

FIG. 1

ESEMPI DI NUMERAZIONE:

25	26	27	28
21	22	23	24
17	18	19	20
13	14	15	16
9	10	11	12
5	6	7	8
1	2	3	4

$\max(i-j) = 4$

7	14	21	28
6	13	20	27
5	12	19	26
4	11	18	25
3	10	17	24
2	9	16	23
1	8	15	22

$\max(i-j) = 7$

2	4	6	8	10	12	14
1	3	5	7	9	11	13

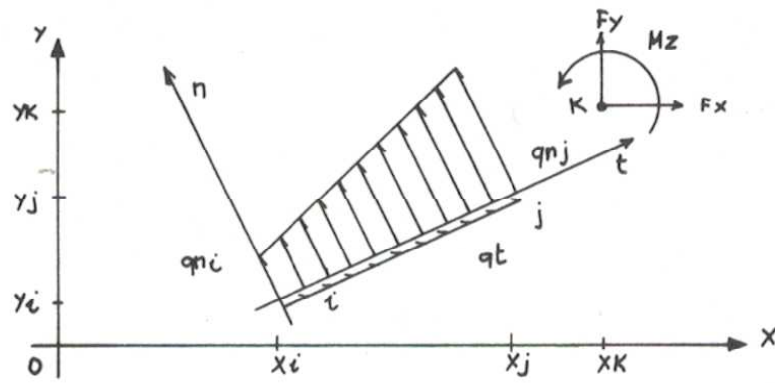
$\max(i-j) = 2$

8	9	10	11	12	13	14
1	2	3	4	5	6	7

$\max(i-j) = 7$

FIG. 2a

Sistemi di riferimento (generale e locale)



Risultati

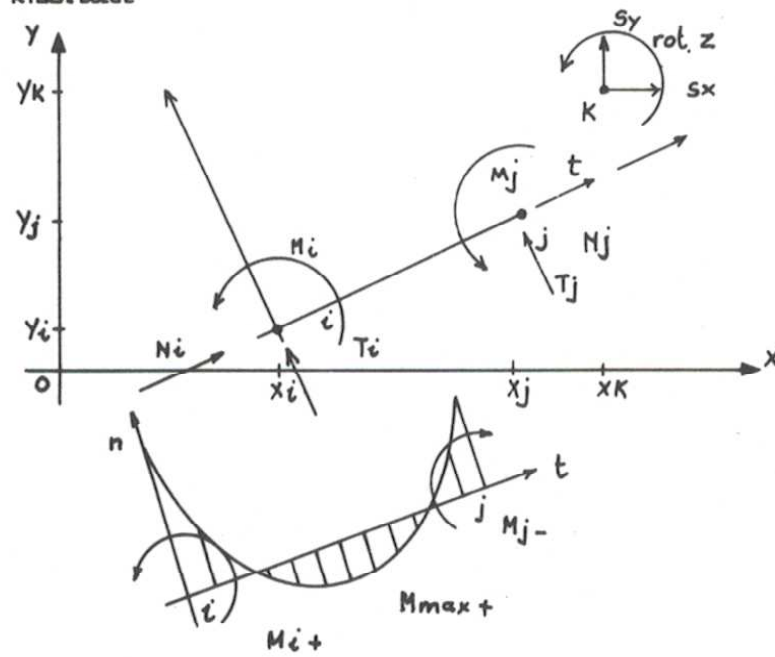


FIG. 2b

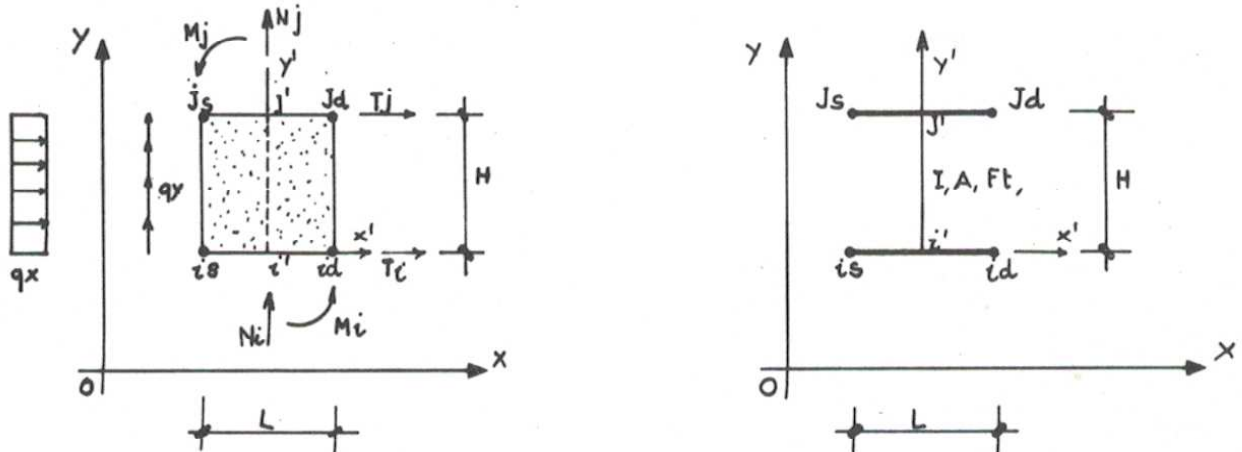
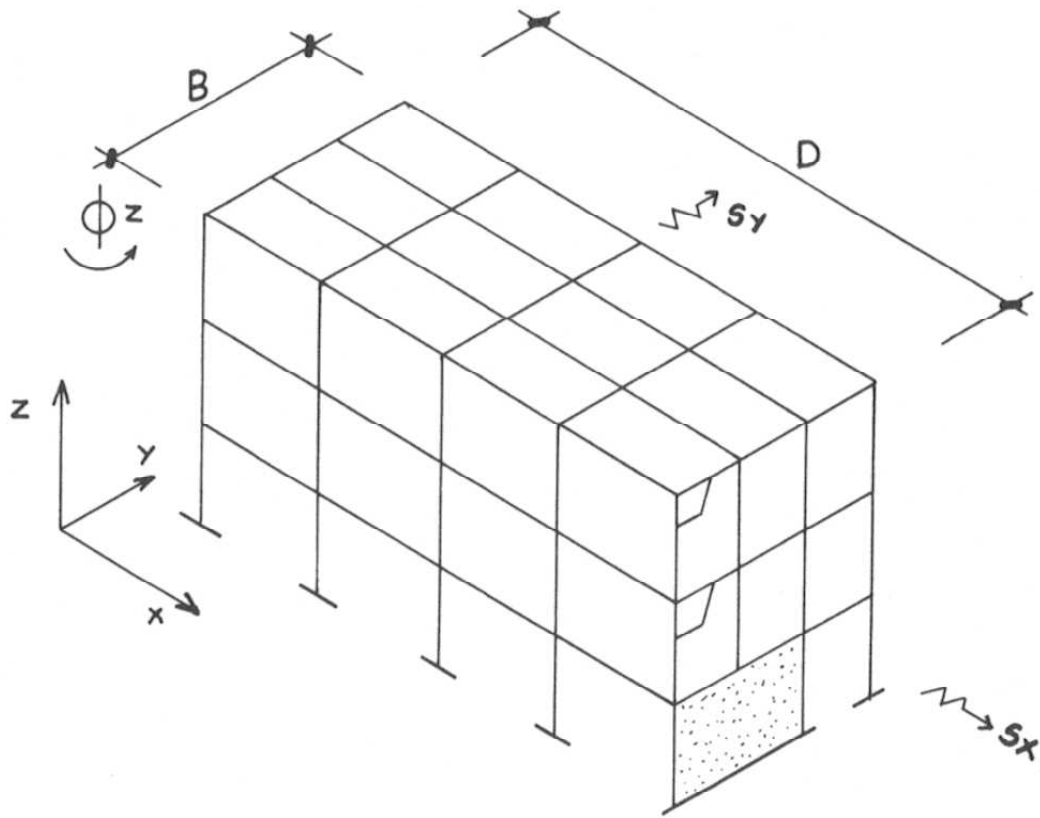
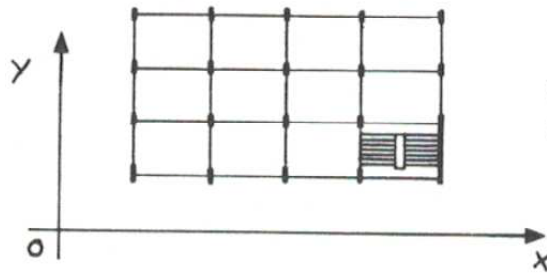


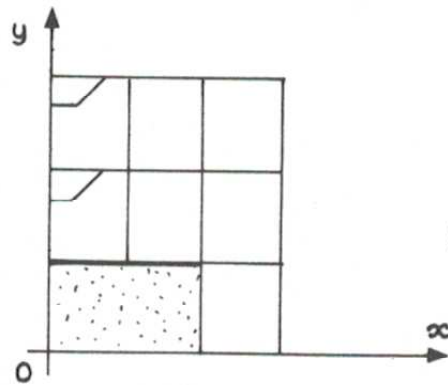
FIG. 3



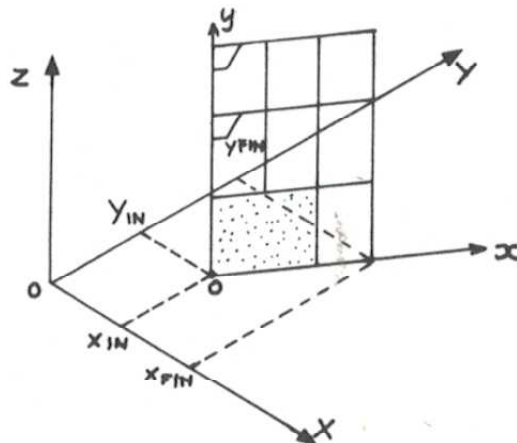
PIANTA



NEL SISTEMA DI RIFERIMENTO
GENERALE OXY



SCHEMA STRUTTURALE DEL
CONTROVENTO
(NEL SISTEMA DI RIF. LOCALE OXY)



GIACITURA DEL CONTROVENTO
NELI SISTEMI DI RIFERIMENTO
GENERALE (OXYZ) E
LOCALE (OXY)

FIG. 4

SIMBOLOGIA ADOTTATA PER I PROFILI

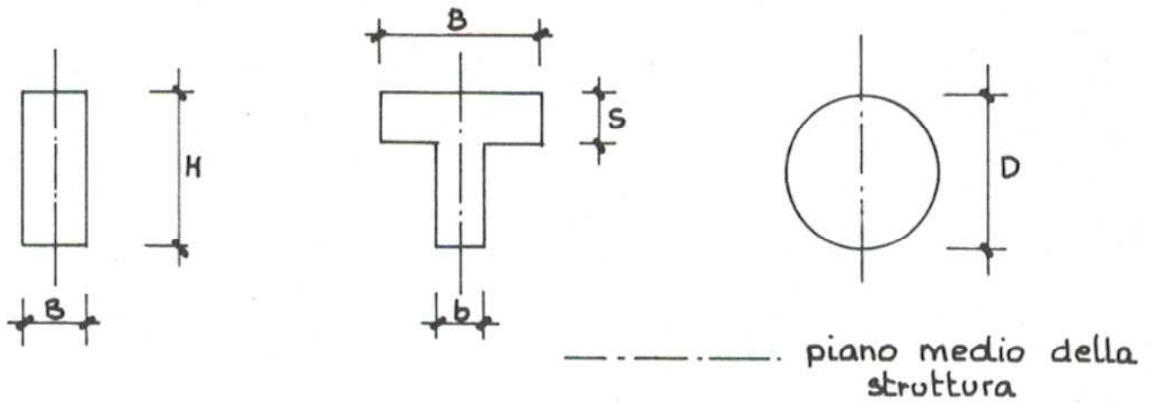
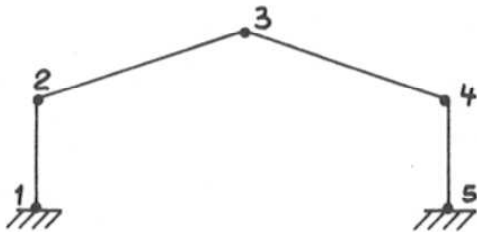
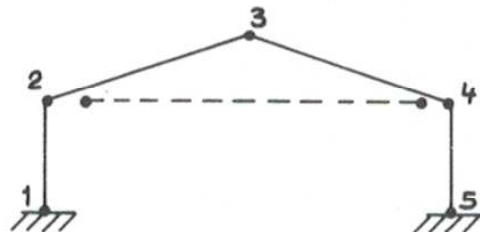


FIG. 5

OPERATORE "MASTER SLAVE" PER IMPALCATI "A FALDA"



MODELLAZIONE CORRETTA
nodo 3 "MASTER" impalcato 1
nodi 2 e 4 nodi "LIBERI"
travi 2-3 e 3-4 con "AMPLIFICAZIONE
ASSIALE"



MODELLAZIONE NON CORRETTA
nodo 3 "MASTEE" impalcato 1
nodi 2 e 4 SLAVE impalcato 1
(equivale ad applicare un pendolo
rigido fra i nodi 2 e 4)

FIG. 6a

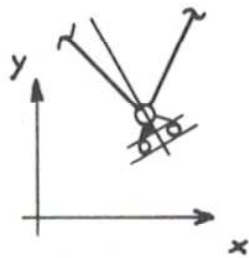
BIBLIOTECA VINCOLI

Vincoli :	tipo	esempio	codice vincolo	grafica
	incastrato		1.111	
	appoggio (asse in direzione x)		1.100 solidale	
	appoggio (asse in direzione y)		-1.100 non solidale	
	appoggio (asse in direzione y)		1.010 solidale	
	appoggio (asse in direzione y)		-1.010 non solidale	
	cerniera fissa		1.110	
	cerniera fissa con sconnessione		-1.110	
	doppio pendolo (asse in direzione x)		1.101	
	doppio pendolo (asse in direzione y)		1.011	
	doppio doppio pendolo		1.001	
	nodo libero (incastrato interno)		0.000	
	nodo libero (cerniera interna)		-1.000	

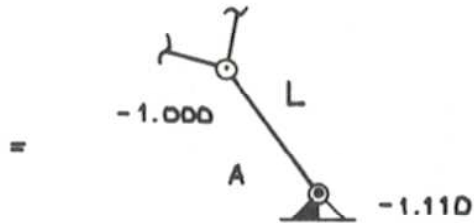
FIG. 6 b

LA SIMULAZIONE DI PARTICOLARI VINCOLI

Esempio di simulazione vincolo rigido :

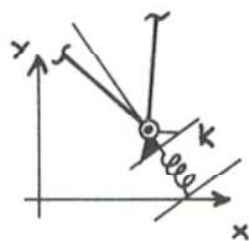


carrello ad asse obliquo

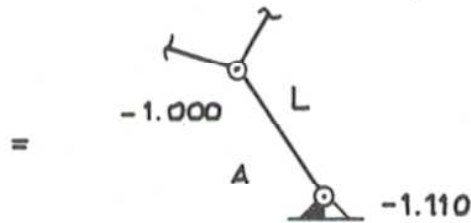


$$A \sim \infty$$

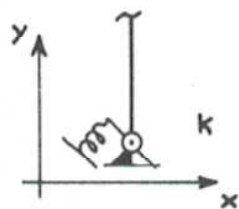
Esempi di simulazione di vincoli elastici :



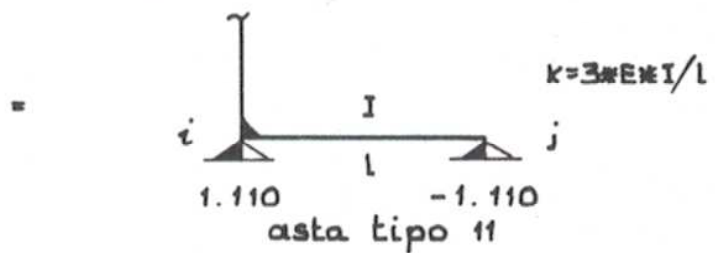
carrello ad asse obliquo



$$k = E \cdot A / L$$

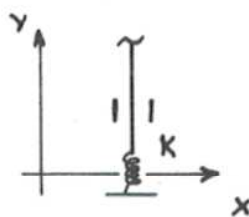


molla elastica alla rotazione

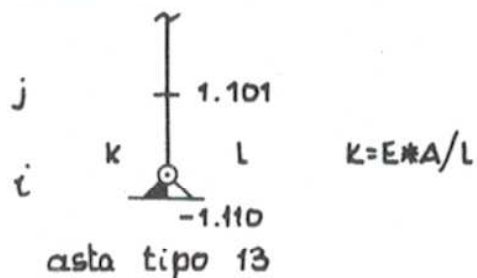


$$k = 3 \cdot E \cdot I / l$$

asta tipo 11



pattino cedevole asse in direzione y



$$k = E \cdot A / L$$

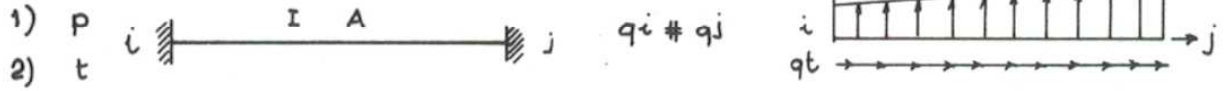
asta tipo 13

FIG. 7a

BIBLIOTECA ELEMENTI ASTE:

simbologia sottotipi : t = trave - p = pilastro

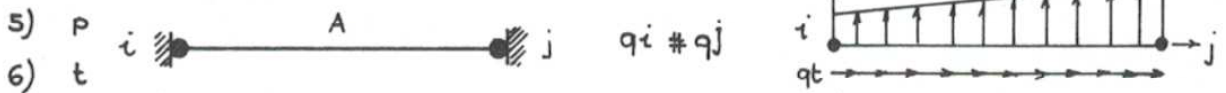
codice



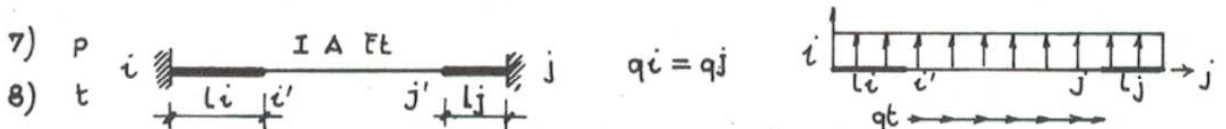
descrizione : asta con deformazione flessionale e assiale



descrizione : asta con deformazione flessionale, assiale, da taglio



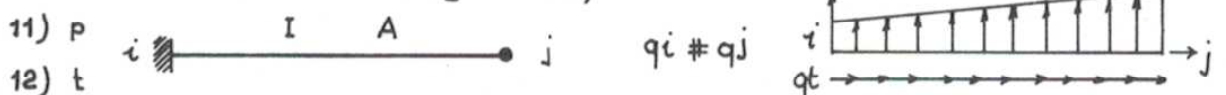
descrizione : asta con deformazione assiale (pendolo)



descrizione : asta con conchi rigidi (deformazione flessionale assiale e da taglio)



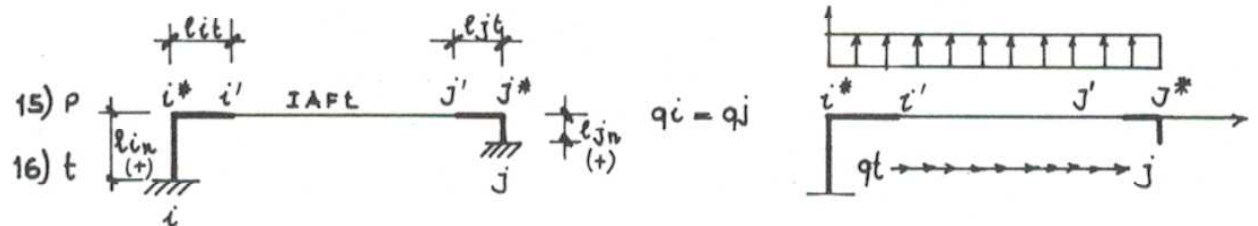
descrizione : asta alla "Winkler" (comportamento assiale e tangenziale)



descrizione : asta con deformazione flessionale e assiale; nodo j non solidale



descrizione : asta con deformazione flessionale e assiale; nodo i non solidale



descrizione : asta con conchi eccentrici (deformazione flessionale assiale e da taglio)

FIG. 7b

ELEMENTO PANNELLO

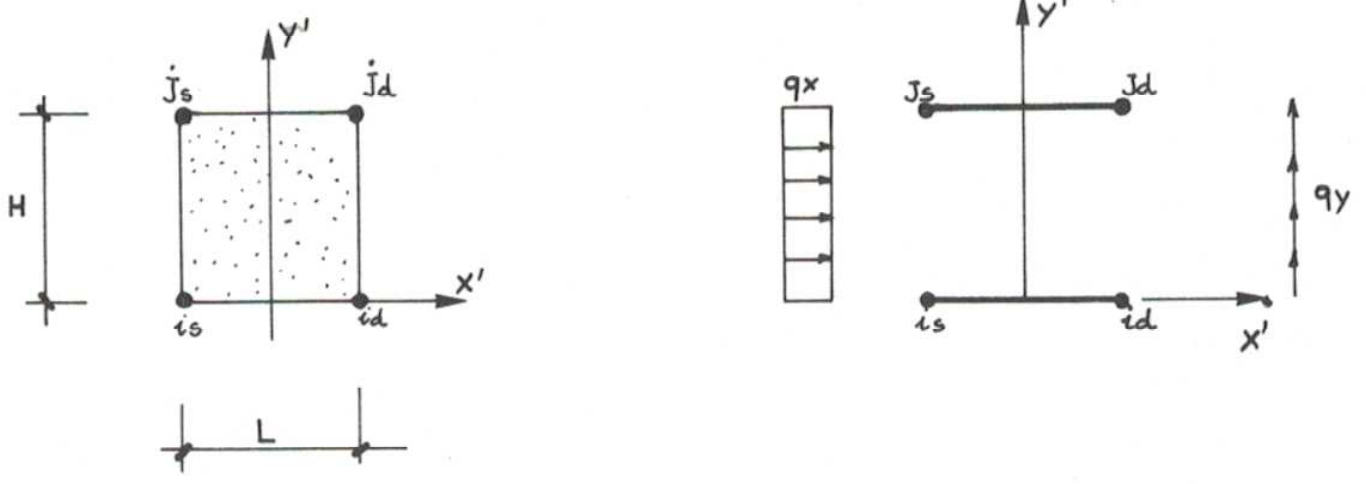
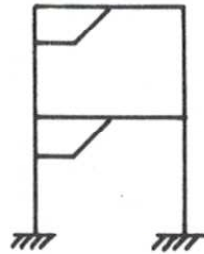
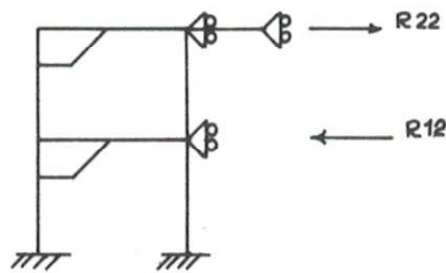
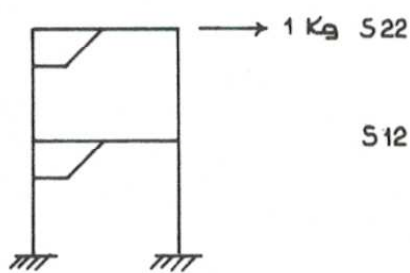
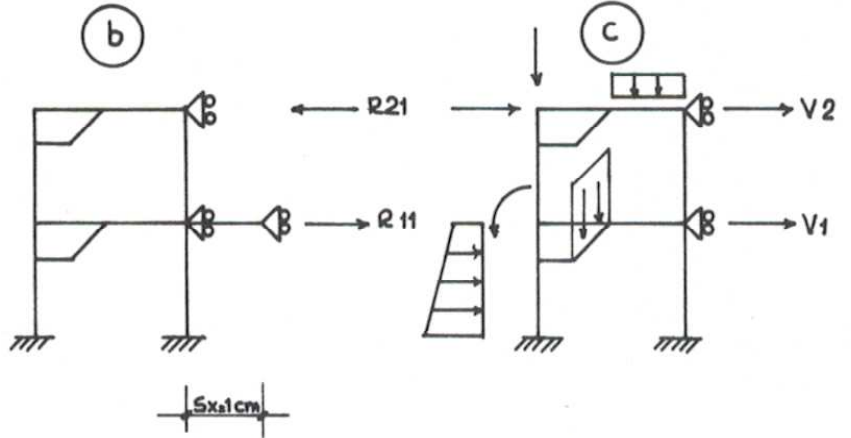
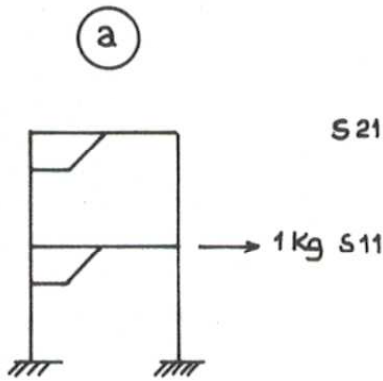


FIG. 8

MATRICI TRASLANTI E "VETTORE LATERALE"



SCHEMA STRUTTURALE REALE



$$[D_{trL}] = \begin{bmatrix} S_{11} & S_{12} \\ S_{21} & S_{22} \end{bmatrix}$$

$$[R_{trL}] = \begin{bmatrix} R_{11} & R_{12} \\ R_{21} & R_{22} \end{bmatrix}$$

$$[V] = \begin{bmatrix} V_1 \\ V_2 \end{bmatrix}$$

$$[D_{trL}] = [R_{trL}]^{-1}$$

$$[R_{trL}] = [D_{trL}]^{-1}$$