CONSORZIO DI BONIFICA STORNARA E TARA

viale Magna Grecia, 240 - 74121 TARANTO

"RIPRISTINO DEL PONTE TUBO DELL'IMPIANTO IRRIGUO CONSORTILE SX BRADANO UBICATO IN ATTRAVERSAMENTO DELLA LAMA DI LATERZA"
COMUNE DI CASTELLANETA (TARANTO)

PROGETTO DEFINITIVO

CIG 7845120DD0

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ELABORATO	DATA	SCALA	ALLEGATO
Verifica strutturale di ripristino delle selle d'appoggio, catene e travi	02/2021	-	R.7.s.4

AGGIORNAMENTO	DATA	DESCRIZIONE

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N.B. In azzurro sono evidenziate le zone e le armature di rinforzo con FRCM in PBO.

VERIFICA SELLE DI TESTA

PARAMETRI GENERALI
Metodo di verifica : stati limite - NTC18 ->
Duttilita'   : non prevista (struttura non dissipativa)
Unita' di misura   : cm; kN; kN/m; kNm; N/mm2; deform. %.
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.
Copriferri (assi) : longitudinali= 3 ; staffe= 2
CARATTERISTICHE MATERIALI
CLS   : Rck =30. ; fck=24.9 ; fctk= 1.79; fctm= 2.56; Ec= 31447.2 ;
          gc =1.5 ; fcd=14.11; fbd= 2.69; fctd= 1.19; Ecud=.2% (limit.elastico)
ACCIAIO : B450C; ftk=517.5 ; fyk=450. ; Es=210000. ;
          gs =1.15; fyd=391.3 ; ftd(k*fyd)=450. ; fud=443.98; Eud=.19% (limit.elastico)
VALORI TENSIONI MASSIME IN ESERCIZIO
GRUPPO : aggressivo.
CLS   : σc (rara)=14.94; σc (quasi permanente)=11.2 ; fbd(esercizio)= 2.69
ACCIAIO : σf (rara)=360. ; Coeff.Omogeneizzazione= 15
FESSURE : Wdmax(fre.)=.3 ; Wdmax(q.p.)=.2 [4.1.2.2.4.5]; kt=.4 [EN 1992-1 7.3.4].
CASI DI CARICO

	SLU	
Nome	Descrizione	Sest
1.	SLU	1.
2.	SLU VENTOY	2.
6.	SLU con SISMAX PRINC	32
7.	SLU con SISMAY PRINC	32
8.	SLU con SISMAZ PRINC	32
13.	SLU Solo Perm.	1.

	RARE			FREQUENTI			QUASI PERMANENTI	
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
16.	Rara	1.	18.	Frequente	1.	20.	Quasi Perm	1.
17.	Rara VentoY	2.	19.	Frequente VentoY	2.			

SEZIONI UTILIZZATE
 1) Rettangolare: 40X60; A=2400.; Jg=720000.; E=31447.16
ARMATURE LONGITUDINALI (%=100*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	13.45	.56	9.42	.393	3d20	4.02	.168	2d16
2	22.87	.953	18.85	.785	3d20 +3d20	4.02	.168	2d16

SELLA TIPO:

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A101-A132	1	1	1	0	304.	274.	5.073	1.	2.967	109.768

VERIFICHE ALLO STATO LIMITE ULTIMO
FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-14.3332	-.005	.014	-190.4466	-.077	.186	2.	.292	13.29	SI
0.	0.	3.	1.	4.8946	-.002	.011	84.59	-.039	.186	2.	.174	17.28	SI
114.	114.	3.	1.	26.2339	-.012	.058	84.59	-.039	.186	2.	.174	3.224	SI
152.	152.	3.	2.	-4.8805	-.001	.002	-364.9489	-.126	.186	2.	.403	74.78	SI
152.	152.	3.	2.	28.6665	-.011	.063	85.0661	-.033	.186	2.	.149	2.967	SI
304.	304.	3.	1.	-14.3332	-.005	.014	-190.4466	-.077	.186	2.	.292	13.29	SI
304.	304.	3.	1.	4.8946	-.002	.011	84.59	-.039	.186	2.	.174	17.28	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	37.72	80.01	499.2	394.15	1.57	20.	2.5	SI
304.	304.	3.	-37.72	80.01	499.2	394.15	1.57	20.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO
TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 0.	0.	3.	1.	-10.0188	-.53	20.45	9.42	7.5	.0058	57.29	.033	SI
152.	152.	3.	2.	20.0376	-1.08	92.15	4.02	7.5	.0263	66.89	.176	SI
304.	304.	3.	1.	-10.0188	-.53	20.45	9.42	7.5	.0058	57.29	.033	SI
304.	304.	3.	1.	.0509	0.	.24	4.02	7.5	.0001	65.2	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 0.	0.	3.	1.	-9.4396	-.5	19.27	9.42	7.5	.0055	57.29	.032	SI
152.	152.	3.	2.	18.8794	-1.02	86.82	4.02	7.5	.0248	66.89	.166	SI
304.	304.	3.	1.	-9.4396	-.5	19.27	9.42	7.5	.0055	57.29	.032	SI
304.	304.	3.	1.	.0102	0.	.05	4.02	7.5	0.	65.2	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
15.	15.	3.	1.	-7.1141	-.38	14.52	9.42	7.5	.0041	57.29	.024	SI
152.	152.	3.	2.	17.7211	-.96	81.49	4.02	7.5	.0233	66.89	.156	SI
304.	304.	3.	1.	-8.8606	-.47	18.09	9.42	7.5	.0052	57.29	.03	SI

VERIFICA SELLE INTERMEDIE:

PARAMETRI GENERALI
Metodo di verifica : stati limite - NTC18 ->
Duttilita'   : non prevista (struttura non dissipativa)
Unita' di misura   : cm; kN; kN/m; kNm; N/mm2; deform. %.
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.
Copriferri (assi) : longitudinali= 3 ; staffe= 2
CARATTERISTICHE MATERIALI
CLS   : Rck =30. ; fck=24.9 ; fctk= 1.79; fctm= 2.56; Ec= 31447.2 ;
          gc =1.5 ; fcd=14.11; fbd= 2.69; fctd= 1.19; Ecud=.2% (limit.elastico)
ACCIAIO : B450C; ftk=517.5 ; fyk=450. ; Es=210000. ;
          gs =1.15; fyd=391.3 ; ftd(k*fyd)=450. ; fud=443.98; Eud=.19% (limit.elastico)
VALORI TENSIONI MASSIME IN ESERCIZIO
GRUPPO : aggressivo.
CLS   : σc (rara)=14.94; σc (quasi permanente)=11.2 ; fbd(esercizio)= 2.69
ACCIAIO : σf (rara)=360. ; Coeff.Omogeneizzazione= 15
FESSURE : Wdmax(fre.)=.3 ; Wdmax(q.p.)=.2 [4.1.2.2.4.5]; kt=.4 [EN 1992-1 7.3.4].
CASI DI CARICO

	SLU	
Nome	Descrizione	Sest
1.	SLU	1.
2.	SLU VENTOY	2.
6.	SLU con SISMAX PRINC	32
7.	SLU con SISMAY PRINC	32
8.	SLU con SISMAZ PRINC	32
13.	SLU Solo Perm.	1.

	RARE			FREQUENTI			QUASI PERMANENTI	
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
16.	Rara	1.	18.	Frequente	1.	20.	Quasi Perm	1.
17.	Rara VentoY	2.	19.	Frequente VentoY	2.			

SEZIONI UTILIZZATE
 2) Rettangolare: 25X70; A=1750.; Jg=714583.; E=31447.16
ARMATURE LONGITUDINALI (%=100*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.06	.689	4.02	.23	2d16	8.04	.46	4d16

SELLA TIPO: I intermedia

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A201-A280	2	2	2	0	304.	304.	4.349	1.	2.295	41.863

VERIFICHE ALLO STATO LIMITE ULTIMO
FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 15.	15.	3.	1.	-.0418	0.	0.	-99.2562	-.046	.186	2.	.197	2375.	SI
15.	15.	3.	1.	24.7535	-.01	.024	190.9458	-.082	.186	2.	.306	7.714	SI
152.	152.	3.	1.	83.207 !	-.034	.081	190.9458	-.082	.186	2.	.306	2.295	SI
274.	274.	3.	1.	-.0381	0.	0.	-99.2562	-.046	.186	2.	.197	2606. !	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	109.36 !	56.25	366.74	237.21	1.01	25.	2.5	SI
70.	70.	3.	59.08 !	71.07	366.74	237.21	1.01	25.	2.5	SI
304.	304.	3.	-109.36 !	56.25	377.59	379.53	1.01	15.	2.4	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO
TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	11.1447 !	-.62	22.7	8.04	7.5	.0065	13.82	.009	SI
152.	152.	3.	1.	56.147 !	-3.15 !	114.35 !	8.04	7.5	.0398	13.82	.055 !	SI
289.	289.	3.	1.	5.584 !	-.31	11.37	8.04	7.5	.0032	13.82	.004	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	10.2295 !	-.57	20.83	8.04	7.5	.006	13.82	.008	SI
152.	152.	3.	1.	51.6173 !	-2.89 !	105.13 !	8.04	7.5	.0354	13.82	.049 !	SI
289.	289.	3.	1.	5.1171 !	-.29	10.42	8.04	7.5	.003	13.82	.004	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	9.3279 !	-.52	19.	8.04	7.5	.0054	13.82	.008	SI
152.	152.	3.	1.	47.0883 !	-2.64 !	95.9 !	8.04	7.5	.0311	13.82	.043 !	SI
289.	289.	3.	1.	4.6639 !	-.26	9.5	8.04	7.5	.0027	13.82	.004	SI

SELLA TIPO: II intermedia

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A201-A280	2	2	2	0	304.	304.	4.349	1.	1.759	32.083

VERIFICHE ALLO STATO LIMITE ULTIMO
FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 15.	15.	3.	1.	-.0322	0.	0.	-99.2562	-.046	.186	2.	.197	3084.	SI
15.	15.	3.	1.	32.2835	-.013	.031	190.9458	-.082	.186	2.	.306	5.915	SI
152.	152.	3.	1.	108.5707 !	-.045	.106	190.9458	-.082	.186	2.	.306	1.759	SI
274.	274.	3.	1.	-.0322	0.	0.	-99.2562	-.046	.186	2.	.197	3086. !	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	142.69 !	56.25	366.74	237.21	1.01	25.	2.5	SI
70.	70.	3.	77.07 !	71.07	366.74	237.21	1.01	25.	2.5	SI
304.	304.	3.	-142.69 !	56.25	377.59	379.53	1.01	15.	2.4	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO
TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	14.4892 !	-.81	29.51	8.04	7.5	.0084	13.82	.012	SI
152.	152.	3.	1.	73.0561 !	-4.09 !	148.79 !	8.04	7.5	.0562	13.82	.078 !	SI

289.	289.	3.	1.	7.2553	-.41	14.78	8.04	7.5	.0042	13.82	.006	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	13.2824	-.74	27.05	8.04	7.5	.0077	13.82	.011	SI
152.	152.	3.	1.	67.0332	-3.76	136.52	8.04	7.5	.0504	13.82	.07	SI
289.	289.	3.	1.	6.6433	-.37	13.53	8.04	7.5	.0039	13.82	.005	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	12.0858	-.68	24.61	8.04	7.5	.007	13.82	.01	SI
152.	152.	3.	1.	61.0104	-3.42	124.26	8.04	7.5	.0446	13.82	.062	SI
289.	289.	3.	1.	6.0429	-.34	12.31	8.04	7.5	.0035	13.82	.005	SI

SELLA TIPO: III intermedia

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A201-A280	2	2	2	0	304.	304.	4.349	1.	1.575	28.727

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 15.	15.	3.	1.	-.0049	0.	0.	-99.2562	-.046	.186	2.	.197	20310	SI
15.	15.	3.	1.	36.0329	-.014	.035	190.9458	-.082	.186	2.	.306	5.299	SI
152.	152.	3.	1.	121.2534	-.05	.118	190.9458	-.082	.186	2.	.306	1.575	SI
274.	274.	3.	1.	-.0049	0.	0.	-99.2562	-.046	.186	2.	.197	20310	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	159.33	56.25	400.65	407.7	1.57	20.	2.2	SI
70.	70.	3.	86.05	71.07	400.65	407.7	1.57	20.	2.2	SI
304.	304.	3.	-159.33	56.25	400.65	407.7	1.57	20.	2.2	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	16.147	-.9	32.89	8.04	7.5	.0094	13.82	.013	SI
152.	152.	3.	1.	81.5113	-4.57	166.01	8.04	7.5	.0644	13.82	.089	SI
289.	289.	3.	1.	8.0735	-.45	16.44	8.04	7.5	.0047	13.82	.006	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	14.8047	-.83	30.15	8.04	7.5	.0086	13.82	.012	SI
152.	152.	3.	1.	74.7356	-4.19	152.21	8.04	7.5	.0579	13.82	.08	SI
289.	289.	3.	1.	7.4024	-.41	15.08	8.04	7.5	.0043	13.82	.006	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
30.	30.	3.	1.	13.4625	-.75	27.42	8.04	7.5	.0078	13.82	.011	SI
152.	152.	3.	1.	67.9598	-3.81	138.41	8.04	7.5	.0513	13.82	.071	SI
289.	289.	3.	1.	6.7312	-.38	13.71	8.04	7.5	.0039	13.82	.005	SI

VERIFICA SEZIONI SELLE DI TESTA

PARAMETRI GENERALI

```
Tipo verifica            : stati limite - pressoflessione deviata.
Unità di misura generiche: kN; cm; kNm; N/mm2; d in mm; deformazioni*1000.
                ferri    : diametri in mm; aree in cm2.
Simboli                  : Vert.  = contorno_vertice del CLS;        d = diametro;
                           S      = Sigma (tensioni sui materiali);
                           D      = Deformazioni x 1000 (epsilon);
                           Ve     = colonna che indica se la verifica e' soddisfatta;
```

CARATTERISTICHE MATERIALI

```
Calcestruzzo:   Rck =     30.   ; fck =  24.9  ; fcd =  14.11  (.35%)
Acciaio     :   Tipo= B450C     ; ftk =   540.   ; fyk = 450.   ; ftd = 469.565 (6.75%)
```

CARATTERISTICHE SEZIONE

```
L'asse Z e' rivolto verso destra, l'asse Y e' rivolto verso l'alto.
Tipo sezione: RETTANGOLARE 40X60 cm
Cls:                      Acciaio lento:
```

vert.	Z	Y	ferro	Z	Y	d[mm]	Af[cm2]
1- 1	-20.	60.	1	17.	57.	20.	3.1416
1- 2	20.	60.	2	10.2	57.	20.	3.1416
1- 3	20.	0.	3	3.4	57.	20.	3.1416
1- 4	-20.	0.	4	-3.4	57.	20.	3.1416
			5	-10.2	57.	20.	3.1416
			6	-17.	57.	20.	3.1416
			7	17.	3.	16.	2.0106
			8	-17.	3.	16.	2.0106

CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU	SLU (statico)	1
2	SLU VENTOY	SLU (statico)	2
6	SLU con SISMAX PRINC	SLU (sismico)	32
7	SLU con SISMAY PRINC	SLU (sismico)	32
8	SLU con SISMAZ PRINC	SLU (sismico)	32
13	SLU Solo Perm.	SLU (statico)	1
16	Rara	RARA	1
17	Rara VentoY	RARA	2
18	Frequente	FREQUENTE	1
19	Frequente VentoY	FREQUENTE	2
20	Quasi Perm	QUASI PERMAN.	1

```
Sforzi normali applicati in z=   0.  ; y=   0.   (baricentro CLS)
Convenzioni: N + trazione; Mz + fib.inferiori tese; My + fib.sinistra tese.
```

Descrizione : Sella tipo

SOLLECITAZIONI AGENTI

N.	N	Mz	My	Descrizione
1	191.91	-.0763	-69.1033	Caso 2.1-A115- P1
2	195.26	28.6665	-.0559	Caso 2.2-A115- P2
3	195.26	-.0763	-69.1916	Caso 2.2-A115- P3
4	191.91	.0763	69.1682	Caso 2.1-A115- P3
5	125.06	-.0028	-2.5533	Caso 8.13-A115- P1
6	195.26	.0763	69.0799	Caso 2.2-A115- P1

RISULTATI

```
Piani di equilibrio (eps= muz * y +muy * z + lam):
```

Sol.	muz	muy	lambda
1.	-.00003013603	.00008009609	.00226390093
2.	-.00003251564	.00000007545	.00197154803
3.	-.00003089268	.00008083842	.0023114519
4.	-.00003030558	-.00008025277	.00227344818
5.	-.00001132505	.00000344639	.00081140743
6.	-.00003097876	-.00008076748	.00231521112

DEFORMAZIONI SUI MATERIALI

sol	Cls vert.	D cls	S cls	Ve	Acciaio lento ferro	D ferri	S ferri	Ve
1	1- 1	-1.1462	-11.54	si	1	1.9078	381.56	si
1	1- 2	2.0577	0.	si	2	1.3631	272.63	si
1	1- 3	3.8658	0.	si	3	.8185	163.69	si
1	1- 4	.662	0.	si	4	.2738	54.76	si
1					5	-.2708	-54.17	si
1					6	-.8155	-163.1	si
1					7	3.5351	393.19	si
1					8	.8119	162.37	si
2	1- 1	.0191	0.	si	1	.1194	23.89	si
2	1- 2	.0221	0.	si	2	.1189	23.79	si
2	1- 3	1.9731	0.	si	3	.1184	23.68	si
2	1- 4	1.97	0.	si	4	.1179	23.58	si
2					5	.1174	23.48	si
2					6	.1169	23.37	si
2					7	1.8753	375.06	si
2					8	1.8727	374.54	si
3	1- 1	-1.1589	-11.61	si	1	1.9248	384.96	si
3	1- 2	2.0747	0.	si	2	1.3751	275.02	si
3	1- 3	3.9282	0.	si	3	.8254	165.08	si
3	1- 4	.6947	0.	si	4	.2757	55.14	si
3					5	-.274	-54.8	si
3					6	-.8237	-164.74	si
3					7	3.593	393.26	si
3					8	.8445	168.9	si
4	1- 1	2.0602	0.	si	1	-.8183	-163.65	si
4	1- 2	-1.1499	-11.56	si	2	-.2725	-54.51	si
4	1- 3	.6684	0.	si	3	.2732	54.63	si
4	1- 4	3.8785	0.	si	4	.8189	163.78	si
4					5	1.3646	272.92	si
4					6	1.9103	382.07	si
4					7	.8182	163.65	si
4					8	3.5468	393.2	si

5	1- 1	.063	0.	si	1	.2245	44.89	si
5	1- 2	.2008	0.	si	2	.201	40.21	si
5	1- 3	.8803	0.	si	3	.1776	35.52	si
5	1- 4	.7425	0.	si	4	.1542	30.83	si
5					5	.1307	26.15	si
5					6	.1073	21.46	si
5					7	.836	167.2	si
5					8	.7188	143.77	si
6	1- 1	2.0718	0.	si	1	-.8236	-164.73	si
6	1- 2	-1.1589	-11.61	si	2	-.2744	-54.88	si
6	1- 3	.6999	0.	si	3	.2748	54.96	si
6	1- 4	3.9306	0.	si	4	.824	164.81	si
6					5	1.3733	274.65	si
6					6	1.9225	384.49	si
6					7	.8492	169.85	si
6					8	3.5953	393.26	si

VERIFICA SEZIONI SELLE INTERMEDIE:

PARAMETRI GENERALI

```
Tipo verifica            : stati limite - pressoflessione deviata.
Unità di misura generiche: kN; cm; kNm; N/mm2; d in mm; deformazioni*1000.
                ferri    : diametri in mm; aree in cm2.
Simboli                  : Vert.  = contorno_vertice del CLS;        d = diametro;
                           S      = Sigma (tensioni sui materiali);
                           D      = Deformazioni x 1000 (epsilon);
                           Ve     = colonna che indica se la verifica e' soddisfatta;
```

CARATTERISTICHE MATERIALI

```
Calcestruzzo:   Rck =    30.   ; fck =  24.9  ; fcd =  14.11  (.35%)
Acciaio     :   Tipo= B450C    ; ftk =   540.   ; fyk = 450.   ; ftd = 469.565 (6.75%)
```

CARATTERISTICHE SEZIONE

```
L'asse Z e' rivolto verso destra, l'asse Y e' rivolto verso l'alto.
Tipo sezione: RETTANGOLARE 25X70 cm
Cls:                        Acciaio lento:
vert.|   Z   |   Y   |     ferro|   Z   |   Y   | d[mm] |Af[cm2]|
 1- 1| -12.5|  70.  |         1|   9.5|  67.  |  16.  | 2.0106|
 1- 2|  12.5|  70.  |         2|  -9.5|  67.  |  16.  | 2.0106|
 1- 3|  12.5|   0.  |         3|   9.5|   3.  |  16.  | 2.0106|
 1- 4| -12.5|   0.  |         4|   3.2|   3.  |  16.  | 2.0106|
                            5|  -3.2|   3.  |  16.  | 2.0106|
                            6|  -9.5|   3.  |  16.  | 2.0106|
```

CASI DI CARICO

```
Nome|   Descrizione       |Tipo           |Ses|
   1|SLU                  |SLU (statico)  |  1|
   2|SLU VENTOY           |SLU (statico)  |  2|
   6|SLU con SISMAX PRINC |SLU (sismico)  | 32|
   7|SLU con SISMAY PRINC |SLU (sismico)  | 32|
   8|SLU con SISMAZ PRINC |SLU (sismico)  | 32|
  13|SLU Solo Perm.       |SLU (statico)  |  1|
  16|Rara                 |RARA           |  1|
  17|Rara VentoY          |RARA           |  2|
  18|Frequente            |FREQUENTE      |  1|
  19|Frequente VentoY     |FREQUENTE      |  2|
  20|Quasi Perm           |QUASI PERMAN.  |  1|
Sforzi normali applicati in z=   0.  ; y=   0.   (baricentro CLS)
Convenzioni: N + trazione; Mz + fib.inferiori tese; My + fib.sinistra tese.
```

Descrizione : Sella I intermedia

SOLLECITAZIONI AGENTI

```
N.| N          | Mz           | My           | Descrizione        |
 1|      134.84|        -.0418|      -42.5815|Caso 2.1-A236- P1   |
 2|      157.92|       83.207 |        -.1189|Caso 2.2-A236- P2   |
 3|      157.92|        -.0381|      -42.7971|Caso 2.2-A236- P3   |
 4|      134.84|         .0379|       42.775 |Caso 2.1-A236- P3   |
 5|       89.99|        -.0278|      -28.3816|Caso 17.1-A236- P1  |
```

RISULTATI

```
Piani di equilibrio (eps= muz * y +muy * z + lam):
Sol.|  muz          |  muy          |  lambda       |
  1.|  .00007601274|  .00299878269|  .02685262155|
  2.| -.00002280443|  .00000036471|  .00136891946|
  3.|  .00010880803|  .00407612817|  .03693567884|
  4.|  .000077156  | -.0030818732 |  .02762721502|
  5.|  .00000733055|  .00011788803|  .00070241386|
```

DEFORMAZIONI SUI MATERIALI

```
     Cls                              Acciaio lento
sol  vert.|D cls   |S cls   |Ve|       ferro|D ferri |S ferri |Ve|
  1   1- 1| -5.3113|  -14.11|si|           1| 60.4339|  361.13|si|
  1   1- 2| 69.6583|    0.  |si|           2|  3.457 |  393.1 |si|
  1   1- 3| 64.3374|    0.  |si|           3| 55.5691|  355.32|si|
  1   1- 4|-10.6322|  -14.11|si|           4| 36.5778|  332.64|si|
  1                                       5| 17.5835|  309.96|si|
  1                                       6| -1.4078| -281.56|si|
  2   1- 1|  -.2319|   -3.08|si|           1|  -.1555|  -31.1 |si|
  2   1- 2|  -.2228|  -2.97|si|           2|  -.1624|  -32.49|si|
  2   1- 3|  1.3735|    0.  |si|           3|  1.304 |  260.79|si|
  2   1- 4|  1.3644|    0.  |si|           4|  1.3017|  260.33|si|
  2                                       5|  1.2994|  259.87|si|
  2                                       6|  1.297 |  259.41|si|
  3   1- 1| -6.3994|  -14.11|si|           1| 82.949 |  388.01|si|
  3   1- 2| 95.5038|    0.  |si|           2|  5.5026|  395.54|si|
  3   1- 3| 87.8873|    0.  |si|           3| 75.9853|  379.7 |si|
  3   1- 4|-14.0159|  -14.11|si|           4| 50.1712|  348.87|si|
  3                                       5| 24.353 |  318.05|si|
  3                                       6| -1.4611| -292.22|si|
  4   1- 1| 71.5515|    0.  |si|           1|  3.5189|  393.17|si|
  4   1- 2| -5.4953|  -14.11|si|           2| 62.0745|  363.09|si|
  4   1- 3|-10.8962|  -14.11|si|           3| -1.4191| -283.82|si|
  4   1- 4| 66.1506|    0.  |si|           4| 18.0984|  310.58|si|
  4                                       5| 37.619 |  333.89|si|
  4                                       6| 57.1365|  357.19|si|
  5   1- 1|  -.258 |   -3.41|si|           1|  2.3135|  391.73|si|
  5   1- 2|  2.6892|    0.  |si|           2|   .0736|   14.72|si|
  5   1- 3|  2.176 |    0.  |si|           3|  1.8443|  368.87|si|
  5   1- 4|  -.7712|   -8.78|si|           4|  1.0978|  219.55|si|
  5                                       5|   .3511|   70.21|si|
  5                                       6|  -.3955|  -79.11|si|
```

Descrizione : Sella II intermedia

SOLLECITAZIONI AGENTI

N.	N	Mz	My	Descrizione
1	163.75	108.5707	-.0057	Caso 2.2-A237- P2
2	129.47	-.0322	-32.6417	Caso 2.1-A237- P1
3	86.3	-.0215	-21.7615	Caso 17.1-A237- P1
4	163.75	.0322	32.6247	Caso 2.2-A237- P1

RISULTATI

Piani di equilibrio (eps= muz * y +muy * z + lam):

Sol.	muz	muy	lambda
1.	-.00002855209	.00000001607	.00165633945
2.	.00002152947	.00028548992	.00188340334
3.	.00000465449	.00008758387	.00056173077
4.	.00003330239	-.00048855895	.00356250444

DEFORMAZIONI SUI MATERIALI

sol	Cls vert.	D cls	S cls	Ve	Acciaio lento ferro	D ferri	S ferri	Ve
1	1- 1	-.3425	-4.42	si	1	-.2565	-51.3	si
1	1- 2	-.3421	-4.41	si	2	-.2568	-51.36	si
1	1- 3	1.6565	0.	si	3	1.5708	314.17	si
1	1- 4	1.6561	0.	si	4	1.5707	314.15	si
1					5	1.5706	314.13	si
1					6	1.5705	314.11	si
2	1- 1	-.1782	-2.4	si	1	6.038	396.18	si
2	1- 2	6.9591	0.	si	2	.6137	122.74	si
2	1- 3	5.452	0.	si	3	4.6601	394.53	si
2	1- 4	-1.6852	-13.76	si	4	2.8521	392.37	si
2					5	1.0438	208.77	si
2					6	-.7642	-152.83	si
3	1- 1	-.2073	-2.77	si	1	1.7056	341.13	si
3	1- 2	1.9823	0.	si	2	.0415	8.31	si
3	1- 3	1.6565	0.	si	3	1.4077	281.55	si
3	1- 4	-.5331	-6.52	si	4	.8531	170.61	si
3					5	.2983	59.66	si
3					6	-.2564	-51.27	si
4	1- 1	12.0007	0.	si	1	1.1525	230.49	si
4	1- 2	-.2133	-2.85	si	2	1.4351	201.43	si
4	1- 3	-2.5445	-14.11	si	3	-.9789	-195.78	si
4	1- 4	9.6695	0.	si	4	2.1151	391.49	si
4					5	5.2097	395.19	si
4					6	8.3037	398.88	si

Descrizione : Sella III intermedia

SOLLECITAZIONI AGENTI

N.	N	Mz	My	Descrizione
1	163.41	121.2534	-.0097	Caso 2.2-A238- P2
2	97.73	-.0049	-4.9797	Caso 6.14-A238- P3
3	97.73	.0049	4.9689	Caso 6.14-A238- P1
4	86.53	-.0001	-.0598	Caso 17.1-A238- P1
5	163.41	.0001	.0702	Caso 2.2-A238- P1

RISULTATI

Piani di equilibrio (eps= muz * y +muy * z + lam):

Sol.	muz	muy	lambda
1.	-.00003132382	.00000002656	.00179092655
2.	.00000462936	.00003144821	.00029808504
3.	.00000462677	-.00003139554	.00029804988
4.	.00000420283	.00000039025	.00025636862
5.	.00000793682	-.00000045813	.00048414969

DEFORMAZIONI SUI MATERIALI

sol	Cls vert.	D cls	S cls	Ve	Acciaio lento ferro	D ferri	S ferri	Ve
1	1- 1	-.4021	-5.1	si	1	-.3075	-61.5	si
1	1- 2	-.4014	-5.1	si	2	-.308	-61.6	si
1	1- 3	1.7913	0.	si	3	1.6972	339.44	si
1	1- 4	1.7906	0.	si	4	1.697	339.41	si
1					5	1.6969	339.37	si
1					6	1.6967	339.34	si
2	1- 1	.229	0.	si	1	.907	181.4	si
2	1- 2	1.0152	0.	si	2	.3095	61.9	si
2	1- 3	.6912	0.	si	3	.6107	122.15	si
2	1- 4	-.095	-1.31	si	4	.4116	82.31	si
2					5	.2124	42.48	si
2					6	.0132	2.64	si
3	1- 1	1.0144	0.	si	1	.3098	61.96	si
3	1- 2	.2295	0.	si	2	.9063	181.26	si
3	1- 3	-.0944	-1.3	si	3	.0137	2.73	si
3	1- 4	.6905	0.	si	4	.2125	42.5	si
3					5	.4114	82.27	si
3					6	.6102	122.04	si
4	1- 1	.5457	0.	si	1	.5417	108.33	si
4	1- 2	.5554	0.	si	2	.5343	106.85	si
4	1- 3	.2612	0.	si	3	.2727	54.54	si
4	1- 4	.2515	0.	si	4	.2702	54.04	si
4					5	.2677	53.55	si
4					6	.2653	53.05	si
5	1- 1	1.0455	0.	si	1	1.0116	202.31	si
5	1- 2	1.034	0.	si	2	1.0203	204.05	si
5	1- 3	.4784	0.	si	3	.5036	100.72	si
5	1- 4	.4899	0.	si	4	.5065	101.3	si
5					5	.5094	101.88	si
5					6	.5123	102.46	si

VERIFICA CATENE IN ACCIAIO

PARAMETRI GENERALI
Tipo verifica : stati limite.
Unità di misura generiche: kN; cm; kNm; N/mm2.
CARATTERISTICHE MATERIALI
S235 (EN 10025-2): Mod.El.= 210000.; gM = 1.050;
fyk = 235.(215. per sp>40 mm); fyd = 224.(205. per sp>40 mm).
CARATTERISTICHE SEZIONE
L'asse Z e' rivolto verso destra, l'asse Y e' rivolto verso l'alto.
Tipo sezione: CIRCOLARE 2.0 cm
A = 3.14159E+00 Jz= 0.7854E+00 Jy= 0.7854E+00 Jt= 1.5708E+00
CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU	SLU (statico)	1
2	SLU VENTOY	SLU (statico)	2
6	SLU con SISMAX PRINC	SLU (sismico)	32
7	SLU con SISMAY PRINC	SLU (sismico)	32
8	SLU con SISMAZ PRINC	SLU (sismico)	32
13	SLU Solo Perm.	SLU (statico)	1
16	Rara	RARA	1
17	Rara VentoY	RARA	2
18	Frequente	FREQUENTE	1
19	Frequente VentoY	FREQUENTE	2
20	Quasi Perm	QUASI PERMAN.	1

Sforzi normali applicati in z= 0. ; y= 0. (baricentro CLS)
Convenzioni: N + trazione; Mz + fib.inferiori tese; My + fib.sinistra tese.

Descrizione : Catena tipo

SEZIONE CIRCOLARE stato limite ultimo - ASTE da A2001 a A2224

PROGR. 0.

SOLLECITAZIONI :

Caso	MZ	MY	MT	N	TZ	TY
13- 1	0.00000	0.	0.	-73.782	0.000	0.040
1- 1	0.00000	0.	0.	-73.355	0.000	0.040

TENSIONI (Sz= 0.0) :

Caso	Ve	No	massimi	Sx	Tz	Ty	Si
13- 1	si	1	Sx	-106.	0.	0.	106.
1- 1	si	5	Ty	-106.	0.	0.	106.
13- 1	si	5	Si	-106.	0.	0.	106.

PROGR. 152.

SOLLECITAZIONI :

Caso	MZ	MY	MT	N	TZ	TY
2- 2	0.03008	0.	0.	1.670	0.000	0.000
2- 1	0.03008	0.	0.	1.619	0.000	0.000

TENSIONI (Sz= 0.0) :

Caso	Ve	No	massimi	Sx	Tz	Ty	Si
2- 2	si	9	Sx Si	14.	0.	0.	14.
2- 1	si	5	Ty	2.	0.	0.	2.

PROGR. 304.

SOLLECITAZIONI :

Caso	MZ	MY	MT	N	TZ	TY
2- 2	0.00000	0.	0.	1.670	0.000	-0.040
1- 1	0.00000	0.	0.	1.645	0.000	-0.040

TENSIONI (Sz= 0.0) :

Caso	Ve	No	massimi	Sx	Tz	Ty	Si
2- 2	si	1	Sx	2.	0.	0.	2.
1- 1	si	5	Ty	2.	0.	0.	2.
2- 2	si	5	Si	2.	0.	0.	2.

VERIFICA STABILITA` :

	L0 = 304.				
Z	Lc = 0.	Ro = 0.74	lm = 0.0	Ncr= Infinity	alfa(c)=0.4900 ki=1.0000
Y	Lc = 0.	Ro = 0.74	lm = 0.0	Ncr= Infinity	alfa(c)=0.4900 ki=1.0000

Caso13- 1 - Nodo 1 - Asse Z
Ned = -73.782 Mzeq = 0.02607 Myeq = 0.00000 Ss = -116. (0.520)
Rapporti di tensioni:

asta	sez	profilo	Tau %	Sx %	Si %	Ss %	Max %
	7	CIRCOLARE 2.0 cm	1	48	48	52	52 Ss

VERIFICA TRAVI NORD

PARAMETRI GENERALI
Metodo di verifica : stati limite - NTC18 ->
Duttilita'   : non prevista (struttura non dissipativa)
Unita' di misura   : cm; kN; kN/m; kNm; N/mm2; deform. %.
Unita' particolari : fessure [Wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.
Copriferri (assi) : longitudinali= 3 ; staffe= 2
CARATTERISTICHE MATERIALI
CLS   : Rck =30. ; fck=24.9 ; fctk= 1.79; fctm= 2.56; Ec= 31447.2 ;
          gc =1.5 ; fcd=14.11; fbd= 2.69; fctd= 1.19; Ecud=.2% (limit.elastico)
ACCIAIO : B450C; ftk=517.5 ; fyk=450. ; Es=210000. ;
          gs =1.15; fyd=391.3 ; ftd(k*fyd)=450. ; fud=443.98; Eud=.19% (limit.elastico)
Fibre   : Tipo = FRCM in PBO ; Samm= 1036.3   ; n=12.45   ; (valutate alle TA)
VALORI TENSIONI MASSIME IN ESERCIZIO
GRUPPO : aggressivo.
CLS   : σc (rara)=14.94; σc (quasi permanente)=11.2 ; fbd(esercizio)= 2.69
ACCIAIO : σf (rara)=360. ; Coeff.Omogeneizzazione= 15
FESSURE : Wdmax(fre.)=.3 ; Wdmax(q.p.)=.2 [4.1.2.2.4.5]; kt=.4 [EN 1992-1 7.3.4].
CASI DI CARICO

SLU		
Nome	Descrizione	Sest
1.	SLU	1.
2.	SLU VENTOY	2.
6.	SLU con SISMAX PRINC	32
7.	SLU con SISMAY PRINC	32
8.	SLU con SISMAZ PRINC	32
13.	SLU Solo Perm.	1.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
16.	Rara	1.	18.	Frequente	1.	20.	Quasi Perm	1.
17.	Rara VentoY	2.	19.	Frequente VentoY	2.			

SEZIONI UTILIZZATE
 5) Sezione a Z (1): 90/20/57x190/25/25; A=6475.; Jg=29062264.; E=31447.16
ARMATURE LONGITUDINALI (%=100*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	88.91	1.373	46.43	.717	2d20 +2d26 +2d2 ...	42.47	.656	4d26 +4d26
2	91.92	1.42	47.44	.733	2d20 +2d26 +2d2 ...	44.48	.687	4d26 +2d8 +2d8 ...
3	95.94	1.482	47.44	.733	2d20 +2d26 +2d2 ...	48.51	.749	4d26 +2d8 +2d8 ...
4	95.94	1.482	36.82	.569	2d20 +2d26 +2d2 ...	59.12	.913	4d26 +2d26 +2d8 ...
5	95.94	1.482	26.2	.405	2d20 +2d26 +1d8 ...	69.74	1.077	4d26 +2d26 +2d2 ...
6	95.94	1.482	15.58	.241	2d20 +1d8 +1d20 ...	80.36	1.241	4d26 +2d26 +2d2 ...
F	5.00	-	-	-	Long.Faccia esterna	-	-	Long.Faccia esterna

TRAVE TIPO:

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A3155	5	5	5	0	34.	34.	.179	.4	5.	29.848
2	A3156	5	5	5	0	35.	20.	.184	1.5	1.	22.386
3	A3157	5	5	5	0	35.	20.	.184	1.5	5.	107.842
4	A3158	5	5	5	0	110.	110.	.579	1.5	4.398	94.861
5	A3159	5	5	5	0	35.	35.	.184	1.5	3.861	83.274
6	A3160	5	5	5	0	35.	35.	.184	1.5	3.357	72.4
7	A3161	5	5	5	0	440.	440.	2.316	1.5	1.737	37.461
8	A3162	5	5	5	0	35.	35.	.184	1.5	1.669	36.
9	A3163	5	5	5	0	35.	35.	.184	1.5	1.633	35.214
10	A3164	5	5	5	0	440.	440.	2.316	1.5	1.369	29.525
11	A3165	5	5	5	0	35.	35.	.184	1.5	1.359	29.31
12	A3166	5	5	5	0	35.	35.	.184	1.5	1.359	29.312
13	A3167	5	5	5	0	440.	440.	2.316	1.5	1.369	29.533
14	A3168	5	5	5	0	35.	35.	.184	1.5	1.642	35.409
15	A3169	5	5	5	0	35.	35.	.184	1.5	1.679	36.204
16	A3170	5	5	5	0	440.	440.	2.316	1.5	1.747	37.681
17	A3171	5	5	5	0	35.	35.	.184	1.5	3.359	72.441
18	A3172	5	5	5	0	35.	35.	.184	1.5	3.898	84.075
19	A3173	5	5	5	0	110.	110.	.579	1.5	4.806	103.658
20	A3174	5	5	5	0	35.	20.	.184	1.5	5.	107.842
21	A3175	5	5	5	0	35.	20.	.184	1.5	1.	22.386
22	A3176	5	5	5	0	34.	34.	.179	.4	1.	5.97

VERIFICHE ALLO STATO LIMITE ULTIMO
FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 9.	9.	5.	1.	-1.2852	0.	0.	-3659.907	-.09	.186	2.	.325	2848.	SI
34.	34.	5.	1.	-1.2852	0.	0.	-3659.269	-.09	.186	2.	.325	2847.	SI
> 34.	0.	5.	1.	-4.2993	0.	0.	-3659.297	-.09	.186	2.	.325	851.1	SI
43.	9.	5.	2.	-4.2993	0.	0.	-3860.921	-.093	.186	2.	.333	898.	SI
69.	35.	5.	2.	-4.2993	0.	0.	-3661.472	-.091	.186	2.	.327	851.6	SI
> 69.	0.	5.	2.	-5.3947	0.	0.	-3661.472	-.091	.186	2.	.327	678.7	SI
69.	0.	5.	2.	206.1238	-.004	.011	3457.5986	-.067	.186	2.	.265	16.77	SI
78.	9.	5.	2.	206.1238	-.004	.011	3455.5429	-.068	.186	2.	.268	16.76	SI
104.	35.	5.	2.	-5.3947	0.	0.	-3346.869	-.086	.186	2.	.315	620.4	SI
104.	35.	5.	2.	206.1238	-.004	.011	3502.3727	-.071	.186	2.	.276	16.99	SI
> 104.	0.	5.	2.	706.6649	-.013	.037	3502.3308	-.071	.186	2.	.276	4.956	SI
128.	24.	5.	3.	846.1848	-.016	.043	3617.1128	-.074	.186	2.	.283	4.275	SI
149.	45.	5.	3.	858.3149	-.016	.042	3774.9869	-.076	.186	2.	.29	4.398	SI
214.	110.	5.	3.	858.3149	-.015	.039	4085.9194	-.079	.186	2.	.299	4.76	SI
> 214.	0.	5.	3.	1058.268	-.019	.048	4085.8868	-.079	.186	2.	.299	3.861	SI
249.	35.	5.	3.	1058.268	-.019	.048	4086.1124	-.079	.186	2.	.299	3.861	SI
> 249.	0.	5.	3.	1217.2718	-.022	.055	4086.1127	-.079	.186	2.	.299	3.357	SI
275.	26.	5.	3.	1217.2718	-.023	.056	4045.7439	-.082	.186	2.	.306	3.324	SI
284.	35.	5.	3.	1217.2718	-.023	.056	4045.7317	-.083	.186	2.	.308	3.324	SI
> 284.	0.	5.	3.	1574.7959	-.03	.072	4045.1655	-.083	.186	2.	.308	2.569	SI
667.	383.	5.	5.	2979.5448	-.06	.106	5175.0759	-.113	.186	2.	.378	1.737	SI
724.	440.	5.	5.	2979.5448	-.06	.106	5176.9997	-.113	.186	2.	.378	1.738	SI

> 724.	0.	5.	5.	3101.5906	-.062	.111	5176.9436	-.113	.186	2.	.378	1.669	SI
759.	35.	5.	5.	3101.5906	-.062	.111	5177.2829	-.113	.186	2.	.378	1.669	SI
> 759.	0.	5.	5.	3171.0279	-.064	.113	5177.2833	-.113	.186	2.	.378	1.633	SI
794.	35.	5.	5.	3171.0279	-.064	.113	5177.2833	-.113	.186	2.	.378	1.633	SI
> 794.	0.	5.	5.	3313.9519	-.067	.118	5176.512	-.113	.186	2.	.378	1.562	SI
1177.	383.	5.	5.	3790.9672	-.078	.135	5189.5353	-.114	.186	2.	.379	1.369	SI
1234.	440.	5.	5.	3790.9672	-.078	.135	5191.4635	-.114	.186	2.	.379	1.369	SI
>1234.	0.	5.	5.	3820.2158	-.079	.136	5191.4072	-.114	.186	2.	.379	1.359	SI
1269.	35.	5.	5.	3820.2158	-.079	.136	5191.7476	-.114	.186	2.	.379	1.359	SI
>1269.	0.	5.	5.	3820.2159	-.079	.136	5191.7479	-.114	.186	2.	.379	1.359	SI
1304.	35.	5.	5.	3820.2159	-.079	.136	5191.7479	-.114	.186	2.	.379	1.359	SI
>1304.	0.	5.	5.	3790.9836	-.078	.135	5190.9742	-.114	.186	2.	.379	1.369	SI
1744.	440.	5.	5.	3313.9457	-.067	.118	5205.9716	-.114	.186	2.	.379	1.571	SI
>1744.	0.	5.	5.	3171.0162	-.064	.113	5205.9152	-.114	.186	2.	.379	1.642	SI
1779.	35.	5.	5.	3171.0162	-.064	.113	5206.2566	-.114	.186	2.	.379	1.642	SI
>1779.	0.	5.	5.	3101.5951	-.062	.11	5206.2569	-.114	.186	2.	.379	1.679	SI
1814.	35.	5.	5.	3101.5951	-.062	.11	5206.2569	-.114	.186	2.	.379	1.679	SI
>1814.	0.	5.	5.	2979.5576	-.059	.106	5205.4809	-.114	.186	2.	.379	1.747	SI
1936.	122.	5.	5.	2837.0725	-.056	.101	5209.6482	-.114	.186	2.	.379	1.836	SI
2254.	440.	5.	3.	1574.7842	-.03	.071	4088.3734	-.084	.186	2.	.31	2.596	SI
>2254.	0.	5.	3.	1217.254	-.023	.055	4088.3315	-.084	.186	2.	.31	3.359	SI
2263.	9.	5.	3.	1217.254	-.023	.055	4087.3752	-.083	.186	2.	.307	3.358	SI
2289.	35.	5.	3.	1217.254	-.022	.055	4125.229	-.08	.186	2.	.3	3.389	SI
>2289.	0.	5.	3.	1058.2767	-.019	.048	4125.2292	-.08	.186	2.	.3	3.898	SI
2324.	35.	5.	3.	1058.2767	-.019	.048	4125.2292	-.08	.186	2.	.3	3.898	SI
>2324.	0.	5.	3.	858.3399	-.015	.039	4125.1824	-.08	.186	2.	.3	4.806	SI
2348.	24.	5.	3.	858.3399	-.015	.039	4125.9728	-.08	.186	2.	.301	4.807	SI
2410.	86.	5.	3.	846.2167	-.016	.043	3660.4709	-.074	.186	2.	.285	4.326	SI
2434.	110.	5.	2.	706.6623	-.013	.037	3545.3879	-.072	.186	2.	.278	5.017	SI
>2434.	0.	5.	2.	-5.3947	0.	0.	-3314.031	-.084	.186	2.	.312	614.3	SI
2434.	0.	5.	2.	206.1076	-.004	.011	3545.3563	-.072	.186	2.	.278	17.2	SI
2460.	26.	5.	2.	206.1076	-.004	.011	3496.0264	-.069	.186	2.	.271	16.96	SI
2469.	35.	5.	2.	-5.3947	0.	0.	-3627.602	-.09	.186	2.	.325	672.4	SI
2469.	35.	5.	2.	206.1076	-.004	.011	3496.9754	-.068	.186	2.	.268	16.97	SI
>2469.	0.	5.	2.	-4.2993	0.	0.	-3627.602	-.09	.186	2.	.325	843.8	SI
2493.	24.	5.	2.	-4.2993	0.	0.	-3826.952	-.092	.186	2.	.331	890.1	SI
2504.	35.	5.	1.	-4.2993	0.	0.	-3629.632	-.089	.186	2.	.323	844.2	SI
>2504.	0.	5.	1.	-1.2852	0.	0.	-3629.645	-.089	.186	2.	.323	2824.	SI
2529.	25.	5.	1.	-1.2852	0.	0.	-3629.044	-.089	.186	2.	.323	2824.	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
34.	34.	5.	-7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 34.	0.	5.	-7.6	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
69.	35.	5.	-12.05	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 69.	0.	5.	607.79	144.02	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
93.	24.	5.	602.36	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
104.	35.	5.	600.01	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 104.	0.	5.	599.9	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
128.	24.	5.	594.56	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
214.	110.	5.	575.22	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 214.	0.	5.	575.25	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
249.	35.	5.	567.47	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 249.	0.	5.	458.11	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
275.	26.	5.	452.42	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
284.	35.	5.	450.32	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 284.	0.	5.	450.27	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
341.	57.	5.	437.69	219.12	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
500.	226.	5.	437.69	219.12	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
724.	214.	5.	352.63	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 724.	0.	5.	352.63	219.12	818.87	501.56	1.01	33.	2.5	SI	
759.	35.	5.	344.85	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 759.	0.	5.	202.19	219.12	818.87	501.56	1.01	33.	2.5	SI	
794.	35.	5.	194.4	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 794.	0.	5.	194.34	219.12	818.87	501.56	1.01	33.	2.5	SI	
1234.	440.	5.	87.51	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1234.	0.	5.	87.49	219.12	818.87	501.56	1.01	33.	2.5	SI	
1269.	35.	5.	79.7	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1269.	0.	5.	-79.66	219.12	818.87	501.56	1.01	33.	2.5	SI	
1304.	35.	5.	-87.44	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1304.	0.	5.	-87.51	219.12	818.87	501.56	1.01	33.	2.5	SI	
1744.	440.	5.	-194.35	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1744.	0.	5.	-194.36	219.12	818.87	501.56	1.01	33.	2.5	SI	
1779.	35.	5.	-202.14	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1779.	0.	5.	-344.8	219.12	818.87	501.56	1.01	33.	2.5	SI	
1814.	35.	5.	-352.58	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1814.	0.	5.	-352.66	219.12	818.87	501.56	1.01	33.	2.5	SI	
1814.	214.	5.	-352.66	219.12	818.87	501.56	1.01	33.	2.5	SI	
2028.	226.	5.	-450.28	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2254.	0.	5.	-450.28	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2289.	35.	5.	-458.06	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2289.	0.	5.	-567.42	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2324.	35.	5.	-575.2	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2324.	0.	5.	-575.25	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2434.	110.	5.	-599.94	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2434.	0.	5.	-599.97	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2469.	35.	5.	-607.75	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2469.	0.	5.	12.05	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2504.	35.	5.	7.6	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2504.	0.	5.	7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2538.	34.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2538.	34.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 9.	9.	5.	1.	-.1368	0.	.01	41.28	7.54	0.	12.63	0.	SI

	9.	9.	5.	1.	-.1368	0.	.01	41.28	7.54	0.	12.63	0.	SI
	34.	34.	5.	1.	-.9842	0.	.1	41.28	7.67	0.	12.92	0.	SI
>	34.	0.	5.	1.	-.9842	0.	.1	41.28	7.67	0.	12.91	0.	SI
	54.	20.	5.	2.	-2.5205	-.01	.26	41.28	8.6	.0001	13.78	0.	SI
	60.	26.	5.	2.	-2.986	-.01	.31	56.99	23.86	.0001	20.74	0.	SI
	69.	35.	5.	2.	-3.2923	-.01	.35	56.99	30.1	.0001	24.6	0.	SI
>	69.	0.	5.	2.	-4.1225	-.01	.44	56.99	30.1	.0001	24.6	0.	SI
	78.	9.	5.	2.	36.8513	-.1	4.16	45.62	11.96	.0012	11.98	.001	SI
	84.	15.	5.	2.	60.8466	-.16	6.85	45.62	11.96	.002	11.98	.002	SI
	104.	35.	5.	2.	146.7961	-.39	16.32	45.62	11.96	.0047	11.98	.006	SI
>	104.	0.	5.	2.	146.7961	-.39	16.32	45.62	11.96	.0047	11.99	.006	SI
	214.	110.	5.	3.	611.2145	-1.54	58.24	56.23	14.38	.0174	11.2	.019	SI
>	214.	0.	5.	3.	611.2145	-1.54	58.24	56.23	14.38	.0174	11.21	.019	SI
	249.	35.	5.	3.	753.2939	-1.89	71.78	56.23	14.35	.0238	11.15	.027	SI
>	249.	0.	5.	3.	753.3161	-1.89	71.78	56.23	14.35	.0238	11.15	.027	SI
	284.	35.	5.	3.	867.493	-2.28	83.27	56.23	14.35	.0293	11.15	.033	SI
>	284.	0.	5.	3.	867.493	-2.28	83.28	56.23	14.42	.0293	11.28	.033	SI
	724.	440.	5.	5.	2122.1995	-5.54	157.95	77.47	17.86	.0656	8.83	.058	SI
>	724.	0.	5.	5.	2122.1995	-5.54	157.95	77.47	17.87	.0656	8.84	.058	SI
	759.	35.	5.	5.	2208.101	-5.76	164.33	77.47	17.84	.0686	8.79	.06	SI
>	759.	0.	5.	5.	2208.1237	-5.76	164.33	77.47	17.84	.0686	8.79	.06	SI
	794.	35.	5.	5.	2258.3497	-5.89	168.07	77.47	17.84	.0704	8.79	.062	SI
>	794.	0.	5.	5.	2258.3497	-5.89	168.1	77.47	17.9	.0704	8.91	.063	SI
	851.	57.	5.	5.	2327.3249	-6.07	173.16	77.47	17.73	.0728	8.62	.063	SI
	1234.	440.	5.	5.	2698.3381	-7.02	200.23	77.47	16.56	.0862	6.65	.057	SI
>	1234.	0.	5.	5.	2698.3381	-7.02	200.24	77.47	16.57	.0862	6.66	.057	SI
	1269.	35.	5.	5.	2718.1279	-7.07	201.69	77.47	16.54	.0869	6.6	.057	SI
>	1269.	0.	5.	5.	2718.128	-7.07	201.69	77.47	16.54	.0869	6.6	.057	SI
	1304.	35.	5.	5.	2698.3498	-7.02	200.22	77.47	16.54	.0862	6.6	.057	SI
>	1304.	0.	5.	5.	2698.3498	-7.02	200.25	77.47	16.6	.0862	6.72	.058	SI
	1744.	440.	5.	5.	2258.3413	-5.86	167.09	77.47	15.26	.0708	5.48	.039	SI
>	1744.	0.	5.	5.	2258.3413	-5.86	167.09	77.47	15.27	.0708	5.49	.039	SI
	1779.	35.	5.	5.	2208.1269	-5.73	163.36	77.47	15.24	.0691	5.44	.038	SI
>	1779.	0.	5.	5.	2208.1042	-5.73	163.36	77.47	15.24	.0691	5.44	.038	SI
	1814.	35.	5.	5.	2122.2088	-5.51	157.01	77.47	15.24	.0661	5.44	.036	SI
>	1814.	0.	5.	5.	2122.2088	-5.51	157.03	77.47	15.3	.066	5.56	.037	SI
	2001.	187.	5.	5.	1622.9036	-4.35	129.16	66.85	11.93	.0533	14.63	.078	SI
	2254.	440.	5.	3.	867.4803	-2.27	82.34	56.23	9.18	.0314	14.24	.045	SI
>	2254.	0.	5.	3.	867.4803	-2.27	82.34	56.23	9.18	.0314	14.25	.045	SI
	2289.	35.	5.	3.	753.3223	-1.89	71.05	56.23	9.15	.0261	14.23	.037	SI
>	2289.	0.	5.	3.	753.3001	-1.89	71.05	56.23	9.15	.0261	14.23	.037	SI
	2324.	35.	5.	3.	611.2324	-1.53	57.65	56.23	9.15	.0197	14.23	.028	SI
>	2324.	0.	5.	3.	611.2324	-1.53	57.65	56.23	9.16	.0197	14.24	.028	SI
	2434.	110.	5.	2.	146.7844	-.39	16.11	45.62	5.78	.0046	13.33	.006	SI
>	2434.	0.	5.	2.	146.7844	-.39	16.11	45.62	5.79	.0046	13.33	.006	SI
	2469.	35.	5.	2.	-4.1225	-.01	.44	56.99	36.29	.0001	32.57	0.	SI
>	2469.	0.	5.	2.	-3.2923	-.01	.35	56.99	36.29	.0001	32.57	0.	SI
	2504.	35.	5.	1.	-.9842	0.	.11	56.99	25.75	0.	26.08	0.	SI
>	2504.	0.	5.	1.	-.9842	0.	.11	56.99	25.75	0.	26.07	0.	SI
	2529.	25.	5.	1.	-.1368	0.	.01	56.99	25.88	0.	26.15	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

	Progressive		Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
>	9.	9.	5.	1.	-.1328	0.	.01	41.28	7.54	0.	12.63	0.	SI
	9.	9.	5.	1.	-.1328	0.	.01	41.28	7.54	0.	12.63	0.	SI
	34.	34.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.92	0.	SI
>	34.	0.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.91	0.	SI
	54.	20.	5.	2.	-2.4467	-.01	.25	41.28	8.6	.0001	13.78	0.	SI
	60.	26.	5.	2.	-2.8985	-.01	.3	56.99	23.86	.0001	20.74	0.	SI
	69.	35.	5.	2.	-3.1959	-.01	.34	56.99	30.1	.0001	24.6	0.	SI
>	69.	0.	5.	2.	-3.9567	-.01	.42	56.99	30.1	.0001	24.6	0.	SI
	78.	9.	5.	2.	34.0642	-.09	3.84	45.62	11.96	.0011	11.98	.001	SI
	84.	15.	5.	2.	56.3802	-.15	6.35	45.62	11.96	.0018	11.98	.002	SI
	104.	35.	5.	2.	136.2934	-.36	15.15	45.62	11.96	.0043	11.98	.005	SI
>	104.	0.	5.	2.	136.2934	-.36	15.15	45.62	11.96	.0043	11.99	.005	SI
	214.	110.	5.	3.	567.5621	-1.43	54.08	56.23	14.38	.0155	11.2	.017	SI
>	214.	0.	5.	3.	567.5621	-1.43	54.08	56.23	14.38	.0155	11.21	.017	SI
	249.	35.	5.	3.	699.3221	-1.76	66.63	56.23	14.35	.0214	11.15	.024	SI
>	249.	0.	5.	3.	699.3265	-1.76	66.64	56.23	14.35	.0214	11.15	.024	SI
	284.	35.	5.	3.	805.3232	-2.12	77.3	56.23	14.35	.0265	11.15	.03	SI
>	284.	0.	5.	3.	805.3232	-2.12	77.31	56.23	14.42	.0264	11.28	.03	SI
	724.	440.	5.	5.	1962.6599	-5.12	146.07	77.47	17.86	.0599	8.83	.053	SI
>	724.	0.	5.	5.	1962.6599	-5.12	146.07	77.47	17.87	.0599	8.84	.053	SI
	759.	35.	5.	5.	2041.2111	-5.32	151.91	77.47	17.84	.0627	8.79	.055	SI
>	759.	0.	5.	5.	2041.2157	-5.32	151.91	77.47	17.84	.0627	8.79	.055	SI
	794.	35.	5.	5.	2086.9183	-5.44	155.31	77.47	17.84	.0643	8.79	.057	SI
>	794.	0.	5.	5.	2086.9183	-5.44	155.34	77.47	17.9	.0643	8.91	.057	SI
	851.	57.	5.	5.	2148.9426	-5.6	159.89	77.47	17.73	.0665	8.62	.057	SI
	1234.	440.	5.	5.	2488.5318	-6.47	184.66	77.47	16.56	.0787	6.65	.052	SI
>	1234.	0.	5.	5.	2488.5318	-6.47	184.67	77.47	16.57	.0787	6.66	.052	SI
	1269.	35.	5.	5.	2506.7349	-6.52	186.	77.47	16.54	.0794	6.6	.052	SI
>	1269.	0.	5.	5.	2506.7349	-6.52	186.	77.47	16.54	.0794	6.6	.052	SI
	1304.	35.	5.	5.	2488.5422	-6.47	184.65	77.47	16.54	.0787	6.6	.052	SI
>	1304.	0.	5.	5.	2488.5422	-6.47	184.68	77.47	16.6	.0787	6.72	.053	SI
	1744.	440.	5.	5.	2086.9109	-5.42	154.41	77.47	15.26	.0648	5.48	.036	SI
>	1744.	0.	5.	5.	2086.9109	-5.42	154.41	77.47	15.27	.0648	5.49	.036	SI
	1779.	35.	5.	5.	2041.2186	-5.3	151.02	77.47	15.24	.0632	5.44	.034	SI
>	1779.	0.	5.	5.	2041.2141	-5.3	151.02	77.47	15.24	.0632	5.44	.034	SI
	1814.	35.	5.	5.	1962.6681	-5.09	145.2	77.47	15.24	.0604	5.44	.033	SI
>	1814.	0.	5.	5.	1962.6681	-5.09	145.23	77.47	15.3	.0604	5.56	.034	SI
	2001.	187.	5.	5.	1503.7961	-4.03	119.68	66.85	11.93	.0488	14.63	.071	SI
	2254.	440.	5.	3.	805.3116	-2.1	76.44	56.23	9.18	.0286	14.24	.041	SI
>	2254.	0.	5.	3.	805.3116	-2.1	76.44	56.23	9.18	.0286	14.25	.041	SI
	2289.	35.	5.	3.	699.3321	-1.75	65.96	56.23	9.15	.0236	14.23	.034	SI
>	2289.	0.	5.	3.	699.3277	-1.75	65.96	56.23	9.15	.0236	14.23	.034	SI
	2324.	35.	5.	3.	567.5782	-1.42	53.53	56.23	9.15	.0177	14.23	.025	SI
>	2324.	0.	5.	3.	567.5782	-1.42	53.53	56.23	9.16	.0177	14.24	.025	SI

2434.	110.	5.	2.	136.283 !	-.36	14.96	45.62	5.78	.0043	13.33	.006	SI
>2434.	0.	5.	2.	136.283 !	-.36 !	14.96 !	45.62	5.79	.0043	13.33	.006 !	SI
2469.	35.	5.	2.	-3.9567 !	-.01	.43	56.99	36.29	.0001	32.57	0.	SI
>2469.	0.	5.	2.	-3.1959 !	-.01 !	.34 !	56.99	36.29	.0001	32.57	0.	! SI
2504.	35.	5.	1.	-.9553 !	0.	.1	56.99	25.75	0.	26.08	0.	SI
>2504.	0.	5.	1.	-.9553 !	0. !	.1 !	56.99	25.75	0.	26.07	0.	! SI
2529.	25.	5.	1.	-.1328 !	0.	.01	56.99	25.88	0.	26.15	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive		Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 9.	9.	5.	1.	-.1328 !	0.	.01	41.28	7.54	0.	12.63	0.	SI
9.	9.	5.	1.	-.1328 !	0.	.01	41.28	7.54	0.	12.63	0.	SI
34.	34.	5.	1.	-.9553 !	0. !	.1 !	41.28	7.67	0.	12.92	0.	! SI
> 34.	0.	5.	1.	-.9553 !	0.	.1	41.28	7.67	0.	12.91	0.	SI
54.	20.	5.	2.	-2.4467 !	-.01	.25	41.28	8.6	.0001	13.78	0.	SI
60.	26.	5.	2.	-2.8985 !	-.01	.3	56.99	23.86	.0001	20.74	0.	SI
69.	35.	5.	2.	-3.1959 !	-.01 !	.34 !	56.99	30.1	.0001	24.6	0.	! SI
> 69.	0.	5.	2.	-3.945 !	-.01	.42	56.99	30.1	.0001	24.6	0.	SI
78.	9.	5.	2.	32.3219 !	-.08	3.65	45.62	11.96	.001	11.98	.001	SI
84.	15.	5.	2.	53.6215 !	-.14	6.04	45.62	11.96	.0017	11.98	.002	SI
104.	35.	5.	2.	129.872 !	-.35 !	14.44 !	45.62	11.96	.0041	11.98	.005 !	SI
> 104.	0.	5.	2.	129.872 !	-.35 !	14.44 !	45.62	11.96	.0041	11.99	.005 !	SI
214.	110.	5.	3.	540.8088 !	-1.36 !	51.53 !	56.23	14.38	.0147	11.2	.016 !	SI
> 214.	0.	5.	3.	540.8088 !	-1.36 !	51.53 !	56.23	14.38	.0147	11.21	.017 !	SI
249.	35.	5.	3.	666.1589 !	-1.68 !	63.47 !	56.23	14.35	.0199	11.15	.022 !	SI
> 249.	0.	5.	3.	666.1589 !	-1.68 !	63.47 !	56.23	14.35	.0199	11.15	.022 !	SI
284.	35.	5.	3.	767.8276 !	-2.02 !	73.7 !	56.23	14.35	.0248	11.15	.028 !	SI
> 284.	0.	5.	3.	767.8276 !	-2.02 !	73.71 !	56.23	14.42	.0247	11.28	.028 !	SI
724.	440.	5.	5.	1870.8861 !	-4.88 !	139.24 !	77.47	17.86	.0566 !	8.83 !	.05 !	SI
> 724.	0.	5.	5.	1870.8861 !	-4.88 !	139.24 !	77.47	17.87	.0566 !	8.84 !	.05 !	SI
759.	35.	5.	5.	1945.1094 !	-5.07 !	144.76 !	77.47	17.84	.0593 !	8.79 !	.052 !	SI
> 759.	0.	5.	5.	1945.1094 !	-5.07 !	144.76 !	77.47	17.84	.0593 !	8.79 !	.052 !	SI
794.	35.	5.	5.	1989.2531 !	-5.19 !	148.04 !	77.47	17.84	.0608 !	8.79 !	.053 !	SI
> 794.	0.	5.	5.	1989.2531 !	-5.19 !	148.07 !	77.47	17.9	.0608 !	8.91 !	.054 !	SI
851.	57.	5.	5.	2048.7562 !	-5.34 !	152.44 !	77.47	17.73	.063 !	8.62 !	.054 !	SI
1234.	440.	5.	5.	2371.2843 !	-6.17 !	175.96 !	77.47	16.56	.0746 !	6.65 !	.05 !	SI
>1234.	0.	5.	5.	2371.2843 !	-6.17 !	175.97 !	77.47	16.57	.0746 !	6.66 !	.05 !	SI
1260.	26.	5.	5.	2383.5722 !	-6.2 !	176.87 !	77.47	16.54	.075 !	6.62 !	.05 !	SI
1269.	35.	5.	5.	2387.9297 !	-6.21 !	177.19 !	77.47	16.54	.0752 !	6.6 !	.05 !	SI
>1269.	0.	5.	5.	2387.9297 !	-6.21 !	177.19 !	77.47	16.54	.0752 !	6.6 !	.05 !	SI
1304.	35.	5.	5.	2371.2943 !	-6.17 !	175.95 !	77.47	16.54	.0746 !	6.6 !	.049 !	SI
>1304.	0.	5.	5.	2371.2943 !	-6.17 !	175.98 !	77.47	16.6	.0746 !	6.72 !	.05 !	SI
1744.	440.	5.	5.	1989.246 !	-5.16 !	147.18 !	77.47	15.26	.0614 !	5.48 !	.034 !	SI
>1744.	0.	5.	5.	1989.246 !	-5.16 !	147.18 !	77.47	15.27	.0614 !	5.49 !	.034 !	SI
1779.	35.	5.	5.	1945.1123 !	-5.05 !	143.91 !	77.47	15.24	.0598 !	5.44 !	.033 !	SI
>1779.	0.	5.	5.	1945.1123 !	-5.05 !	143.91 !	77.47	15.24	.0598 !	5.44 !	.033 !	SI
1814.	35.	5.	5.	1870.894 !	-4.85 !	138.42 !	77.47	15.24	.0572 !	5.44 !	.031 !	SI
>1814.	0.	5.	5.	1870.894 !	-4.86 !	138.44 !	77.47	15.3	.0572 !	5.56 !	.032 !	SI
2001.	187.	5.	5.	1435.1328 !	-3.84 !	114.22 !	66.85	11.93	.0462 !	14.63 !	.068 !	SI
2254.	440.	5.	3.	767.8165 !	-2.01 !	72.88 !	56.23	9.18	.0269 !	14.24 !	.038 !	SI
>2254.	0.	5.	3.	767.8165 !	-2.01 !	72.88 !	56.23	9.18	.0269 !	14.25 !	.038 !	SI
2289.	35.	5.	3.	666.1643 !	-1.67 !	62.83 !	56.23	9.15	.0221 !	14.23 !	.032 !	SI
>2289.	0.	5.	3.	666.1643 !	-1.67 !	62.83 !	56.23	9.15	.0221 !	14.23 !	.032 !	SI
2324.	35.	5.	3.	540.8241 !	-1.35 !	51.01 !	56.23	9.15	.0165 !	14.23 !	.024 !	SI
>2324.	0.	5.	3.	540.8241 !	-1.35 !	51.01 !	56.23	9.16	.0165 !	14.24 !	.024 !	SI
2434.	110.	5.	2.	129.8621 !	-.34 !	14.25 !	45.62	5.78	.0041 !	13.33 !	.005 !	SI
>2434.	0.	5.	2.	129.8621 !	-.34 !	14.25 !	45.62	5.79	.0041 !	13.33 !	.005 !	SI
2469.	35.	5.	2.	-3.945 !	-.01 !	.42 !	56.99	36.29	.0001 !	32.57 !	0.	SI
>2469.	0.	5.	2.	-3.1959 !	-.01 !	.34 !	56.99	36.29	.0001 !	32.57 !	0.	! SI
2504.	35.	5.	1.	-.9553 !	0.	.1	56.99	25.75	0.	26.08	0.	SI
>2504.	0.	5.	1.	-.9553 !	0. !	.1 !	56.99	25.75	0.	26.07	0.	! SI
2529.	25.	5.	1.	-.1328 !	0.	.01	56.99	25.88	0.	26.15	0.	SI

VERIFICA TRAVI SUD

PARAMETRI GENERALI
Metodo di verifica : stati limite - NTC18 ->
Duttilita'   : non prevista (struttura non dissipativa)
Unita' di misura   : cm; kN; kN/m; kNm; N/mm2; deform. %.
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.
Copriferri (assi) : longitudinali= 3 ; staffe= 2
CARATTERISTICHE MATERIALI
CLS   : Rck =30. ; fck=24.9 ; fctk= 1.79; fctm= 2.56; Ec= 31447.2 ;
          gc =1.5 ; fcd=14.11; fbd= 2.69; fctd= 1.19; Ecud=.2% (limit.elastico)
ACCIAIO : B450C; ftk=517.5 ; fyk=450. ; Es=210000. ;
          gs =1.15; fyd=391.3 ; ftd(k*fyd)=450. ; fud=443.98; Eud=.19% (limit.elastico)
Fibre   : Tipo = FRCM in PBO ; Samm= 1036.3   ; n=12.45   ; (valutate alle TA)
VALORI TENSIONI MASSIME IN ESERCIZIO
GRUPPO : aggressivo.
CLS   : σc (rara)=14.94; σc (quasi permanente)=11.2 ; fbd(esercizio)= 2.69
ACCIAIO : σf (rara)=360. ; Coeff.Omogeneizzazione= 15
FESSURE : Wdmax(fre.)=.3 ; Wdmax(q.p.)=.2 [4.1.2.2.4.5]; kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO

	SLU	
Nome	Descrizione	Sest
1.	SLU	1.
2.	SLU VENTOY	2.
6.	SLU con SISMAX PRINC	32
7.	SLU con SISMAY PRINC	32
8.	SLU con SISMAZ PRINC	32
13.	SLU Solo Perm.	1.

	RARE			FREQUENTI			QUASI PERMANENTI	
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
16.	Rara	1.	18.	Frequente	1.	20.	Quasi Perm	1.
17.	Rara VentoY	2.	19.	Frequente VentoY	2.			

SEZIONI UTILIZZATE
 5) Sezione a Z (2): 90/20/57x190/25/25; A=6475.; Jg=29062264.; E=31447.16
ARMATURE LONGITUDINALI (%=100*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	88.91	1.373	46.43	.717	2d20 +2d26 +2d2 ...	42.47	.656	4d26 +4d26
2	91.92	1.42	47.44	.733	2d20 +2d26 +2d2 ...	44.48	.687	4d26 +4d26 +2d8 ...
3	95.94	1.482	47.44	.733	2d20 +2d26 +2d2 ...	48.51	.749	4d26 +1d16 +4d2 ...
4	95.94	1.482	36.82	.569	2d20 +2d26 +2d2 ...	59.12	.913	4d26 +2d26 +1d1 ...
5	95.94	1.482	26.2	.405	2d20 +2d26 +1d8 ...	69.74	1.077	4d26 +2d26 +2d2 ...
6	95.94	1.482	15.58	.241	2d20 +1d8 +1d20 ...	80.36	1.241	4d26 +2d26 +2d2 ...
F	5.00	-	-	-	Long.Faccia esterna	-	-	Long.Faccia esterna

TRAVE TIPO:

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A4155	5	5	5	0	34.	34.	.179	.4	5.	29.848
2	A4156	5	5	5	0	35.	20.	.184	1.5	1.	22.386
3	A4157	5	5	5	0	35.	20.	.184	1.5	5.	107.842
4	A4158	5	5	5	0	110.	110.	.579	1.5	4.322	93.215
5	A4159	5	5	5	0	35.	35.	.184	1.5	3.862	83.298
6	A4160	5	5	5	0	35.	35.	.184	1.5	3.358	72.42
7	A4161	5	5	5	0	440.	440.	2.316	1.5	1.737	37.473
8	A4162	5	5	5	0	35.	35.	.184	1.5	1.67	36.011
9	A4163	5	5	5	0	35.	35.	.184	1.5	1.633	35.225
10	A4164	5	5	5	0	440.	440.	2.316	1.5	1.369	29.529
11	A4165	5	5	5	0	35.	35.	.184	1.5	1.359	29.319
12	A4166	5	5	5	0	35.	35.	.184	1.5	1.359	29.321
13	A4167	5	5	5	0	440.	440.	2.316	1.5	1.37	29.542
14	A4168	5	5	5	0	35.	35.	.184	1.5	1.642	35.42
15	A4169	5	5	5	0	35.	35.	.184	1.5	1.679	36.215
16	A4170	5	5	5	0	440.	440.	2.316	1.5	1.748	37.693
17	A4171	5	5	5	0	35.	35.	.184	1.5	3.36	72.461
18	A4172	5	5	5	0	35.	35.	.184	1.5	3.899	84.099
19	A4173	5	5	5	0	110.	110.	.579	1.5	4.807	103.687
20	A4174	5	5	5	0	35.	20.	.184	1.5	5.	107.842
21	A4175	5	5	5	0	35.	20.	.184	1.5	1.	22.386
22	A4176	5	5	5	0	34.	34.	.179	.4	1.	5.97

VERIFICHE ALLO STATO LIMITE ULTIMO
FLESSIONE:

Progressive	SE	Ar	Msd	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 17.	17.	5.	1.	-1.2852	0.	-3659.709	-.09	.186	2.	.325	2848.	SI
34.	34.	5.	1.	-1.2852	0.	-3659.265	-.09	.186	2.	.325	2847.	SI
> 34.	0.	5.	1.	-4.2884	0.	-3659.292	-.09	.186	2.	.325	853.3	SI
54.	20.	5.	2.	-4.2884	0.	-3847.35	-.093	.186	2.	.333	897.1	SI
69.	35.	5.	2.	-4.2884	0.	-3661.463	-.091	.186	2.	.327	853.8	SI
> 69.	0.	5.	2.	-5.4382	0.	-3661.463	-.091	.186	2.	.327	673.3	SI
69.	0.	5.	2.	206.1093	-.004	.011	3457.5996	-.067	.186	2.	.265	16.78	SI
104.	35.	5.	2.	-5.4382	0.	-3346.856	-.086	.186	2.	.315	615.4	SI
104.	35.	5.	2.	206.1093	-.004	.011	3502.3743	-.071	.186	2.	.276	16.99	SI
> 104.	0.	5.	2.	706.4734	-.013	.037	3502.3324	-.071	.186	2.	.276	4.957	SI
141.	37.	5.	3.	858.069	-.016	.043	3708.429	-.075	.186	2.	.287	4.322	SI
214.	110.	5.	3.	858.069	-.015	.039	4085.9231	-.079	.186	2.	.299	4.762	SI
> 214.	0.	5.	3.	1057.9641	-.019	.048	4085.8904	-.079	.186	2.	.299	3.862	SI
249.	35.	5.	3.	1057.9641	-.019	.048	4086.1166	-.079	.186	2.	.299	3.862	SI
> 249.	0.	5.	3.	1216.9318	-.022	.055	4086.1169	-.079	.186	2.	.299	3.358	SI
284.	35.	5.	3.	1216.9318	-.023	.056	4045.741	-.083	.186	2.	.308	3.325	SI
> 284.	0.	5.	3.	1574.3482	-.03	.072	4045.1748	-.083	.186	2.	.308	2.569	SI
668.	384.	5.	5.	2978.6418	-.06	.106	5175.0923	-.113	.186	2.	.378	1.737	SI
724.	440.	5.	5.	2978.6418	-.06	.106	5176.9997	-.113	.186	2.	.378	1.738	SI
> 724.	0.	5.	5.	3100.6573	-.062	.111	5176.9436	-.113	.186	2.	.378	1.67	SI
759.	35.	5.	5.	3100.6573	-.062	.111	5177.2829	-.113	.186	2.	.378	1.67	SI

> 759.	0.	5.	5.	3170.0868	-.064	.113	5177.2833	-.113	.186	2.	.378	1.633	SI	
794.	35.	5.	5.	3170.0868	-.064	.113	5177.2833	-.113	.186	2.	.378	1.633	SI	
> 794.	0.	5.	5.	3312.9694	-.067	.118	5176.512	-.113	.186	2.	.378	1.562	SI	
1150.	356.	5.	5.	3789.8256	-.078	.135	5188.6004	-.114	.186	2.	.379	1.369	SI	
1234.	440.	5.	5.	3789.8256	-.078	.135	5191.4635	-.114	.186	2.	.379	1.37	SI	
>1234.	0.	5.	5.	3819.078	-.079	.136	5191.4072	-.114	.186	2.	.379	1.359	SI	
1269.	35.	5.	5.	3819.078	-.079	.136	5191.7476	-.114	.186	2.	.379	1.359	SI	
>1269.	0.	5.	5.	3819.0782	-.079	.136	5191.7479	-.114	.186	2.	.379	1.359	SI	
1304.	35.	5.	5.	3819.0782	-.079	.136	5191.7479	-.114	.186	2.	.379	1.359	SI	
>1304.	0.	5.	5.	3789.8434	-.078	.135	5190.9742	-.114	.186	2.	.379	1.37	SI	
1744.	440.	5.	5.	3312.9626	-.067	.118	5205.9716	-.114	.186	2.	.379	1.571	SI	
>1744.	0.	5.	5.	3170.074	-.064	.113	5205.9152	-.114	.186	2.	.379	1.642	SI	
1779.	35.	5.	5.	3170.074	-.064	.113	5206.2566	-.114	.186	2.	.379	1.642	SI	
>1779.	0.	5.	5.	3100.6622	-.062	.11	5206.2569	-.114	.186	2.	.379	1.679	SI	
1814.	35.	5.	5.	3100.6622	-.062	.11	5206.2569	-.114	.186	2.	.379	1.679	SI	
>1814.	0.	5.	5.	2978.6562	-.059	.106	5205.4809	-.114	.186	2.	.379	1.748	SI	
1934.	120.	5.	5.	2844.9501	-.056	.101	5209.5688	-.114	.186	2.	.379	1.831	SI	
2254.	440.	5.	3.	1574.3363	-.03	.071	4088.3734	-.084	.186	2.	.31	2.597	SI	
>2254.	0.	5.	3.	1216.9134	-.023	.055	4088.3315	-.084	.186	2.	.31	3.36	SI	
2289.	35.	5.	3.	1216.9134	-.022	.055	4125.229	-.08	.186	2.	.3	3.39	SI	
>2289.	0.	5.	3.	1057.9735	-.019	.048	4125.2292	-.08	.186	2.	.3	3.899	SI	
2324.	35.	5.	3.	1057.9735	-.019	.048	4125.2292	-.08	.186	2.	.3	3.899	SI	
>2324.	0.	5.	3.	858.0958	-.015	.039	4125.1824	-.08	.186	2.	.3	4.807	SI	
2397.	73.	5.	3.	858.0958	-.016	.042	3740.7773	-.076	.186	2.	.289	4.359	SI	
2434.	110.	5.	2.	706.4719	-.013	.037	3542.65	-.072	.186	2.	.278	5.015	SI	
>2434.	0.	5.	2.	-5.4382	0.	0.	-3319.421	-.084	.186	2.	.312	610.4	SI	
2434.	0.	5.	2.	206.0919	-.004	.011	3542.6184	-.072	.186	2.	.278	17.19	SI	
2469.	35.	5.	2.	-5.4382	0.	0.	-3630.478	-.09	.186	2.	.325	667.6	SI	
2469.	35.	5.	2.	206.0919	-.004	.011	3497.1399	-.068	.186	2.	.268	16.97	SI	
>2469.	0.	5.	2.	-4.2885	0.	0.	-3630.478	-.09	.186	2.	.325	846.6	SI	
2484.	15.	5.	2.	-4.2885	0.	0.	-3813.725	-.092	.186	2.	.33	889.3	SI	
2504.	35.	5.	1.	-4.2885	0.	0.	-3629.632	-.089	.186	2.	.323	846.4	SI	
>2504.	0.	5.	1.	-1.2852	0.	0.	-3629.645	-.089	.186	2.	.323	2824.	SI	
2521.	17.	5.	1.	-1.2852	0.	0.	-3629.229	-.089	.186	2.	.323	2824.	SI	

TAGLIO:

Progressive		Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
34.	34.	5.	-7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 34.	0.	5.	-7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
69.	35.	5.	-12.01	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 69.	0.	5.	607.57	144.02	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
104.	35.	5.	599.79	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 104.	0.	5.	599.7	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
141.	37.	5.	591.48	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
214.	110.	5.	575.02	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 214.	0.	5.	575.1	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
249.	35.	5.	567.32	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 249.	0.	5.	457.96	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
284.	35.	5.	450.18	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
> 284.	0.	5.	450.16	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
340.	56.	5.	437.68	219.12	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
500.	226.	5.	437.69	219.12	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
724.	214.	5.	352.56	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 724.	0.	5.	352.56	219.12	818.87	501.56	1.01	33.	2.5	SI	
759.	35.	5.	344.78	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 759.	0.	5.	202.1	219.12	818.87	501.56	1.01	33.	2.5	SI	
794.	35.	5.	194.32	219.12	818.87	501.56	1.01	33.	2.5	SI	
> 794.	0.	5.	194.31	219.12	818.87	501.56	1.01	33.	2.5	SI	
1234.	440.	5.	87.48	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1234.	0.	5.	87.48	219.12	818.87	501.56	1.01	33.	2.5	SI	
1269.	35.	5.	79.7	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1269.	0.	5.	-79.65	219.12	818.87	501.56	1.01	33.	2.5	SI	
1304.	35.	5.	-87.43	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1304.	0.	5.	-87.48	219.12	818.87	501.56	1.01	33.	2.5	SI	
1744.	440.	5.	-194.32	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1744.	0.	5.	-194.27	219.12	818.87	501.56	1.01	33.	2.5	SI	
1779.	35.	5.	-202.05	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1779.	0.	5.	-344.73	219.12	818.87	501.56	1.01	33.	2.5	SI	
1814.	35.	5.	-352.51	219.12	818.87	501.56	1.01	33.	2.5	SI	
>1814.	0.	5.	-352.55	219.12	818.87	501.56	1.01	33.	2.5	SI	
1814.	214.	5.	-352.55	219.12	818.87	501.56	1.01	33.	2.5	SI	
2028.	226.	5.	-450.13	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2254.	0.	5.	-450.13	216.29	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2289.	35.	5.	-457.91	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2289.	0.	5.	-567.27	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2324.	35.	5.	-575.05	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2324.	0.	5.	-575.06	195.46	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2434.	110.	5.	-599.75	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2434.	0.	5.	-599.74	181.45	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2469.	35.	5.	-607.52	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2469.	0.	5.	12.01	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2504.	35.	5.	7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
>2504.	0.	5.	7.56	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2538.	34.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO
2538.	34.	5.	0.	99.85	921.79	926.89	1.01	15.	2.1	SI	Fasciatura con FRCM in PBO

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive		Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 17.	17.	5.	1.	-.246	0.	.03	41.28	7.58	0.	12.72	0.	SI
34.	34.	5.	1.	-.9842	0.	.1	41.28	7.67	0.	12.92	0.	SI
> 34.	0.	5.	1.	-.9842	0.	.1	41.28	7.67	0.	12.91	0.	SI
69.	35.	5.	2.	-3.284	-.01	.35	56.99	30.1	.0001	24.59	0.	SI
> 69.	0.	5.	2.	-4.15	-.01	.44	56.99	30.1	.0001	24.59	0.	SI
104.	35.	5.	2.	146.7793	-.39	16.32	45.62	11.96	.0047	11.98	.006	SI
> 104.	0.	5.	2.	146.7793	-.39	16.32	45.62	11.96	.0047	11.99	.006	SI
141.	37.	5.	3.	303.2878	-.8	31.83	45.62	11.8	.0091	11.68	.011	SI

177.	73.	5.	3.	458.0347	-1.15	43.67	56.23	14.58	.0125	11.51	.014	SI
214.	110.	5.	3.	611.0209	-1.54	58.22	56.23	14.38	.0174	11.2	.019	SI
> 214.	0.	5.	3.	611.0209	-1.54	58.22	56.23	14.38	.0174	11.21	.019	SI
232.	18.	5.	3.	682.2992	-1.72	65.01	56.23	14.37	.0206	11.18	.023	SI
249.	35.	5.	3.	753.056	-1.89	71.75	56.23	14.35	.0238	11.15	.027	SI
> 249.	0.	5.	3.	753.0927	-1.89	71.76	56.23	14.35	.0238	11.15	.027	SI
284.	35.	5.	3.	867.2254	-2.28	83.24	56.23	14.35	.0293	11.15	.033	SI
> 284.	0.	5.	3.	867.2254	-2.28	83.25	56.23	14.42	.0293	11.28	.033	SI
724.	440.	5.	5.	2121.5032	-5.53	157.89	77.47	17.86	.0655	8.83	.058	SI
> 724.	0.	5.	5.	2121.5032	-5.53	157.9	77.47	17.87	.0655	8.84	.058	SI
759.	35.	5.	5.	2207.3816	-5.76	164.28	77.47	17.84	.0686	8.79	.06	SI
> 759.	0.	5.	5.	2207.4192	-5.76	164.28	77.47	17.84	.0686	8.79	.06	SI
794.	35.	5.	5.	2257.6223	-5.89	168.01	77.47	17.84	.0704	8.79	.062	SI
> 794.	0.	5.	5.	2257.6223	-5.89	168.04	77.47	17.9	.0703	8.91	.063	SI
850.	56.	5.	5.	2325.8869	-6.07	173.06	77.47	17.73	.0728	8.62	.063	SI
1234.	440.	5.	5.	2697.4591	-7.02	200.17	77.47	16.56	.0861	6.65	.057	SI
>1234.	0.	5.	5.	2697.4591	-7.02	200.17	77.47	16.57	.0861	6.66	.057	SI
1269.	35.	5.	5.	2717.2515	-7.07	201.63	77.47	16.54	.0868	6.6	.057	SI
>1269.	0.	5.	5.	2717.2516	-7.07	201.63	77.47	16.54	.0868	6.6	.057	SI
1304.	35.	5.	5.	2697.4718	-7.02	200.16	77.47	16.54	.0861	6.6	.057	SI
>1304.	0.	5.	5.	2697.4718	-7.02	200.19	77.47	16.6	.0861	6.72	.058	SI
1744.	440.	5.	5.	2257.6132	-5.86	167.04	77.47	15.26	.0708	5.48	.039	SI
>1744.	0.	5.	5.	2257.6132	-5.86	167.04	77.47	15.27	.0708	5.49	.039	SI
1779.	35.	5.	5.	2207.4227	-5.73	163.31	77.47	15.24	.0691	5.44	.038	SI
>1779.	0.	5.	5.	2207.3851	-5.73	163.31	77.47	15.24	.0691	5.44	.038	SI
1814.	35.	5.	5.	2121.5135	-5.51	156.96	77.47	15.24	.066	5.44	.036	SI
>1814.	0.	5.	5.	2121.5135	-5.51	156.98	77.47	15.3	.066	5.56	.037	SI
2004.	190.	5.	5.	1614.1557	-4.33	129.05	66.85	11.92	.0532	14.63	.078	SI
2254.	440.	5.	3.	867.2122	-2.26	82.32	56.23	9.18	.0314	14.24	.045	SI
>2254.	0.	5.	3.	867.2122	-2.26	82.32	56.23	9.18	.0314	14.25	.045	SI
2289.	35.	5.	3.	753.0994	-1.89	71.03	56.23	9.15	.026	14.23	.037	SI
>2289.	0.	5.	3.	753.0627	-1.89	71.03	56.23	9.15	.026	14.23	.037	SI
2324.	35.	5.	3.	611.0401	-1.53	57.63	56.23	9.15	.0197	14.23	.028	SI
>2324.	0.	5.	3.	611.0401	-1.53	57.63	56.23	9.16	.0197	14.24	.028	SI
2434.	110.	5.	2.	146.7669	-.39	16.12	45.62	5.78	.0046	13.33	.006	SI
>2434.	0.	5.	2.	146.7669	-.39	16.12	45.62	5.79	.0046	13.33	.006	SI
2469.	35.	5.	2.	-4.15	-.01	.45	56.99	36.13	.0001	32.47	0.	SI
>2469.	0.	5.	2.	-3.284	-.01	.35	56.99	36.13	.0001	32.47	0.	SI
2504.	35.	5.	1.	-.9842	0.	.11	56.99	25.75	0.	26.08	0.	SI
>2504.	0.	5.	1.	-.9842	0.	.11	56.99	25.75	0.	26.07	0.	SI
2521.	17.	5.	1.	-.246	0.	.03	56.99	25.84	0.	26.13	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive		Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 17.	17.	5.	1.	-.2388	0.	.03	41.28	7.58	0.	12.72	0.	SI
34.	34.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.92	0.	SI
> 34.	0.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.91	0.	SI
69.	35.	5.	2.	-3.1875	-.01	.34	56.99	30.1	.0001	24.59	0.	SI
> 69.	0.	5.	2.	-3.9537	-.01	.42	56.99	30.1	.0001	24.59	0.	SI
104.	35.	5.	2.	136.2478	-.36	15.15	45.62	11.96	.0043	11.98	.005	SI
> 104.	0.	5.	2.	136.2478	-.36	15.15	45.62	11.96	.0043	11.99	.005	SI
141.	37.	5.	3.	281.656	-.74	29.56	45.62	11.8	.0084	11.68	.01	SI
177.	73.	5.	3.	425.3549	-1.07	40.55	56.23	14.58	.0116	11.51	.013	SI
214.	110.	5.	3.	567.3454	-1.43	54.06	56.23	14.38	.0154	11.2	.017	SI
> 214.	0.	5.	3.	567.3454	-1.43	54.06	56.23	14.38	.0154	11.21	.017	SI
232.	18.	5.	3.	633.4571	-1.59	60.36	56.23	14.37	.0184	11.18	.021	SI
249.	35.	5.	3.	699.0627	-1.76	66.61	56.23	14.35	.0214	11.15	.024	SI
> 249.	0.	5.	3.	699.07	-1.76	66.61	56.23	14.35	.0214	11.15	.024	SI
284.	35.	5.	3.	805.0242	-2.11	77.27	56.23	14.35	.0265	11.15	.029	SI
> 284.	0.	5.	3.	805.0242	-2.12	77.28	56.23	14.42	.0264	11.28	.03	SI
724.	440.	5.	5.	1961.9542	-5.12	146.02	77.47	17.86	.0599	8.83	.053	SI
> 724.	0.	5.	5.	1961.9542	-5.12	146.02	77.47	17.87	.0599	8.84	.053	SI
759.	35.	5.	5.	2040.4841	-5.32	151.86	77.47	17.84	.0627	8.79	.055	SI
> 759.	0.	5.	5.	2040.4916	-5.32	151.86	77.47	17.84	.0627	8.79	.055	SI
794.	35.	5.	5.	2086.173	-5.44	155.26	77.47	17.84	.0643	8.79	.057	SI
> 794.	0.	5.	5.	2086.173	-5.44	155.28	77.47	17.9	.0643	8.91	.057	SI
850.	56.	5.	5.	2147.5592	-5.6	159.79	77.47	17.73	.0665	8.62	.057	SI
1234.	440.	5.	5.	2487.6486	-6.47	184.6	77.47	16.56	.0787	6.65	.052	SI
>1234.	0.	5.	5.	2487.6486	-6.47	184.6	77.47	16.57	.0787	6.66	.052	SI
1269.	35.	5.	5.	2505.8526	-6.52	185.94	77.47	16.54	.0794	6.6	.052	SI
>1269.	0.	5.	5.	2505.8526	-6.52	185.94	77.47	16.54	.0794	6.6	.052	SI
1304.	35.	5.	5.	2487.6599	-6.47	184.59	77.47	16.54	.0787	6.6	.052	SI
>1304.	0.	5.	5.	2487.6599	-6.47	184.62	77.47	16.6	.0787	6.72	.053	SI
1744.	440.	5.	5.	2086.165	-5.41	154.35	77.47	15.26	.0648	5.48	.036	SI
>1744.	0.	5.	5.	2086.165	-5.41	154.35	77.47	15.27	.0648	5.49	.036	SI
1779.	35.	5.	5.	2040.4948	-5.29	150.96	77.47	15.24	.0632	5.44	.034	SI
>1779.	0.	5.	5.	2040.4873	-5.29	150.96	77.47	15.24	.0632	5.44	.034	SI
1814.	35.	5.	5.	1961.9635	-5.09	145.15	77.47	15.24	.0604	5.44	.033	SI
>1814.	0.	5.	5.	1961.9635	-5.09	145.18	77.47	15.3	.0604	5.56	.034	SI
2004.	190.	5.	5.	1495.6964	-4.01	119.58	66.85	11.92	.0487	14.63	.071	SI
2254.	440.	5.	3.	805.0122	-2.1	76.41	56.23	9.18	.0286	14.24	.041	SI
>2254.	0.	5.	3.	805.0122	-2.1	76.41	56.23	9.18	.0286	14.25	.041	SI
2289.	35.	5.	3.	699.0761	-1.75	65.93	56.23	9.15	.0236	14.23	.034	SI
>2289.	0.	5.	3.	699.0688	-1.75	65.93	56.23	9.15	.0236	14.23	.034	SI
2324.	35.	5.	3.	567.3626	-1.42	53.51	56.23	9.15	.0177	14.23	.025	SI
>2324.	0.	5.	3.	567.3626	-1.42	53.51	56.23	9.16	.0177	14.24	.025	SI
2434.	110.	5.	2.	136.2366	-.36	14.96	45.62	5.78	.0043	13.33	.006	SI
>2434.	0.	5.	2.	136.2366	-.36	14.96	45.62	5.79	.0043	13.33	.006	SI
2469.	35.	5.	2.	-3.9537	-.01	.42	56.99	36.13	.0001	32.47	0.	SI
>2469.	0.	5.	2.	-3.1876	-.01	.34	56.99	36.13	.0001	32.47	0.	SI
2504.	35.	5.	1.	-.9553	0.	.1	56.99	25.75	0.	26.08	0.	SI
>2504.	0.	5.	1.	-.9553	0.	.1	56.99	25.75	0.	26.07	0.	SI
2521.	17.	5.	1.	-.2388	0.	.03	56.99	25.84	0.	26.13	0.	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive		Se	Ar	Momento	σc	σf	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 17.	17.	5.	1.	-.2388	0.	.03	41.28	7.58	0.	12.72	0.	SI
34.	34.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.92	0.	SI

> 34.	0.	5.	1.	-.9553	0.	.1	41.28	7.67	0.	12.91	0.	SI
69.	35.	5.	2.	-3.1875	-.01	.34	56.99	30.1	.0001	24.59	0.	SI
> 69.	0.	5.	2.	-3.9344	-.01	.42	56.99	30.1	.0001	24.59	0.	SI
104.	35.	5.	2.	129.8192	-.35	14.43	45.62	11.96	.0041	11.98	.005	SI
> 104.	0.	5.	2.	129.8192	-.35	14.43	45.62	11.96	.0041	11.99	.005	SI
141.	37.	5.	3.	268.45	-.71	28.17	45.62	11.8	.008	11.68	.009	SI
177.	73.	5.	3.	405.372	-1.02	38.65	56.23	14.58	.011	11.51	.013	SI
214.	110.	5.	3.	540.5862	-1.36	51.51	56.23	14.38	.0147	11.2	.016	SI
> 214.	0.	5.	3.	540.5862	-1.36	51.51	56.23	14.38	.0147	11.21	.016	SI
232.	18.	5.	3.	603.4933	-1.52	57.51	56.23	14.37	.017	11.18	.019	SI
249.	35.	5.	3.	665.8942	-1.67	63.45	56.23	14.35	.0199	11.15	.022	SI
> 249.	0.	5.	3.	665.8942	-1.67	63.45	56.23	14.35	.0199	11.15	.022	SI
284.	35.	5.	3.	767.5207	-2.02	73.67	56.23	14.35	.0247	11.15	.028	SI
> 284.	0.	5.	3.	767.5207	-2.02	73.68	56.23	14.42	.0247	11.28	.028	SI
724.	440.	5.	5.	1870.1781	-4.88	139.19	77.47	17.86	.0566	8.83	.05	SI
> 724.	0.	5.	5.	1870.1781	-4.88	139.19	77.47	17.87	.0566	8.84	.05	SI
759.	35.	5.	5.	1944.3806	-5.07	144.7	77.47	17.84	.0593	8.79	.052	SI
> 759.	0.	5.	5.	1944.3806	-5.07	144.7	77.47	17.84	.0593	8.79	.052	SI
794.	35.	5.	5.	1988.5033	-5.19	147.99	77.47	17.84	.0608	8.79	.053	SI
> 794.	0.	5.	5.	1988.5033	-5.19	148.01	77.47	17.9	.0608	8.91	.054	SI
850.	56.	5.	5.	2047.3942	-5.34	152.33	77.47	17.73	.0629	8.62	.054	SI
1234.	440.	5.	5.	2370.4001	-6.17	175.9	77.47	16.56	.0746	6.65	.05	SI
>1234.	0.	5.	5.	2370.4001	-6.17	175.9	77.47	16.57	.0746	6.66	.05	SI
1252.	18.	5.	5.	2378.9761	-6.19	176.53	77.47	16.55	.0749	6.63	.05	SI
1269.	35.	5.	5.	2387.0459	-6.21	177.12	77.47	16.54	.0752	6.6	.05	SI
>1269.	0.	5.	5.	2387.0459	-6.21	177.12	77.47	16.54	.0752	6.6	.05	SI
1304.	35.	5.	5.	2370.4109	-6.17	175.89	77.47	16.54	.0746	6.6	.049	SI
>1304.	0.	5.	5.	2370.4109	-6.17	175.92	77.47	16.6	.0746	6.72	.05	SI
1744.	440.	5.	5.	1988.4956	-5.16	147.12	77.47	15.26	.0613	5.48	.034	SI
>1744.	0.	5.	5.	1988.4956	-5.16	147.13	77.47	15.27	.0613	5.49	.034	SI
1779.	35.	5.	5.	1944.3836	-5.05	143.85	77.47	15.24	.0598	5.44	.033	SI
>1779.	0.	5.	5.	1944.3836	-5.05	143.85	77.47	15.24	.0598	5.44	.033	SI
1814.	35.	5.	5.	1870.187	-4.85	138.36	77.47	15.24	.0572	5.44	.031	SI
>1814.	0.	5.	5.	1870.187	-4.85	138.38	77.47	15.3	.0572	5.56	.032	SI
2004.	190.	5.	5.	1427.4096	-3.83	114.12	66.85	11.92	.0461	14.63	.067	SI
2254.	440.	5.	3.	767.5092	-2.	72.85	56.23	9.18	.0269	14.24	.038	SI
>2254.	0.	5.	3.	767.5092	-2.	72.85	56.23	9.18	.0269	14.25	.038	SI
2289.	35.	5.	3.	665.9	-1.67	62.81	56.23	9.15	.0221	14.23	.032	SI
>2289.	0.	5.	3.	665.9	-1.67	62.81	56.23	9.15	.0221	14.23	.032	SI
2324.	35.	5.	3.	540.6028	-1.35	50.99	56.23	9.15	.0165	14.23	.023	SI
>2324.	0.	5.	3.	540.6028	-1.35	50.99	56.23	9.16	.0165	14.24	.023	SI
2434.	110.	5.	2.	129.8085	-.34	14.26	45.62	5.78	.0041	13.33	.005	SI
>2434.	0.	5.	2.	129.8085	-.34	14.26	45.62	5.79	.0041	13.33	.005	SI
2469.	35.	5.	2.	-3.9344	-.01	.42	56.99	36.13	.0001	32.47	0.	SI
>2469.	0.	5.	2.	-3.1876	-.01	.34	56.99	36.13	.0001	32.47	0.	SI
2504.	35.	5.	1.	-.9553	0.	.1	56.99	25.75	0.	26.08	0.	SI
>2504.	0.	5.	1.	-.9553	0.	.1	56.99	25.75	0.	26.07	0.	SI
2521.	17.	5.	1.	-.2388	0.	.03	56.99	25.84	0.	26.13	0.	SI

VERIFICA SEZIONI TRAVI NORD

PARAMETRI GENERALI

```
Tipo verifica            : stati limite - pressoflessione deviata.
Unità di misura generiche: kN; cm; kNm; N/mm2; d in mm; deformazioni*1000.
                ferri    : diametri in mm; aree in cm2.
Simboli                  : Vert.  = contorno_vertice del CLS;        d = diametro;
                           S      = Sigma (tensioni sui materiali);
                           D      = Deformazioni x 1000 (epsilon);
                           Ve     = colonna che indica se la verifica e' soddisfatta;
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CARATTERISTICHE MATERIALI

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Calcestruzzo:   Rck =     30.    ; fck =  24.9   ; fcd =  14.11  (.35%)
Acciaio     :   Tipo= B450C      ; ftk =   540.   ; fyk = 450.    ; ftd = 469.565 (6.75%)
Fibre       :   Tipo= FRCM in PBO; Samm=  1036.3 ; n=12.45       ; (valutate alle TA)
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CARATTERISTICHE SEZIONE

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L'asse Z e' rivolto verso destra, l'asse Y e' rivolto verso l'alto.
Tipo sezione: a Z sinistra
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Cls: vert.	Z	Y
1- 1	0.	0.
1- 2	0.	20.
1- 3	90.	20.
1- 4	140.7	-145.
1- 5	185.	-145.
1- 6	185.	-170.
1- 7	127.5	-170.
1- 8	76.8	-5.

Acciaio lento: ferro	Z	Y	d[mm]	Af[cm2]
1	3.	17.	20.	3.1416
2	3.	9.9	20.	3.1416
3	3.	2.8	20.	3.1416
4	45.4	17.	8.	.5027
5	41.	.3	8.	.5027
6	93.7	-2.2	8.	.5027
7	79.1	-2.1	8.	.5027
8	87.8	17.	20.	3.1416
9	105.4	-40.4	8.	.5027
10	91.	-40.9	8.	.5027
11	116.2	-75.4	8.	.5027
12	102.2	-77.5	8.	.5027
13	130.2	-121.1	8.	.5027
14	115.3	-120.1	8.	.5027
15	182.	-148.	16.	2.0106
16	182.	-167.	16.	2.0106
17	144.1	-166.3	26.	5.3093
18	139.3	-166.6	26.	5.3093
19	134.5	-166.8	26.	5.3093
20	129.7	-167.	26.	5.3093
21	142.7	-161.6	26.	5.3093
22	137.8	-161.6	26.	5.3093
23	132.9	-161.5	26.	5.3093
24	128.	-161.4	26.	5.3093
25	141.	-156.1	26.	5.3093
26	136.	-155.8	26.	5.3093
27	131.	-155.4	26.	5.3093
28	126.	-155.1	26.	5.3093
29	133.2	-148.	26.	5.3093
30	128.5	-148.	26.	5.3093

Fibre (fase di applicazione 1 dopo carichi permanenti):

Fib.	fas	Z1	Y1	Z2	Y2	spe[mm]	A [cm2]
1	1	0.	0.	0.	0.	10.	20.
2	1	0.	20.	0.	20.	10.	90.
3	1	90.	20.	90.	20.	10.	172.614
4	1	140.7	-145.	140.7	-145.	10.	44.3
5	1	185.	-145.	185.	-145.	10.	25.
6	1	185.	-170.	185.	-170.	10.	57.5
7	1	127.5	-170.	127.5	-170.	10.	172.614
8	1	76.8	-5.	76.8	-5.	10.	76.9626

CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU	SLU (statico)	1
2	SLU VENTOY	SLU (statico)	2
6	SLU con SISMAX PRINC	SLU (sismico)	32
7	SLU con SISMAY PRINC	SLU (sismico)	32
8	SLU con SISMAZ PRINC	SLU (sismico)	32
13	SLU Solo Perm.	SLU (statico)	1
16	Rara	RARA	1
17	Rara VentoY	RARA	2
18	Frequente	FREQUENTE	1
19	Frequente VentoY	FREQUENTE	2
20	Quasi Perm	QUASI PERMAN.	1

```
Sforzi normali applicati in z=  99.8 ; y= -66.94 (baricentro CLS)
Convenzioni: N + trazione; Mz + fib.inferiori tese; My + fib.sinistra tese.
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Descrizione : Trave Tipo NORD

SOLLECITAZIONI AGENTI

N.	N	Mz	My	Descrizione	Sol: ultima/agente =fs (>=1 OK)
1	-3.83	-5.3947	44.9331	Caso 2.1-A3174- P3	
2	-53.14	2712.3648	-119.7901	Caso 2.1-A3166- P1	Mz+:2712.3648/3820.2159= .71
3	-53.08	2712.3648	-119.8602	Caso 2.1-A3165- P3	Mz+:2712.3648/3820.1815= .71
4	6.4	2204.4824	97.3275	Caso 2.2-A3164- P3	Mz+:2204.4824/3790.9672= .5815
5	-53.3	2585.6437	-58.7463	Caso 2.1-A3164- P1	Mz+:2585.6437/3171.0279= .8154
6	6.93	666.2341	-19.0351	Caso 8.7-A3160- P1	

RISULTATI

Piani di equilibrio (eps= muz * y +muy * z + lam):

Sol.	muz	muy	lambda
1.	-.00000087634	-.00000194468	.00015285592
2.	-.0000564621	-.00009719528	.00637906852
3.	-.00005644736	-.00009716506	.00637684213
4.	-.00004988933	-.00009308107	.00648738495
5.	-.00005532392	-.00009743458	.00650194724
6.	-.00000863337	-.00001365216	.00086176651

DEFORMAZIONI SUI MATERIALI

Cls — Acciaio lento

sol	vert.	D cls	S cls	Ve	ferro	D ferri	S ferri	Ve
1	1- 1	.1529	0.	si	1	.1321	26.42	si
1	1- 2	.1353	0.	si	2	.1383	27.67	si
1	1- 3	-.0397	-.55	si	3	.1446	28.91	si
1	1- 4	.0063	0.	si	4	.0497	9.94	si
1	1- 5	-.0798	-1.1	si	5	.0728	14.55	si
1	1- 6	-.0579	-.81	si	6	-.0274	-5.48	si
1	1- 7	.0539	0.	si	7	.001	.2	si
1	1- 8	.0079	0.	si	8	-.0328	-6.55	si
1					9	-.0167	-3.35	si
1					10	.0118	2.36	si
1					11	-.007	-1.4	si
1					12	.022	4.4	si
1					13	.0058	1.15	si
1					14	.0339	6.77	si
1					15	-.0714	-14.28	si
1					16	-.0547	-10.95	si
1					17	.0184	3.67	si
1					18	.0279	5.58	si
1					19	.0374	7.48	si
1					20	.0469	9.39	si
1					21	.017	3.41	si
1					22	.0265	5.3	si
1					23	.0359	7.19	si
1					24	.0454	9.08	si
1					25	.0155	3.1	si
1					26	.0249	4.98	si
1					27	.0342	6.85	si
1					28	.0436	8.72	si
1					29	.0235	4.7	si
1					30	.0326	6.52	si
2	1- 1	6.3791	0.	si	1	5.1276	395.09	si
2	1- 2	5.2498	0.	si	2	5.5282	395.57	si
2	1- 3	-3.4977	-14.11	si	3	5.9288	396.05	si
2	1- 4	.8907	0.	si	4	1.0073	201.46	si
2	1- 5	-3.4151	-14.11	si	5	2.3722	391.8	si
2	1- 6	-2.0035	-14.11	si	6	-2.6016	-392.07	si
2	1- 7	3.5852	0.	si	7	-1.1843	-236.86	si
2	1- 8	-.8032	-9.06	si	8	-3.1129	-392.69	si
2					9	-1.5854	-317.08	si
2					10	-.1522	-30.45	si
2					11	-.6566	-131.31	si
2					12	.821	164.21	si
2					13	.5607	112.13	si
2					14	1.9527	390.55	si
2					15	-2.9541	-392.5	si
2					16	-1.8813	-376.26	si
2					17	1.7629	352.59	si
2					18	2.2421	391.65	si
2					19	2.7212	392.22	si
2					20	3.2004	392.79	si
2					21	1.6376	327.52	si
2					22	2.1093	391.49	si
2					23	2.5809	392.05	si
2					24	3.0525	392.61	si
2					25	1.4909	298.18	si
2					26	1.9549	390.98	si
2					27	2.4189	391.86	si
2					28	2.883	392.41	si
2					29	1.7867	357.34	si
2					30	2.2422	391.65	si
3	1- 1	6.3768	0.	si	1	5.1257	395.09	si
3	1- 2	5.2479	0.	si	2	5.5262	395.57	si
3	1- 3	-3.497	-14.11	si	3	5.9267	396.04	si
3	1- 4	.8906	0.	si	4	1.0067	201.34	si
3	1- 5	-3.4138	-14.11	si	5	2.3712	391.8	si
3	1- 6	-2.0026	-14.11	si	6	-2.601	-392.07	si
3	1- 7	3.5843	0.	si	7	-1.1842	-236.83	si
3	1- 8	-.8032	-9.06	si	8	-3.1122	-392.68	si
3					9	-1.585	-317.01	si
3					10	-.1523	-30.47	si
3					11	-.6564	-131.28	si
3					12	.8208	164.15	si
3					13	.5606	112.12	si
3					14	1.9522	390.44	si
3					15	-2.953	-392.49	si
3					16	-1.8805	-376.1	si
3					17	1.7626	352.52	si
3					18	2.2416	391.64	si
3					19	2.7206	392.22	si
3					20	3.1996	392.79	si
3					21	1.6373	327.46	si
3					22	2.1088	391.49	si
3					23	2.5803	392.05	si
3					24	3.0517	392.61	si
3					25	1.4906	298.12	si
3					26	1.9545	390.9	si
3					27	2.4184	391.86	si
3					28	2.8823	392.41	si
3					29	1.7863	357.27	si
3					30	2.2416	391.64	si
4	1- 1	6.4874	0.	si	1	5.36	395.37	si
4	1- 2	5.4896	0.	si	2	5.7139	395.79	si
4	1- 3	-2.8877	-14.11	si	3	6.0679	396.21	si
4	1- 4	.6248	0.	si	4	1.4141	282.83	si
4	1- 5	-3.4987	-14.11	si	5	2.6516	392.13	si
4	1- 6	-2.2514	-14.11	si	6	-2.1224	-391.5	si

4	1- 7	3.1007	0.	si		7	-.7648	-152.96	si
4	1- 8	-.4118	-5.21	si		8	-2.5317	-391.99	si
4						9	-1.3091	-261.82	si
4						10	.0613	12.25	si
4						11	-.5656	-113.13	si
4						12	.8403	168.06	si
4						13	.4086	81.73	si
4						14	1.7461	349.22	si
4						15	-3.0697	-392.63	si
4						16	-2.1219	-391.5	si
4						17	1.3709	274.19	si
4						18	1.8289	365.77	si
4						19	2.2868	391.7	si
4						20	2.7447	392.25	si
4						21	1.2706	254.12	si
4						22	1.7226	344.52	si
4						23	2.1744	391.56	si
4						24	2.6263	392.1	si
4						25	1.1532	230.64	si
4						26	1.599	319.8	si
4						27	2.0448	391.41	si
4						28	2.4907	391.94	si
4						29	1.4704	294.07	si
4						30	1.9066	381.31	si
5	1- 1	6.5019	0.	si		1	5.2691	395.26	si
5	1- 2	5.3955	0.	si		2	5.6616	395.73	si
5	1- 3	-3.3736	-14.11	si		3	6.0541	396.2	si
5	1- 4	.8149	0.	si		4	1.1387	227.74	si
5	1- 5	-3.5000	-14.11	si		5	2.4857	391.94	si
5	1- 6	-2.1184	-14.11	si		6	-2.5036	-391.96	si
5	1- 7	3.4841	0.	si		7	-1.0828	-216.56	si
5	1- 8	-.7044	-8.19	si		8	-2.9917	-392.54	si
5						9	-1.5338	-306.76	si
5						10	-.0977	-19.55	si
5						11	-.6472	-129.45	si
5						12	.8312	166.24	si
5						13	.5145	102.9	si
5						14	1.9113	382.27	si
5						15	-3.0432	-392.6	si
5						16	-1.9921	-391.35	si
5						17	1.662	332.4	si
5						18	2.142	391.53	si
5						19	2.6221	392.1	si
5						20	3.1021	392.67	si
5						21	1.5424	308.47	si
5						22	2.0153	391.37	si
5						23	2.4881	391.94	si
5						24	2.961	392.5	si
5						25	1.4024	280.47	si
5						26	1.868	373.59	si
5						27	2.3336	391.75	si
5						28	2.7992	392.31	si
5						29	1.7093	341.85	si
5						30	2.1658	391.55	si
6	1- 1	.8618	0.	si		1	.674	134.81	si
6	1- 2	.6891	0.	si		2	.7353	147.06	si
6	1- 3	-.5396	-6.59	si		3	.7965	159.31	si
6	1- 4	.1927	0.	si		4	.0953	19.06	si
6	1- 5	-.412	-5.22	si		5	.2987	59.75	si
6	1- 6	-.1962	-2.63	si		6	-.3981	-79.62	si
6	1- 7	.5888	0.	si		7	-.1991	-39.82	si
6	1- 8	-.1436	-1.95	si		8	-.4834	-96.69	si
6						9	-.2285	-45.7	si
6						10	-.0269	-5.37	si
6						11	-.0735	-14.7	si
6						12	.1356	27.11	si
6						13	.1296	25.92	si
6						14	.3244	64.88	si
6						15	-.3452	-69.04	si
6						16	-.1812	-36.23	si
6						17	.3302	66.05	si
6						18	.3977	79.54	si
6						19	.4652	93.03	si
6						20	.5326	106.52	si
6						21	.3093	61.87	si
6						22	.3755	75.11	si
6						23	.4417	88.35	si
6						24	.5079	101.59	si
6						25	.2848	56.97	si
6						26	.3498	69.96	si
6						27	.4147	82.94	si
6						28	.4797	95.93	si
6						29	.3207	64.14	si
6						30	.3847	76.94	si

Fibre (FRCM in PBO)

sol	fib	ver	D impr.	D cls	D fibra	S fibra	Ve
1	1	1	0.	.01165	.01165	4.56	si
1	1	2	0.	.00972	.00972	3.81	si
1	2	1	0.	.00972	.00972	3.81	si
1	2	2	0.	-.00638	-.00638	-2.5	si
1	3	1	0.	-.00638	-.00638	-2.5	si
1	3	2	0.	.00048	.00048	.19	si
1	4	1	0.	.00048	.00048	.19	si
1	4	2	0.	-.00745	-.00745	-2.92	si
1	5	1	0.	-.00745	-.00745	-2.92	si
1	5	2	0.	-.00503	-.00503	-1.97	si
1	6	1	0.	-.00503	-.00503	-1.97	si

1	6	2	0.	.00525	.00525	2.06	si
1	7	1	0.	.00525	.00525	2.06	si
1	7	2	0.	-.00161	-.00161	-.63	si
1	8	1	0.	-.00161	-.00161	-.63	si
1	8	2	0.	.01165	.01165	4.56	si
2	1	1	0.	.26166	.26166	102.45	si
2	1	2	0.	.17681	.17681	69.22	si
2	2	1	0.	.17681	.17681	69.22	si
2	2	2	0.	-.31005	-.31005	-121.39	si
2	3	1	0.	-.31005	-.31005	-121.39	si
2	3	2	0.	.11574	.11574	45.32	si
2	4	1	0.	.11574	.11574	45.32	si
2	4	2	0.	-.1239	-.1239	-48.51	si
2	5	1	0.	-.1239	-.1239	-48.51	si
2	5	2	0.	-.01783	-.01783	-6.98	si
2	6	1	0.	-.01783	-.01783	-6.98	si
2	6	2	0.	.29322	.29322	114.8	si
2	7	1	0.	.29322	.29322	114.8	si
2	7	2	0.	-.13257	-.13257	-51.9	si
2	8	1	0.	-.13257	-.13257	-51.9	si
2	8	2	0.	.26166	.26166	102.45	si
3	1	1	0.	.26166	.26166	102.44	si
3	1	2	0.	.1768	.1768	69.22	si
3	2	1	0.	.1768	.1768	69.22	si
3	2	2	0.	-.31005	-.31005	-121.39	si
3	3	1	0.	-.31005	-.31005	-121.39	si
3	3	2	0.	.11575	.11575	45.32	si
3	4	1	0.	.11575	.11575	45.32	si
3	4	2	0.	-.12389	-.12389	-48.51	si
3	5	1	0.	-.12389	-.12389	-48.51	si
3	5	2	0.	-.01782	-.01782	-6.98	si
3	6	1	0.	-.01782	-.01782	-6.98	si
3	6	2	0.	.29322	.29322	114.8	si
3	7	1	0.	.29322	.29322	114.8	si
3	7	2	0.	-.13257	-.13257	-51.9	si
3	8	1	0.	-.13257	-.13257	-51.9	si
3	8	2	0.	.26166	.26166	102.44	si
4	1	1	0.	.29327	.29327	114.82	si
4	1	2	0.	.20723	.20723	81.13	si
4	2	1	0.	.20723	.20723	81.13	si
4	2	2	0.	-.31004	-.31004	-121.39	si
4	3	1	0.	-.31004	-.31004	-121.39	si
4	3	2	0.	.10844	.10844	42.46	si
4	4	1	0.	.10844	.10844	42.46	si
4	4	2	0.	-.14617	-.14617	-57.23	si
4	5	1	0.	-.14617	-.14617	-57.23	si
4	5	2	0.	-.03861	-.03861	-15.12	si
4	6	1	0.	-.03861	-.03861	-15.12	si
4	6	2	0.	.29187	.29187	114.27	si
4	7	1	0.	.29187	.29187	114.27	si
4	7	2	0.	-.12662	-.12662	-49.57	si
4	8	1	0.	-.12662	-.12662	-49.57	si
4	8	2	0.	.29327	.29327	114.82	si
5	1	1	0.	.2697	.2697	105.59	si
5	1	2	0.	.18463	.18463	72.29	si
5	2	1	0.	.18463	.18463	72.29	si
5	2	2	0.	-.31004	-.31004	-121.39	si
5	3	1	0.	-.31004	-.31004	-121.39	si
5	3	2	0.	.11309	.11309	44.28	si
5	4	1	0.	.11309	.11309	44.28	si
5	4	2	0.	-.1304	-.1304	-51.05	si
5	5	1	0.	-.1304	-.1304	-51.05	si
5	5	2	0.	-.02406	-.02406	-9.42	si
5	6	1	0.	-.02406	-.02406	-9.42	si
5	6	2	0.	.29198	.29198	114.32	si
5	7	1	0.	.29198	.29198	114.32	si
5	7	2	0.	-.13116	-.13116	-51.35	si
5	8	1	0.	-.13116	-.13116	-51.35	si
5	8	2	0.	.2697	.2697	105.59	si
6	1	1	0.	.07364	.07364	28.83	si
6	1	2	0.	.05047	.05047	19.76	si
6	2	1	0.	.05047	.05047	19.76	si
6	2	2	0.	-.08393	-.08393	-32.86	si
6	3	1	0.	-.08393	-.08393	-32.86	si
6	3	2	0.	.03147	.03147	12.32	si
6	4	1	0.	.03147	.03147	12.32	si
6	4	2	0.	-.03469	-.03469	-13.58	si
6	5	1	0.	-.03469	-.03469	-13.58	si
6	5	2	0.	-.00573	-.00573	-2.24	si
6	6	1	0.	-.00573	-.00573	-2.24	si
6	6	2	0.	.08014	.08014	31.38	si
6	7	1	0.	.08014	.08014	31.38	si
6	7	2	0.	-.03526	-.03526	-13.81	si
6	8	1	0.	-.03526	-.03526	-13.81	si
6	8	2	0.	.07364	.07364	28.83	si

VERIFICA SEZIONI TRAVI SUD

PARAMETRI GENERALI

```
Tipo verifica            : stati limite - pressoflessione deviata.
Unità di misura generiche: kN; cm; kNm; N/mm2; d in mm; deformazioni*1000.
                ferri    : diametri in mm; aree in cm2.
Simboli                  : Vert.  = contorno_vertice del CLS;        d = diametro;
                           S      = Sigma (tensioni sui materiali);
                           D      = Deformazioni x 1000 (epsilon);
                           Ve     = colonna che indica se la verifica e' soddisfatta;
```

CARATTERISTICHE MATERIALI

```
Calcestruzzo:   Rck =     30.    ; fck =  24.9   ; fcd =  14.11  (.35%)
Acciaio     :   Tipo= B450C      ; ftk =   540.   ; fyk = 450.    ; ftd = 469.565 (6.75%)
Fibre       :   Tipo= FRCM in PBO; Samm=  1036.3 ; n=12.45       ; (valutate alle TA)
```

CARATTERISTICHE SEZIONE

L'asse Z e' rivolto verso destra, l'asse Y e' rivolto verso l'alto.
Tipo sezione: a Z destra

Cls:

vert.	Z	Y
1- 1	0.	0.
1- 2	0.	25.
1- 3	44.3	25.
1- 4	95.	190.
1- 5	185.	190.
1- 6	185.	170.
1- 7	108.2	165.
1- 8	57.5	0.

Acciaio lento:

ferro	Z	Y	d[mm]	Af[cm2]
1	182.	187.	20.	3.1416
2	182.	179.9	20.	3.1416
3	182.	172.8	20.	3.1416
4	139.6	187.	8.	.5027
5	144.	170.3	8.	.5027
6	91.7	168.9	8.	.5027
7	105.9	167.9	8.	.5027
8	95.7	134.5	8.	.5027
9	81.2	134.9	8.	.5027
10	85.6	101.8	8.	.5027
11	70.8	101.	8.	.5027
12	72.3	58.3	8.	.5027
13	57.4	57.5	8.	.5027
14	97.2	187.	20.	3.1416
15	3.	22.	16.	2.0106
16	3.	3.	16.	2.0106
17	39.5	3.	26.	5.3093
18	44.8	3.	26.	5.3093
19	50.	3.	26.	5.3093
20	55.3	3.	26.	5.3093
21	39.4	9.1	26.	5.3093
22	45.3	9.	26.	5.3093
23	51.2	9.	26.	5.3093
24	57.1	8.9	26.	5.3093
25	41.1	14.4	26.	5.3093
26	47.1	14.8	26.	5.3093
27	53.1	15.2	26.	5.3093
28	59.2	15.6	26.	5.3093
29	50.	22.	26.	5.3093
30	55.	22.	26.	5.3093

Fibre (fase di applicazione 1 dopo carichi permanenti):

Fib.	fas	Z1	Y1	Z2	Y2	spe[mm]	A [cm2]
1	1	0.	0.	0.	0.	10.	25.
2	1	0.	25.	0.	25.	10.	44.3
3	1	44.3	25.	44.3	25.	10.	172.614
4	1	95.	190.	95.	190.	10.	90.
5	1	185.	190.	185.	190.	10.	20.
6	1	185.	170.	185.	170.	10.	76.9626
7	1	108.2	165.	108.2	165.	10.	172.614
8	1	57.5	0.	57.5	0.	10.	57.5

CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU	SLU (statico)	1
2	SLU VENTOY	SLU (statico)	2
6	SLU con SISMAX PRINC	SLU (sismico)	32
7	SLU con SISMAY PRINC	SLU (sismico)	32
8	SLU con SISMAZ PRINC	SLU (sismico)	32
13	SLU Solo Perm.	SLU (statico)	1
16	Rara	RARA	1
17	Rara VentoY	RARA	2
18	Frequente	FREQUENTE	1
19	Frequente VentoY	FREQUENTE	2
20	Quasi Perm	QUASI PERMAN.	1

Sforzi normali applicati in z= 85.2 ; y= 103.06 (baricentro CLS)
Convenzioni: N + trazione; Mz + fib.inferiori tese; My + fib.sinistra tese.

Descrizione : Trave Tipo SUD

SOLLECITAZIONI AGENTI

N.	N	Mz	My	Descrizione	Sol: ultima/agente =fs (>=1 OK)
1	-6.1	-5.4382	-69.7081	Caso 2.2-A4174- P3	
2	-55.27	2588.9311	101.4335	Caso 2.2-A4166- P1	Mz+:2588.9311/3819.0782= .6779
3	4.83	3819.078	2577.776	Caso 2.1-A4165- P3	My+:2577.776/-101.63=-25.36
4	-55.14	3819.0214	2578.3703	Caso 2.2-A4165- P3	My+:2578.3703/101.6268=25.371
5	-55.36	2497.1488	60.4572	Caso 2.2-A4164- P1	Mz+:2497.1488/3170.0868= .7877
6	6.92	665.9932	3.3701	Caso 8.29-A4160- P1	

RISULTATI

Piani di equilibrio (eps= muz * y +muy * z + lam):

Sol.	muz	muy	lambda
1.	-.00000144936	.00000315569	-.0000908356
2.	-.00005771627	.0001003316	-.00205719586
3.	.00000736087	-.00004473163	.00352536277
4.	.00000705526	-.00004426073	.0034879496
5.	-.00005620693	.00009897883	-.0020913521
6.	-.00000930431	.00001489484	-.00021962837

DEFORMAZIONI SUI MATERIALI

Cls — Acciaio lento

sol	vert.	D cls	S cls	Ve	ferro	D ferri	S ferri	Ve
1	1- 1	-.0908	-1.25	si	1	.2125	42.49	si
1	1- 2	-.1271	-1.74	si	2	.2228	44.55	si
1	1- 3	.0127	0.	si	3	.233	46.61	si
1	1- 4	-.0664	-.92	si	4	.0787	15.74	si
1	1- 5	.2176	0.	si	5	.1166	23.32	si
1	1- 6	.2466	0.	si	6	-.0464	-9.28	si
1	1- 7	.0115	0.	si	7	.0002	.04	si
1	1- 8	.0906	0.	si	8	.0162	3.24	si
1					9	-.0301	-6.02	si
1					10	.0319	6.38	si
1					11	-.0138	-2.77	si
1					12	.0527	10.55	si
1					13	.007	1.41	si
1					14	-.0551	-11.02	si
1					15	-.1133	-22.65	si
1					16	-.0857	-17.14	si
1					17	.0295	5.89	si
1					18	.0461	9.21	si
1					19	.0627	12.53	si
1					20	.0793	15.85	si
1					21	.0203	4.07	si
1					22	.039	7.81	si
1					23	.0578	11.55	si
1					24	.0765	15.29	si
1					25	.0178	3.56	si
1					26	.0363	7.26	si
1					27	.0548	10.95	si
1					28	.0732	14.65	si
1					29	.0352	7.04	si
1					30	.0507	10.14	si
2	1- 1	-2.0572	-14.11	si	1	5.4102	395.43	si
2	1- 2	-3.5000	-14.11	si	2	5.8197	395.92	si
2	1- 3	.9446	0.	si	3	6.2291	396.41	si
2	1- 4	-3.4918	-14.11	si	4	1.157	231.39	si
2	1- 5	5.5381	0.	si	5	2.5564	392.02	si
2	1- 6	6.6924	0.	si	6	-2.6105	-392.09	si
2	1- 7	-.7245	-8.37	si	7	-1.1163	-223.25	si
2	1- 8	3.7119	0.	si	8	-.2197	-43.94	si
2					9	-1.6954	-339.07	si
2					10	.6597	131.95	si
2					11	-.7845	-156.91	si
2					12	1.8286	365.72	si
2					13	.3852	77.04	si
2					14	-3.0962	-392.67	si
2					15	-3.026	-392.58	si
2					16	-1.9293	-385.87	si
2					17	1.7325	346.49	si
2					18	2.2604	391.67	si
2					19	2.7883	392.3	si
2					20	3.3163	392.93	si
2					21	1.3709	274.19	si
2					22	1.9669	391.32	si
2					23	2.5627	392.03	si
2					24	3.1586	392.74	si
2					25	1.2288	245.77	si
2					26	1.8117	362.34	si
2					27	2.3946	391.83	si
2					28	2.9776	392.52	si
2					29	1.6938	338.77	si
2					30	2.1875	391.58	si
3	1- 1	3.5254	0.	si	1	-3.2393	-392.84	si
3	1- 2	3.7094	0.	si	2	-3.2915	-392.9	si
3	1- 3	1.7278	0.	si	3	-3.3438	-392.96	si
3	1- 4	.6744	0.	si	4	-1.343	-268.61	si
3	1- 5	-3.3514	-14.11	si	5	-1.6608	-332.17	si
3	1- 6	-3.4986	-14.11	si	6	.6685	133.71	si
3	1- 7	-.1001	-1.38	si	7	.0221	4.42	si
3	1- 8	.9533	0.	si	8	.235	47.	si
3					9	.8858	177.17	si
3					10	.4437	88.75	si
3					11	1.1021	220.41	si
3					12	.7213	144.25	si
3					13	1.3798	275.97	si
3					14	.5532	110.63	si
3					15	3.5531	393.21	si
3					16	3.4133	393.04	si
3					17	1.7807	356.14	si
3					18	1.5453	309.06	si
3					19	1.3099	261.98	si
3					20	1.0745	214.91	si
3					21	1.829	365.8	si
3					22	1.565	313.01	si
3					23	1.3011	260.22	si
3					24	1.0371	207.42	si
3					25	1.7952	359.05	si
3					26	1.5282	305.64	si
3					27	1.2612	252.23	si
3					28	.9941	198.82	si
3					29	1.4488	289.77	si
3					30	1.2288	245.75	si
4	1- 1	3.4879	0.	si	1	-3.2482	-392.85	si
4	1- 2	3.6643	0.	si	2	-3.2982	-392.91	si
4	1- 3	1.7036	0.	si	3	-3.3483	-392.97	si
4	1- 4	.6237	0.	si	4	-1.3719	-274.37	si
4	1- 5	-3.3598	-14.11	si	5	-1.6825	-336.5	si
4	1- 6	-3.5000	-14.11	si	6	.6227	124.53	si

4	1- 7	-.1369	-1.87	si		7	-.0167	-3.35	si
4	1- 8	.943	0.	si		8	.2015	40.31	si
4						9	.8454	169.09	si
4						10	.4156	83.11	si
4						11	1.0671	213.42	si
4						12	.7001	140.01	si
4						13	1.3519	270.38	si
4						14	.5044	100.88	si
4						15	3.5104	393.16	si
4						16	3.3763	393.	si
4						17	1.7609	352.19	si
4						18	1.528	305.61	si
4						19	1.2951	259.03	si
4						20	1.0622	212.45	si
4						21	1.8074	361.48	si
4						22	1.5462	309.24	si
4						23	1.285	257.01	si
4						24	1.0239	204.77	si
4						25	1.7728	354.55	si
4						26	1.5084	301.69	si
4						27	1.2441	248.82	si
4						28	.9798	195.95	si
4						29	1.4283	285.65	si
4						30	1.2105	242.1	si
5	1- 1	-2.0914	-14.11	si		1	5.4121	395.43	si
5	1- 2	-3.4965	-14.11	si		2	5.8108	395.91	si
5	1- 3	.8882	0.	si		3	6.2096	396.38	si
5	1- 4	-3.3677	-14.11	si		4	1.2162	243.24	si
5	1- 5	5.5404	0.	si		5	2.5846	392.05	si
5	1- 6	6.6646	0.	si		6	-2.5137	-391.97	si
5	1- 7	-.656	-7.74	si		7	-1.0404	-208.07	si
5	1- 8	3.5999	0.	si		8	-.1803	-36.06	si
5						9	-1.6358	-327.15	si
5						10	.6634	132.68	si
5						11	-.762	-152.4	si
5						12	1.7847	356.94	si
5						13	.3602	72.03	si
5						14	-2.9796	-392.53	si
5						15	-3.031	-392.59	si
5						16	-1.963	-391.31	si
5						17	1.6494	329.88	si
5						18	2.1702	391.56	si
5						19	2.691	392.18	si
5						20	3.2119	392.8	si
5						21	1.2972	259.45	si
5						22	1.8851	377.01	si
5						23	2.4728	391.92	si
5						24	3.0606	392.62	si
5						25	1.1609	232.18	si
5						26	1.7362	347.25	si
5						27	2.3116	391.73	si
5						28	2.887	392.42	si
5						29	1.6252	325.04	si
5						30	2.1122	391.49	si
6	1- 1	-.2196	-2.93	si		1	.7513	150.27	si
6	1- 2	-.4522	-5.66	si		2	.8173	163.47	si
6	1- 3	.2076	0.	si		3	.8833	176.67	si
6	1- 4	-.5724	-6.92	si		4	.1199	23.98	si
6	1- 5	.7681	0.	si		5	.3399	67.99	si
6	1- 6	.9542	0.	si		6	-.4261	-85.22	si
6	1- 7	-.1432	-1.95	si		7	-.2035	-40.7	si
6	1- 8	.6368	0.	si		8	-.0458	-9.17	si
6						9	-.2652	-53.04	si
6						10	.1088	21.76	si
6						11	-.105	-21.01	si
6						12	.3143	62.86	si
6						13	.1006	20.13	si
6						14	-.5115	-102.3	si
6						15	-.3796	-75.93	si
6						16	-.2029	-40.57	si
6						17	.3408	68.15	si
6						18	.4191	83.83	si
6						19	.4975	99.5	si
6						20	.5759	115.18	si
6						21	.2826	56.51	si
6						22	.3711	74.22	si
6						23	.4596	91.93	si
6						24	.5482	109.63	si
6						25	.2576	51.52	si
6						26	.3438	68.77	si
6						27	.4301	86.02	si
6						28	.5163	103.27	si
6						29	.321	64.21	si
6						30	.3943	78.87	si

Fibre (FRCM in PBO)

sol	fib	ver	D impr.	D cls	D fibra	S fibra	Ve
1	1	1	0.	-.0078	-.0078	-3.06	si
1	1	2	0.	-.01172	-.01172	-4.59	si
1	2	1	0.	-.01172	-.01172	-4.59	si
1	2	2	0.	.00095	.00095	.37	si
1	3	1	0.	.00095	.00095	.37	si
1	3	2	0.	-.01037	-.01037	-4.06	si
1	4	1	0.	-.01037	-.01037	-4.06	si
1	4	2	0.	.01538	.01538	6.02	si
1	5	1	0.	.01538	.01538	6.02	si
1	5	2	0.	.01851	.01851	7.25	si
1	6	1	0.	.01851	.01851	7.25	si

1	6	2	0.	-.00268	-.00268	-1.05	si
1	7	1	0.	-.00268	-.00268	-1.05	si
1	7	2	0.	.00864	.00864	3.38	si
1	8	1	0.	.00864	.00864	3.38	si
1	8	2	0.	-.0078	-.0078	-3.06	si
2	1	1	0.	-.03488	-.03488	-13.65	si
2	1	2	0.	-.2029	-.2029	-79.44	si
2	2	1	0.	-.2029	-.2029	-79.44	si
2	2	2	0.	.18118	.18118	70.94	si
2	3	1	0.	.18118	.18118	70.94	si
2	3	2	0.	-.48817	-.48817	-191.13	si
2	4	1	0.	-.48817	-.48817	-191.13	si
2	4	2	0.	.29212	.29212	114.37	si
2	5	1	0.	.29212	.29212	114.37	si
2	5	2	0.	.42654	.42654	167.	si
2	6	1	0.	.42654	.42654	167.	si
2	6	2	0.	-.20571	-.20571	-80.54	si
2	7	1	0.	-.20571	-.20571	-80.54	si
2	7	2	0.	.46364	.46364	181.52	si
2	8	1	0.	.46364	.46364	181.52	si
2	8	2	0.	-.03488	-.03488	-13.65	si
3	1	1	0.	-.05692	-.05692	-22.28	si
3	1	2	0.	-.2371	-.2371	-92.83	si
3	2	1	0.	-.2371	-.2371	-92.83	si
3	2	2	0.	.18592	.18592	72.79	si
3	3	1	0.	.18592	.18592	72.79	si
3	3	2	0.	-.51914	-.51914	-203.25	si
3	4	1	0.	-.51914	-.51914	-203.25	si
3	4	2	0.	.34026	.34026	133.22	si
3	5	1	0.	.34026	.34026	133.22	si
3	5	2	0.	.4844	.4844	189.65	si
3	6	1	0.	.4844	.4844	189.65	si
3	6	2	0.	-.21292	-.21292	-83.36	si
3	7	1	0.	-.21292	-.21292	-83.36	si
3	7	2	0.	.49215	.49215	192.68	si
3	8	1	0.	.49215	.49215	192.68	si
3	8	2	0.	-.05692	-.05692	-22.28	si
4	1	1	0.	-.03485	-.03485	-13.64	si
4	1	2	0.	-.20285	-.20285	-79.42	si
4	2	1	0.	-.20285	-.20285	-79.42	si
4	2	2	0.	.18118	.18118	70.94	si
4	3	1	0.	.18118	.18118	70.94	si
4	3	2	0.	-.48813	-.48813	-191.11	si
4	4	1	0.	-.48813	-.48813	-191.11	si
4	4	2	0.	.29208	.29208	114.35	si
4	5	1	0.	.29208	.29208	114.35	si
4	5	2	0.	.42648	.42648	166.97	si
4	6	1	0.	.42648	.42648	166.97	si
4	6	2	0.	-.2057	-.2057	-80.53	si
4	7	1	0.	-.2057	-.2057	-80.53	si
4	7	2	0.	.46362	.46362	181.51	si
4	8	1	0.	.46362	.46362	181.51	si
4	8	2	0.	-.03485	-.03485	-13.64	si
5	1	1	0.	-.03192	-.03192	-12.5	si
5	1	2	0.	-.1728	-.1728	-67.65	si
5	2	1	0.	-.1728	-.1728	-67.65	si
5	2	2	0.	.15052	.15052	58.93	si
5	3	1	0.	.15052	.15052	58.93	si
5	3	2	0.	-.40921	-.40921	-160.21	si
5	4	1	0.	-.40921	-.40921	-160.21	si
5	4	2	0.	.24765	.24765	96.96	si
5	5	1	0.	.24765	.24765	96.96	si
5	5	2	0.	.36034	.36034	141.08	si
5	6	1	0.	.36034	.36034	141.08	si
5	6	2	0.	-.172	-.172	-67.34	si
5	7	1	0.	-.172	-.172	-67.34	si
5	7	2	0.	.38774	.38774	151.81	si
5	8	1	0.	.38774	.38774	151.81	si
5	8	2	0.	-.03192	-.03192	-12.5	si
6	1	1	0.	-.00735	-.00735	-2.88	si
6	1	2	0.	-.03752	-.03752	-14.69	si
6	2	1	0.	-.03752	-.03752	-14.69	si
6	2	2	0.	.03224	.03224	12.62	si
6	3	1	0.	.03224	.03224	12.62	si
6	3	2	0.	-.08704	-.08704	-34.08	si
6	4	1	0.	-.08704	-.08704	-34.08	si
6	4	2	0.	.05468	.05468	21.41	si
6	5	1	0.	.05468	.05468	21.41	si
6	5	2	0.	.07881	.07881	30.86	si
6	6	1	0.	.07881	.07881	30.86	si
6	6	2	0.	-.03608	-.03608	-14.13	si
6	7	1	0.	-.03608	-.03608	-14.13	si
6	7	2	0.	.08319	.08319	32.57	si
6	8	1	0.	.08319	.08319	32.57	si
6	8	2	0.	-.00735	-.00735	-2.88	si

DIAGRAMMI SFORZI-DEFORMAZIONI DELLE SEZIONI:

N.B. Per ogni sella o trave è rappresentata la sezione soggetta al sestetto del caso di carico che induce la massima combinazione sforzi-deformazioni.

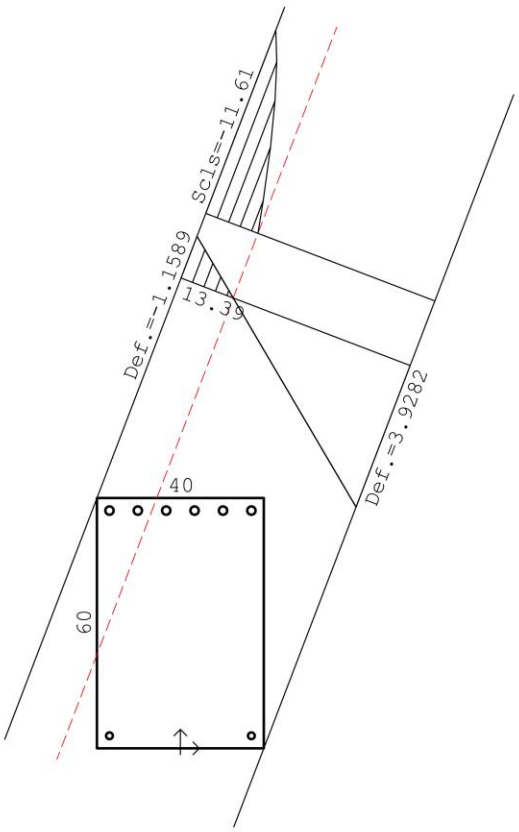
Ripristino Ponte-Tubo
VERIFICA SELLA DI TESTA

DESCRIZIONI
Tipo sezione : RETTANGOLARE
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 0. ; y= 30. (baricentro CLS)
Nd = 195.26
Mdz= -.0763
Mdy= -69.1916

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)
UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz=-3.08926800175044E-05
muy= 8.0838419815731E-05
lam= 2.3114518985812E-03



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	-20.	60.	-1.15888	-11.61	si
2	20.	60.	2.07466	0.	si
3	20.	0.	3.92822	0.	si
4	-20.	0.	.69468	0.	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	17.	57.	20	3.14	1.92482	384.96	si
2	10.2	57.	20	3.14	1.37512	275.02	si
3	3.4	57.	20	3.14	.82542	165.08	si
4	-3.4	57.	20	3.14	.27572	55.14	si
5	-10.2	57.	20	3.14	-.27398	-54.8	si
6	-17.	57.	20	3.14	-.82368	-164.74	si
7	17.	3.	16	2.01	3.59303	393.26	si
8	-17.	3.	16	2.01	.84452	168.9	si

% ARMAT.: tesa= .69; comp.= .26; tot.= .95

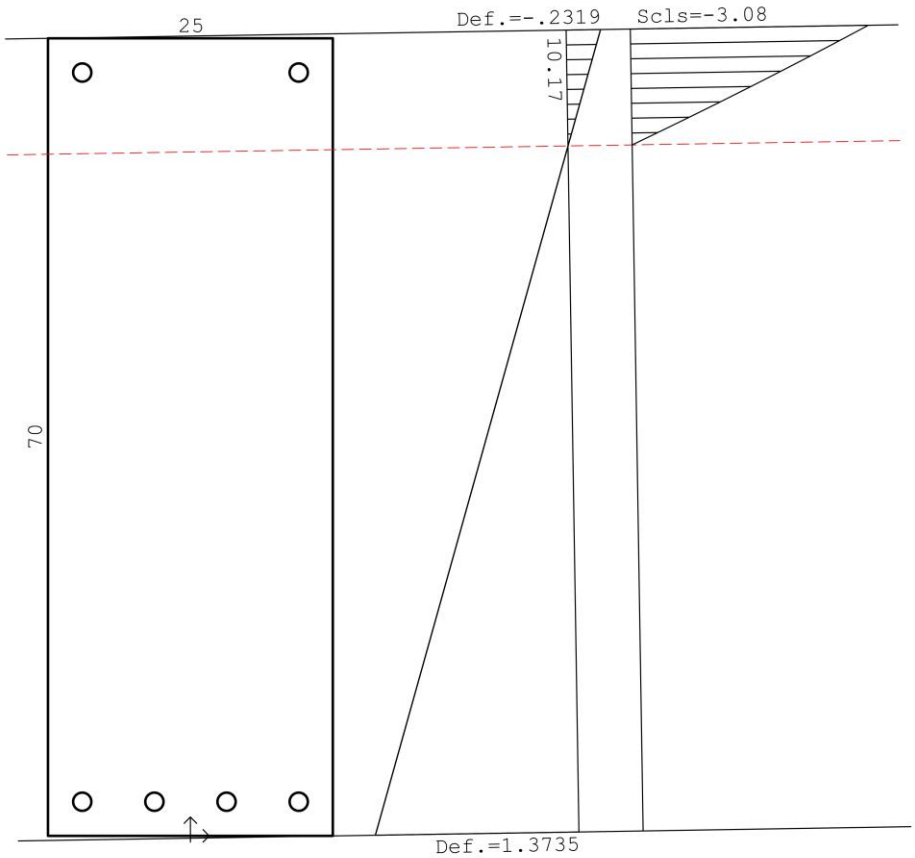
Ripristino Ponte-Tubo
VERIFICA SELLA I INTERMEDIA

DESCRIZIONI
Tipo sezione : RETTANGOLARE
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 0. ; y= 35. (baricentro CLS)
Nd = 157.92
Mdz= 83.207
Mdy= -.1189

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)
UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz=-2.28044261058069E-05
muy= 3.64706897384181E-07
lam= 1.36891946226862E-03



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	-12.5	70.	-.23195	-3.08	si
2	12.5	70.	-.22283	-2.97	si
3	12.5	0.	1.37348	0.	si
4	-12.5	0.	1.36436	0.	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	9.5	67.	16	2.01	-.15551	-31.1	si
2	-9.5	67.	16	2.01	-.16244	-32.49	si
3	9.5	3.	16	2.01	1.30397	260.79	si
4	3.2	3.	16	2.01	1.30166	260.33	si
5	-3.2	3.	16	2.01	1.29935	259.87	si
6	-9.5	3.	16	2.01	1.29704	259.41	si

% ARMAT.: tesa= .46; comp.= .23; tot.= .69

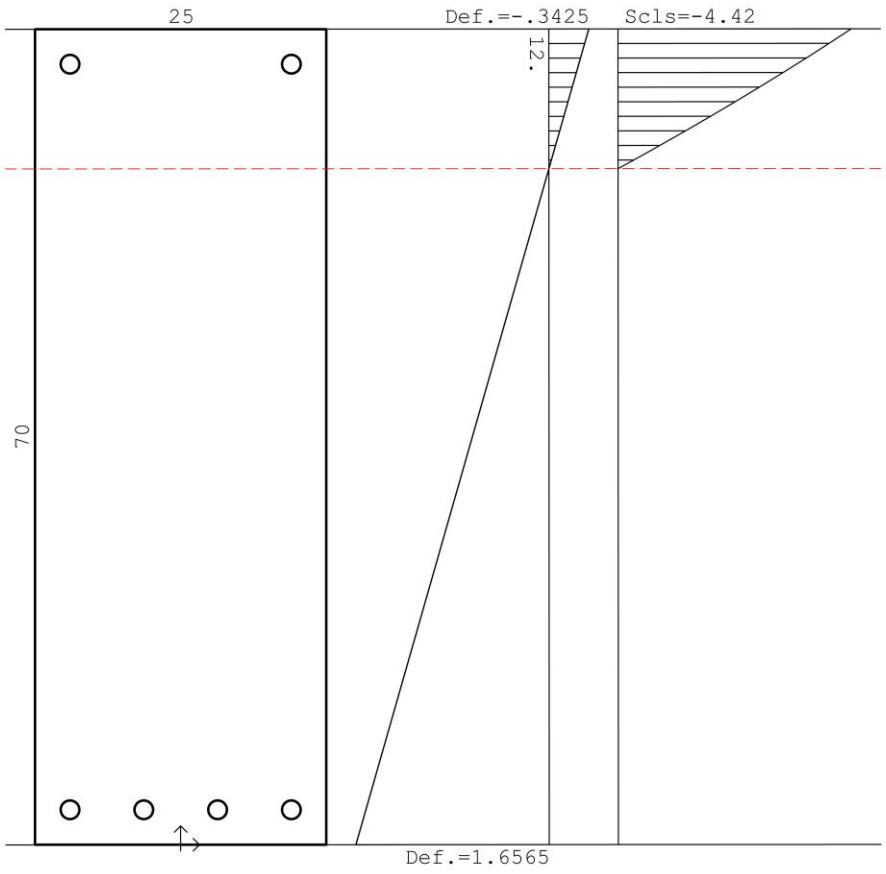
Ripristino Ponte-Tubo
VERIFICA SELLA II INTERMEDIA

DESCRIZIONI
Tipo sezione : RETTANGOLARE
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 0. ; y= 35. (baricentro CLS)
Nd = 163.75
Mdz= 108.5707
Mdy= -.0057

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)
UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz=-2.85520938653072E-05
muy= 1.60722809011064E-08
lam= 1.65633944541267E-03



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	-12.5	70.	-.34251	-4.42	si
2	12.5	70.	-.34211	-4.41	si
3	12.5	0.	1.65654	0.	si
4	-12.5	0.	1.65614	0.	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	9.5	67.	16	2.01	-.2565	-51.3	si
2	-9.5	67.	16	2.01	-.2568	-51.36	si
3	9.5	3.	16	2.01	1.57084	314.17	si
4	3.2	3.	16	2.01	1.57073	314.15	si
5	-3.2	3.	16	2.01	1.57063	314.13	si
6	-9.5	3.	16	2.01	1.57053	314.11	si

% ARMAT.: tesa= .46; comp.= .23; tot.= .69

Ripristino Ponte-Tubo
VERIFICA SELLA III INTERMEDIA

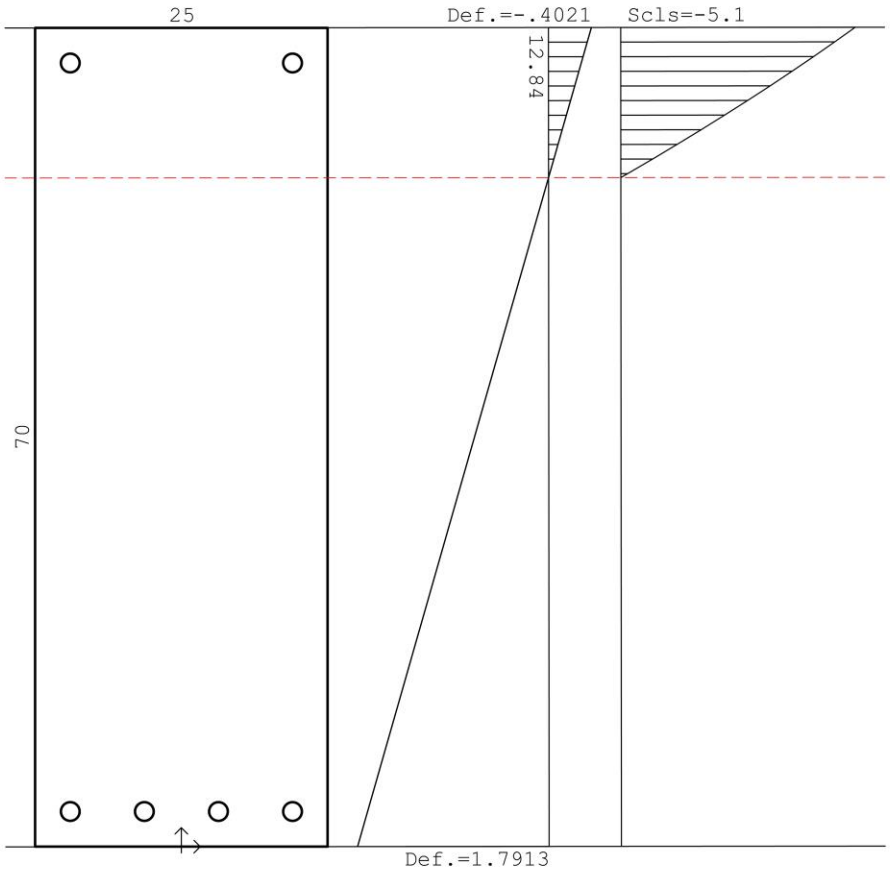
DESCRIZIONI
Tipo sezione : RETTANGOLARE
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 0. ; y= 35. (baricentro CLS)
Nd = 163.41
Mdz= 121.2534
Mdy= -.0097

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz=-3.13238177280708E-05
muy= 2.65607318672841E-08
lam= 1.79092655421453E-03

UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	-12.5	70.	-.40207	-5.1	si
2	12.5	70.	-.40141	-5.1	si
3	12.5	0.	1.79126	0.	si
4	-12.5	0.	1.79059	0.	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	9.5	67.	16	2.01	-.30752	-61.5	si
2	-9.5	67.	16	2.01	-.30802	-61.6	si
3	9.5	3.	16	2.01	1.69721	339.44	si
4	3.2	3.	16	2.01	1.69704	339.41	si
5	-3.2	3.	16	2.01	1.69687	339.37	si
6	-9.5	3.	16	2.01	1.6967	339.34	si

% ARMAT.: tesa= .46; comp.= .23; tot.= .69

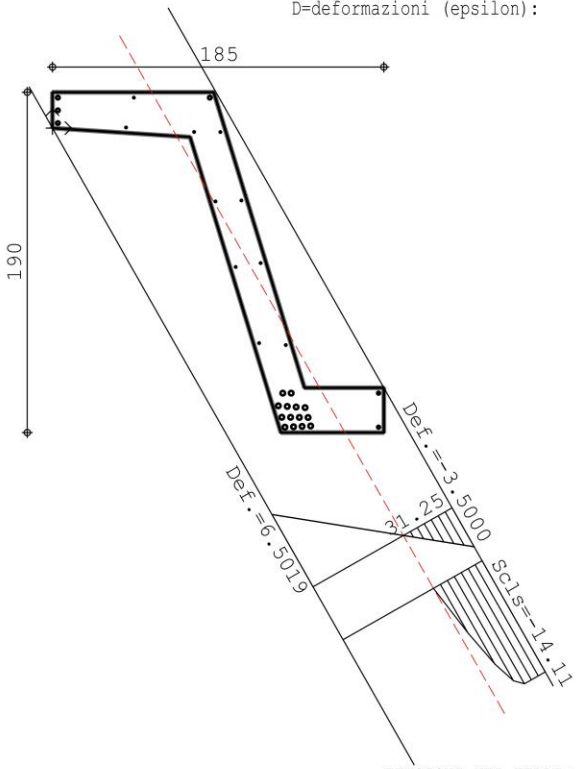
Ripristino Ponte-Tubo
VERIFICA TRAVE NORD

DESCRIZIONI
Tipo sezione : a Z sinistra
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 99.8; y= -66.9 (baricentro CLS)
Nd = -53.3
Mdz= 2585.6437
Mdy= -58.7463
Mzult/Mdz=2585.6437 / 3171.0279 =.8154

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)
Fibre : FRCM in PBO
Samm= 1036.3
n = 12
UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz=-5.53239221641092E-05
muy=-9.74345843165769E-05
lam= 6.50194724484283E-03



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	0.	0.	6.50195	0.	si
2	0.	20.	5.39547	0.	si
3	90.	20.	-3.37364	-14.11	si
4	140.7	-145.	.81487	0.	si
5	185.	-145.	-3.50000	-14.11	si
6	185.	-170.	-2.11838	-14.11	si
7	127.5	-170.	3.4841	0.	si
8	76.8	-5.	-.70441	-8.19	si

FASI DI APPLICAZIONE FIBRE:

fase	
1	dopo carichi permanenti

TENSIONI MASSIME FIBRE (fase 0 -> applic. a sez. indeformata):

fib	fas	Z1	Y1	Z2	Y2	s(mm)	A(cm2)	D cls	D fibra	S fibra	Ve
1	1	0.	0.	0.	20.	10.	20.	.2617	.2617	102.44	si
2	1	0.	20.	90.	20.	10.	90.	.1768	.1768	69.22	si
3	1	90.	20.	140.7	-145.	10.	172.61	.1157	.1157	45.32	si
4	1	140.7	-145.	185.	-145.	10.	44.3	.1157	.1157	45.32	si
5	1	185.	-145.	185.	-170.	10.	25.	-.0178	-.0178	-6.98	si
6	1	185.	-170.	127.5	-170.	10.	57.5	.2932	.2932	114.8	si
7	1	127.5	-170.	76.8	-5.	10.	172.61	.2932	.2932	114.8	si
8	1	76.8	-5.	0.	0.	10.	76.96	.2617	.2617	102.44	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	3.	17.	20	3.14	5.26914	395.26	si
2	3.	9.9	20	3.14	5.6616	395.73	si
3	3.	2.8	20	3.14	6.05413	396.2	si
4	45.4	17.	8	.5	1.13869	227.74	si
5	41.	.3	8	.5	2.48567	391.94	si
6	93.7	-2.2	8	.5	-2.50365	-391.96	si
7	79.1	-2.1	8	.5	-1.08278	-216.56	si
8	87.8	17.	20	3.14	-2.99166	-392.54	si
9	105.4	-40.4	8	.5	-1.53378	-306.76	si
10	91.	-40.9	8	.5	-.09775	-19.55	si
11	116.2	-75.4	8	.5	-.64725	-129.45	si
12	102.2	-77.5	8	.5	.83121	166.24	si
13	130.2	-121.1	8	.5	.51451	102.9	si
14	115.3	-120.1	8	.5	1.91134	382.27	si
15	182.	-148.	16	2.01	-3.04321	-392.6	si
16	182.	-167.	16	2.01	-1.99205	-391.35	si
17	144.1	-166.3	26	5.31	1.66201	332.4	si
18	139.3	-166.6	26	5.31	2.14205	391.53	si
19	134.5	-166.8	26	5.31	2.62208	392.1	si
20	129.7	-167.	26	5.31	3.10212	392.67	si
21	142.7	-161.6	26	5.31	1.54237	308.47	si
22	137.8	-161.6	26	5.31	2.01532	391.37	si
23	132.9	-161.5	26	5.31	2.48812	391.94	si
24	128.	-161.4	26	5.31	2.96098	392.5	si
25	141.	-156.1	26	5.31	1.40235	280.47	si
26	136.	-155.8	26	5.31	1.86796	373.59	si
27	131.	-155.4	26	5.31	2.33357	391.75	si
28	126.	-155.1	26	5.31	2.79918	392.31	si
29	133.2	-148.	26	5.31	1.70926	341.85	si
30	128.5	-148.	26	5.31	2.16584	391.55	si

% ARMAT.: tesa= 1.3; comp.= .15; tot.= 1.45

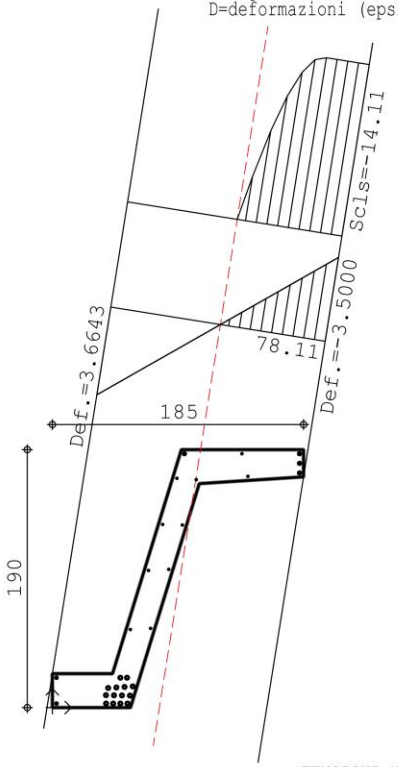
Ripristino Ponte-Tubo
VERIFICA TRAVE SUD

DESCRIZIONI
Tipo sezione : a Z destra
Tipo verifica: stato limite ultimo

SOLLECITAZIONI AGENTI:
Nd in z= 85.2; y= 103.1 (baricentro CLS)
Nd = -55.14
Mdz= 3819.0214
Mdy= 2578.3703
Myult/Mdy=2578.3703 / 101.6268 = 25.3709683529586

CARATTERISTICHE DEI MATERIALI
Calcestruzzo: Rck= 30.
fck= 24.9
fcd= 14.11 (.35%)
Acciaio lento: Tipo= B450C
fyk= 450.
ftk= 540.
ftd= 469.57 (6.75%)
Fibre : FRCM in PBO
Samm= 1036.3
n = 12
UNITA' DI MISURA:
kN; cm; kNm; N/mm2.
Ø in mm; deformazioni*1000.
SIMBOLI:
S=sigma (tensioni sui materiali);
D=deformazioni (epsilon):

PIANO DI EQUILIBRIO:
eps= muz * y +muy * z + lam
muz= 7.05526472495483E-06
muy=-4.42607301227047E-05
lam= 3.48794960344304E-03



TENSIONI NEL CLS:

ver	Z	Y	Dcls	Scls	Ve
1	0.	0.	3.48795	0.	si
2	0.	25.	3.66433	0.	si
3	44.3	25.	1.70358	0.	si
4	95.	190.	.62368	0.	si
5	185.	190.	-3.35979	-14.11	si
6	185.	170.	-3.50000	-14.11	si
7	108.2	165.	-.13694	-1.87	si
8	57.5	0.	.94296	0.	si

FASI DI APPLICAZIONE FIBRE:

fase	
1	dopo carichi permanenti

TENSIONI MASSIME FIBRE (fase 0 -> applic. a sez. indeformata):

fib	fas	Z1	Y1	Z2	Y2	s(mm)	A(cm2)	D cls	D fibra	S fibra	Ve
1	1	0.	0.	0.	25.	10.	25.	-.0569	-.0569	-22.28	si
2	1	0.	25.	44.3	25.	10.	44.3	.1859	.1859	72.79	si
3	1	44.3	25.	95.	190.	10.	172.61	.1859	.1859	72.79	si
4	1	95.	190.	185.	190.	10.	90.	.3403	.3403	133.22	si
5	1	185.	190.	185.	170.	10.	20.	.4844	.4844	189.65	si
6	1	185.	170.	108.2	165.	10.	76.96	.4844	.4844	189.65	si
7	1	108.2	165.	57.5	0.	10.	172.61	.4921	.4921	192.68	si
8	1	57.5	0.	0.	0.	10.	57.5	.4921	.4921	192.68	si

TENSIONI NEI FERRI:

fer	Z	Y	Ø(mm)	Af(cm2)	D ferri	S ferri	Ve
1	182.	187.	20	3.14	-3.24817	-392.85	si
2	182.	179.9	20	3.14	-3.29822	-392.91	si
3	182.	172.8	20	3.14	-3.34828	-392.97	si
4	139.6	187.	8	.5	-1.37187	-274.37	si
5	144.	170.3	8	.5	-1.68251	-336.5	si
6	91.7	168.9	8	.5	.62266	124.53	si
7	105.9	167.9	8	.5	-.01674	-3.35	si
8	95.7	134.5	8	.5	.20153	40.31	si
9	81.2	134.9	8	.5	.84544	169.09	si
10	85.6	101.8	8	.5	.41555	83.11	si
11	70.8	101.	8	.5	1.06712	213.42	si
12	72.3	58.3	8	.5	.70007	140.01	si
13	57.4	57.5	8	.5	1.35188	270.38	si
14	97.2	187.	20	3.14	.50439	100.88	si
15	3.	22.	16	2.01	3.51038	393.16	si
16	3.	3.	16	2.01	3.37633	393.	si
17	39.5	3.	26	5.31	1.76095	352.19	si
18	44.8	3.	26	5.31	1.52805	305.61	si
19	50.	3.	26	5.31	1.29515	259.03	si
20	55.3	3.	26	5.31	1.06225	212.45	si
21	39.4	9.1	26	5.31	1.80738	361.48	si
22	45.3	9.	26	5.31	1.54621	309.24	si
23	51.2	9.	26	5.31	1.28504	257.01	si
24	57.1	8.9	26	5.31	1.02386	204.77	si
25	41.1	14.4	26	5.31	1.77276	354.55	si
26	47.1	14.8	26	5.31	1.50844	301.69	si
27	53.1	15.2	26	5.31	1.24412	248.82	si
28	59.2	15.6	26	5.31	.97976	195.95	si
29	50.	22.	26	5.31	1.42827	285.65	si
30	55.	22.	26	5.31	1.21051	242.1	si

% ARMAT.: tesa= 1.29; comp.= .17; tot.= 1.45