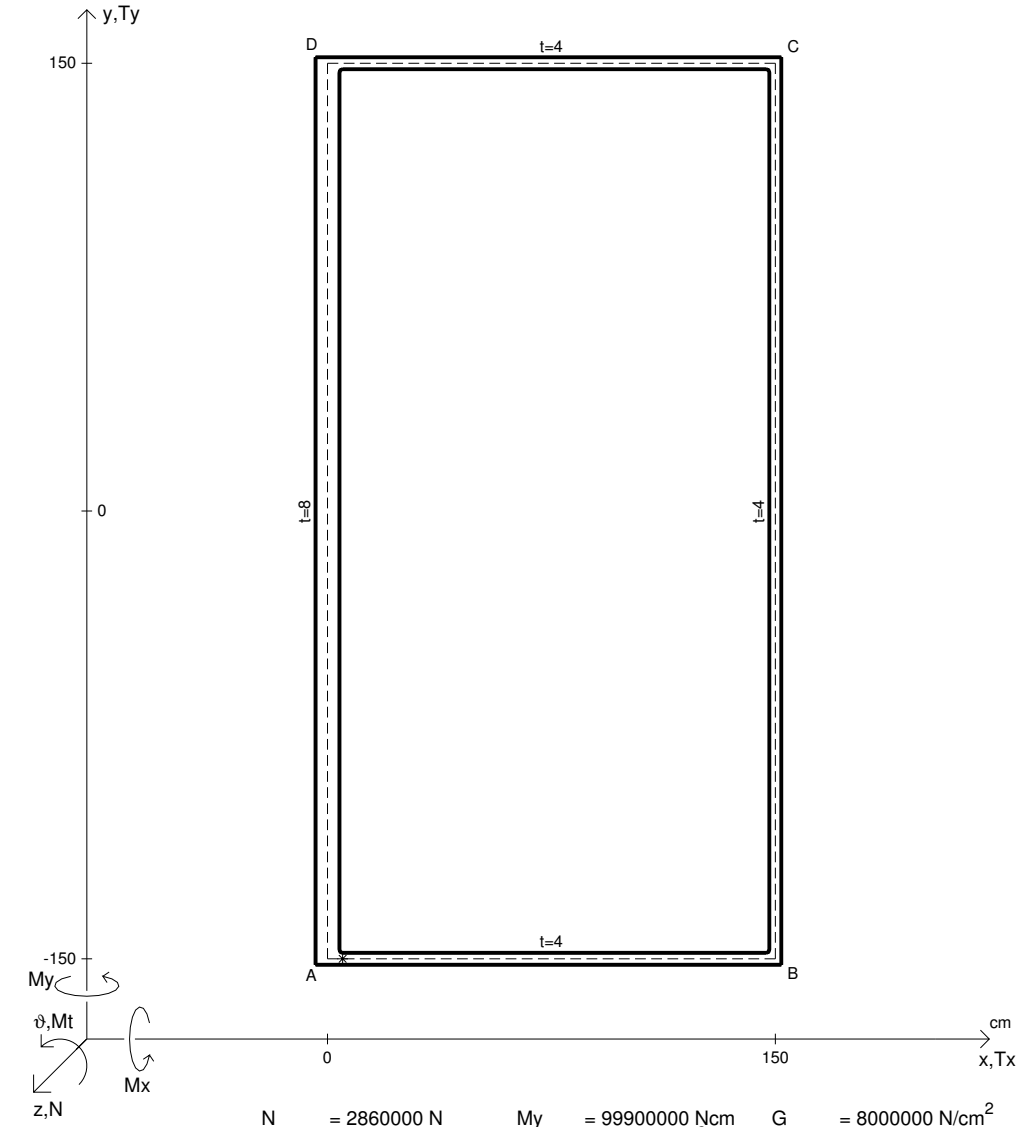
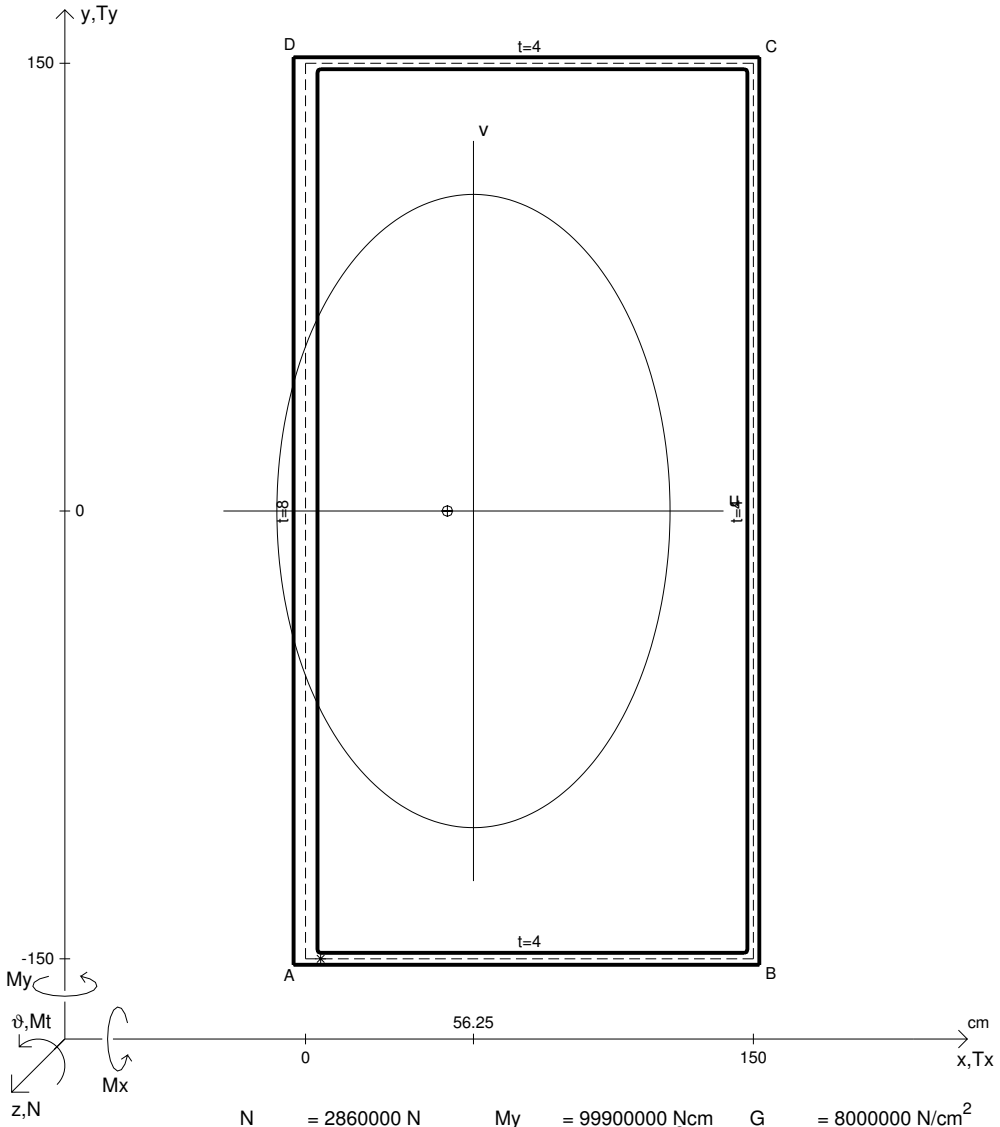


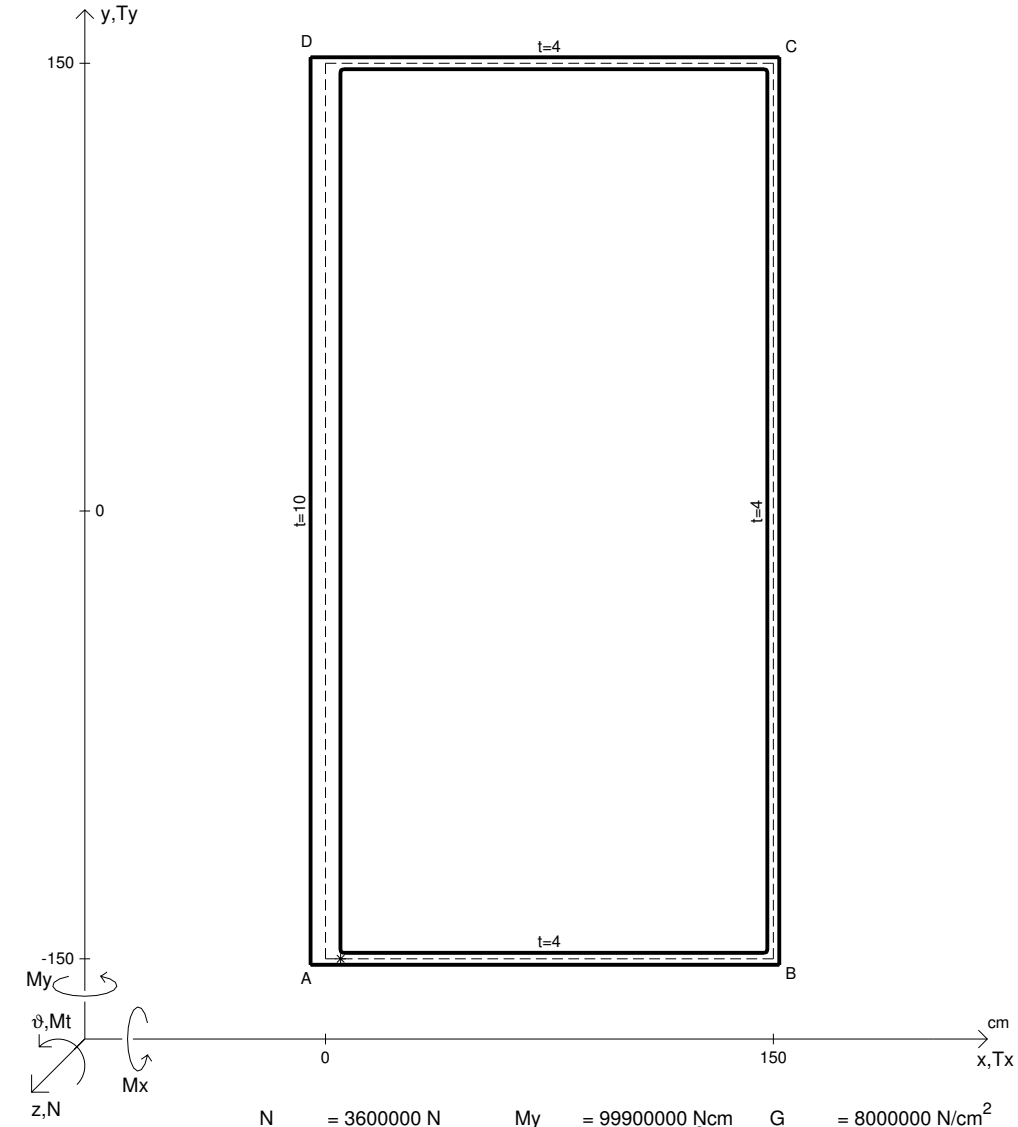
		N	= 2860000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 814000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.001



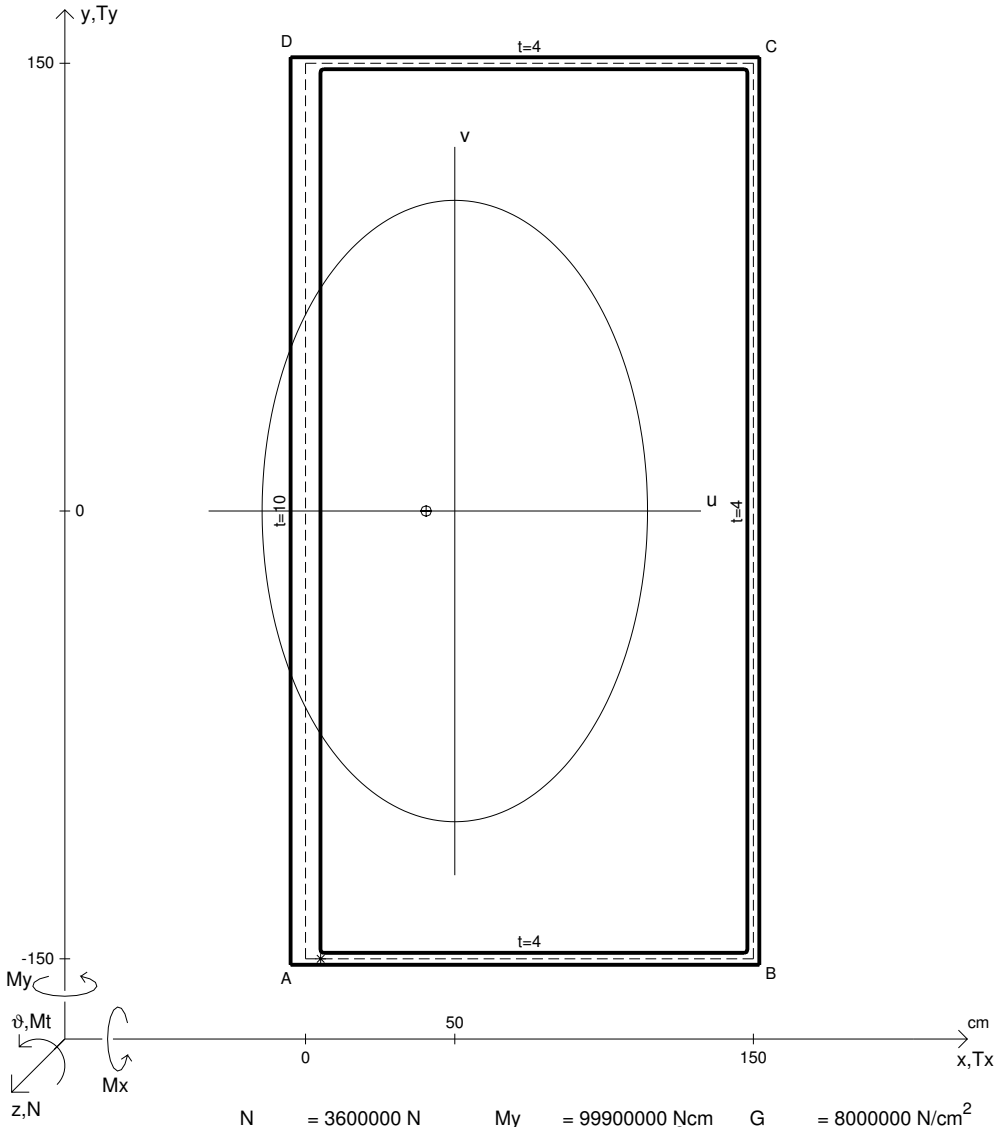
		N	= 2860000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 814000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 56.25 cm	σ(N)	= 595.8 N/cm^2	τ	= 937.5 N/cm^2	r_U	= 106.1 cm
u_O	= -8.75 cm	τ(Mt)	= 277.5 N/cm^2	$σ_I$	= 1466 N/cm^2	r_V	= 65.85 cm
v_O	= 0 cm	σ(My)	= 270 N/cm^2	$σ_{II}$	= -599.7 N/cm^2	r_O	= 125.1 cm
A_N	= 4800 cm^2	τ(Txc)	= 660 N/cm^2	$σ_{MISES}$	= 1840 N/cm^2	A_U	= 868.7 cm^2
Ju	= 54000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 2065 N/cm^2	A_V	= 3200 cm^2
Jv	= 20812500 cm^4	τ(Tx)	= 660 N/cm^2	$σ_{ID}$	= 1615 N/cm^2		
Jt	= 43200000 cm^4	σ	= 865.8 N/cm^2	ϑt	= .00002891 /m		

@ Adolfo Zavelani Rossi, Politecnico di Milano

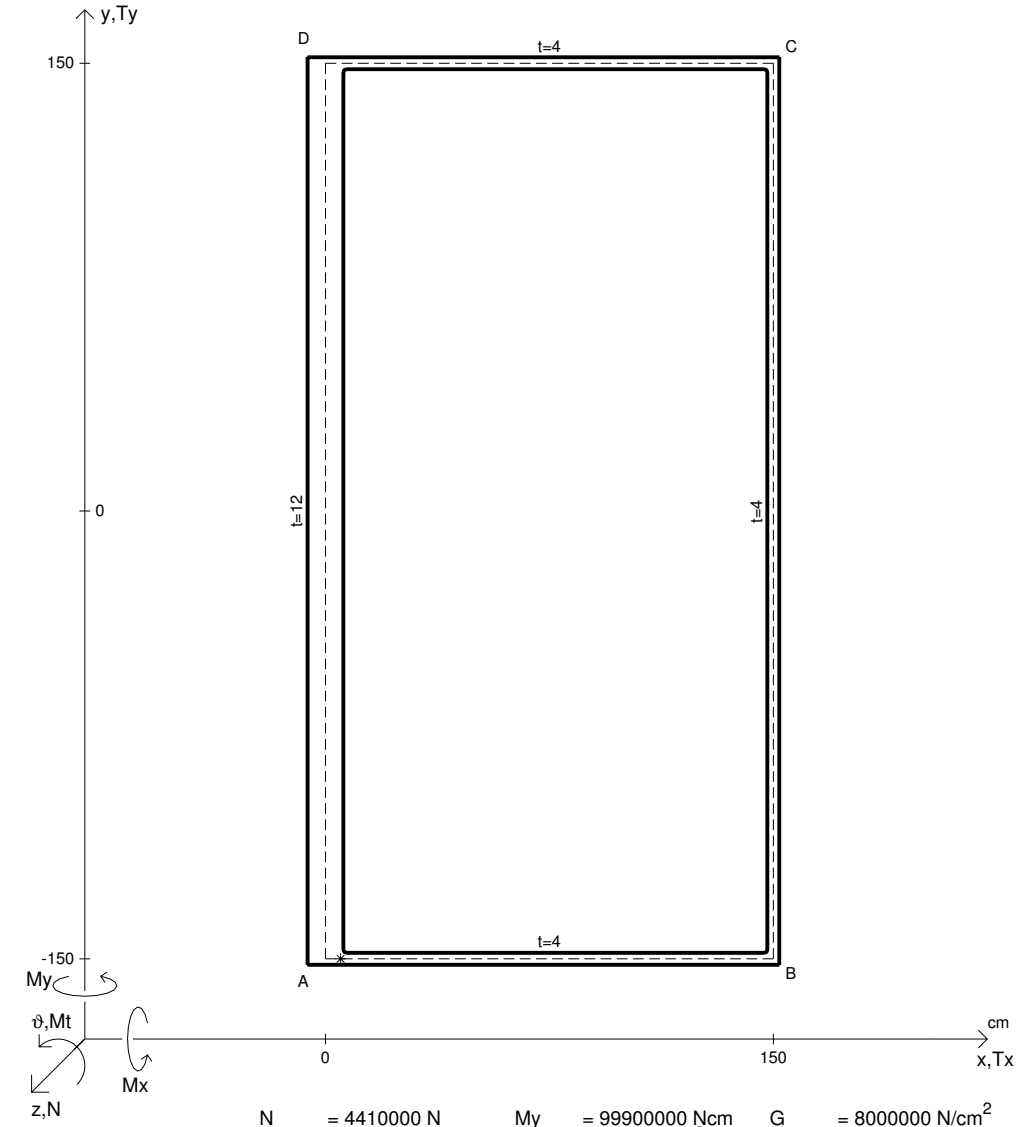


		N	= 3600000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 877000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.002

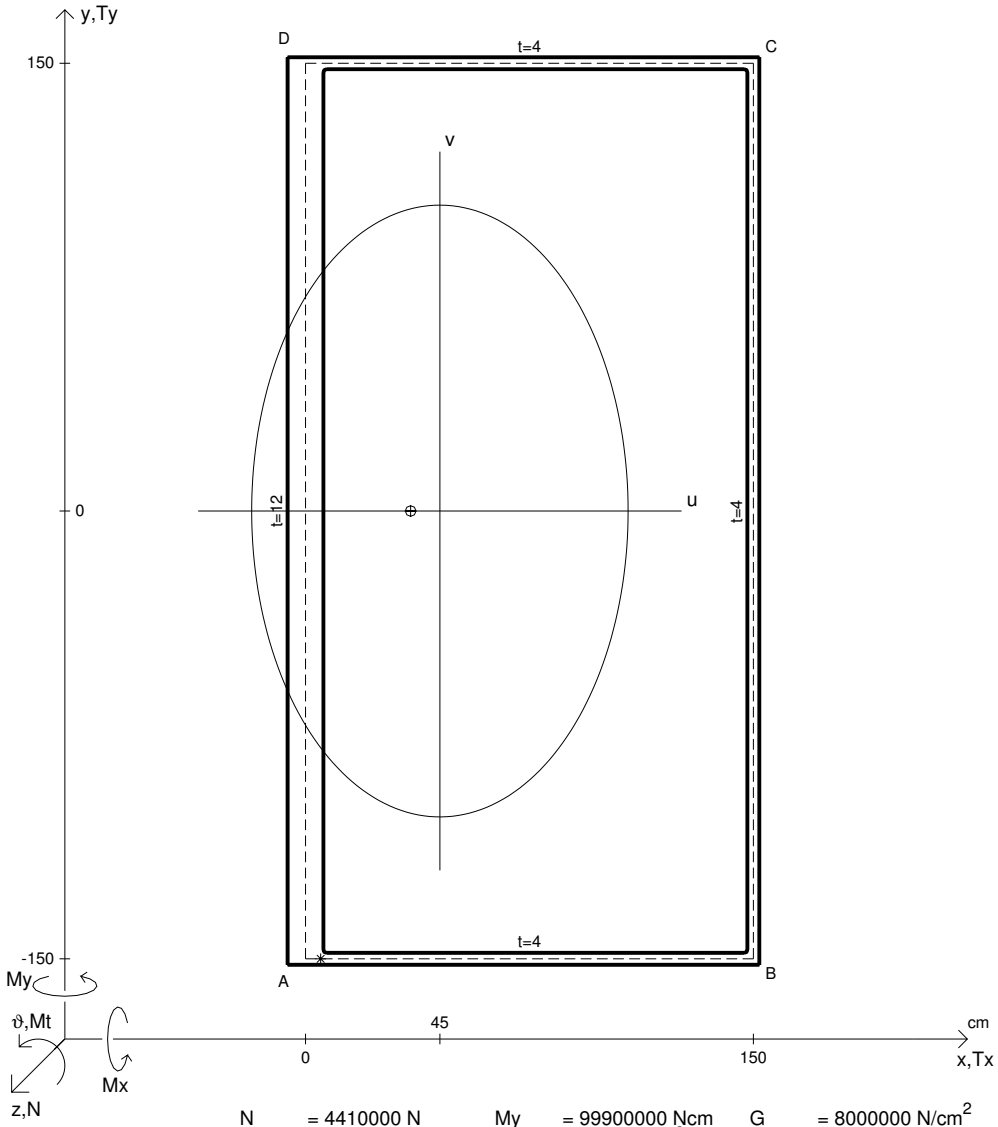


		N	= 3600000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 877000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 50 cm	σ(N)	= 666.7 N/cm^2	τ	= 1008 N/cm^2	r_U	= 104.1 cm
u_O	= -9.615 cm	τ(Mt)	= 277.5 N/cm^2	$σ_I$	= 1546 N/cm^2	r_V	= 64.55 cm
v_O	= 0 cm	σ(My)	= 222 N/cm^2	$σ_{II}$	= -657.6 N/cm^2	r_O	= 122.9 cm
A_N	= 5400 cm^2	τ(Txc)	= 730.8 N/cm^2	$σ_{MISES}$	= 1960 N/cm^2	A_U	= 887.6 cm^2
Ju	= 58500000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 2204 N/cm^2	A_V	= 3684 cm^2
Jv	= 22500000 cm^4	τ(Tx)	= 730.8 N/cm^2	$σ_{ID}$	= 1711 N/cm^2		
Jt	= 45000000 cm^4	σ	= 888.7 N/cm^2	ϑt	= .00002775 /m		

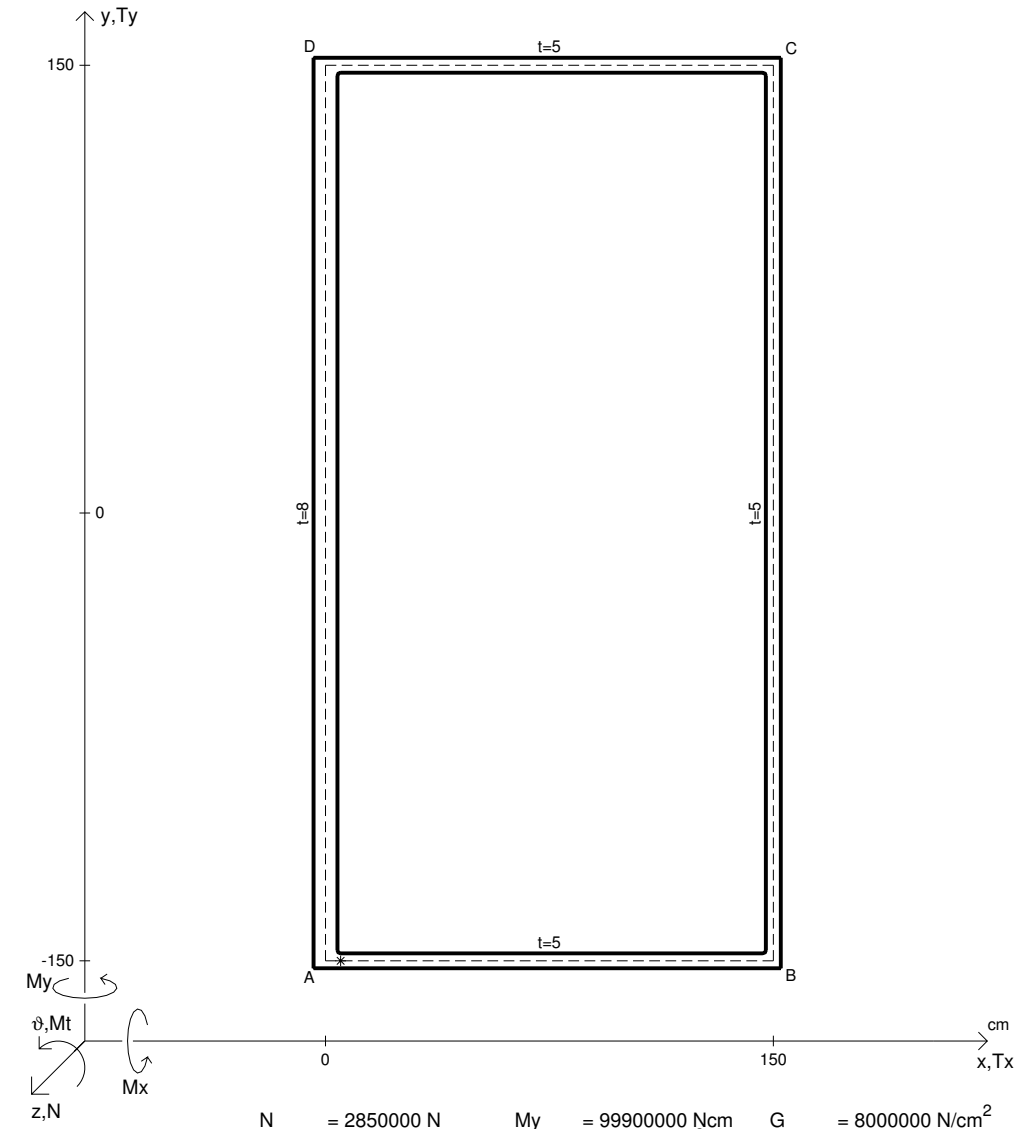


		N	= 4410000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 641000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.003

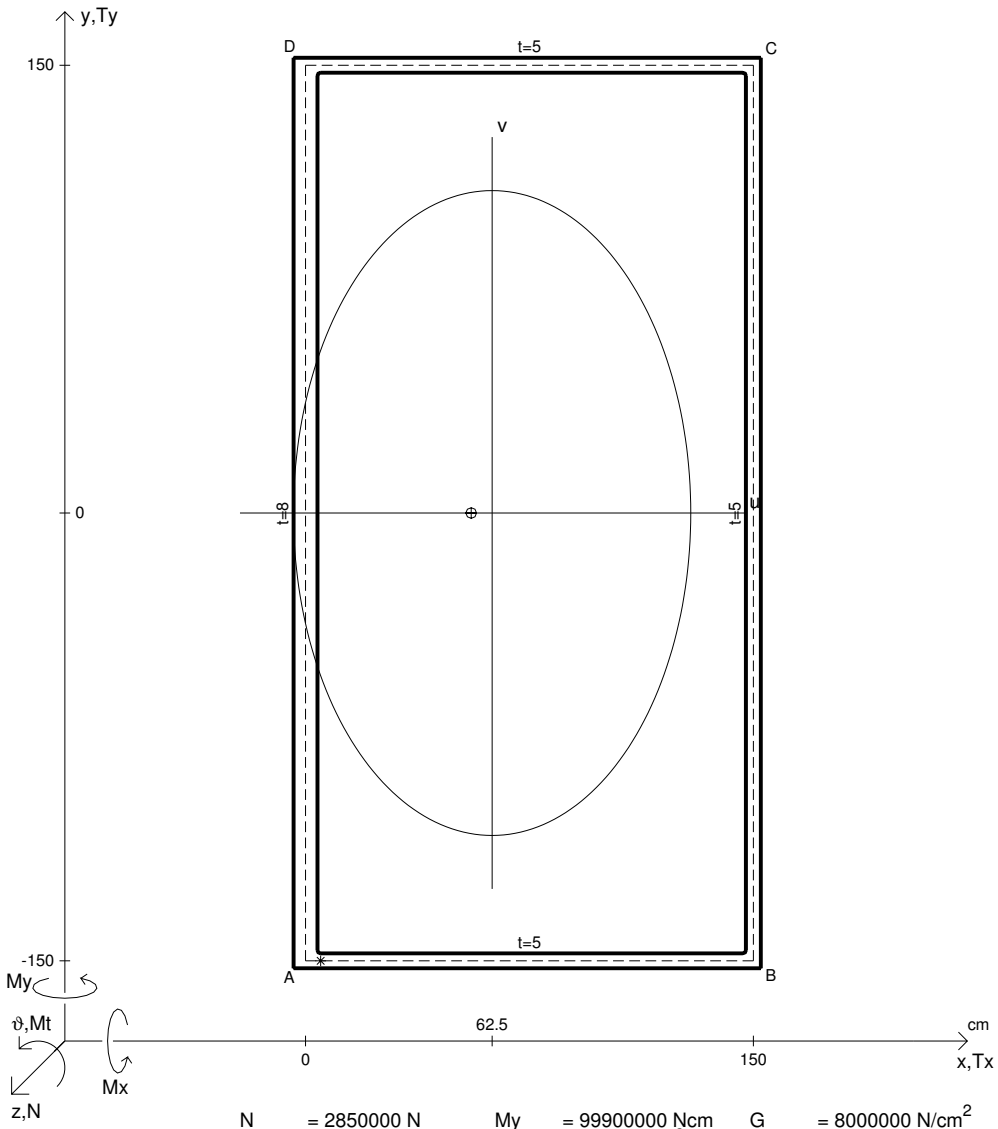


		N	= 4410000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 641000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 45 cm	σ(N)	= 735 N/cm^2	τ	= 821.7 N/cm^2	r_U	= 102.5 cm
u_O	= -9.796 cm	τ(Mt)	= 277.5 N/cm^2	$σ_I$	= 1404 N/cm^2	r_V	= 63.05 cm
v_O	= 0 cm	σ(My)	= 188.5 N/cm^2	$σ_{II}$	= -480.8 N/cm^2	r_O	= 120.7 cm
A_N	= 6000 cm^2	τ(Txc)	= 544.2 N/cm^2	$σ_{MISES}$	= 1697 N/cm^2	A_U	= 901.8 cm^2
Ju	= 63000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 1885 N/cm^2	A_V	= 4164 cm^2
Jv	= 23850000 cm^4	τ(Tx)	= 544.2 N/cm^2	$σ_{ID}$	= 1525 N/cm^2		
Jt	= 46285720 cm^4	σ	= 923.5 N/cm^2	ϑt	= .00002698 /m		



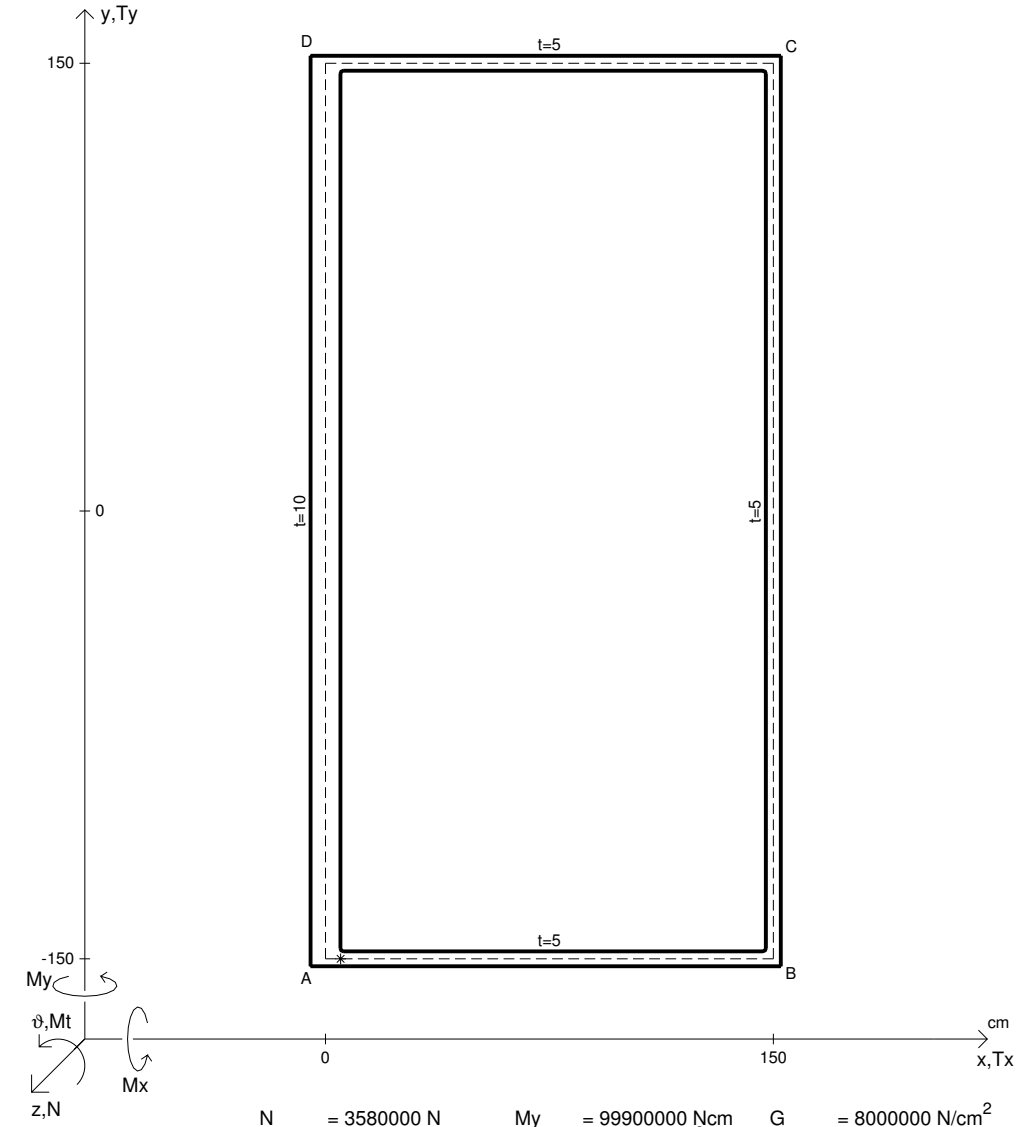
		N	= 2850000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 940000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.004



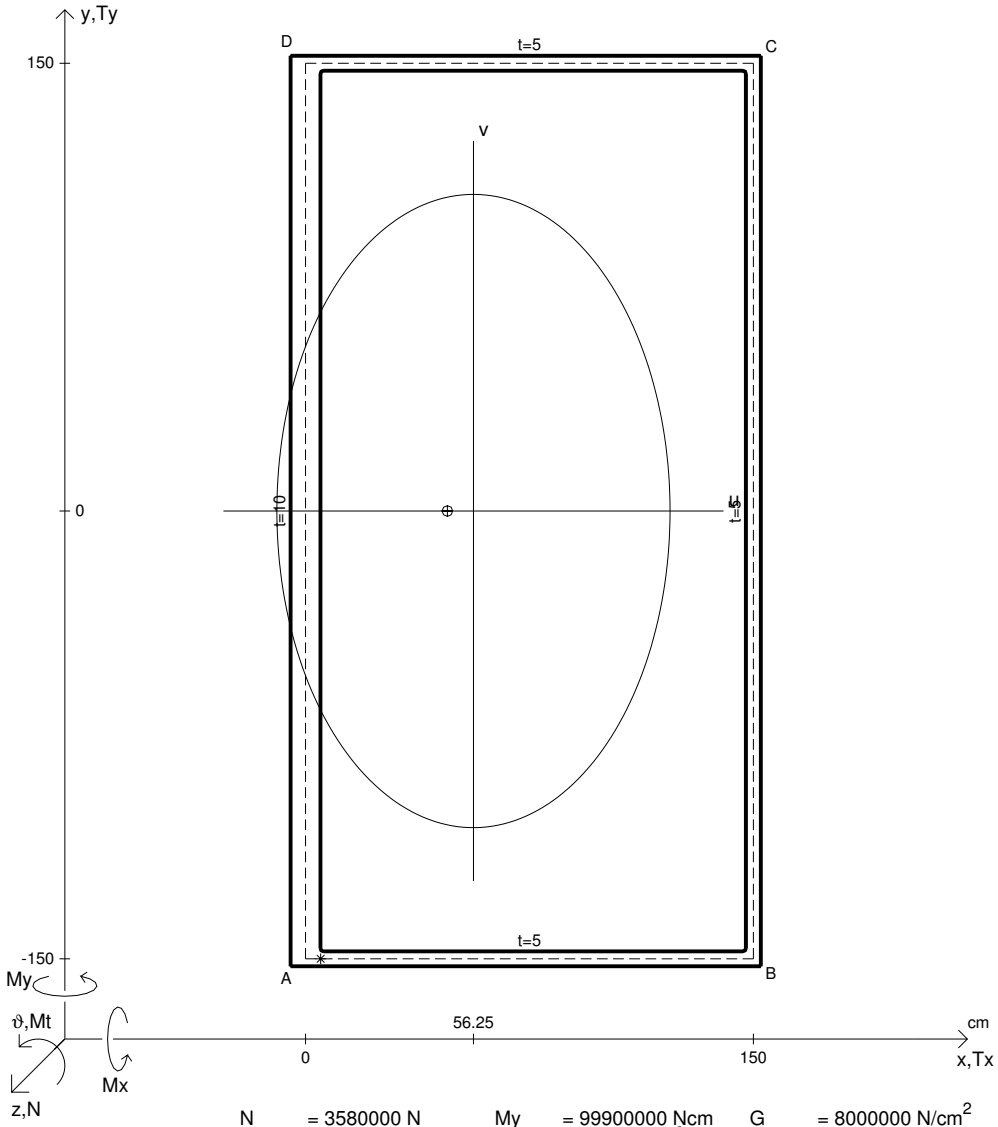
		N	= 2850000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 940000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 62.5 cm	σ(N)	= 527.8 N/cm^2	τ	= 811.8 N/cm^2	r_U	= 108 cm
u_O	= -7.015 cm	τ(Mt)	= 222 N/cm^2	$σ_I$	= 1297 N/cm^2	r_V	= 66.54 cm
v_O	= 0 cm	σ(My)	= 261.2 N/cm^2	$σ_{II}$	= -508.1 N/cm^2	r_O	= 127.1 cm
A_N	= 5400 cm^2	τ(Txc)	= 589.8 N/cm^2	$σ_{MISES}$	= 1612 N/cm^2	A_U	= 1060 cm^2
Ju	= 63000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 1805 N/cm^2	A_V	= 3509 cm^2
Jv	= 23906250 cm^4	τ(Tx)	= 589.8 N/cm^2	$σ_{ID}$	= 1424 N/cm^2		
Jt	= 51428568 cm^4	σ	= 789 N/cm^2	ϑt	= .00002428 /m		

@ Adolfo Zavelani Rossi, Politecnico di Milano

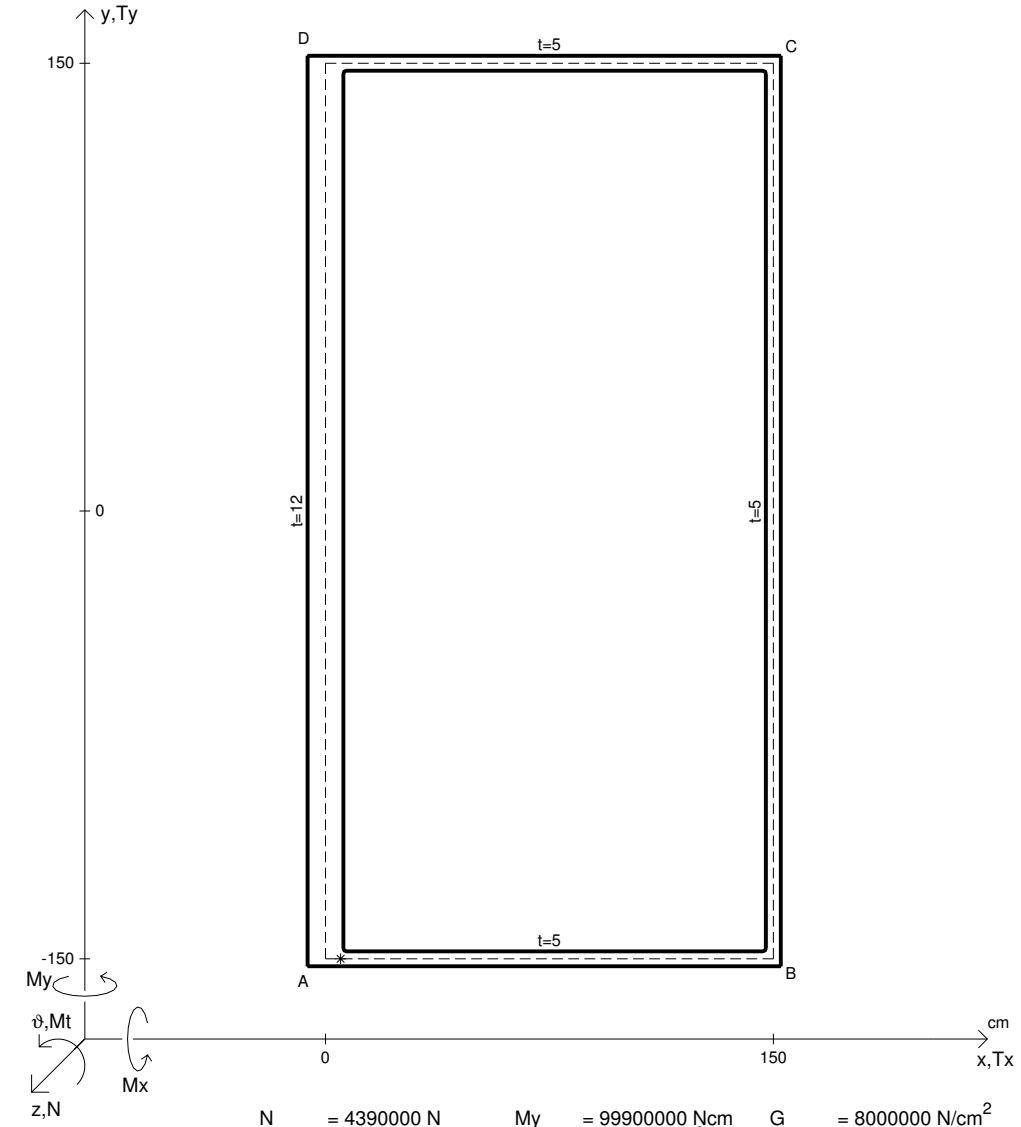


		N	= 3580000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1010000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.005

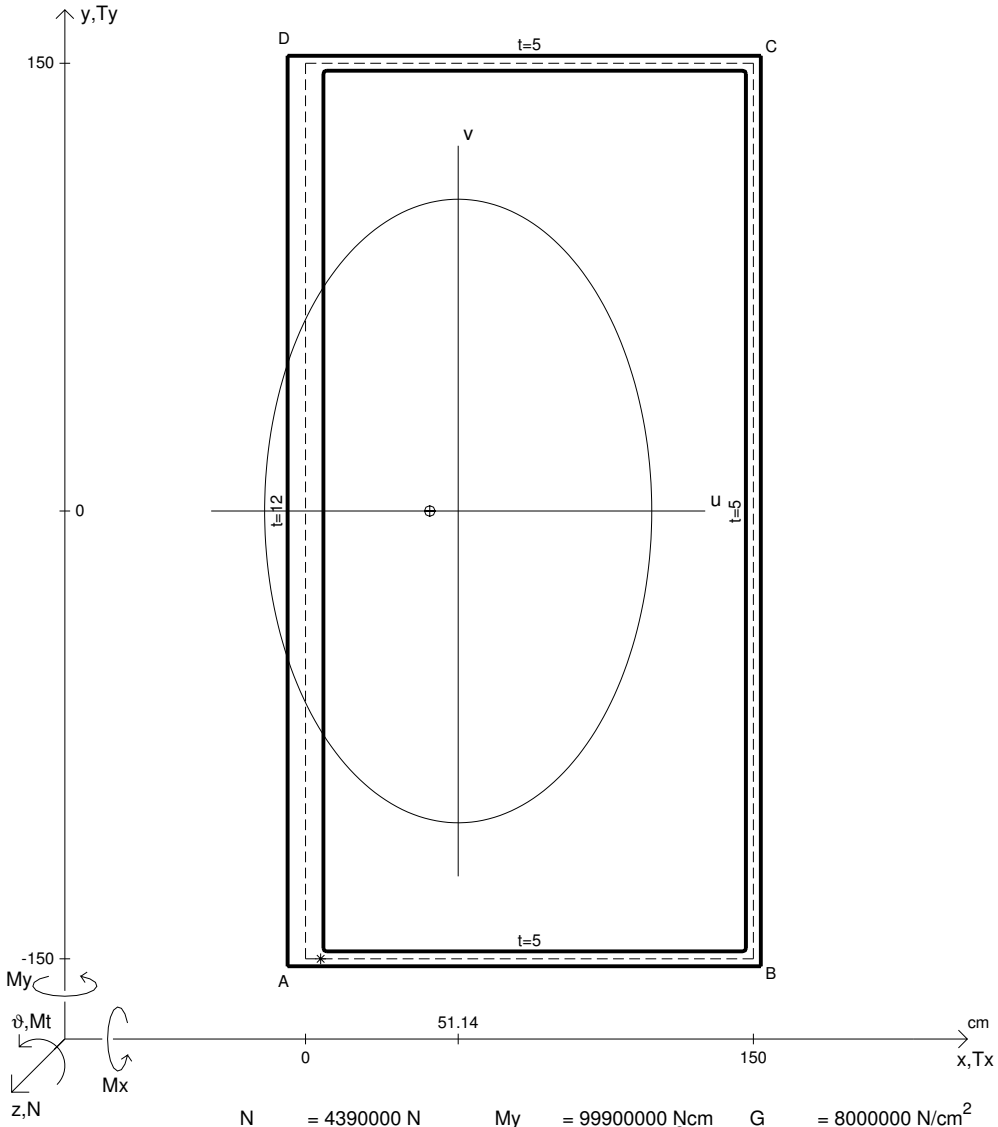


		N	= 3580000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1010000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 56.25 cm	σ(N)	= 596.7 N/cm^2	τ	= 877.1 N/cm^2	r_U	= 106.1 cm
u_O	= -8.75 cm	τ(Mt)	= 222 N/cm^2	$σ_I$	= 1373 N/cm^2	r_V	= 65.85 cm
v_O	= 0 cm	σ(My)	= 216 N/cm^2	$σ_{II}$	= -560.3 N/cm^2	r_O	= 125.1 cm
A_N	= 6000 cm^2	τ(Txc)	= 655.1 N/cm^2	$σ_{MISES}$	= 1723 N/cm^2	A_U	= 1086 cm^2
Ju	= 67500000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 1933 N/cm^2	A_V	= 4000 cm^2
Jv	= 26015620 cm^4	τ(Tx)	= 655.1 N/cm^2	$σ_{ID}$	= 1513 N/cm^2		
Jt	= 54000000 cm^4	σ	= 812.7 N/cm^2	ϑt	= .00002312 /m		

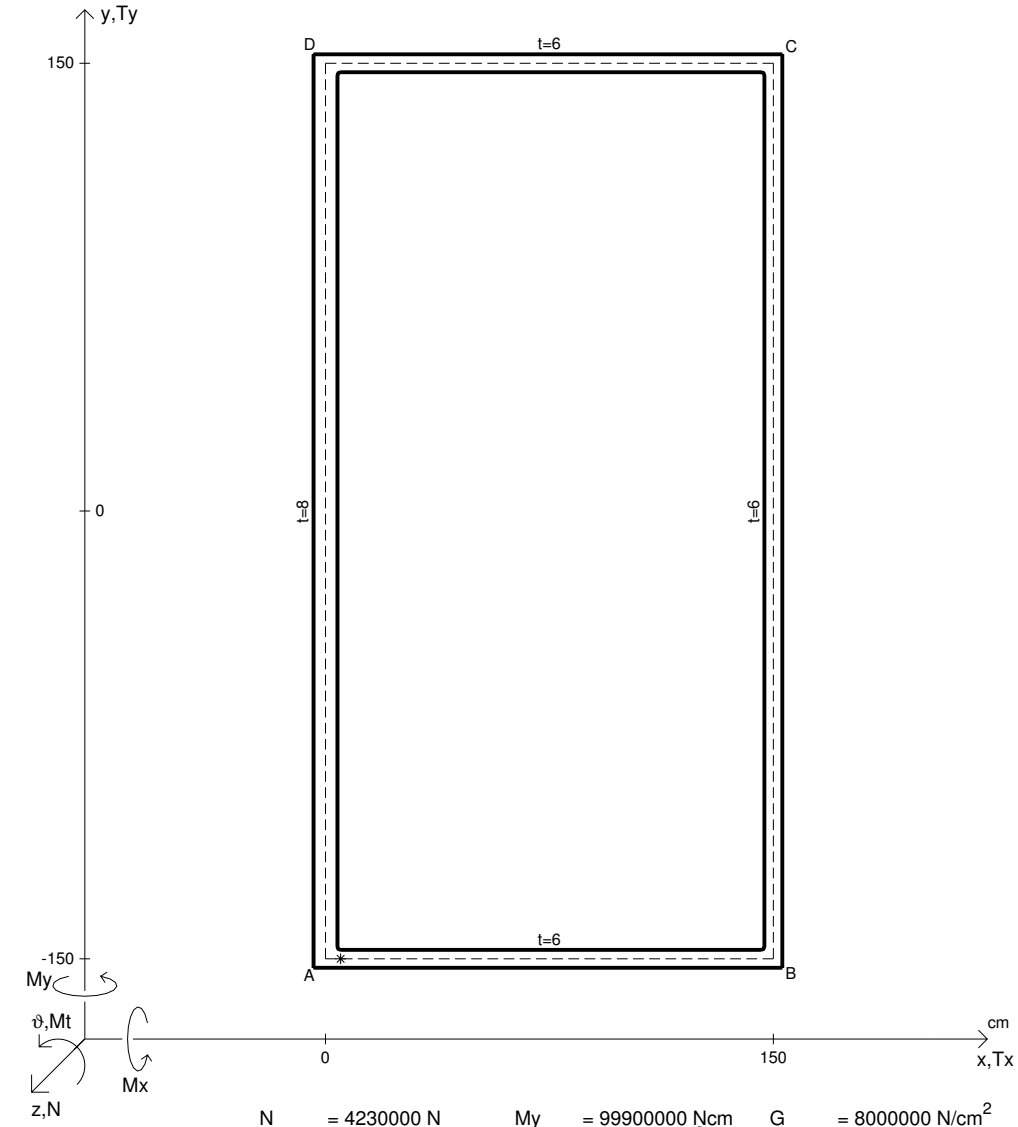


		N	= 4390000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1090000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.006

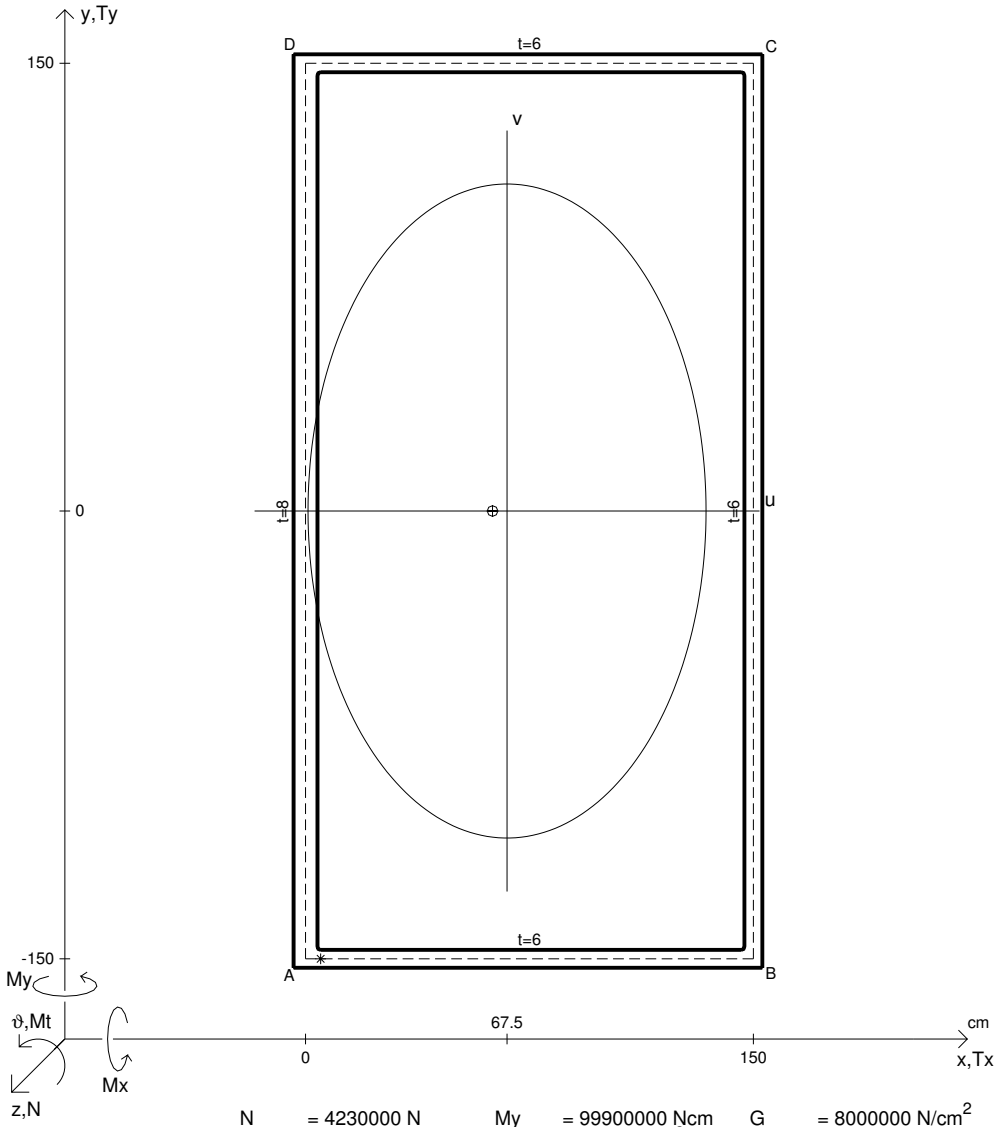


		N	= 4390000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1090000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 51.14 cm	σ(N)	= 665.2 N/cm^2	τ	= 945.3 N/cm^2	r_U	= 104.4 cm
u_O	= -9.515 cm	τ(Mt)	= 222 N/cm^2	$σ_I$	= 1461 N/cm^2	r_V	= 64.83 cm
v_O	= 0 cm	σ(My)	= 184.1 N/cm^2	$σ_{II}$	= -611.7 N/cm^2	r_O	= 123.3 cm
A_N	= 6600 cm^2	τ(Txc)	= 723.3 N/cm^2	$σ_{MISES}$	= 1845 N/cm^2	A_U	= 1105 cm^2
Ju	= 72000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 2073 N/cm^2	A_V	= 4484 cm^2
Jv	= 27741480 cm^4	τ(Tx)	= 723.3 N/cm^2	$σ_{ID}$	= 1614 N/cm^2		
Jt	= 55862072 cm^4	σ	= 849.3 N/cm^2	ϑt	= .00002235 /m		



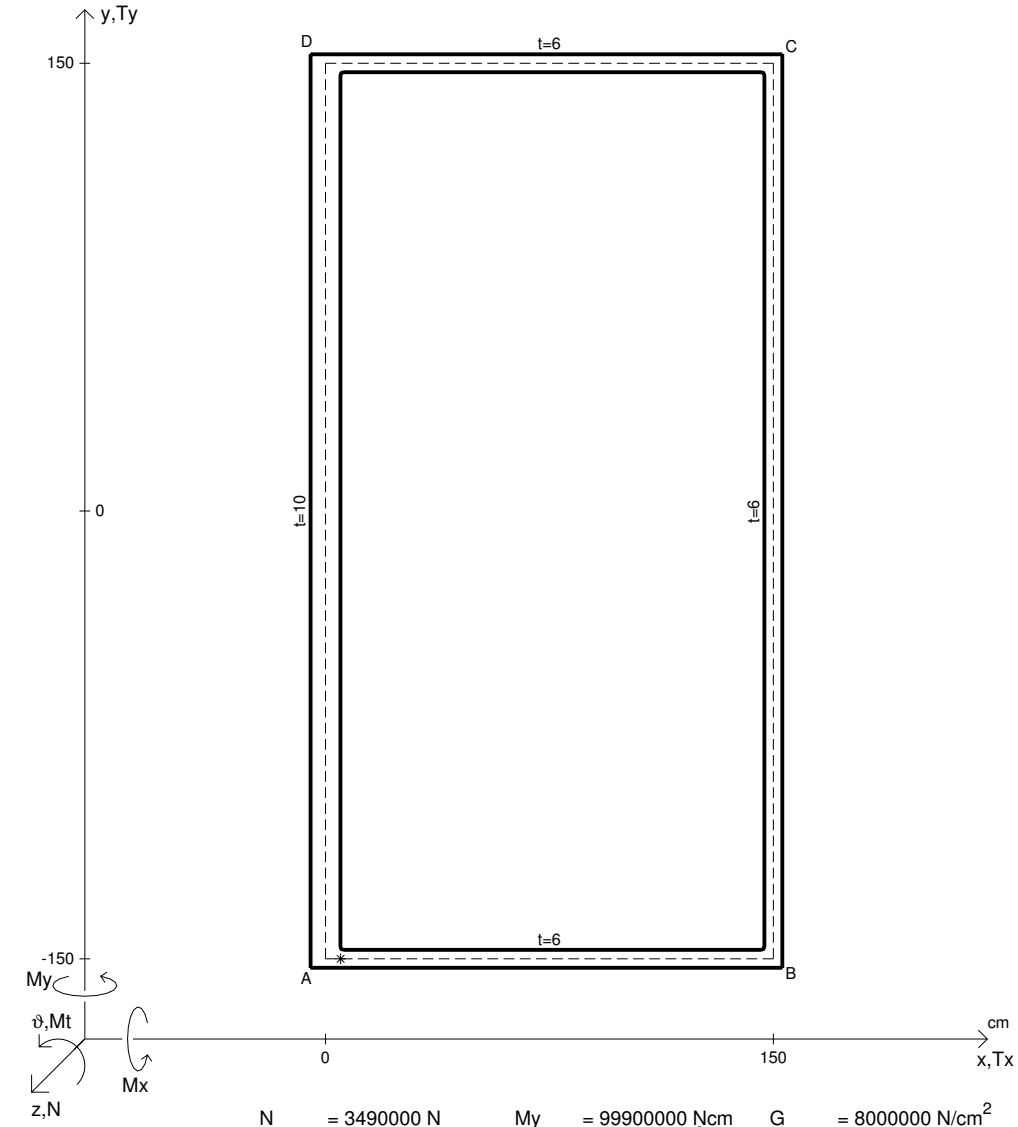
		N	= 4230000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1020000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.007



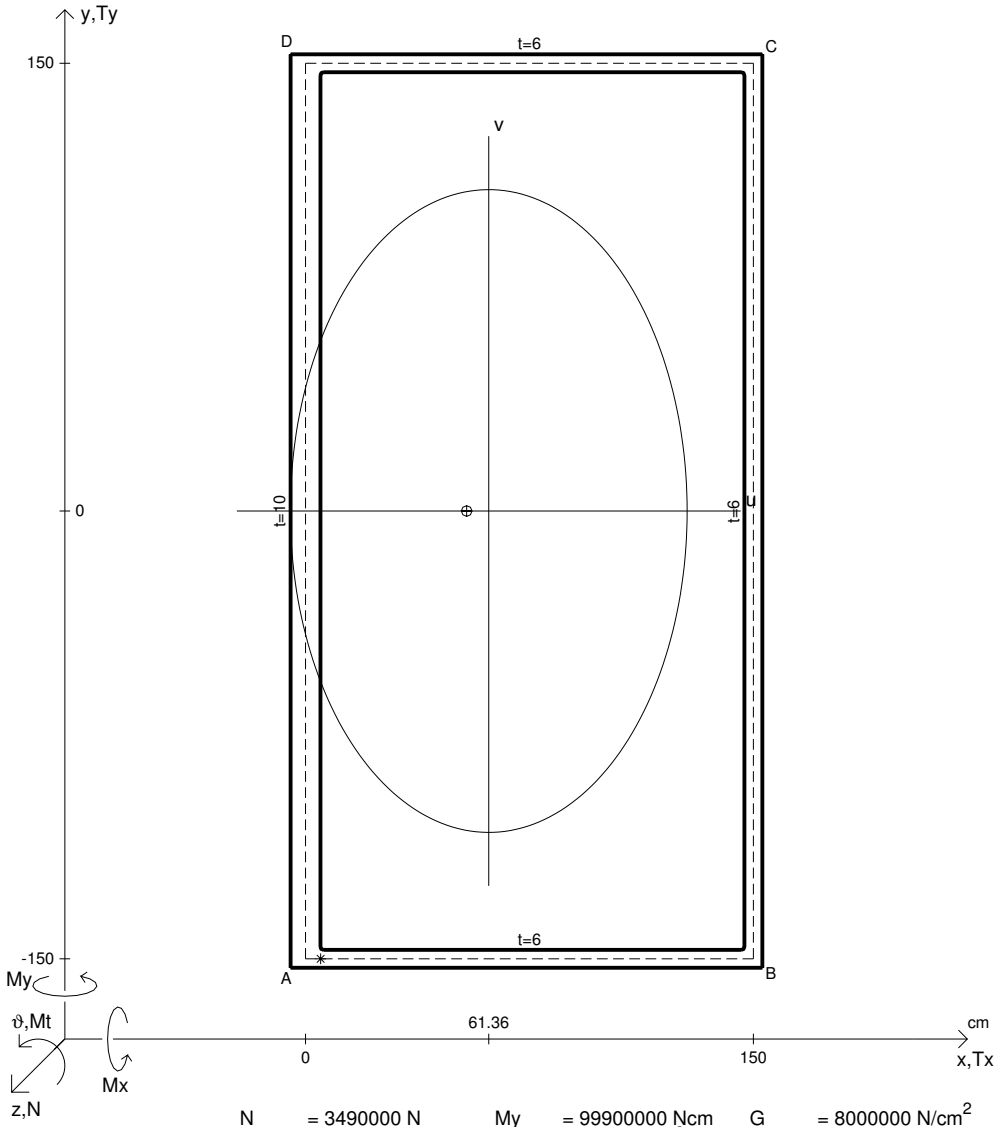
		N	= 4230000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1020000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 67.5 cm	σ(N)	= 705 N/cm^2	τ	= 701.5 N/cm^2	r_U	= 109.5 cm
u_O	= -4.858 cm	τ(Mt)	= 185 N/cm^2	$σ_I$	= 1328 N/cm^2	r_V	= 66.66 cm
v_O	= 0 cm	σ(My)	= 252.9 N/cm^2	$σ_{II}$	= -370.4 N/cm^2	r_O	= 128.3 cm
A_N	= 6000 cm^2	τ(Txc)	= 516.5 N/cm^2	$σ_{MISES}$	= 1547 N/cm^2	A_U	= 1247 cm^2
Ju	= 72000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 1699 N/cm^2	A_V	= 3811 cm^2
Jv	= 26662500 cm^4	τ(Tx)	= 516.5 N/cm^2	$σ_{ID}$	= 1421 N/cm^2		
Jt	= 58909088 cm^4	σ	= 957.9 N/cm^2	ϑt	= .0000212 /m		

@ Adolfo Zavelani Rossi, Politecnico di Milano



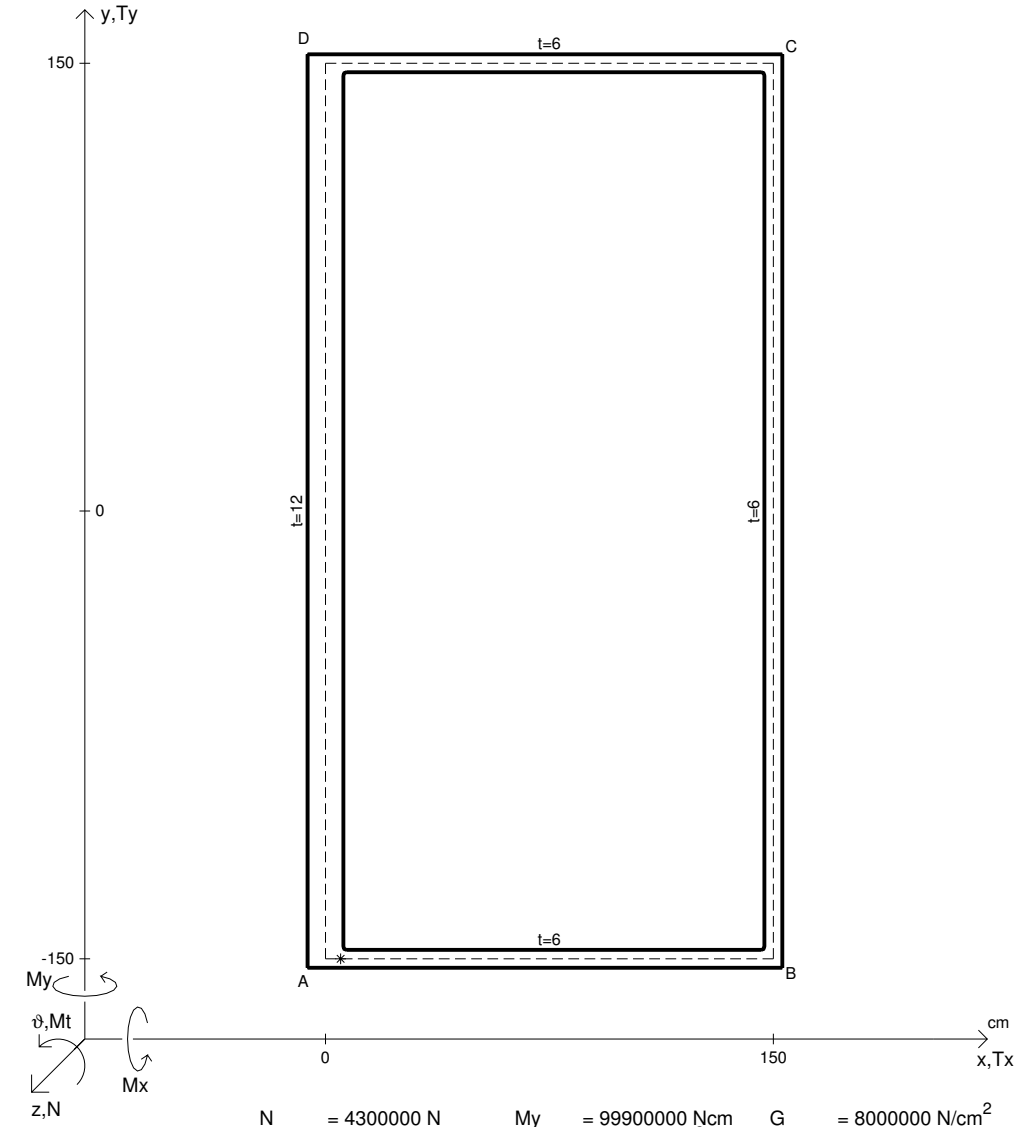
		N	= 3490000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1120000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	σ_I	=	r_V	=
v_O	=	σ(My)	=	σ_{II}	=	r_O	=
A_N	=	τ(Txc)	=	σ_{MISES}	=	A_U	=
Ju	=	τ(Txb)	=	σ_{GUEST}	=	A_V	=
Jv	=	τ(Tx)	=	σ_{ID}	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.008



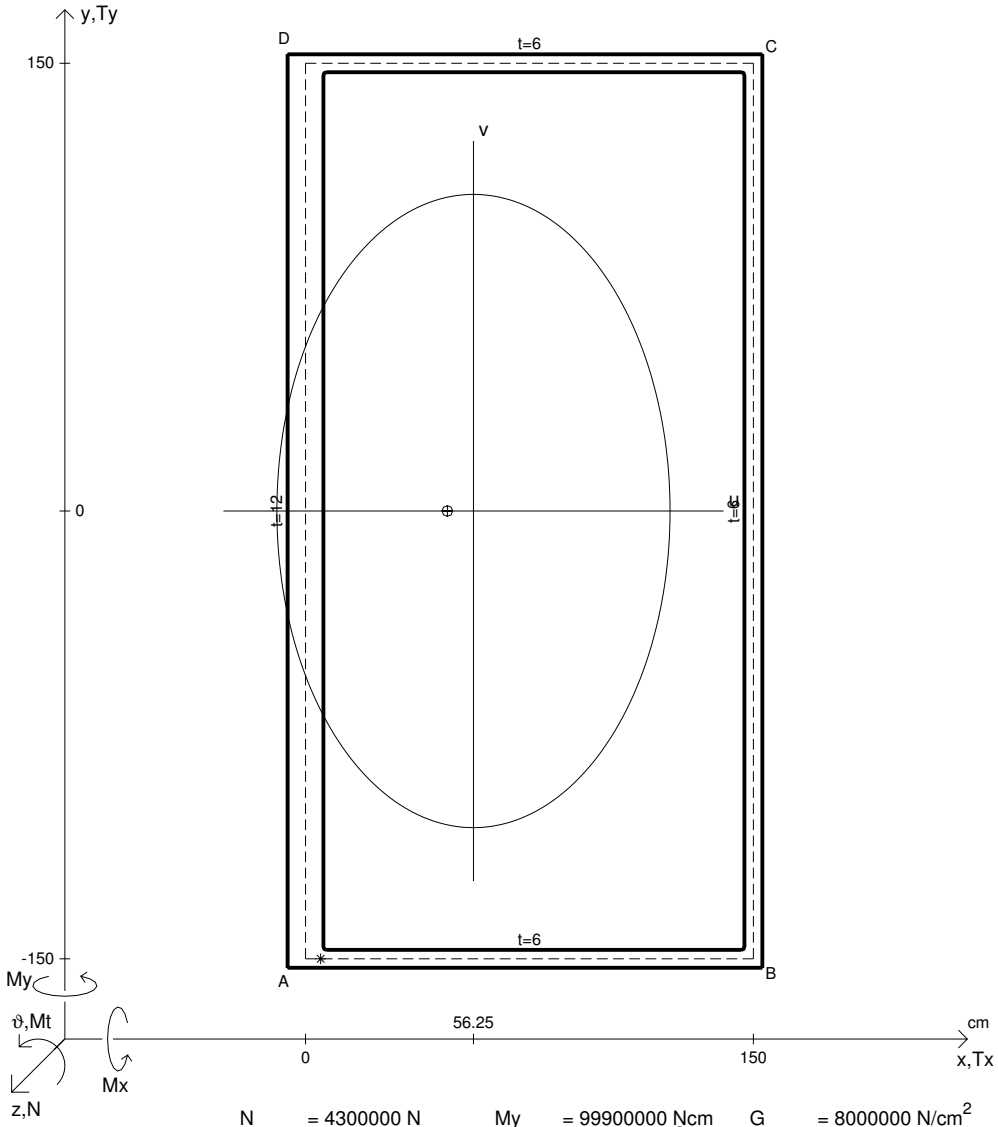
		N	= 3490000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1120000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 61.36 cm	σ(N)	= 528.8 N/cm^2	τ	= 774.5 N/cm^2	r_U	= 107.7 cm
u_O	= -7.404 cm	τ(Mt)	= 185 N/cm^2	σ_I	= 1228 N/cm^2	r_V	= 66.46 cm
v_O	= 0 cm	σ(My)	= 210.3 N/cm^2	σ_{II}	= -488.6 N/cm^2	r_O	= 126.7 cm
A_N	= 6600 cm^2	τ(Txc)	= 589.5 N/cm^2	σ_{MISES}	= 1532 N/cm^2	A_U	= 1278 cm^2
Ju	= 76500000 cm^4	τ(Txb)	= 0 N/cm^2	σ_{GUEST}	= 1716 N/cm^2	A_V	= 4310 cm^2
Jv	= 29147730 cm^4	τ(Tx)	= 589.5 N/cm^2	σ_{ID}	= 1350 N/cm^2		
Jt	= 62307700 cm^4	σ	= 739.1 N/cm^2	ϑt	= .00002004 /m		

@ Adolfo Zavelani Rossi, Politecnico di Milano

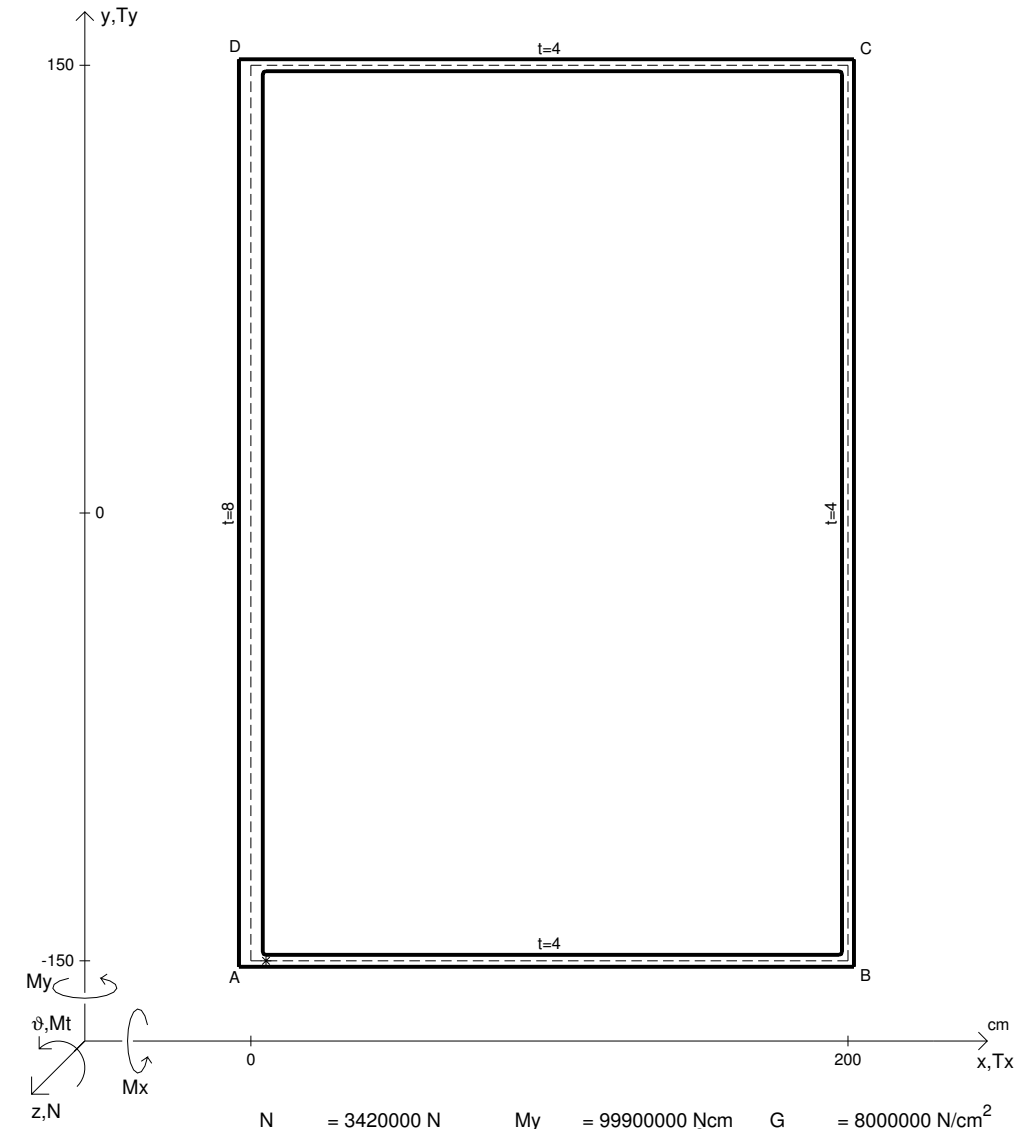


		N	= 4300000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1220000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	$σ_I$	=	r_V	=
v_O	=	σ(My)	=	$σ_{II}$	=	r_O	=
A_N	=	τ(Txc)	=	$σ_{MISES}$	=	A_U	=
Ju	=	τ(Txb)	=	$σ_{GUEST}$	=	A_V	=
Jv	=	τ(Tx)	=	$σ_{ID}$	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.009

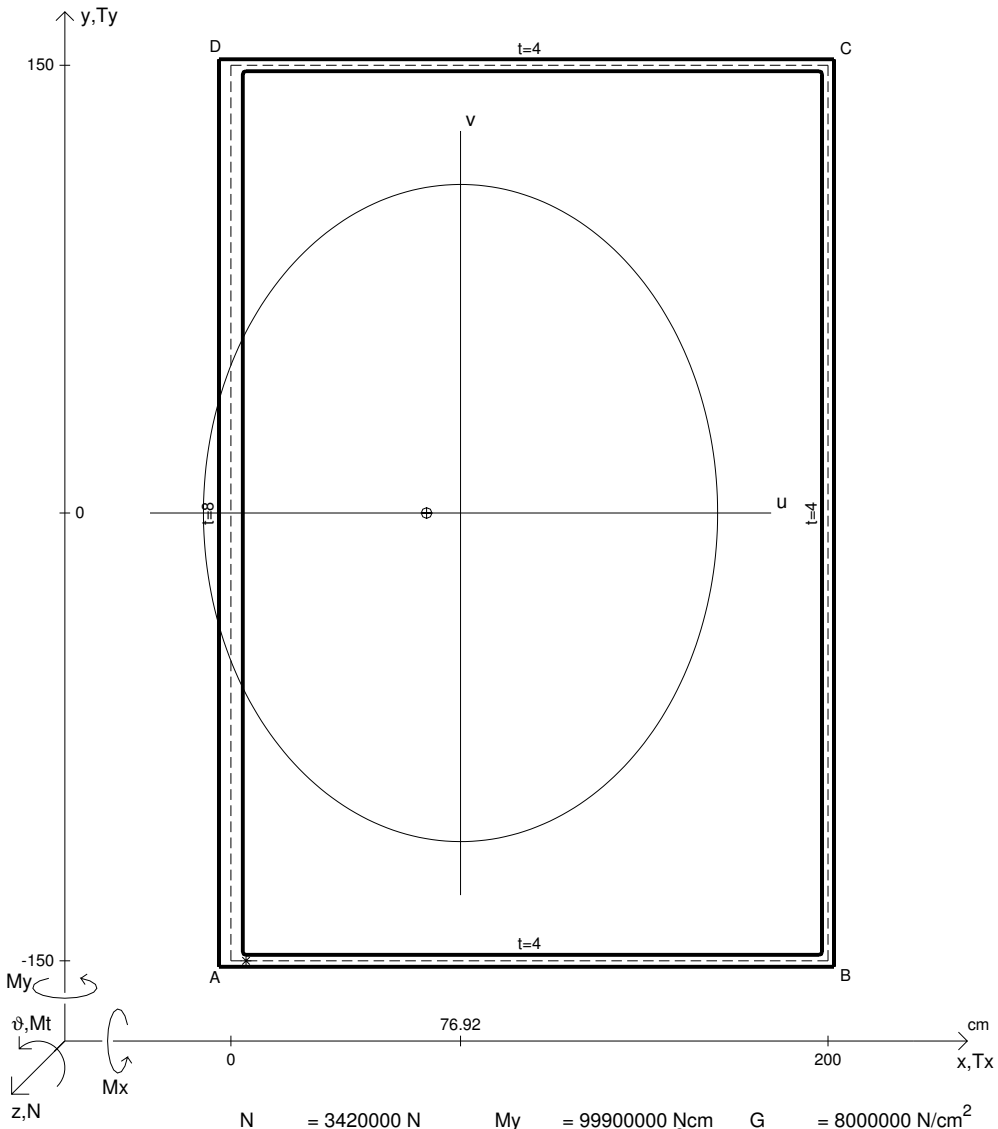


		N	= 4300000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1220000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 56.25 cm	σ(N)	= 597.2 N/cm^2	τ	= 844.5 N/cm^2	r_U	= 106.1 cm
u_O	= -8.75 cm	τ(Mt)	= 185 N/cm^2	$σ_I$	= 1318 N/cm^2	r_V	= 65.85 cm
v_O	= 0 cm	σ(My)	= 180 N/cm^2	$σ_{II}$	= -541 N/cm^2	r_O	= 125.1 cm
A_N	= 7200 cm^2	τ(Txc)	= 659.5 N/cm^2	$σ_{MISES}$	= 1656 N/cm^2	A_U	= 1303 cm^2
Ju	= 81000000 cm^4	τ(Txb)	= 0 N/cm^2	$σ_{GUEST}$	= 1859 N/cm^2	A_V	= 4800 cm^2
Jv	= 31218750 cm^4	τ(Tx)	= 659.5 N/cm^2	$σ_{ID}$	= 1453 N/cm^2		
Jt	= 64800000 cm^4	σ	= 777.2 N/cm^2	ϑt	= .00001927 /m		



		N	= 3420000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1200000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	=	σ(N)	=	τ	=	r_U	=
u_O	=	τ(Mt)	=	σ_I	=	r_V	=
v_O	=	σ(My)	=	σ_{II}	=	r_O	=
A_N	=	τ(Txc)	=	σ_{MISES}	=	A_U	=
Ju	=	τ(Txb)	=	σ_{GUEST}	=	A_V	=
Jv	=	τ(Tx)	=	σ_{ID}	=		
Jt	=	σ	=	ϑt	=		

Esercizi di Scienza delle Costruzioni - SEZIONE 08 ES. No.010



		N	= 3420000 N	My	= 99900000 Ncm	G	= 8000000 N/cm^2
		Tx	= 1200000 N	σa	= 2400 N/cm^2		
		Mt	= 99900000 Ncm	E	= 20000000 N/cm^2		
x_G	= 76.92 cm	σ(N)	= 657.7 N/cm^2	τ	= 926.2 N/cm^2	r_U	= 110.1 cm
u_O	= -11.38 cm	τ(Mt)	= 208.1 N/cm^2	σ_I	= 1449 N/cm^2	r_V	= 86.12 cm
v_O	= 0 cm	σ(My)	= 199.3 N/cm^2	σ_{II}	= -592 N/cm^2	r_O	= 140.2 cm
A_N	= 5200 cm^2	τ(Txc)	= 718.1 N/cm^2	σ_{MISES}	= 1819 N/cm^2	A_U	= 1262 cm^2
Ju	= 63000000 cm^4	τ(Txb)	= -.4656-5 N/cm^2	σ_{GUEST}	= 2041 N/cm^2	A_V	= 3091 cm^2
Jv	= 38564100 cm^4	τ(Tx)	= 718.1 N/cm^2	σ_{ID}	= 1597 N/cm^2		
Jt	= 67764704 cm^4	σ	= 857 N/cm^2	ϑt	= .00001843 /m		