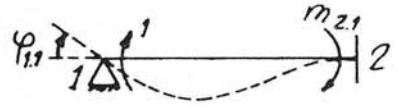
$$\varphi_{1.2} = \frac{\ell}{6EJ} \qquad \varphi_{2.2} = \frac{\ell}{3EJ}$$

III



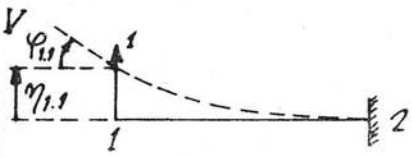
$$\varphi_{1.1} = \frac{\ell}{EJ} \qquad \eta_{1.1} = \frac{\ell^2}{2EJ}$$

IV



$$\varphi_{1.1} = \frac{\ell}{4EJ} \qquad m_{2.1} = \frac{1}{2}$$

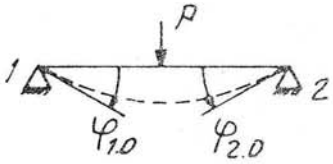
V



$$\varphi_{1.1} = \frac{\ell^2}{2EJ} \qquad \eta_{1.1} = \frac{\ell^3}{3EJ}$$

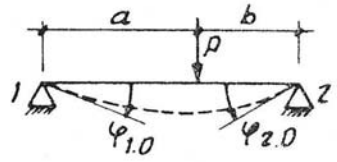
Coefficienti dovuti a situazioni di carico esterne

VI



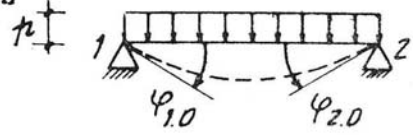
$$\varphi_{1.0} = \varphi_{2.0} = \frac{P \cdot \ell^2}{16EJ}$$

VII



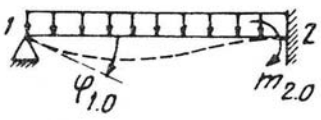
$$\varphi_{1.0} = \frac{Pb(\ell^2 - b^2)}{6\ell EJ} \qquad \varphi_{2.0} = \frac{Pab(2\ell - b)}{6\ell EJ}$$

VIII



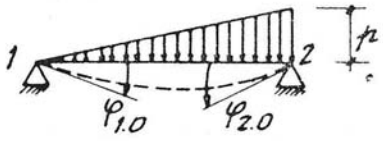
$$\varphi_{1.0} = \varphi_{2.0} = \frac{p \cdot \ell^3}{24EJ}$$

IX



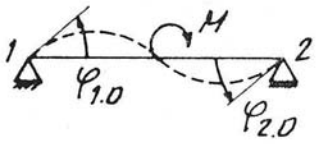
$$\varphi_{1.0} = \frac{p \cdot \ell^3}{48EJ} \qquad m_{2.0} = \frac{p\ell^2}{8}$$

X



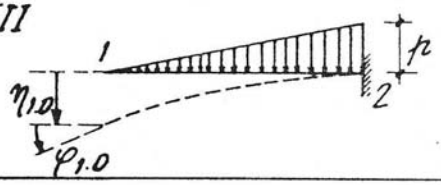
$$\varphi_{1.0} = \frac{7p\ell^3}{360EJ} \qquad \varphi_{2.0} = \frac{p\ell^3}{45EJ}$$

XI



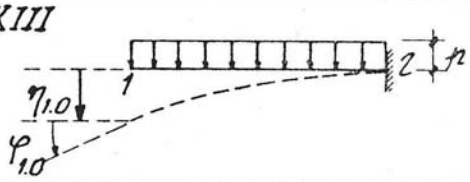
$$\varphi_{1.0} = \varphi_{2.0} = \frac{M\ell}{24EJ}$$

XII



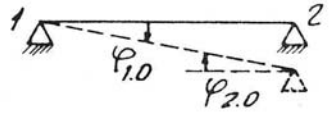
$$\varphi_{1.0} = \frac{p\ell^3}{24EJ} \qquad \eta_{1.0} = \frac{p \cdot \ell^4}{30EJ}$$

XIII



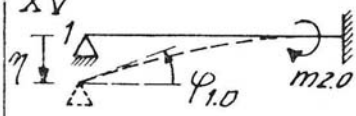
$$\varphi_{1.0} = \frac{p\ell^3}{6EJ} \qquad \eta_{1.0} = \frac{p \cdot \ell^4}{8EJ}$$

XIV



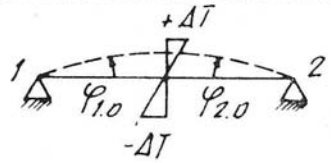
$$\varphi_{1.0} = \varphi_{2.0} = \frac{\eta}{\ell}$$

XV



$$\varphi_{1.0} = \frac{3}{2}\frac{\eta}{\ell} \qquad m_{2.0} = \frac{3EJ}{\ell^2}\eta$$

XVI



$$\varphi_{1.0} = \varphi_{2.0} = \frac{\alpha\ell\Delta T}{t}$$

(α = coeff. di dilatazione termica)

(t = altezza della trave)

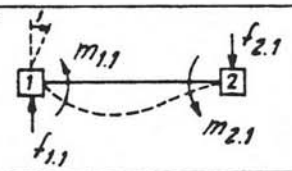
TABELLA II

Coefficienti di influenza per il metodo degli spostamenti

Le forze e i momenti sono riferiti ai nodi.

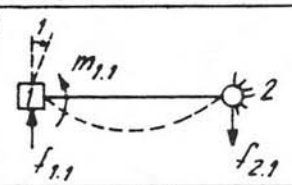
Coefficienti dovuti a spostamenti e rotazioni unitarie

I



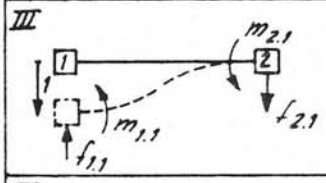
$$m_{1,1} = \frac{4EJ}{\ell} \qquad m_{2,1} = \frac{2EJ}{\ell} \qquad f_{1,1} = f_{2,1} = \frac{6EJ}{\ell^2}$$

II



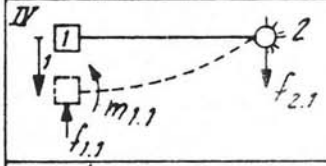
$$m_{1,1} = \frac{3EJ}{\ell} \qquad m_{2,1} = 0 \qquad f_{1,1} = f_{2,1} = \frac{3EJ}{\ell^2}$$

III



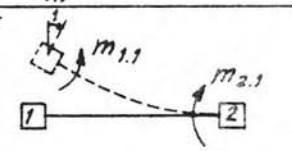
$$m_{1,1} = m_{2,1} = \frac{6EJ}{\ell^2} \qquad f_{1,1} = f_{2,1} = \frac{12EJ}{\ell^3}$$

IV



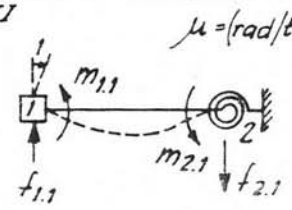
$$m_{1,1} = \frac{3EJ}{\ell^2} \qquad m_{2,1} = 0 \qquad f_{1,1} = f_{2,1} = \frac{3EJ}{\ell^3}$$

V



$$m_{1,1} = m_{2,1} = \frac{EJ}{\ell} \qquad f_{1,1} = f_{2,1} = 0$$

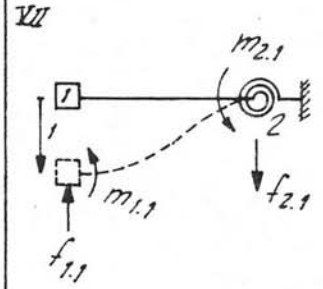
VI



$$m_{1,1} = \frac{12\mu(EJ)^2 + 4\ell EJ}{\ell(\ell + 4\mu EJ)} \qquad m_{2,1} = \frac{6\mu(EJ)^2 + 2EJ\ell}{(\ell + 4\mu EJ)(\ell + 3\mu EJ)}$$

$$f_{1,1} = f_{2,1} = 3\,\frac{6\mu(EJ)^2 + 2\ell EJ}{\ell^2(\ell + 4\mu EJ)}\,\frac{\ell + 2\mu EJ}{\ell + 3\mu EJ}$$

VII

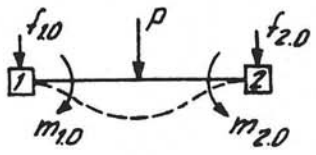


$$m_{1,1} = \frac{6\ell EJ + 12\mu(EJ)^2}{\ell^2(\ell + 4\mu EJ)} \qquad m_{2,1} = \frac{6EJ}{\ell(\ell + 4\mu EJ}$$

$$f_{1,1} = f_{2,1} = \frac{12EJ}{\ell^3}\,\frac{\ell + \mu EJ}{\ell + 4\mu EJ}$$

Coefficienti dovuti a situazioni di carico esterne

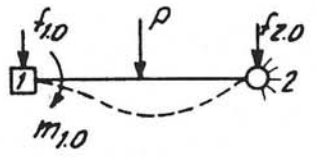
VIII



$$m_{1.0} = m_{2.0} = \frac{P \cdot \ell}{8}$$

$$f_{1.0} = f_{2.0} = \frac{P}{2}$$

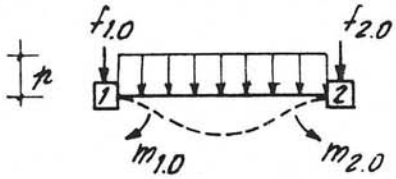
IX



$$m_{1.0} = \frac{3}{16} P \cdot \ell$$

$$f_{1.0} = \frac{11}{16} P \qquad f_{2.0} = \frac{5}{16} P$$

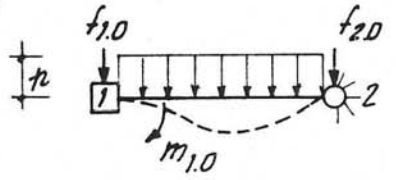
X



$$m_{1.0} = m_{2.0} = \frac{p \cdot \ell^2}{12}$$

$$f_{1.0} = f_{2.0} = \frac{p \cdot \ell}{2}$$

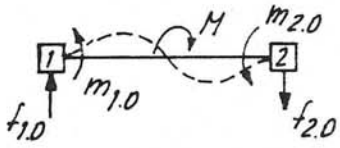
XI



$$m_{1.0} = \frac{p \cdot \ell^2}{8} \qquad m_{2.0} = 0$$

$$f_{1.0} = \frac{5}{8} p \cdot \ell \qquad f_{2.0} = \frac{3}{8} p \cdot \ell$$

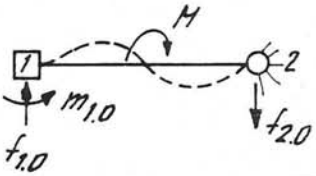
XII



$$m_{1.0} = m_{2.0} = \frac{M}{4}$$

$$f_{1.0} = f_{2.0} = \frac{3}{2} \frac{M}{\ell}$$

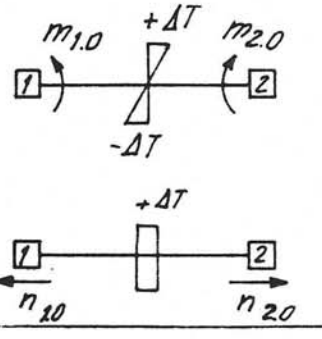
XIII



$$m_{1.0} = \frac{M}{8}$$

$$f_{1.0} = f_{2.0} = \frac{9}{8} \frac{M}{\ell}$$

XIV



$$m_{1.0} = m_{2.0} = \frac{2EJ\alpha\Delta T}{t}$$

t = altezza della trave

A = sezione della trave

$$n_{1.0} = n_{2.0} = \alpha \Delta T E A$$