☆ S.C. „OVIRELANCE" S.R.L. SUCEAVA
Registrul comertului nr J33/439/2004 Cod inregistrare fiscal RO 16354756
Str.Stefan Tomsa nr.2,Suceava,CP 720046;
Cont RO43INGB0000999904269592 deschis la ING Bank N.V Amsterdam
Cont RO30TREZ5915069XXX007935 deschis la Trezoreria Suceava
Tel/ Fax: 0230211055; Tel mobil: 0742 877 837;
E- mail : office@ovirelance.ro

CERTIFICAT Nr. 14/M/2010
SR EN ISO 14001: 2005
CERTIFICAT Nr. 14/S/2010
SR OHSAS 18001: 2008
CERTIFICAT Nr. 39
SR EN ISO 9001: 2008

PROIECT NR. A27/2019

III. Breviare de calcul

„AMENAJARE SPAȚIU PUBLIC ÎN COMUNA MOLDOVIȚA, JUDEȚUL SUCEAVA"

CERCEL C. CONSTANTIN FLORIN ROMANIA MLPAT NR. 1237 A1, B2, D2 INGINER VERIFICATOR PROIECTE

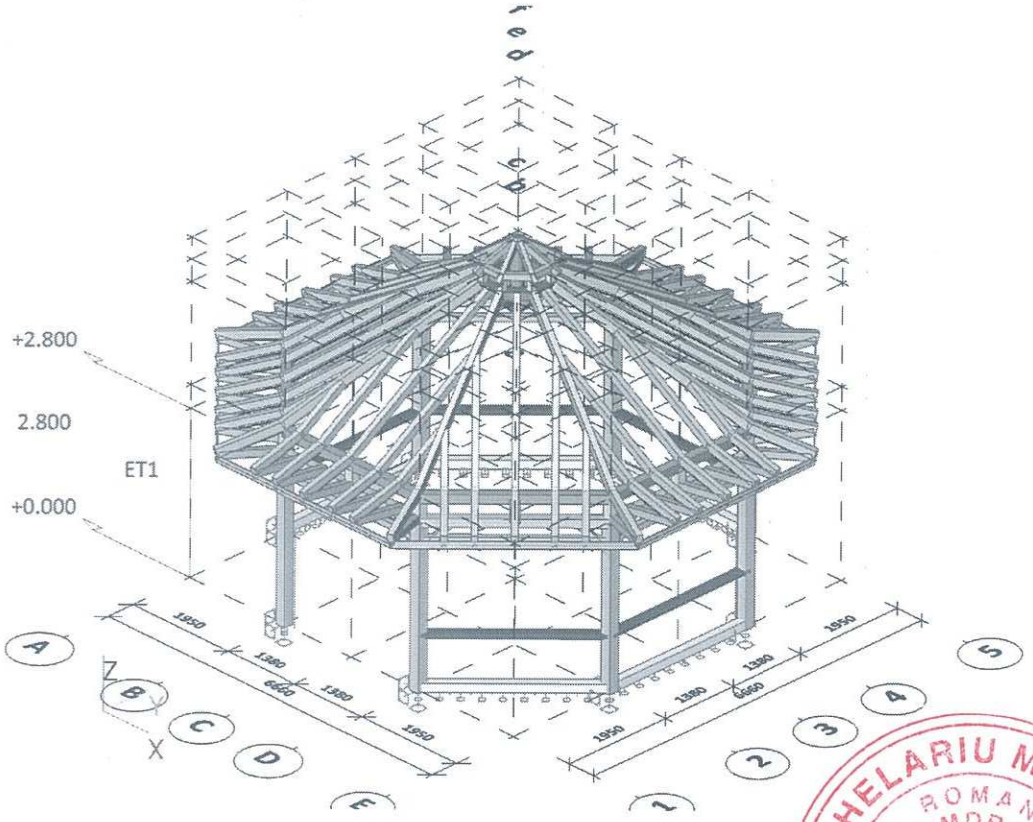
CHELARIU M. OVIDIU ROMANIA MDRAP NR. 09315 A1, A2 INGINER VERIFICATOR PROIECTE

BENEFICIAR: COMUNA MOLDOVIŢA
Strada Principală , nr. 421, Comuna Moldoviţa, Judeţul Suceava, cod postal 727385
Telefon / fax: 0230 / 336.190, e-mail : primaria.moldovita@yahoo.com
AMPLASAMENT: SAT MOLDOVIŢA, COMUNA MOLDOVIŢA, JUDEŢUL SUCEAVA
PROIECTANT GENERAL: S.C. „OVIRELANCE" S.R.L. SUCEAVA
FAZA DE PROIECTARE: Proiect tehnic de execuție
CONTRACT NR. 5993/30.08.2019

III.BREVIAR DE CALCUL
III.1. Breviar de calcul pavilion tip foișor
1. Proiect

Proiect	PAVILION MOLDOVIȚA
Faza	PROIECT TEHNIC DE EXECUȚIE
Descriere	-
Autor	ing.Pascariu Mariu- Adrian
Structura	General XYZ
Nr. noduri :	271
Nr. de elemente liniare:	279
Nr. placi :	0
Nr. solide :	1
Nr. profile utilizate :	22
Nr. de cazuri de incarcare :	27
Nr. materiale utilizate :	3
Acceleratie gravitationala [m/s^2]	9.810
Normativ national	EC - EN

2. Model 3D de analiza



CHELARIU M. OVIDIU
ROMANIA
MDRAP
NR. 09315
A1, A2
INGINER
VERIFICATOR PROIECTE

3. Cuprins

1. Proiect
2. Model 3D de analiza
3. Cuprins
4. DATE GENERALE
4.1. Materiale
4.2. Sectiuni transversale
4.3. Model analiza / NODURI STRUCTURA
4.4. Model analiza / ELEMENTE
4.5. Soluri
4.6. Profile geologice
4.7. Presiuni vant
4.8. Zona geologica
4.9. Spectre seismice
5. EVALUARE ACTIUNI
5.1. Cazuri de incarcare
5.2. GREUTATE PROPRIE
5.3. LC12 /utile parapet 0,5kN/m
5.4. LC5 -ZAPADA UNIFORMA 1,6KN/MP
5.5. LC2 / INCARCARI UTILE PE ACOPERIS 0,75KN/MP
5.6. LC8-INVELITOARE,ASTEREALA ,SIPCI
5.7. Incarcare pe suprafata
5.8. Incarcari predefinite
5.9. Date vant
6. REZULTATE CALCUL LINIAR
6.1. Eforturi pe cadru
6.1.1. Eforturi DIN ULS
6.1.2. Eforturi DIN SLS -GP+UTILE+ZAPADA
6.1.3. Eforturi interne pe element; N
6.1.4. Eforturi pe cadru Vy-la ULS
6.1.5. Eforturi pe cadru My-ULS
6.1.6. Eforturi PE CADRU LA ULS
6.2. EFORTURI ACOPERIS
6.2.1. Eforturi sarpanta- la ULS
6.2.2. Eforturi IN ACOPERIS -LA SLS
6.2.3. Eforturi acoperis; N-la ULS
6.2.4. Eforturi ; My-ULS
6.2.5. Eforturi My-SLS
7. VERIFICARI ELEMENTE STRUCTURALE
7.1. STALPI
7.1.1. Efort 3D- STALPI LA ULS
7.1.2. Efort 3D
7.1.3. Efort 3D; σ_x (1D/2D)-ULS
7.1.4. Efort 3D; σ_x (1D/2D)-LA GF
7.2. GRINZI
7.2.1. Efort 3D; σ_x (1D/2D)-GRINDA CADRU ULS
7.2.2. Efort 3D-GRINDA DE CADRU -GF
7.2.3. Efort 3D; σ_x-grinda rupere de panta-cosoroaba
7.2.4. Efort 3D; σ_x-consola streasina
7.2.5. Efort 3D-grinda rupere de panta
7.2.6. Efort 3D; σ_x-caprior -dolie
7.2.7. Efort 3D-din combinatii GF
7.2.8. Efort 3D; σ_x-capriori la TOATE ULS
7.2.9. Efort 3D- CAPRIORI LA ULS
7.2.10. Efort 3D; σ_x (1D/2D)-turn acoperis la ULS
7.2.11. Efort 3D; σ_x -PAVILION DIN COMBINATII GF
7.2.12. Efort 3D; σ_x-DIN GF. VANT +1/2 ZAPADA
8. Verificare deformatiilor la SLS
8.1. Structura deformata-INC. ZAPADA SIT CEA MAI DEFAVORABILA
8.2. Structura deformata-DIN INCARCARE ZAPADA
8.3. Deplasare 3D; U totala-SLS
8.4. Deplasare 3D; U totala
8.5. Deplasare 3D--pane dolii -
8.6. Deplasari pane dolii
8.7. Deplasare 3D; U totala
8.8. Deplasare -capriori
8.9. Date zveltete-capriori

4. DATE GENERALE

4.1. Materiale

C25/30	
Beton	
Masa unitara [kg/m³]	2500.0
Modul E [MPa]	3.1500e+04
Poisson - nu	0.2
Dilatare termica [m/mK]	0.00
Rezistenta caracteristica pe cilindru la compresiune fck(28) [MPa]	25.00
Valori dependente calculate	Da
Rezistenta medie la compresiune fcm(28) [MPa]	33.00
Rezistenta medie la intindere fctm(28) [MPa]	2.60
fcm(28) - fck(28) [MPa]	8.00
fctk 0,05(28) [MPa]	1.80
fctk 0,95(28) [MPa]	3.40
Rezistenta de proiectare la compresiune - persistenta (fcd = fck / gamma c_p) [MPa]	16.67
Rezistenta de proiectare la compresiune - accidentala (fcd = fck / gamma c_a) [MPa]	20.83
Deformarea la rezistenta maxima eps c2 [1e-4]	20.0
Deformare ultima eps cu2 [1e-4]	35.0
Deformarea la rezistenta maxima eps c3 [1e-4]	17.5
Deformare ultima eps cu3 [1e-4]	35.0
n [-]	2.00
Tip de agregat	Cuart
Valori masurate din punct de vedere al rezistentei la compresiune (influenta imbatranirii betonului)	Nu
Tip de diagrama	Diagrama biliniara efort-deformare

Diagrama efort-deformare

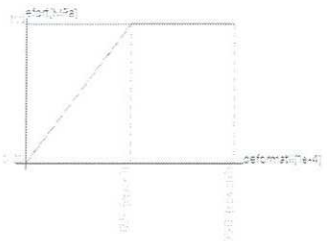
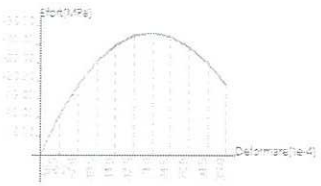


Diagrama efort/deformare pt. analiza neliniara

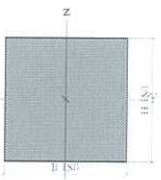


C14	
Solid	
Lemn	
Dilatare termica [m/mK]	0.00
Masa unitara [kg/m³]	290.0
Modul E [MPa]	7.0000e+03
Poisson - nu	0
Modul independent G	Da
Mod. G [MPa]	4.4000e+02
Descrestere log. (doar pt. amortizare neuniforma)	0.15
Culoare	
Capacitatea de transmisie termica [J/gK]	6.0000e-01
Conductibilitate termica [W/mK]	4.5000e+01
Incovoiere (fm,k) [MPa]	14.0
Intindere (ft,0,k) [MPa]	8.0
Intindere (ft,90,k) [MPa]	0.4
Compresiune (fc,0,k) [MPa]	16.0
Compresiune (fc,90,k) [MPa]	2.0
Forfecare (fv,k) [MPa]	1.7
Modul (E0.05) [MPa]	4700.0
Modul (E 90 mediu) [MPa]	230.0
C16	

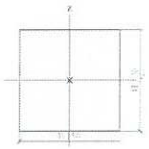
Solid	
Lemn	
Dilatare termica [m/mK]	0.00
Masa unitara [kg/m³]	310.0
Modul E [MPa]	8.0000e+03
Poisson - nu	0
Modul independent G	Da
Mod. G [MPa]	5.0000e+02
Descrestere log. (doar pt. amortizare neuniforma)	0.15
Culoare	
Capacitatea de transmisie termica [J/gK]	6.0000e-01
Conductibilitate termica [W/mK]	4.5000e+01
Incovoiere (fm,k) [MPa]	16.0
Intindere (ft,0,k) [MPa]	10.0
Intindere (ft,90,k) [MPa]	0.5
Compresiune (fc,0,k) [MPa]	17.0
Compresiune (fc,90,k) [MPa]	2.2
Forfecare (fv,k) [MPa]	1.8
Modul (E0.05) [MPa]	5400.0
Modul (E 90 mediu) [MPa]	270.0

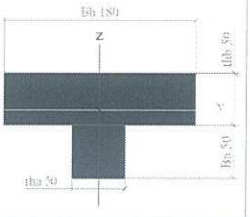
Explicari simboluri	
Descrestere log. (doar pt. amortizare neuniforma)	Aceasta proprietate de material este utilizata doar daca amortizarea neuniforma este activa pt. analiza dinamica (functionalitate proiect). Atentie, modulul necesita o licenta specifica, ce nu apartine pachetului standard de dinamica.

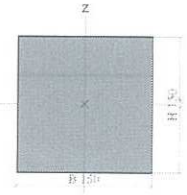
4.2. Sectiuni transversale

CS1-stalpi lemn		
Tip	DREP	
Raport detaliat	180; 180	
Tip forma	Pereti grosi	
Material obiect	C14	
Fabricatie	lemn	
Culoare		
A [m²]	3.2400e-02	
A_y [m²], A_z [m²]	2.7000e-02	2.7000e-02
A_L [m²/m], A_D [m²/m]	7.2000e-01	7.2000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	90	90
α [deg]	0.00	
I_y [m⁴], I_z [m⁴]	8.7480e-05	8.7480e-05
i_y [mm], i_z [mm]	52	52
$W_{el.y}$ [m³], $W_{el.z}$ [m³]	9.7200e-04	9.7200e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]	9.7200e-04	9.7200e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	15552.00	15552.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	15552.00	15552.00
d_y [mm], d_z [mm]	0	0
I_t [m⁴], I_w [m⁶]	1.4773e-04	0.0000e+00
β_y [mm], β_z [mm]	0	0
Imagine		

CS2- grinda de baza		
Tip	DREP	
Raport detaliat	150; 150	
Tip forma	Pereti grosi	
Material obiect	C14	
Fabricatie	lemn	
Culoare		
A [m²]	2.2500e-02	
A_y [m²], A_z [m²]	1.8750e-02	1.8750e-02
A_L [m²/m], A_D [m²/m]	6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	75	75
α [deg]	0.00	
I_y [m⁴], I_z [m⁴]	4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]	43	43

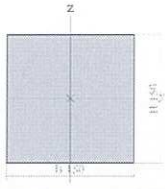
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS7- grinda parapet mana curenta			
Tip	Profil T		
Raport detaliat	50; 50; 180; 50		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.1500e-02	
A_y [m²], A_z [m²]		1.0101e-02	7.7118e-03
A_L [m²/m], A_D [m²/m]		5.6000e-01	5.6000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		90	64
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		7.2871e-06	2.4821e-05
i_y [mm], i_z [mm]		25	46
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.1363e-04	2.7579e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.4502e-04	2.9964e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2320.37	2681.48
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		4794.17	4794.17
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.6903e-05	0.0000e+00
β_y [mm], β_z [mm]		14	0
Imagine			

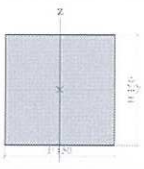
CS2- grinda cadru			
Tip	DREP		
Raport detaliat	150; 150		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		2.2500e-02	
A_y [m²], A_z [m²]		1.8750e-02	1.8750e-02
A_L [m²/m], A_D [m²/m]		6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		75	75
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]		43	43
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS2- montanti cadru		
Tip	DREP	
Raport detaliat	150; 150	
Tip forma	Pereti grosi	

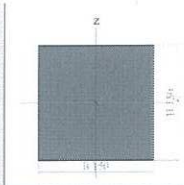
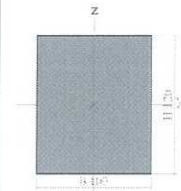
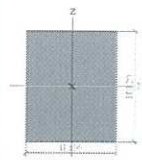
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m^2]		2.2500e-02	
A_y [m^2], A_z [m^2]		1.8750e-02	1.8750e-02
A_L [m^2/m], A_D [m^2/m]		6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		75	75
α [deg]		0.00	
I_y [m^4], I_z [m^4]		4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]		43	43
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

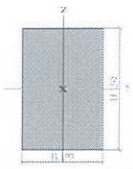


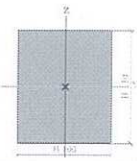
CS2- montanti 1			
Tip	DREP		
Raport detaliat	150; 150		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m^2]		2.2500e-02	
A_y [m^2], A_z [m^2]		1.8750e-02	1.8750e-02
A_L [m^2/m], A_D [m^2/m]		6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		75	75
α [deg]		0.00	
I_y [m^4], I_z [m^4]		4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]		43	43
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			



CS5- pana de rupere panta			
Tip	DREP		
Raport detaliat	150; 150		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m^2]		2.2500e-02	
A_y [m^2], A_z [m^2]		1.8750e-02	1.8750e-02
A_L [m^2/m], A_D [m^2/m]		6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		75	75
α [deg]		0.00	
I_y [m^4], I_z [m^4]		4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]		43	43
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0

Imagine			
CS6- consola streasina la dolie			
Tip	DREP		
Raport detaliat	100; 120		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.2000e-02	
A_y [m²], A_z [m²]		1.0000e-02	1.0000e-02
A_L [m²/m], A_D [m²/m]		4.4000e-01	4.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		1.4400e-05	1.0000e-05
i_y [mm], i_z [mm]		35	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		2.4000e-04	2.0000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		2.4000e-04	2.0000e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		3840.00	3840.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		3200.00	3200.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.9946e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			
CS6- consola streasina la caprior			
Tip	DREP		
Raport detaliat	100; 120		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.2000e-02	
A_y [m²], A_z [m²]		1.0000e-02	1.0000e-02
A_L [m²/m], A_D [m²/m]		4.4000e-01	4.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		1.4400e-05	1.0000e-05
i_y [mm], i_z [mm]		35	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		2.4000e-04	2.0000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		2.4000e-04	2.0000e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		3840.00	3840.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		3200.00	3200.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.9946e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			
CS7- pane dolie			
Tip	DREP		
Raport detaliat	100; 150		
Tip forma	Pereti grosi		
Material obiect	C16		
Fabricatie	lemn		
Culoare			
A [m²]		1.5000e-02	
A_y [m²], A_z [m²]		1.2500e-02	1.2500e-02
A_L [m²/m], A_D [m²/m]		5.0000e-01	5.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	75
α [deg]		0.00	

I_y [m⁴], I_z [m⁴]		2.8125e-05	1.2500e-05
i_y [mm], i_z [mm]		43	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		3.7500e-04	2.5000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		4.1667e-04	2.7778e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		7083.33	7083.33
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		4722.22	4722.22
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		2.9374e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS7- capriori			
Tip	DREP		
Raport detaliat	100; 120		
Tip forma	Pereti grosi		
Material obiect	C16		
Fabricatie	lemn		
Culoare			
A [m²]		1.2000e-02	
A_y [m²], A_z [m²]		1.0000e-02	1.0000e-02
A_L [m²/m], A_D [m²/m]		4.4000e-01	4.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		1.4400e-05	1.0000e-05
i_y [mm], i_z [mm]		35	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		2.4000e-04	2.0000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		2.6667e-04	2.2222e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		4533.33	4533.33
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		3777.78	3777.78
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.9946e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS7- capriori streasina			
Tip	DREP		
Raport detaliat	100; 120		
Tip forma	Pereti grosi		
Material obiect	C16		
Fabricatie	lemn		
Culoare			
A [m²]		1.2000e-02	
A_y [m²], A_z [m²]		1.0000e-02	1.0000e-02
A_L [m²/m], A_D [m²/m]		4.4000e-01	4.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		1.4400e-05	1.0000e-05
i_y [mm], i_z [mm]		35	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		2.4000e-04	2.0000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		2.6667e-04	2.2222e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		4533.33	4533.33
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		3777.78	3777.78
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.9946e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS8-grinda talpa		
Tip	DREP	
Raport detaliat	150; 150	

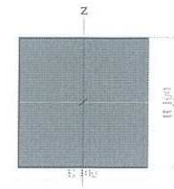
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		2.2500e-02	
A_y [m²], A_z [m²]		1.8750e-02	1.8750e-02
A_L [m²/m], A_D [m²/m]		6.0000e-01	6.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		75	75
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		4.2188e-05	4.2188e-05
i_y [mm], i_z [mm]		43	43
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		5.6250e-04	5.6250e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		5.6250e-04	5.6250e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		9000.00	9000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		9000.00	9000.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		7.1245e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS9-popi lemn cupola			
Tip	DREP		
Raport detaliat	100; 100		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.0000e-02	
A_y [m²], A_z [m²]		8.3333e-03	8.3333e-03
A_L [m²/m], A_D [m²/m]		4.0000e-01	4.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	50
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		8.3333e-06	8.3333e-06
i_y [mm], i_z [mm]		29	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.6667e-04	1.6667e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.6667e-04	1.6667e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2666.67	2666.67
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		2666.67	2666.67
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.4073e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

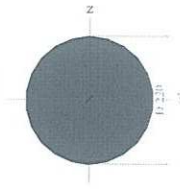
CS10-capriori cupola			
Tip	DREP		
Raport detaliat	75; 100		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		7.5000e-03	
A_y [m²], A_z [m²]		6.2500e-03	6.2500e-03
A_L [m²/m], A_D [m²/m]		3.5000e-01	3.5000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		38	50
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		6.2500e-06	3.5156e-06
i_y [mm], i_z [mm]		29	22
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.2500e-04	9.3750e-05
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.2500e-04	9.3750e-05
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2000.00	2000.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		1500.00	1500.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		7.6165e-06	0.0000e+00
β_y [mm], β_z [mm]		0	0

Imagine		

CS11-pana cupola

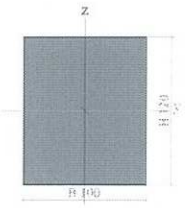
Tip	DREP	
Raport detaliat	100; 100	
Tip forma	Pereti grosi	
Material obiect	C14	
Fabricatie	lemn	
Culoare		
A [m^2]	1.0000e-02	
A_y [m^2], A_z [m^2]	8.3333e-03	8.3333e-03
A_L [m^2/m], A_D [m^2/m]	4.0000e-01	4.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	50	50
α [deg]	0.00	
I_y [m^4], I_z [m^4]	8.3333e-06	8.3333e-06
i_y [mm], i_z [mm]	29	29
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	1.6667e-04	1.6667e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]	1.6667e-04	1.6667e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	2666.67	2666.67
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	2666.67	2666.67
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	1.4073e-05	0.0000e+00
β_y [mm], β_z [mm]	0	0
Imagine		

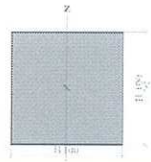
CS12- el.central coama

Tip	CIRC	
Raport detaliat	220	
Tip forma	Pereti grosi	
Material obiect	C14	
Fabricatie	lemn	
Culoare		
A [m^2]	3.8013e-02	
A_y [m^2], A_z [m^2]	3.4212e-02	3.4212e-02
A_L [m^2/m], A_D [m^2/m]	6.9112e-01	6.9112e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	110	110
α [deg]	0.00	
I_y [m^4], I_z [m^4]	1.1499e-04	1.1499e-04
i_y [mm], i_z [mm]	55	55
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	1.0454e-03	1.0454e-03
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]	1.7747e-03	1.7747e-03
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	19087.88	19087.88
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	19087.88	19087.88
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	2.2998e-04	0.0000e+00
β_y [mm], β_z [mm]	0	0
Imagine		

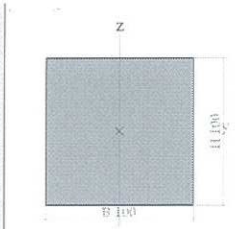
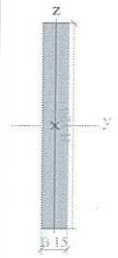
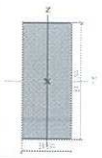
CS11-contrafise cupola

Tip	DREP	
Raport detaliat	100; 120	
Tip forma	Pereti grosi	
Material obiect	C14	
Fabricatie	lemn	
Culoare		
A [m^2]	1.2000e-02	
A_y [m^2], A_z [m^2]	1.0000e-02	1.0000e-02

A_L [m²/m], A_D [m²/m]		4.4000e-01	4.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		1.4400e-05	1.0000e-05
i_y [mm], i_z [mm]		35	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		2.4000e-04	2.0000e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		2.4000e-04	2.0000e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		3840.00	3840.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		3200.00	3200.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.9946e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

CS8-grinda jos ornament			
Tip	DREP		
Raport detaliat	100; 100		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.0000e-02	
A_y [m²], A_z [m²]		8.3333e-03	8.3333e-03
A_L [m²/m], A_D [m²/m]		4.0000e-01	4.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	50
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		8.3333e-06	8.3333e-06
i_y [mm], i_z [mm]		29	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.6667e-04	1.6667e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.6667e-04	1.6667e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2666.67	2666.67
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		2666.67	2666.67
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.4073e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

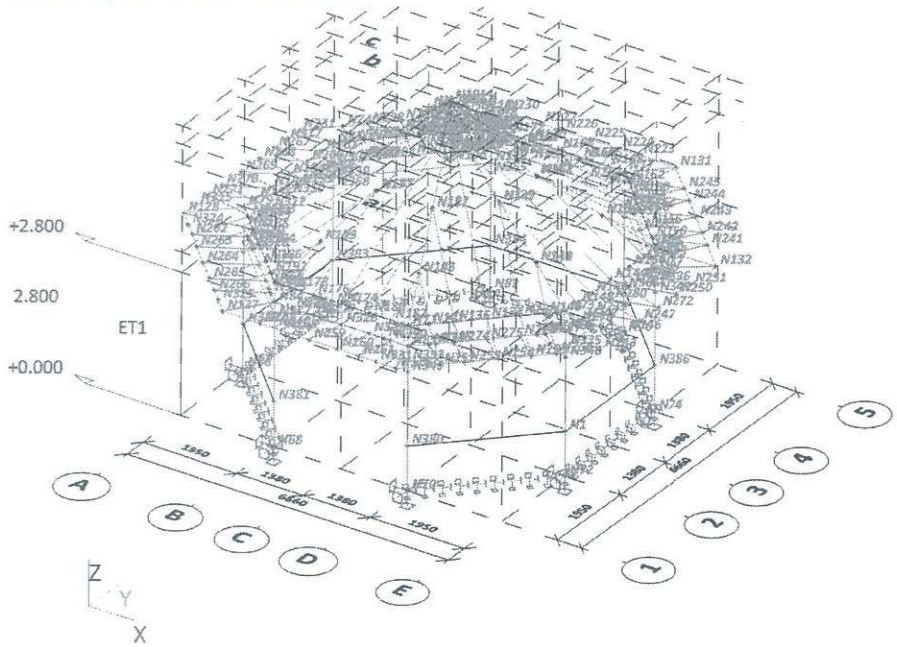
CS15-contrafise stalp-grinda jos			
Tip	DREP		
Raport detaliat	100; 100		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.0000e-02	
A_y [m²], A_z [m²]		8.3333e-03	8.3333e-03
A_L [m²/m], A_D [m²/m]		4.0000e-01	4.0000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		50	50
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		8.3333e-06	8.3333e-06
i_y [mm], i_z [mm]		29	29
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.6667e-04	1.6667e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.6667e-04	1.6667e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2666.67	2666.67
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		2666.67	2666.67
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.4073e-05	0.0000e+00
β_y [mm], β_z [mm]		0	0

Imagine			
CS7- pazie			
Tip	DREP		
Raport detaliat	15; 120		
Tip forma	Pereti grosi		
Material obiect	C14		
Fabricatie	lemn		
Culoare			
A [m²]		1.8000e-03	
A_y [m²], A_z [m²]		1.5000e-03	1.5000e-03
A_L [m²/m], A_D [m²/m]		2.7000e-01	2.7000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		8	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		2.1600e-06	3.3750e-08
i_y [mm], i_z [mm]		35	4
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		3.6000e-05	4.5000e-06
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		3.6000e-05	4.5000e-06
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		576.00	576.00
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		72.00	72.00
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		1.2437e-07	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			
CS7- contravantuiri acoperis			
Tip	DREP		
Raport detaliat	50; 120		
Tip forma	Pereti grosi		
Material obiect	C16		
Fabricatie	lemn		
Culoare			
A [m²]		6.0000e-03	
A_y [m²], A_z [m²]		5.0000e-03	5.0000e-03
A_L [m²/m], A_D [m²/m]		3.4000e-01	3.4000e-01
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]		25	60
α [deg]		0.00	
I_y [m⁴], I_z [m⁴]		7.2000e-06	1.2500e-06
i_y [mm], i_z [mm]		35	14
$W_{el.y}$ [m³], $W_{el.z}$ [m³]		1.2000e-04	5.0000e-05
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]		1.3333e-04	5.5556e-05
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]		2266.67	2266.67
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]		944.44	944.44
d_y [mm], d_z [mm]		0	0
I_t [m⁴], I_w [m⁶]		3.6889e-06	0.0000e+00
β_y [mm], β_z [mm]		0	0
Imagine			

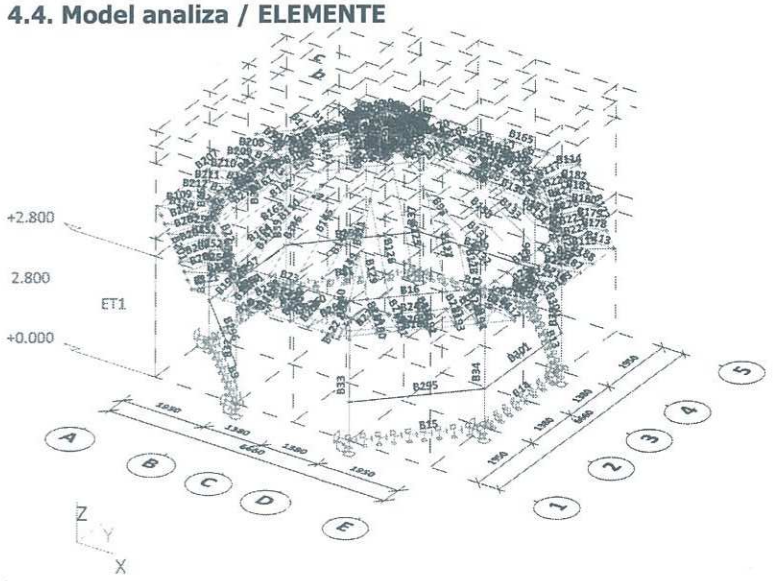
Explicari simboluri	
A	Arie
A_y	Aria de forfecare pe directie principala y
A_z	Aria de forfecare pe directie principala z

Explicari simboluri	
A_L	Circumferinta pe unitate de lungime
A_D	Suprafata uscata pe unitate lungime
$c_{Y.UCS}$	Coordonata centru de greutate pe directia Y a sistemului de axe introdus
$c_{Z.UCS}$	Coordonata centru de greutate pe directia Z a sistemului de axe introdus
$I_{Y.LCS}$	Moment de inertie pe axa YLCS
$I_{Z.LCS}$	Moment de inertie pe axa ZLCS
$I_{YZ.LCS}$	Produs moment inertie in sistem SCL
α	Unghi rotire sistem principal de axe
I_y	Moment de inertie pe axa principala y
I_z	Moment de inertie pe axa principala z
i_y	Raza de giratie pe axa principala y
i_z	Raza de giratie pe axa principala z
$W_{el.y}$	Modulul de rezistenta elastic pe axa principala y
$W_{el.z}$	Modulul de rezistenta elastic pe axa principala z
$W_{pl.y}$	Modulul de rezistenta plastic al sectiunii pe axa principala y
$W_{pl.z}$	Modulul de rezistenta plastic al sectiunii pe axa principala z
$M_{pl.y.+}$	Moment plastic pe axa principala y pt. moment My pozitiv
$M_{pl.y.-}$	Moment plastic pe axa principala y pt. moment My negativ
$M_{pl.z.+}$	Moment plastic pe axa principala z pt. moment Mz pozitiv
$M_{pl.z.-}$	Moment plastic pe axa principala z pt. moment Mz negativ
d_y	Coordonata centrului de forfecare pe directia principala y, masurata din centrul de greutate - Necalculat si nesimplificat
d_z	Coordonata centrului de forfecare pe directia principala z, masurata din centrul de greutate - Necalculat si nesimplificat
I_t	Constanta de torsiune - Necalculat si nesimplificat
I_w	Constanta de rasucire - Necalculat si nesimplificat
β_y	Constanta mono-simetrie pe axa principala y
β_z	Mono-simetrie constanta pe axa principala z

4.3. Model analiza / NODURI STRUCTURA



4.4. Model analiza / ELEMENTE



4.5. Soluri

Nume	C1x [MN/m³]	C1z	C1y [MN/m³]	Rigiditate [MN/m³]	C2x [MN/m]	C2y [MN/m]
Sub1	5.0000e+02	Flexibila	5.0000e+02	5.0000e+01	3.0000e+01	3.0000e+01

4.6. Profile geologice

Foraj F2

- **Sol vegetal în grosime de 0,20 m**
- **Pietrişuri si bolovănişuri în matrice argilo - nisipoasă 2,80m;**

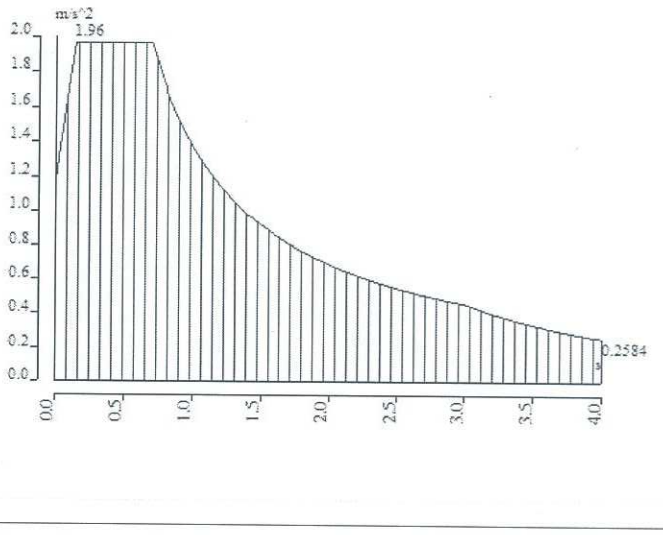
4.7. Presiuni vant

qref= 0,60 KPa
Vb,0= 30m/s ;

4.8. Zona geologica

Sarcina limita (kPa)
226,56

4.9. Spectre seismice

Nume ID unic	Tip de desen	Informatii	Desen
FS1- q=1,5	Perioada	Tip normativ - Normativ Romanesc Tip spectru - Orizontal Oras - Campulung Moldovenesc Gamma - factor importanta - 0.8 coef. acceleratie ag - 0.15 ag - acc. teren pe orizontala - 1.4715 TB - 0.14 TC - 0.7 TD - 3 beta0 - 2.5 q - factor de comportare - 1.5	

5. EVALUARE ACTIUNI

5.1. Cazuri de incarcare

Nume	Descriere	Tip actiune	Grupa incarcare	Directia	Durata	Caz de incarcare principal
	Spec	Tip incarcare				
LC1	Greutate proprie	Permanenta Greutate proprie	LG2	-Z		
LC2	Finisaje	Permanenta Standard	LG3			
LC3	Instalatii	Permanenta Standard	LG3			
LC4	Utile acoperis Standard	Variabila Static	LG6		Scurta	Nimic
LC12	Utile parapet Standard	Variabila Static	LG6		Scurta	Nimic
LC5	Zapada uniforma Zapada	Variabila Static	LG5-zapada			Nimic
LC8	șarpanta+invelitoare	Permanenta Standard	LG1			
LC9	Inchidere lat. fatadă	Permanenta Standard	LG3			
LC10	Sx Seismicitate	Variabila Dinamic	LG3-SEISM3			Nimic
LC11	Sy Seismicitate	Variabila Dinamic	LG3-SEISM4			Nimic
LC13_EA1	VANT Standard	Variabila Static	LG4-VANT1		Scurta	Nimic
Vant 3D1	0, + CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D2	0, + CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D3	0, - CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D4	0, - CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D5	90, + CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D6	90, + CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D7	90, - CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D8	90, - CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D9	180, + CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D10	180, + CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D11	180, - CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D12	180, - CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D13	270, + CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D14	270, + CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D15	270, - CPE, + CPI Vant static	Variabila Static	LG4-VANT2			Nimic
Vant 3D16	270, - CPE, - CPI Vant static	Variabila Static	LG4-VANT2			Nimic

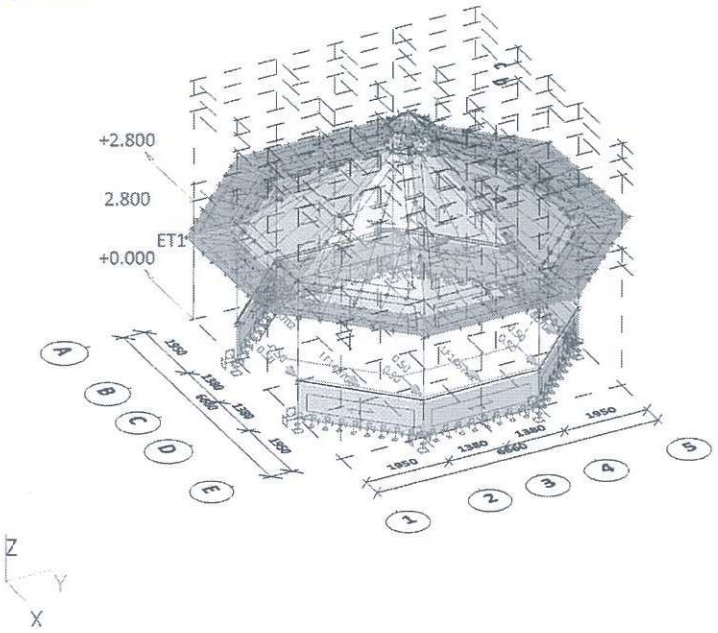
5.2. GREUTATE PROPRIE

Nume	Masa [kg]	Suprafata [m²]	Volum [m³]
Rezultate totale :	1733.1	195.732	5.8348e+00

Explicari simboluri	
Suprafata	Nota: doar o suprafata a fiecarui element 2D este preluat in calcularea ariei de suprafata.

Material	Masa [kg]	Suprafata [m²]	Densitate volum [kg/m³]	Volum [m³]
C14	1097.3	121.286	290.0	3.7840e+00
C16	635.8	74.445	310.0	2.0509e+00

5.3. LC12 /utile parapet 0,5kN/m



5.4. LC5 -ZAPADA UNIFORMA 1,6KN/MP

5.5. LC2 / INCARCARI UTILE PE ACOPERIS 0,75KN/MP

5.6. LC8-INVELITOARE,ASTEREALA ,SIPCI

5.7. Incarcare pe suprafata

Nume	Dir	Tip	Coef	Valoare [kN/m²]	Incarcare predefinita	Caz incarcare	Sistem	Loc
SF1	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF2	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF3	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF4	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF5	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF6	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF7	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF8	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF11	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF12	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF13	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF14	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF15	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF16	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF17	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF18	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF19	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF20	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF21	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF22	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF23	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF24	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF25	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF26	Z	Zapada	-0.800	-1.28		LC5 - Zapada uniforma	SCG	Lungime
SF27	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF28	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF29	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF30	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF31	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF32	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF33	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF34	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF37	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF38	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF39	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF40	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF41	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF42	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF43	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF44	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF45	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF46	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime

Nume	Dir	Tip	Coef	Valoare [kN/m²]	Incarcare predefinita	Caz incarcare	Sistem	Loc
SF47	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF48	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF49	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF50	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF51	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF52	Z	Forta		-0.75		LC4 - Utile acoperis	SCG	Lungime
SF53	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF54	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF55	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF56	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF57	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF58	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF59	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF60	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF63	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF64	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF65	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF66	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF67	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF68	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF69	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF70	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF71	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF72	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF73	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF74	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF75	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF76	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF77	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime
SF78	Z	Incarcare predefinita	-1.000	-0.23	PL3-INCARCARI INVELITOARE/acoperis	LC2 - Finisaje	SCG	Lungime

5.8. Incarcari predefinite

Nume	Incarcare totala [kN/m²]	Nume layer	Grosime [mm]	Densitate [kg/m³]
PL3-INCARCARI INVELITOARE/acoperis	0.23	INVELITOARE	1	7850.0
		SIPCI	20	400.0
		ASTEREALA +folie	20	600.0

5.9. Date vant

Nume	Tip	Tip acoperis	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
WD20	Acoperis	Acoperis 1 apa	Nu	0	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				90	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				180	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				270	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
WD21	Acoperis	Acoperis 1 apa	Nu	0	1	F1	-2.3720	-2.3720
					2	F2	-2.3720	-2.3720
					3	G	-1.3000	-1.3000
					4	H	-0.8360	-0.8360
				90	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				180	1	F1	0.0720	-1.4120
					2	F2	0.0720	-1.4120
					3	G	0.0720	-1.0560
					4	H	0.0720	-0.4920
				270	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
WD22	Acoperis	Acoperis 1 apa	Nu	0	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				90	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				180	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				270	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
WD23	Acoperis	Acoperis 1 apa	Nu	0	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				90	1	F1	-2.3720	-2.3720
					2	F2	-2.3720	-2.3720
					3	G	-1.3000	-1.3000

Nume	Tip	Tip acoperis	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
					4	H	-0.8360	-0.8360
				180	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				270	1	F1	0.0720	-1.4120
					2	F2	0.0720	-1.4120
					3	G	0.0720	-1.0560
					4	H	0.0720	-0.4920
WD24	Acoperis	Acoperis 1 apa	Nu	0	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				90	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				180	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				270	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
WD25	Acoperis	Acoperis 1 apa	Nu	0	1	F1	0.0720	-1.4120
					2	F2	0.0720	-1.4120
					3	G	0.0720	-1.0560
					4	H	0.0720	-0.4920
				90	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				180	1	F1	-2.3720	-2.3720
					2	F2	-2.3720	-2.3720
					3	G	-1.3000	-1.3000
					4	H	-0.8360	-0.8360
				270	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
WD27	Acoperis	Acoperis 1 apa	Nu	0	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				90	1	F1	-2.3720	-2.3720
					2	H	-0.8360	-0.8360
				180	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
				270	1	F1	0.0720	-1.4120
					2	H	0.0720	-0.4920
WD28	Acoperis	Acoperis 1 apa	Nu	0	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				90	1	F1	0.0720	-1.4120
					2	F2	0.0720	-1.4120
					3	G	0.0720	-1.0560
					4	H	0.0720	-0.4920
				180	1	Fup	-2.2080	-2.2080
					2	H	-0.6720	-0.6720
					3	I	-0.5720	-0.5720
				270	1	F1	-2.3720	-2.3720
					2	F2	-2.3720	-2.3720
					3	G	-1.3000	-1.3000
					4	H	-0.8360	-0.8360
WD51	Perete		Nu	0	1	D	0.7000	0.7000
				90	1	E	-0.3000	-0.3000
				180	1	E	-0.3000	-0.3000
				270	1	D	0.7000	0.7000
WD52	Perete		Nu	0	1	E	-0.3000	-0.3000
				90	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
				180	1	D	0.7000	0.7000
				270	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
WD53	Perete		Nu	0	1	D	0.7000	0.7000
				90	1	D	0.7000	0.7000
				180	1	E	-0.3000	-0.3000
				270	1	E	-0.3000	-0.3000
WD54	Perete		Nu	0	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
				90	1	E	-0.3000	-0.3000
				180	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
				270	1	D	0.7000	0.7000
WD55	Perete		Nu	0	1	E	-0.3000	-0.3000
				90	1	D	0.7000	0.7000
				180	1	D	0.7000	0.7000

Nume	Tip	Tip acoperis	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
				270	1	E	-0.3000	-0.3000
WD56	Perete		Nu	0	1	D	0.7000	0.7000
				90	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
				180	1	E	-0.3000	-0.3000
				270	1	A	-1.2000	-1.2000
					2	B	-0.8000	-0.8000
					3	C	-0.5000	-0.5000
WD57	Perete		Nu	0	1	E	-0.3000	-0.3000
				90	1	E	-0.3000	-0.3000
				180	1	D	0.7000	0.7000
				270	1	D	0.7000	0.7000
WD58	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD59	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD60	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD62	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD63	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD64	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD65	Acoperis	Acoperis 1 apa	Nu	0				
				90				
				180				
				270				
WD66	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD67	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD69	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD70	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD71	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD72	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD73	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD74	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD75	Acoperis	Sarpanta	Nu	0				
				90				
				180				
				270				
WD76	Acoperis	Acoperis 1 apa	Nu	0				

Nume	Tip	Tip acoperis	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
				90 180 270				
WD77	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD78	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD79	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD80	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD81	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD82	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				
WD83	Acoperis	Acoperis 1 apa	Nu	0 90 180 270				

6. REZULTATE CALCUL LINIAR

6.1. Eforturi pe cadru

6.1.1. Eforturi DIN ULS

Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal, Nervuri / Latime activa
Selectie : Toate
Clasa : TOATE ULS

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B9	CS2- grinda de baza - DREP	0.000	GS-SEISM/1	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	0.00
B15	CS2- grinda de baza - DREP	1.838	GS-SEISM/2	**0.00**	0.00	0.00	0.00	0.00	0.00
B15	CS2- grinda de baza - DREP	1.838	GS-SEISM/1	0.00	**0.00**	**0.00**	**0.00**	0.00	**0.00**
B9	CS2- grinda de baza - DREP	0.000	GS-SEISM/3	0.00	0.00	0.00	0.00	**0.00**	0.00
B15	CS2- grinda de baza - DREP	2.758	GS-SEISM/1	0.00	0.00	0.00	0.00	0.00	**0.00**
B23	CS5- pana de rupere panta - DREP	0.800	GS-SEISM/4	**-3.78**	-0.42	0.94	0.03	0.22	-0.21
B23	CS5- pana de rupere panta - DREP	0.360	Grup. fundamentală/5	**33.80**	1.96	3.81	-0.28	-0.76	0.23
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/6	32.61	**-2.83**	-4.58	0.20	-2.35	-0.58
B16	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/7	32.31	**2.09**	4.24	-0.28	-2.25	-0.48
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/8	32.07	-2.75	**-4.64**	0.18	**-2.38**	-0.57
B16	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/5	32.78	2.06	**4.33**	-0.27	-2.32	-0.47
B23	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/9	33.30	2.01	4.00	**-0.28**	-2.14	-0.49
B20	CS5- pana de rupere panta - DREP	2.400	Grup. fundamentală/6	33.21	-1.94	-3.74	**0.27**	-0.73	0.22
B22	CS5- pana de rupere panta - DREP	1.379	GS-SEISM/2	16.99	-0.76	-1.16	0.03	**0.67**	0.19
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/7	32.01	-2.78	-4.50	0.19	-2.27	**-0.59**
B19	CS5- pana de rupere panta - DREP	2.400	Grup. fundamentală/6	32.61	-2.77	-4.32	0.20	-0.75	**0.43**
B28	CS2- grinda cadru - DREP	1.958	Grup. fundamentală/8	**-8.05**	1.86	-2.75	0.24	-0.06	-0.54
B24	CS2- grinda cadru - DREP	0.500	GS-SEISM/4	**2.99**	0.11	-2.49	-0.04	1.38	0.09
B27	CS2- grinda cadru - DREP	0.360	Grup. fundamentală/6	-3.26	**-3.94**	0.00	-0.16	-0.37	0.14
B29	CS2- grinda cadru - DREP	2.400	Grup. fundamentală/8	-3.66	**4.01**	-0.02	0.17	-0.39	0.18
B30	CS2- grinda cadru - DREP	2.258	GS-SEISM/2	-5.87	0.80	**-3.73**	0.04	-1.75	-0.09
B24	CS2- grinda cadru - DREP	0.500	GS-SEISM/2	-5.89	-0.78	**3.76**	-0.05	**-1.77**	-0.09
B31	CS2- grinda cadru - DREP	0.500	Grup. fundamentală/9	-7.66	-1.87	2.60	**-0.25**	-0.79	-0.03
B31	CS2- grinda cadru - DREP	1.960	Grup. fundamentală/9	-7.54	1.96	-2.46	**0.24**	0.01	-0.63
B30	CS2- grinda cadru - DREP	0.500	GS-SEISM/3	2.91	0.07	-2.54	-0.01	**1.40**	0.09
B31	CS2- grinda cadru - DREP	1.380	Grup. fundamentală/9	-7.12	-0.74	1.68	-0.06	0.91	**-0.72**
B29	CS2- grinda cadru - DREP	2.760	Grup. fundamentală/8	-3.66	4.00	-0.12	0.17	-0.42	**1.63**
B38	CS1-stalpi lemn - DREP	0.000	Grup. fundamentală/8	**-32.48**	0.22	-0.61	0.00	0.53	-0.14
B34	CS1-stalpi lemn - DREP	2.300	GS-SEISM/2	-6.71	**-5.67**	1.54	0.00	-1.74	2.56
B39	CS1-stalpi lemn - DREP	2.300	GS-SEISM/1	-6.59	**5.47**	-1.36	0.00	1.80	-2.41
B33	CS1-stalpi lemn - DREP	2.300	GS-SEISM/1	-8.71	1.20	**-5.39**	0.00	2.33	-1.94
B32	CS1-stalpi lemn - DREP	2.300	GS-SEISM/1	-8.78	1.34	**5.65**	0.00	-2.53	-1.84
B39	CS1-stalpi lemn - DREP	2.506	GS-SEISM/1	-6.36	2.72	3.53	**-0.02**	-1.06	-1.00
B37	CS1-stalpi lemn - DREP	2.506	GS-SEISM/2	-8.65	-0.70	-1.54	**0.02**	1.31	1.51
B32	CS1-stalpi lemn - DREP	0.000	GS-SEISM/2	-13.43	2.04	2.59	-0.01	**-3.38**	-2.77

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B32	CS1-stalpi lemn - DREP	0.000	GS-SEISM/4	-0.90	-2.07	-2.49	0.00	**3.34**	2.84
B34	CS1-stalpi lemn - DREP	0.000	GS-SEISM/2	-13.89	2.36	-2.20	0.01	-2.97	**-3.12**
B34	CS1-stalpi lemn - DREP	0.000	GS-SEISM/4	-0.59	-2.34	2.26	0.00	2.95	**3.12**
B46	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/8	**-22.62**	0.77	-1.73	0.00	1.27	-0.56
B43	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/10	-22.31	**-2.54**	0.27	0.01	-0.46	1.45
B40	CS2- montanti 1 - DREP	0.000	GS-SEISM/1	-5.84	**2.10**	0.71	0.00	-0.74	-1.14
B46	CS2- montanti 1 - DREP	0.000	GS-SEISM/1	-6.04	-0.55	**-2.33**	-0.01	1.04	-0.66
B42	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/5	-21.60	-0.71	**2.46**	-0.01	-1.35	0.55
B44	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/11	-17.44	-0.71	-0.37	**-0.02**	0.67	1.53
B47	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/11	-17.43	0.64	0.53	**0.02**	0.53	-1.53
B42	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/12	-22.06	-0.98	2.45	-0.01	**-1.42**	0.58
B45	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/7	-21.25	-0.48	-0.33	0.00	**1.79**	0.81
B40	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/9	-21.19	0.81	-0.43	-0.01	-0.66	**-1.88**
B44	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/10	-21.31	-0.66	-0.85	-0.01	0.83	**1.84**
B57	CS12- el.central coama - CIRC	1.203	Grup. fundamentală/12	**4.39**	0.00	0.00	0.00	0.00	0.00
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/1	1.13	**-0.07**	-0.06	**0.00**	**0.05**	**0.05**
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/3	0.61	**0.07**	0.06	**0.00**	**-0.04**	**-0.05**
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/4	0.12	-0.07	**-0.06**	0.00	0.05	0.05
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/2	1.62	0.07	**0.06**	0.00	-0.04	-0.05
B58	CS8-grinda talpa - DREP	0.293	Grup. fundamentală/7	**-7.25**	-0.26	-1.41	0.74	-0.39	-0.05
B65	CS8-grinda talpa - DREP	0.212	Grup. fundamentală/13	-6.78	**-0.50**	1.28	-0.72	-0.26	-0.03
B64	CS8-grinda talpa - DREP	0.000	GS-SEISM/3	-1.16	**0.49**	-0.01	-0.12	-0.09	-0.06
B59	CS8-grinda talpa - DREP	0.390	Grup. fundamentală/10	-7.00	-0.10	**-1.68**	0.72	-0.57	0.06
B58	CS8-grinda talpa - DREP	0.000	Grup. fundamentală/12	-7.24	-0.08	**1.59**	-0.72	-0.55	-0.01
B60	CS8-grinda talpa - DREP	0.000	Grup. fundamentală/14	-6.99	0.14	1.53	**-0.78**	-0.52	-0.04
B60	CS8-grinda talpa - DREP	0.195	Grup. fundamentală/14	-6.98	-0.05	-1.48	**0.77**	-0.22	0.00
B63	CS8-grinda talpa - DREP	0.424	Grup. fundamentală/6	-6.93	0.04	-1.65	-0.72	**-0.57**	-0.04
B59	CS8-grinda talpa - DREP	0.000	GS-SEISM/4	-0.45	-0.29	-0.18	-0.06	**0.10**	0.03
B64	CS8-grinda talpa - DREP	0.000	Grup. fundamentală/15	-5.96	0.30	1.25	-0.60	-0.43	**-0.09**
B65	CS8-grinda talpa - DREP	0.000	GS-SEISM/1	-1.94	-0.27	0.21	-0.25	-0.06	**0.11**
B72	CS11-pana cupola - DREP	0.212	Grup. fundamentală/16	**1.57**	-0.01	0.06	0.00	0.00	0.00
B72	CS11-pana cupola - DREP	0.424	Grup. fundamentală/8	1.57	**-0.03**	-0.04	0.00	0.00	0.00
B66	CS11-pana cupola - DREP	0.000	Grup. fundamentală/9	1.55	**0.03**	0.03	0.00	0.00	0.00
B73	CS11-pana cupola - DREP	0.424	Grup. fundamentală/14	1.47	0.00	**-0.22**	0.00	-0.03	0.00
B72	CS11-pana cupola - DREP	0.000	Grup. fundamentală/8	1.57	0.00	**0.22**	0.00	**-0.04**	0.00
B68	CS11-pana cupola - DREP	0.000	GS-SEISM/1	0.46	0.01	-0.03	**0.00**	0.01	0.00
B70	CS11-pana cupola - DREP	0.000	GS-SEISM/2	0.46	-0.01	-0.04	**0.00**	0.01	0.00
B70	CS11-pana cupola - DREP	0.000	GS-SEISM/3	0.09	-0.01	-0.07	0.00	**0.02**	0.00
B73	CS11-pana cupola - DREP	0.000	Grup. fundamentală/14	1.47	0.03	0.05	0.00	0.00	**0.00**
B66	CS11-pana cupola - DREP	0.390	Grup. fundamentală/9	1.55	0.00	-0.20	0.00	-0.03	**0.00**
B77	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/8	**-1.64**	-0.01	-0.01	0.00	-0.07	0.03
B80	CS9-popi lemn cupola - DREP	0.379	GS-SEISM/3	**0.07**	0.16	-0.08	0.00	-0.01	0.02
B74	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/14	-0.82	**-0.50**	-0.17	0.00	0.08	**0.21**
B79	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/14	-0.84	**0.48**	0.20	0.00	-0.08	**-0.21**
B81	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/17	-1.25	0.08	**-0.20**	0.00	**0.13**	-0.05
B78	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/17	-1.04	0.22	**0.29**	0.00	**-0.15**	-0.09
B76	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/9	-1.05	-0.37	0.02	**0.00**	-0.04	0.17
B74	CS9-popi lemn cupola - DREP	0.000	GS-SEISM/2	-0.42	-0.24	-0.10	**0.00**	0.03	0.11
B84	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/6	**-2.13**	0.00	0.84	0.00	0.18	0.00
B86	CS11-contrafise cupola - DREP	0.703	GS-SEISM/3	**0.31**	-0.02	-0.10	0.00	-0.04	0.00
B87	CS11-contrafise cupola - DREP	0.000	GS-SEISM/2	-1.00	**-0.02**	-0.47	0.00	0.09	0.01
B88	CS11-contrafise cupola - DREP	0.000	GS-SEISM/2	-0.83	**0.02**	-0.41	0.00	0.08	-0.01
B88	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/16	-2.09	0.01	**-0.87**	0.00	-0.42	0.00
B84	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/14	-2.07	0.00	**0.87**	0.00	**-0.43**	0.00
B85	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/9	-1.74	0.01	0.80	**0.00**	-0.38	0.00
B87	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/14	-1.69	-0.02	-0.76	**0.00**	0.17	0.00
B84	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/17	-2.10	0.00	0.85	0.00	**0.18**	0.00
B87	CS11-contrafise cupola - DREP	0.703	GS-SEISM/2	-0.98	-0.02	-0.49	0.00	-0.24	**-0.01**
B88	CS11-contrafise cupola - DREP	0.703	GS-SEISM/2	-0.81	0.02	-0.43	0.00	-0.22	**0.01**
B106	CS7- pane dolie - DREP	3.536	Grup. fundamentală/8	**-27.10**	-0.01	-2.83	0.00	-2.27	-0.01
B91	CS7- pane dolie - DREP	1.097	Grup. fundamentală/7	**2.74**	-0.02	-0.50	0.00	0.13	-0.01
B101	CS7- pane dolie - DREP	1.111	Grup. fundamentală/9	-18.70	**-0.88**	1.60	0.19	0.10	-0.13
B106	CS7- pane dolie - DREP	2.452	Grup. fundamentală/8	-24.87	**0.80**	-1.60	-0.08	0.29	-0.04
B99	CS7- pane dolie - DREP	3.536	Grup. fundamentală/14	-26.02	-0.01	**-2.87**	0.00	-2.29	-0.01
B106	CS7- pane dolie - DREP	1.111	Grup. fundamentală/18	-18.80	0.49	**1.65**	-0.20	-0.03	0.15
B106	CS7- pane dolie - DREP	1.111	Grup. fundamentală/8	-19.78	0.64	1.62	**-0.21**	-0.03	0.15
B93	CS7- pane dolie - DREP	1.111	Grup. fundamentală/14	-19.63	-0.47	1.54	**0.21**	0.07	-0.18
B101	CS7- pane dolie - DREP	3.536	Grup. fundamentală/6	-26.53	-0.01	-2.87	0.00	**-2.29**	-0.01
B110	CS7- pane dolie - DREP	1.084	Grup. fundamentală/10	-21.89	-0.02	0.03	0.00	**1.03**	0.01
B93	CS7- pane dolie - DREP	1.149	Grup. fundamentală/14	-19.65	-0.47	1.51	0.21	0.13	**-0.20**
B108	CS7- pane dolie - DREP	2.387	Grup. fundamentală/8	-19.00	-0.55	-2.29	0.12	0.14	**0.18**
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/7	**-3.00**	0.03	1.22	0.00	-0.73	-0.02
B122	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/15	-2.55	**-0.08**	0.57	0.00	0.25	-0.03
B121	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/11	-2.59	**0.09**	0.56	0.00	0.25	0.03
B116	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/19	-2.22	0.00	**-1.03**	0.00	-0.53	-0.01
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/11	-2.71	-0.01	**1.28**	0.00	-0.70	0.01
B119	CS6- consola streasina la dolie - DREP	0.000	GS-SEISM/2	-0.61	-0.02	0.48	**0.00**	-0.38	0.04

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/11	-2.60	0.06	1.12	**0.00**	-0.64	-0.05
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/14	-2.91	-0.01	1.27	0.00	**-0.75**	0.01
B122	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/9	-2.91	-0.04	0.77	0.00	**0.32**	-0.01
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/20	-2.76	0.07	1.15	0.00	-0.68	**-0.05**
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/20	-2.72	-0.05	1.15	0.00	-0.69	**0.05**
B150	CS7- capriori - DREP	0.000	Grup. fundamentală/17	**-1.57**	-0.01	1.90	0.00	0.00	0.02
B141	CS7- capriori - DREP	2.249	Grup. fundamentală/9	**3.51**	0.00	-1.41	0.00	-0.47	0.00
B160	CS7- capriori - DREP	0.000	Grup. fundamentală/6	1.40	**-0.28**	0.19	0.00	0.00	0.13
B128	CS7- capriori - DREP	0.000	Grup. fundamentală/6	1.29	**0.28**	0.19	0.00	0.00	-0.14
B135	CS7- capriori - DREP	3.338	Grup. fundamentală/17	1.03	-0.01	**-2.45**	0.00	-1.35	-0.01
B162	CS7- capriori - DREP	0.000	Grup. fundamentală/7	-1.11	0.00	**1.91**	0.00	0.00	0.00
B150	CS7- capriori - DREP	0.000	GS-SEISM/1	-0.43	-0.24	0.52	**-0.03**	0.00	0.21
B125	CS7- capriori - DREP	0.000	GS-SEISM/1	-0.48	0.25	0.75	**0.03**	0.00	**-0.22**
B130	CS7- capriori - DREP	3.332	Grup. fundamentală/21	1.23	0.01	-2.42	0.00	**-1.36**	0.02
B162	CS7- capriori - DREP	1.298	Grup. fundamentală/7	-0.15	0.00	0.14	0.00	**1.45**	0.00
B125	CS7- capriori - DREP	0.000	GS-SEISM/3	-0.08	-0.24	0.07	-0.03	0.00	**0.21**
B207	CS7- pazie - DREP	0.000	GS-SEISM/4	**-0.17**	-0.01	-0.01	0.00	0.00	0.00
B201	CS7- pazie - DREP	0.406	Grup. fundamentală/9	**0.50**	0.00	0.15	0.00	-0.03	0.00
B165	CS7- pazie - DREP	0.772	Grup. fundamentală/15	0.32	**-0.04**	-0.15	0.00	-0.02	**-0.01**
B207	CS7- pazie - DREP	2.812	Grup. fundamentală/22	0.38	**0.04**	0.14	0.00	-0.02	-0.01
B207	CS7- pazie - DREP	2.812	Grup. fundamentală/7	0.36	-0.01	**-0.69**	0.00	-0.16	0.00
B183	CS7- pazie - DREP	0.772	Grup. fundamentală/12	0.34	0.01	**0.70**	0.00	-0.16	0.00
B201	CS7- pazie - DREP	0.764	Grup. fundamentală/5	0.40	0.01	0.66	**0.00**	-0.15	0.00
B207	CS7- pazie - DREP	2.372	Grup. fundamentală/7	0.36	0.03	-0.48	**0.00**	0.10	0.00
B165	CS7- pazie - DREP	3.584	Grup. fundamentală/10	0.34	-0.03	-0.48	0.00	**-0.18**	0.00
B189	CS7- pazie - DREP	1.785	Grup. fundamentală/14	0.27	0.03	-0.20	0.00	**0.14**	0.00
B177	CS7- pazie - DREP	2.806	Grup. fundamentală/20	0.33	-0.04	0.11	0.00	-0.02	**0.00**
B191	CS7- capriori streasina - DREP	1.019	GS-SEISM/4	**-0.28**	0.09	-0.01	0.00	0.05	0.06
B170	CS7- capriori streasina - DREP	1.017	Grup. fundamentală/6	**2.91**	0.49	-0.35	-0.01	0.22	**0.26**
B203	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/8	1.37	**-0.49**	0.47	0.02	0.00	0.23
B170	CS7- capriori streasina - DREP	0.339	Grup. fundamentală/6	2.76	**0.50**	0.46	-0.01	0.22	-0.07
B168	CS7- capriori streasina - DREP	1.017	Grup. fundamentală/9	1.00	-0.08	**-0.78**	0.01	-0.14	-0.05
B170	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/6	2.70	0.50	**0.79**	-0.01	0.00	-0.24
B211	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/7	1.43	0.48	0.48	**-0.02**	0.00	-0.22
B167	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/10	1.30	-0.47	0.51	**0.02**	0.00	0.25
B190	CS7- capriori streasina - DREP	1.019	Grup. fundamentală/13	1.51	-0.41	-0.75	0.01	**-0.17**	-0.19
B170	CS7- capriori streasina - DREP	0.678	Grup. fundamentală/6	2.85	0.50	-0.04	-0.01	**0.29**	0.10
B203	CS7- capriori streasina - DREP	1.019	Grup. fundamentală/8	1.15	-0.49	-0.71	0.02	-0.12	**-0.26**
B237	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/6	**-2.86**	-0.52	-0.91	-0.01	-0.50	-0.29
B215	CS6- consola streasina la caprior - DREP	0.000	GS-SEISM/4	**0.28**	-0.14	0.08	0.01	-0.07	0.06
B246	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/7	-1.34	**-0.55**	-0.20	**-0.02**	0.15	0.24
B251	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/8	-1.29	**0.54**	-0.24	0.02	0.16	-0.24
B257	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/23	-2.29	0.49	**-1.05**	0.01	-0.46	0.29
B246	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/24	-0.56	-0.17	**0.24**	-0.01	-0.01	0.07
B234	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/10	-1.35	0.52	-0.09	**0.02**	0.05	-0.23
B237	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/9	-2.85	-0.52	-0.91	-0.01	**-0.50**	-0.29
B214	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/5	-2.26	0.48	-0.54	0.01	**0.23**	-0.21
B247	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/7	-2.72	-0.53	-0.80	-0.02	-0.42	**-0.31**
B257	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/9	-2.39	0.54	-0.88	0.02	-0.49	**0.32**
B269	CS8-grinda jos ornament - DREP	1.838	GS-SEISM/1	**-5.36**	0.01	0.17	0.00	0.09	0.00
B265	CS8-grinda jos ornament - DREP	1.838	GS-SEISM/4	**4.08**	-0.01	-0.20	0.00	-0.08	0.00
B268	CS8-grinda jos ornament - DREP	1.840	GS-SEISM/1	-3.99	**-0.01**	-0.15	0.00	-0.07	0.00
B270	CS8-grinda jos ornament - DREP	0.000	GS-SEISM/1	-4.14	**0.02**	0.17	0.00	-0.21	-0.02
B264	CS8-grinda jos ornament - DREP	2.758	GS-SEISM/2	-5.34	-0.01	**-0.23**	0.00	-0.28	-0.02
B265	CS8-grinda jos ornament - DREP	0.000	GS-SEISM/2	-5.24	0.01	**0.23**	**0.00**	**-0.28**	-0.02
B264	CS8-grinda jos ornament - DREP	0.919	GS-SEISM/2	-5.34	-0.01	-0.17	**0.00**	0.09	0.01
B265	CS8-grinda jos ornament - DREP	2.758	GS-SEISM/2	-5.24	0.01	0.15	0.00	**0.24**	0.02
B270	CS8-grinda jos ornament - DREP	0.000	Grup. fundamentală/19	-2.93	0.01	0.04	0.00	0.00	**-0.02**
B264	CS8-grinda jos ornament - DREP	0.000	Grup. fundamentală/7	-3.56	-0.01	0.05	0.00	-0.02	**0.02**
B274	CS15-contrafise stalp-grinda jos - DREP	0.000	GS-SEISM/2	**-9.80**	-0.08	-0.40	0.00	0.00	0.00
B285	CS15-contrafise stalp-grinda jos - DREP	0.707	GS-SEISM/3	**7.29**	0.05	0.33	0.01	**0.24**	0.04
B271	CS15-contrafise stalp-grinda jos - DREP	0.000	Grup. fundamentală/9	-5.49	**-0.66**	-0.14	**-0.03**	0.00	0.00
B273	CS15-contrafise stalp-grinda jos - DREP	0.000	Grup. fundamentală/9	-5.20	**0.64**	-0.13	**0.03**	0.00	0.00
B274	CS15-contrafise stalp-grinda jos - DREP	0.707	GS-SEISM/2	-9.78	-0.08	**-0.42**	0.00	**-0.29**	-0.06
B285	CS15-contrafise stalp-grinda jos - DREP	0.000	GS-SEISM/3	7.28	0.05	**0.34**	0.01	0.00	0.00
B271	CS15-contrafise stalp-grinda jos - DREP	0.707	Grup. fundamentală/9	-5.47	-0.66	-0.16	-0.03	-0.10	**-0.47**
B273	CS15-contrafise stalp-grinda jos - DREP	0.707	Grup. fundamentală/9	-5.18	0.64	-0.15	0.03	-0.10	**0.46**
B288	CS10-capriori cupola - DREP	0.645	Grup. fundamentală/8	**-1.64**	0.00	**-0.24**	0.00	**-0.05**	0.00
B292	CS10-capriori cupola - DREP	0.000	GS-SEISM/3	**0.11**	0.01	0.03	0.00	-0.01	0.00
B288	CS10-capriori cupola - DREP	0.000	GS-SEISM/2	-0.72	**-0.01**	-0.02	0.00	0.01	0.00
B292	CS10-capriori cupola - DREP	0.000	GS-SEISM/2	-0.15	**0.01**	0.04	0.00	0.00	**0.00**
B287	CS10-capriori cupola - DREP	0.150	Grup. fundamentală/16	-1.13	0.00	**0.21**	0.00	-0.04	0.00
B294	CS10-capriori cupola - DREP	0.000	Grup. fundamentală/8	-0.98	0.00	0.04	**0.00**	0.00	0.00
B287	CS10-capriori cupola - DREP	0.150	Grup. fundamentală/14	-1.07	0.00	0.20	**0.00**	-0.04	0.00
B288	CS10-capriori cupola - DREP	0.000	Grup. fundamentală/8	-1.50	0.00	0.02	0.00	**0.01**	0.00
B287	CS10-capriori cupola - DREP	0.795	GS-SEISM/1	-0.41	0.01	-0.04	0.00	-0.01	**0.00**
B298	CS7- grinda parapet mana curenta - Profil T	1.838	GS-SEISM/1	**-1.30**	-0.02	-0.32	0.00	-0.13	0.01

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B300	CS7- grinda parapet mana curenta - Profil T	1.838	GS-SEISM/3	**1.09**	0.02	-0.32	0.00	-0.13	-0.01
B296	CS7- grinda parapet mana curenta - Profil T	1.838	GS-SEISM/2	-0.97	**-0.02**	0.30	**0.00**	0.15	0.00
B295	CS7- grinda parapet mana curenta - Profil T	0.000	GS-SEISM/2	-0.98	**0.02**	-0.27	0.00	0.42	-0.02
B296	CS7- grinda parapet mana curenta - Profil T	2.758	GS-SEISM/1	0.75	0.02	**-0.37**	0.00	**-0.46**	0.01
B295	CS7- grinda parapet mana curenta - Profil T	0.000	GS-SEISM/1	0.81	-0.02	**0.36**	**0.00**	-0.46	0.01
B296	CS7- grinda parapet mana curenta - Profil T	0.000	GS-SEISM/1	0.76	-0.02	-0.28	0.00	**0.43**	0.00
B296	CS7- grinda parapet mana curenta - Profil T	2.758	Grup. fundamentală/9	-0.31	-0.01	-0.07	0.00	-0.05	**-0.02**
B297	CS7- grinda parapet mana curenta - Profil T	2.760	GS-SEISM/1	-1.06	-0.01	-0.26	0.00	-0.32	**0.01**
B304	CS2- montanti cadru - DREP	0.397	Grup. fundamentală/17	**-3.59**	-0.49	-1.01	0.02	-0.24	0.11
B304	CS2- montanti cadru - DREP	0.000	Grup. fundamentală/25	**0.55**	-0.10	-0.23	0.00	0.04	0.00
B307	CS2- montanti cadru - DREP	0.000	GS-SEISM/2	-0.94	**-7.02**	-0.12	**-0.02**	0.06	0.96
B303	CS2- montanti cadru - DREP	0.000	GS-SEISM/4	-0.17	**6.54**	0.04	-0.01	-0.01	-0.88
B309	CS2- montanti cadru - DREP	0.000	GS-SEISM/4	-0.38	0.06	**-6.58**	-0.01	0.88	-0.04
B309	CS2- montanti cadru - DREP	0.000	GS-SEISM/2	-0.93	0.12	**6.90**	0.02	-0.94	-0.06
B304	CS2- montanti cadru - DREP	0.000	Grup. fundamentală/6	-2.80	-0.53	-1.12	**0.02**	0.18	0.28
B309	CS2- montanti cadru - DREP	0.397	GS-SEISM/4	-0.40	0.06	-6.58	-0.01	**-1.74**	-0.01
B309	CS2- montanti cadru - DREP	0.397	GS-SEISM/2	-0.96	0.12	6.90	0.02	**1.80**	-0.01
B307	CS2- montanti cadru - DREP	0.397	GS-SEISM/2	-0.96	-7.02	-0.12	-0.02	0.01	**-1.83**
B307	CS2- montanti cadru - DREP	0.397	GS-SEISM/4	-0.40	6.53	-0.06	0.01	0.01	**1.72**
B317	CS7- contravantuiri acoperis - DREP	0.000	Grup. fundamentală/17	**-12.28**	0.00	0.01	0.00	0.00	0.00
B316	CS7- contravantuiri acoperis - DREP	0.000	GS-SEISM/2	-3.59	**-0.06**	0.01	0.00	0.00	0.04
B315	CS7- contravantuiri acoperis - DREP	0.000	GS-SEISM/1	-3.74	**0.06**	0.01	0.00	0.00	-0.04
B310	CS7- contravantuiri acoperis - DREP	1.158	Grup. fundamentală/26	-1.79	0.00	**-0.01**	0.00	0.00	0.00
B310	CS7- contravantuiri acoperis - DREP	0.000	Grup. fundamentală/26	-1.79	0.00	**0.01**	0.00	0.00	0.00
B316	CS7- contravantuiri acoperis - DREP	0.000	Grup. fundamentală/8	-12.10	-0.06	0.01	**0.00**	0.00	0.03
B315	CS7- contravantuiri acoperis - DREP	0.000	Grup. fundamentală/5	-12.12	0.06	0.01	**0.00**	0.00	-0.03
B310	CS7- contravantuiri acoperis - DREP	0.579	Grup. fundamentală/26	-1.79	0.00	0.00	0.00	**0.00**	0.00
B316	CS7- contravantuiri acoperis - DREP	1.158	GS-SEISM/2	-3.59	-0.06	-0.01	0.00	0.00	**-0.04**
B315	CS7- contravantuiri acoperis - DREP	1.135	Grup. fundamentală/10	-12.09	0.06	-0.01	0.00	0.00	**0.04**

6.1.2. Eforturi DIN SLS -GP+UTILE+ZAPADA

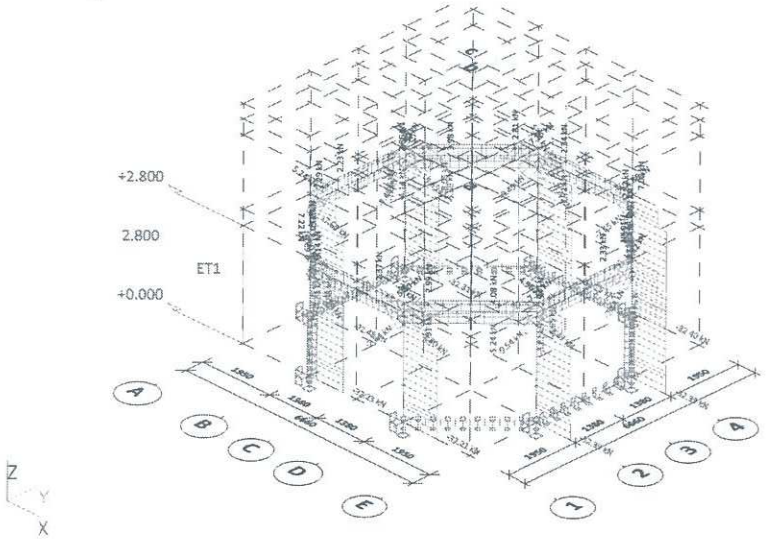
Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal, Nervuri / Latime activa
Selectie : Toate
Combinatii : SLS-VERIF.DEPLASARI

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B10	CS2- grinda de baza - DREP	1.840	SLS-VERIF.DEPLASARI/27	**0.00**	0.00	0.00	0.00	0.00	0.00
B10	CS2- grinda de baza - DREP	0.000	SLS-VERIF.DEPLASARI/27	**0.00**	0.00	0.00	0.00	0.00	0.00
B9	CS2- grinda de baza - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.00	**0.00**	**0.00**	**0.00**	**0.00**	0.00
B15	CS2- grinda de baza - DREP	1.838	SLS-VERIF.DEPLASARI/27	0.00	**0.00**	**0.00**	**0.00**	0.00	**0.00**
B9	CS2- grinda de baza - DREP	0.919	SLS-VERIF.DEPLASARI/27	0.00	0.00	0.00	0.00	**0.00**	0.00
B15	CS2- grinda de baza - DREP	2.758	SLS-VERIF.DEPLASARI/27	0.00	0.00	0.00	0.00	0.00	**0.00**
B23	CS5- pana de rupere panta - DREP	0.360	SLS-VERIF.DEPLASARI/27	**15.82**	0.89	1.90	-0.13	-0.34	0.10
B19	CS5- pana de rupere panta - DREP	2.760	SLS-VERIF.DEPLASARI/27	15.26	**-1.31**	**-2.30**	0.09	**-1.14**	**-0.27**
B16	CS5- pana de rupere panta - DREP	0.000	SLS-VERIF.DEPLASARI/27	15.29	**0.96**	**2.15**	**-0.13**	-1.11	-0.22
B20	CS5- pana de rupere panta - DREP	2.400	SLS-VERIF.DEPLASARI/27	15.76	-0.89	-1.91	**0.13**	-0.35	0.10
B16	CS5- pana de rupere panta - DREP	1.379	SLS-VERIF.DEPLASARI/27	14.90	0.20	0.02	0.02	**0.25**	0.10
B19	CS5- pana de rupere panta - DREP	2.400	SLS-VERIF.DEPLASARI/27	15.26	-1.28	-2.17	0.09	-0.34	**0.19**
B28	CS2- grinda cadru - DREP	1.958	SLS-VERIF.DEPLASARI/27	**-3.27**	0.80	-1.24	**0.11**	-0.02	-0.24
B30	CS2- grinda cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.32	**-1.67**	-0.07	-0.07	-0.17	**0.69**
B29	CS2- grinda cadru - DREP	2.400	SLS-VERIF.DEPLASARI/27	-1.34	**1.66**	0.08	0.07	-0.20	0.09
B27	CS2- grinda cadru - DREP	2.260	SLS-VERIF.DEPLASARI/27	-3.11	0.70	**-1.32**	0.10	**-0.43**	-0.02
B24	CS2- grinda cadru - DREP	0.500	SLS-VERIF.DEPLASARI/27	-3.19	-0.75	**1.36**	-0.10	-0.42	0.01
B31	CS2- grinda cadru - DREP	0.500	SLS-VERIF.DEPLASARI/27	-3.25	-0.79	1.25	**-0.11**	-0.39	0.00
B27	CS2- grinda cadru - DREP	1.380	SLS-VERIF.DEPLASARI/27	-2.90	0.26	-1.05	0.02	**0.56**	-0.26
B31	CS2- grinda cadru - DREP	1.380	SLS-VERIF.DEPLASARI/27	-3.02	-0.33	0.89	-0.03	0.48	**-0.30**
B38	CS1-stalpi lemn - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-15.22**	0.10	-0.13	0.00	0.12	-0.07
B32	CS1-stalpi lemn - DREP	2.506	SLS-VERIF.DEPLASARI/27	-11.12	**-2.10**	1.02	**0.00**	0.10	-0.41
B37	CS1-stalpi lemn - DREP	2.506	SLS-VERIF.DEPLASARI/27	-11.18	**2.13**	0.81	0.00	0.20	0.41
B34	CS1-stalpi lemn - DREP	2.506	SLS-VERIF.DEPLASARI/27	-11.29	-0.64	**-1.84**	0.00	-0.21	-0.14
B39	CS1-stalpi lemn - DREP	2.506	SLS-VERIF.DEPLASARI/27	-11.13	0.82	**2.16**	0.00	0.38	0.20
B32	CS1-stalpi lemn - DREP	0.000	SLS-VERIF.DEPLASARI/27	-15.07	-0.04	0.11	**0.00**	-0.05	0.08
B35	CS1-stalpi lemn - DREP	2.800	SLS-VERIF.DEPLASARI/27	-11.21	0.73	-1.72	0.00	**-0.76**	0.32
B39	CS1-stalpi lemn - DREP	2.800	SLS-VERIF.DEPLASARI/27	-11.11	0.82	2.16	0.00	**1.01**	0.44
B33	CS1-stalpi lemn - DREP	2.800	SLS-VERIF.DEPLASARI/27	-11.09	-2.07	-1.00	0.00	-0.42	**-1.04**
B37	CS1-stalpi lemn - DREP	2.800	SLS-VERIF.DEPLASARI/27	-11.15	2.13	0.81	0.00	0.44	**1.04**
B43	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-11.01**	**-1.20**	0.13	0.00	-0.21	0.66
B41	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.91	**0.77**	0.92	0.00	-0.61	-0.31
B46	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.99	0.36	**-0.86**	0.00	0.59	-0.25
B42	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.87	-0.47	**1.15**	0.00	**-0.64**	0.26
B44	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.53	-0.30	-0.41	**0.00**	0.38	**0.84**
B47	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.47	0.26	0.10	**0.00**	0.30	-0.84
B45	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.48	-0.23	-0.13	0.00	**0.81**	0.38
B40	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.45	0.37	-0.21	0.00	-0.30	**-0.86**
B57	CS12- el.central coama - CIRC	1.203	SLS-VERIF.DEPLASARI/27	**2.25**	0.00	0.00	0.00	0.00	**0.00**
B57	CS12- el.central coama - CIRC	0.000	SLS-VERIF.DEPLASARI/27	2.12	**0.00**	0.00	**0.00**	**0.00**	**0.00**
B57	CS12- el.central coama - CIRC	0.000	SLS-VERIF.DEPLASARI/28	0.37	0.00	**0.00**	0.00	0.00	0.00
B57	CS12- el.central coama - CIRC	1.203	SLS-VERIF.DEPLASARI/28	0.50	0.00	0.00	0.00	**0.00**	0.00
B58	CS8-grinda talpa - DREP	0.293	SLS-VERIF.DEPLASARI/27	**-3.68**	-0.04	-0.67	0.37	-0.20	-0.03
B65	CS8-grinda talpa - DREP	0.212	SLS-VERIF.DEPLASARI/27	-3.53	**-0.22**	0.68	-0.37	-0.13	-0.01
B61	CS8-grinda talpa - DREP	0.195	SLS-VERIF.DEPLASARI/27	-3.56	**0.18**	-0.70	0.37	-0.14	0.00

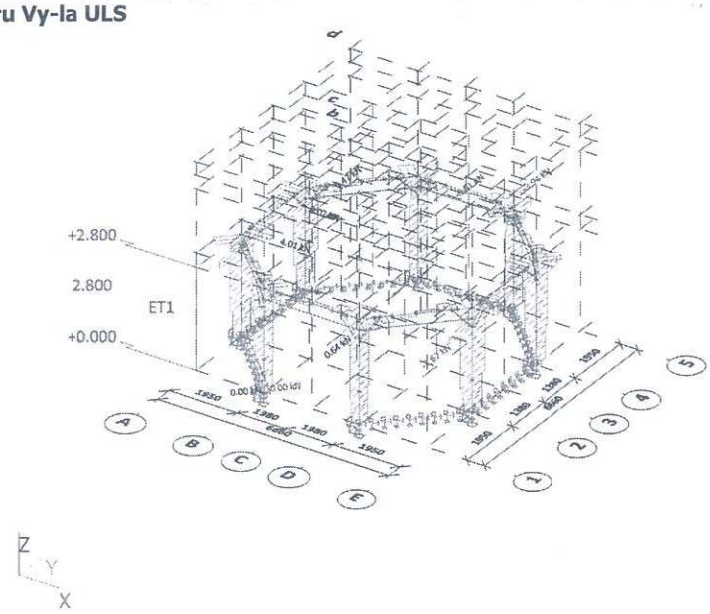
Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B59	CS8-grinda talpa - DREP	0.390	SLS-VERIF.DEPLASARI/27	-3.57	0.05	**-0.79**	0.36	**-0.29**	**0.04**
B58	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.68	-0.13	**0.75**	-0.36	-0.28	0.00
B60	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.57	-0.03	0.73	**-0.39**	-0.26	-0.01
B60	CS8-grinda talpa - DREP	0.195	SLS-VERIF.DEPLASARI/27	-3.57	0.07	-0.69	**0.39**	-0.12	-0.01
B64	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.65	0.01	0.70	-0.37	-0.26	**-0.03**
B72	CS11-pana cupola - DREP	0.212	SLS-VERIF.DEPLASARI/27	**0.80**	-0.01	0.04	0.00	0.00	0.00
B72	CS11-pana cupola - DREP	0.424	SLS-VERIF.DEPLASARI/27	0.80	**-0.02**	-0.03	0.00	0.00	0.00
B66	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.79	**0.02**	0.02	0.00	0.00	0.00
B73	CS11-pana cupola - DREP	0.424	SLS-VERIF.DEPLASARI/27	0.76	0.00	**-0.10**	0.00	-0.01	0.00
B72	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.80	0.00	**0.11**	0.00	**-0.02**	0.00
B68	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.78	0.01	0.06	**0.00**	-0.01	0.00
B70	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.79	-0.01	0.06	**0.00**	-0.01	0.00
B71	CS11-pana cupola - DREP	0.212	SLS-VERIF.DEPLASARI/27	0.75	0.00	0.02	0.00	**0.00**	0.00
B73	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.76	0.01	0.03	0.00	0.00	**0.00**
B66	CS11-pana cupola - DREP	0.390	SLS-VERIF.DEPLASARI/27	0.79	0.00	-0.10	0.00	-0.02	**0.00**
B77	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-0.82**	-0.01	0.01	0.00	-0.04	0.02
B74	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.45	**-0.24**	-0.09	0.00	0.04	**0.10**
B79	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.46	**0.23**	0.10	0.00	-0.04	**-0.10**
B81	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.67	0.04	**-0.09**	0.00	**0.06**	-0.03
B78	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.56	0.11	**0.13**	**0.00**	**-0.07**	-0.04
B76	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.56	-0.18	0.02	**0.00**	-0.02	0.08
B84	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	**-1.05**	0.00	0.43	0.00	**0.09**	0.00
B87	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.87	**-0.01**	-0.39	**0.00**	0.09	0.00
B88	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.05	**0.01**	-0.42	0.00	0.09	0.00
B88	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	-1.04	0.01	**-0.44**	0.00	-0.21	**0.00**
B84	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.04	0.00	**0.44**	0.00	**-0.21**	0.00
B85	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.87	0.00	0.41	**0.00**	-0.19	0.00
B87	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	-0.85	-0.01	-0.40	0.00	-0.19	**0.00**
B106	CS7- pane dolie - DREP	3.536	SLS-VERIF.DEPLASARI/27	**-12.94**	0.00	-1.38	0.00	-1.08	0.00
B91	CS7- pane dolie - DREP	1.097	SLS-VERIF.DEPLASARI/27	**1.10**	0.00	-0.24	0.00	0.06	0.00
B101	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.32	**-0.38**	0.83	0.10	0.04	-0.07
B111	CS7- pane dolie - DREP	2.425	SLS-VERIF.DEPLASARI/27	-9.12	**0.33**	-1.19	-0.06	0.03	-0.06
B101	CS7- pane dolie - DREP	3.536	SLS-VERIF.DEPLASARI/27	-12.68	-0.01	**-1.40**	0.00	**-1.09**	-0.01
B106	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.80	0.27	**0.84**	**-0.11**	-0.02	0.08
B93	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.73	-0.19	0.80	**0.10**	0.02	-0.09
B110	CS7- pane dolie - DREP	1.084	SLS-VERIF.DEPLASARI/27	-10.79	0.00	0.02	0.00	**0.52**	0.00
B93	CS7- pane dolie - DREP	1.149	SLS-VERIF.DEPLASARI/27	-9.74	-0.19	0.79	0.10	0.05	**-0.10**
B108	CS7- pane dolie - DREP	2.387	SLS-VERIF.DEPLASARI/27	-9.42	-0.23	-1.16	0.06	0.07	**0.09**
B121	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-1.25**	**0.01**	0.46	**0.00**	-0.32	**-0.01**
B119	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.24	**-0.01**	0.46	**0.00**	-0.32	**0.01**
B117	CS6- consola streasina la dolie - DREP	1.079	SLS-VERIF.DEPLASARI/27	-0.95	0.00	**-0.32**	0.00	-0.23	0.00
B122	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.23	0.00	**0.46**	0.00	**-0.32**	0.00
B122	CS6- consola streasina la dolie - DREP	1.079	SLS-VERIF.DEPLASARI/27	-1.22	0.00	0.42	0.00	**0.16**	0.00
B150	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-0.72**	-0.01	0.97	0.00	0.00	0.01
B141	CS7- capriori - DREP	2.249	SLS-VERIF.DEPLASARI/27	**1.60**	0.00	-0.72	0.00	-0.24	0.00
B160	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.65	**-0.13**	0.10	0.00	0.00	0.06
B128	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.60	**0.13**	0.10	0.00	0.00	-0.06
B135	CS7- capriori - DREP	3.338	SLS-VERIF.DEPLASARI/27	0.60	0.00	**-1.25**	0.00	-0.69	-0.01
B162	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.67	0.00	**0.97**	0.00	0.00	0.00
B147	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.08	-0.01	0.35	**0.00**	0.00	-0.01
B152	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.08	0.01	0.35	**0.00**	0.00	0.01
B130	CS7- capriori - DREP	3.332	SLS-VERIF.DEPLASARI/27	0.64	0.00	-1.23	0.00	**-0.69**	0.01
B162	CS7- capriori - DREP	1.298	SLS-VERIF.DEPLASARI/27	-0.17	0.00	0.07	0.00	**0.73**	0.00
B132	CS7- capriori - DREP	1.012	SLS-VERIF.DEPLASARI/27	0.82	-0.10	-0.27	0.00	-0.09	**-0.06**
B139	CS7- capriori - DREP	1.023	SLS-VERIF.DEPLASARI/27	0.82	0.10	-0.28	0.00	-0.09	**0.06**
B207	CS7- pazie - DREP	3.172	SLS-VERIF.DEPLASARI/27	**0.24**	0.00	-0.07	0.00	-0.01	0.00
B165	CS7- pazie - DREP	0.772	SLS-VERIF.DEPLASARI/27	0.20	**-0.01**	-0.03	0.00	-0.01	**0.00**
B189	CS7- pazie - DREP	2.806	SLS-VERIF.DEPLASARI/27	0.20	**0.01**	0.03	0.00	-0.01	0.00
B207	CS7- pazie - DREP	2.812	SLS-VERIF.DEPLASARI/27	0.21	0.00	**-0.29**	0.00	-0.07	0.00
B183	CS7- pazie - DREP	0.772	SLS-VERIF.DEPLASARI/27	0.20	0.00	**0.30**	0.00	-0.07	0.00
B201	CS7- pazie - DREP	0.764	SLS-VERIF.DEPLASARI/27	0.21	0.00	0.30	**0.00**	-0.07	0.00
B207	CS7- pazie - DREP	2.372	SLS-VERIF.DEPLASARI/27	0.21	0.01	-0.21	**0.00**	0.04	0.00
B165	CS7- pazie - DREP	3.584	SLS-VERIF.DEPLASARI/27	0.18	-0.01	-0.19	0.00	**-0.08**	0.00
B189	CS7- pazie - DREP	1.785	SLS-VERIF.DEPLASARI/27	0.15	0.01	-0.10	0.00	**0.07**	0.00
B177	CS7- pazie - DREP	2.806	SLS-VERIF.DEPLASARI/27	0.20	-0.01	0.03	0.00	-0.01	**0.00**
B170	CS7- capriori streasina - DREP	1.017	SLS-VERIF.DEPLASARI/27	**1.18**	0.22	-0.19	-0.01	0.10	**0.12**
B203	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.58	**-0.22**	0.23	0.01	0.00	0.10
B170	CS7- capriori streasina - DREP	0.339	SLS-VERIF.DEPLASARI/27	1.10	**0.23**	0.22	-0.01	0.11	-0.03
B168	CS7- capriori streasina - DREP	1.017	SLS-VERIF.DEPLASARI/27	0.36	-0.04	**-0.39**	0.00	-0.07	-0.03
B170	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	1.07	0.23	**0.40**	-0.01	0.00	-0.11
B193	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.67	0.21	0.24	**-0.01**	0.00	-0.10
B167	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.51	-0.21	0.27	**0.01**	0.00	0.11
B190	CS7- capriori streasina - DREP	1.019	SLS-VERIF.DEPLASARI/27	0.85	-0.22	-0.38	0.01	**-0.08**	-0.11
B170	CS7- capriori streasina - DREP	0.678	SLS-VERIF.DEPLASARI/27	1.15	0.22	-0.03	-0.01	**0.14**	0.05
B203	CS7- capriori streasina - DREP	1.019	SLS-VERIF.DEPLASARI/27	0.47	-0.22	-0.37	0.01	-0.07	**-0.12**
B237	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	**-1.17**	-0.22	-0.27	-0.01	**-0.21**	-0.12
B246	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.55	**-0.24**	-0.17	-0.01	0.08	0.10
B251	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.55	**0.24**	-0.17	0.01	0.08	-0.11
B257	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	-0.95	0.23	**-0.34**	0.01	-0.21	0.13
B235	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/28	-0.07	0.00	**0.01**	0.00	0.00	0.00
B217	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.64	-0.23	-0.17	**-0.01**	0.08	0.10
B250	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.10	0.22	-0.26	**0.01**	0.11	-0.09
B214	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.95	0.21	-0.30	0.01	**0.11**	-0.10
B246	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	-0.55	-0.24	-0.20	-0.01	-0.10	**-0.13**
B251	CS6- consola streasina la caprior - DREP	1.000	SLS-VERIF.DEPLASARI/27	-0.56	0.24	-0.21	0.01	-0.10	**0.13**
B263	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-1.73**	0.00	0.04	0.00	-0.02	0.00
B264	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.50	**0.00**	0.04	**0.00**	-0.02	0.01
B270	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.50	**0.00**	0.04	0.00	-0.02	**-0.01**

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B268	CS8-grinda jos ornament - DREP	2.760	SLS-VERIF.DEPLASARI/27	-1.38	0.00	**-0.04**	0.00	**-0.03**	0.00
B265	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.37	0.00	**0.04**	**0.00**	-0.03	0.00
B267	CS8-grinda jos ornament - DREP	1.287	SLS-VERIF.DEPLASARI/28	-0.19	0.00	0.00	0.00	**0.01**	0.00
B270	CS8-grinda jos ornament - DREP	2.760	SLS-VERIF.DEPLASARI/27	-1.50	0.00	-0.04	0.00	-0.02	**0.01**
B274	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-2.75**	-0.27	-0.08	-0.01	0.00	0.00
B271	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	-2.61	**-0.29**	-0.07	**-0.01**	0.00	0.00
B284	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	-2.61	**0.28**	-0.07	**0.01**	0.00	0.00
B282	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.66	0.26	**-0.09**	0.01	**-0.06**	0.19
B271	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.60	-0.29	-0.08	-0.01	-0.05	**-0.20**
B284	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.59	0.28	-0.08	0.01	-0.05	**0.20**
B288	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	**-0.82**	0.00	**-0.12**	0.00	**-0.03**	0.00
B294	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	**0.01**	0.00	0.03	0.00	0.00	0.00
B291	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.61	**0.00**	0.02	0.00	0.00	0.00
B294	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.49	**0.00**	0.02	**0.00**	0.00	0.00
B287	CS10-capriori cupola - DREP	0.150	SLS-VERIF.DEPLASARI/27	-0.56	0.00	**0.11**	**0.00**	-0.02	0.00
B288	CS10-capriori cupola - DREP	0.215	SLS-VERIF.DEPLASARI/27	-0.76	0.00	-0.02	0.00	**0.01**	0.00
B292	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.58	0.00	0.02	0.00	0.00	**0.00**
B294	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	-0.57	0.00	-0.11	0.00	-0.02	**0.00**
B298	CS7- grinda parapet mana curenta - Profil T	0.000	SLS-VERIF.DEPLASARI/27	**-0.25**	0.00	0.05	0.00	-0.02	0.00
B296	CS7- grinda parapet mana curenta - Profil T	0.000	SLS-VERIF.DEPLASARI/27	-0.16	**0.00**	0.04	**0.00**	-0.02	0.00
B297	CS7- grinda parapet mana curenta - Profil T	0.000	SLS-VERIF.DEPLASARI/27	-0.22	**0.00**	**0.05**	**0.00**	**-0.03**	-0.01
B296	CS7- grinda parapet mana curenta - Profil T	2.758	SLS-VERIF.DEPLASARI/27	-0.16	0.00	**-0.05**	0.00	-0.03	**-0.01**
B297	CS7- grinda parapet mana curenta - Profil T	1.472	SLS-VERIF.DEPLASARI/27	-0.22	0.00	0.00	0.00	**0.01**	0.00
B297	CS7- grinda parapet mana curenta - Profil T	2.760	SLS-VERIF.DEPLASARI/27	-0.22	0.00	-0.04	0.00	-0.01	**0.00**
B304	CS2- montanti cadru - DREP	0.397	SLS-VERIF.DEPLASARI/27	**-1.75**	-0.25	-0.53	0.01	-0.13	0.05
B307	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.56	**-0.55**	-0.20	0.00	**0.11**	0.09
B302	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.54	**0.36**	0.20	**0.00**	-0.11	-0.07
B304	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.73	-0.25	**-0.53**	**0.01**	0.08	**0.15**
B309	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.56	0.21	**0.36**	0.00	-0.07	-0.12
B303	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.54	-0.04	0.24	0.00	**-0.13**	0.00
B308	CS2- montanti cadru - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.52	0.23	-0.05	0.00	0.00	**-0.13**
B317	CS7- contravantuiri acoperis - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-6.28**	0.00	0.01	0.00	0.00	0.00
B316	CS7- contravantuiri acoperis - DREP	0.000	SLS-VERIF.DEPLASARI/27	-6.22	**-0.03**	0.01	**0.00**	0.00	0.02
B315	CS7- contravantuiri acoperis - DREP	0.000	SLS-VERIF.DEPLASARI/27	-6.24	**0.03**	0.01	**0.00**	0.00	-0.01
B310	CS7- contravantuiri acoperis - DREP	1.158	SLS-VERIF.DEPLASARI/28	-1.32	0.00	**-0.01**	0.00	0.00	0.00
B310	CS7- contravantuiri acoperis - DREP	0.000	SLS-VERIF.DEPLASARI/28	-1.32	0.00	**0.01**	0.00	0.00	0.00
B310	CS7- contravantuiri acoperis - DREP	0.579	SLS-VERIF.DEPLASARI/28	-1.32	0.00	0.00	0.00	**0.00**	0.00
B316	CS7- contravantuiri acoperis - DREP	1.158	SLS-VERIF.DEPLASARI/27	-6.22	-0.03	-0.01	0.00	0.00	**-0.02**
B315	CS7- contravantuiri acoperis - DREP	1.135	SLS-VERIF.DEPLASARI/27	-6.24	0.03	-0.01	0.00	0.00	**0.02**

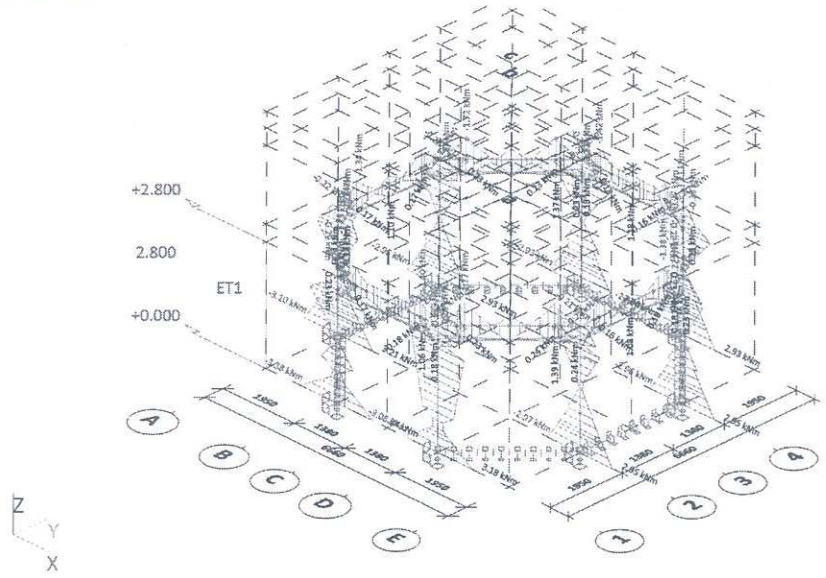
6.1.3. Eforturi interne pe element; N



6.1.4. Eforturi pe cadru Vy-la ULS



6.1.5. Eforturi pe cadru My-ULS



6.1.6. Eforturi PE CADRU LA ULS

Calcul liniar, Extrem : Globale, Sistem : Principal, Nervuri / Latime activa
Selectie : B9..B14,B24..B32,B34..B39,B263..B286
Clasa : TOATE ULS

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B38	CS1-stalpi lemn - DREP	0.000	Grup. fundamentală/8	**-32.48**	0.22	-0.61	0.00	0.53	-0.14
B285	CS15-contrafise stalp-grinda jos - DREP	0.707	GS-SEISM/3	**7.29**	0.05	0.33	0.01	0.24	0.04
B34	CS1-stalpi lemn - DREP	2.300	GS-SEISM/2	-6.71	**-5.67**	1.54	0.00	-1.74	2.56
B39	CS1-stalpi lemn - DREP	2.300	GS-SEISM/1	-6.59	**5.47**	-1.36	0.00	1.80	-2.41
B32	CS1-stalpi lemn - DREP	2.300	GS-SEISM/3	-1.61	-2.32	**-5.31**	0.00	2.55	1.70
B32	CS1-stalpi lemn - DREP	2.300	GS-SEISM/1	-8.78	1.34	**5.65**	0.00	-2.53	-1.84
B31	CS2- grinda cadru - DREP	0.500	Grup. fundamentală/9	-7.66	-1.87	2.60	**-0.25**	-0.79	-0.03
B31	CS2- grinda cadru - DREP	1.960	Grup. fundamentală/9	-7.54	1.96	-2.46	**0.24**	0.01	-0.63
B32	CS1-stalpi lemn - DREP	0.000	GS-SEISM/2	-13.43	2.04	2.59	-0.01	**-3.38**	-2.77
B32	CS1-stalpi lemn - DREP	0.000	GS-SEISM/4	-0.90	-2.07	-2.49	0.00	**3.34**	2.84
B34	CS1-stalpi lemn - DREP	0.000	GS-SEISM/2	-13.89	2.36	-2.20	0.01	-2.97	**-3.12**
B34	CS1-stalpi lemn - DREP	0.000	GS-SEISM/4	-0.59	-2.34	2.26	0.00	2.95	**3.12**

6.2. EFORTURI ACOPERIS

6.2.1. Eforturi sarpanta- la ULS

Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal, Nervuri / Latime activa
Selectie : B16, B17, B18, B19, B20, B21, B22, B23, B40, B41, B42, B43, B44, B45, B46, B47, B57, B62, B63, B64, B65, B66, B67, B68, B69, B70,

B71, B72, B73, B74, B75, B76, B77, B78, B79, B80, B81, B82, B83, B84, B85, B86, B87, B88, B89, B91, B92, B93, B99, B101, B104, B105, B106, B107, B108, B109, B110, B111, B112, B113, B114, B115, B116, B117, B118, B119, B120, B121, B122, B125, B126, B127, B128, B129, B130, B131, B132, B133, B134, B135, B136, B137, B138, B139, B140, B141, B142, B143, B144, B145, B146, B147, B148, B149, B150, B151, B152, B153, B154, B155, B156, B157, B158, B159, B160, B161, B162, B163, B164, B165, B166, B167, B168, B169, B170, B171, B172, B173, B174, B175, B176, B177, B178, B179, B180, B181, B182, B183, B184, B185, B187, B188, B189, B190, B191, B192, B193, B194, B195, B196, B197, B198, B199, B200, B201, B202, B203, B204, B205, B206, B207, B208, B209, B210, B211, B212, B213, B214, B215, B216, B217, B218, B219, B220, B221, B222, B223, B224, B225, B226, B227, B228, B229, B234, B235, B236, B237, B238, B239, B240, B241, B242, B243, B244, B245, B246, B247, B250, B251, B252, B253, B254, B257, B258, B259, B260, B261, B263, B264, B265, B266, B267, B268, B269, B270, B271, B272, B273, B274, B275, B276, B277, B278, B279, B280, B281, B282, B283, B284, B285, B286, B287, B288, B289, B290, B291, B292, B293, B294
Clasa : TOATE ULS

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B23	CS5- pana de rupere panta - DREP	0.800	GS-SEISM/4	**-3.78**	-0.42	0.94	0.03	0.22	-0.21
B23	CS5- pana de rupere panta - DREP	0.360	Grup. fundamentală/5	**33.80**	1.96	3.81	-0.28	-0.76	0.23
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/6	32.61	**-2.83**	-4.58	0.20	-2.35	-0.58
B16	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/7	32.31	**2.09**	4.24	-0.28	-2.25	-0.48
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/8	32.07	-2.75	**-4.64**	0.18	**-2.38**	-0.57
B16	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/5	32.78	2.06	**4.33**	-0.27	-2.32	-0.47
B23	CS5- pana de rupere panta - DREP	0.000	Grup. fundamentală/9	33.30	2.01	4.00	**-0.28**	-2.14	-0.49
B20	CS5- pana de rupere panta - DREP	2.400	Grup. fundamentală/6	33.21	-1.94	-3.74	**0.27**	-0.73	0.22
B22	CS5- pana de rupere panta - DREP	1.379	GS-SEISM/2	16.99	-0.76	-1.16	0.03	**0.67**	0.19
B19	CS5- pana de rupere panta - DREP	2.760	Grup. fundamentală/7	32.01	-2.78	-4.50	0.19	-2.27	**-0.59**
B19	CS5- pana de rupere panta - DREP	2.400	Grup. fundamentală/6	32.61	-2.77	-4.32	0.20	-0.75	**0.43**
B46	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/8	**-22.62**	0.77	-1.73	0.00	1.27	-0.56
B43	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/10	-22.31	**-2.54**	0.27	0.01	-0.46	1.45
B40	CS2- montanti 1 - DREP	0.000	GS-SEISM/1	-5.84	**2.10**	0.71	0.00	-0.74	-1.14
B46	CS2- montanti 1 - DREP	0.000	GS-SEISM/1	-6.04	-0.55	**-2.33**	-0.01	1.04	-0.66
B42	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/5	-21.60	-0.71	**2.46**	-0.01	-1.35	0.55
B44	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/11	-17.44	-0.71	-0.37	**-0.02**	0.67	1.53
B47	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/11	-17.43	0.64	0.53	**0.02**	0.53	-1.53
B42	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/12	-22.06	-0.98	2.45	-0.01	**-1.42**	0.58
B45	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/7	-21.25	-0.48	-0.33	0.00	**1.79**	0.81
B40	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/9	-21.19	0.81	-0.43	-0.01	-0.66	**-1.88**
B44	CS2- montanti 1 - DREP	0.000	Grup. fundamentală/10	-21.31	-0.66	-0.85	-0.01	0.83	**1.84**
B57	CS12- el.central coama - CIRC	1.203	Grup. fundamentală/12	**4.39**	0.00	0.00	0.00	0.00	0.00
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/1	1.13	**-0.07**	-0.06	**0.00**	**0.05**	**0.05**
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/3	0.61	**0.07**	0.06	**0.00**	**-0.04**	**-0.05**
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/4	0.12	-0.07	**-0.06**	0.00	0.05	0.05
B57	CS12- el.central coama - CIRC	0.000	GS-SEISM/2	1.62	0.07	**0.06**	0.00	-0.04	-0.05
B64	CS8-grinda talpa - DREP	0.106	Grup. fundamentală/12	**-7.17**	0.17	1.40	-0.73	-0.37	-0.07
B65	CS8-grinda talpa - DREP	0.212	Grup. fundamentală/13	-6.78	**-0.50**	1.28	-0.72	-0.26	-0.03
B64	CS8-grinda talpa - DREP	0.000	GS-SEISM/3	-1.16	**0.49**	-0.01	-0.12	-0.09	-0.06
B63	CS8-grinda talpa - DREP	0.424	Grup. fundamentală/6	-6.93	0.04	**-1.65**	-0.72	**-0.57**	-0.04
B62	CS8-grinda talpa - DREP	0.000	Grup. fundamentală/6	-6.92	-0.08	**1.53**	**0.77**	-0.52	0.03
B62	CS8-grinda talpa - DREP	0.212	Grup. fundamentală/14	-6.92	0.02	-1.45	**-0.76**	-0.20	0.01
B65	CS8-grinda talpa - DREP	0.000	GS-SEISM/4	-0.43	-0.18	-0.12	-0.08	**0.07**	0.09
B64	CS8-grinda talpa - DREP	0.000	Grup. fundamentală/15	-5.96	0.30	1.25	-0.60	-0.43	**-0.09**
B65	CS8-grinda talpa - DREP	0.000	GS-SEISM/1	-1.94	-0.27	0.21	-0.25	-0.06	**0.11**
B72	CS11-pana cupola - DREP	0.212	Grup. fundamentală/16	**1.57**	-0.01	0.06	0.00	0.00	0.00
B72	CS11-pana cupola - DREP	0.424	Grup. fundamentală/8	1.57	**-0.03**	-0.04	0.00	0.00	0.00
B66	CS11-pana cupola - DREP	0.000	Grup. fundamentală/9	1.55	**0.03**	0.03	0.00	0.00	0.00
B73	CS11-pana cupola - DREP	0.424	Grup. fundamentală/14	1.47	0.00	**-0.22**	0.00	-0.03	0.00
B72	CS11-pana cupola - DREP	0.000	Grup. fundamentală/8	1.57	0.00	**0.22**	0.00	**-0.04**	0.00
B68	CS11-pana cupola - DREP	0.000	GS-SEISM/1	0.46	0.01	-0.03	**0.00**	0.01	0.00
B70	CS11-pana cupola - DREP	0.000	GS-SEISM/2	0.46	-0.01	-0.04	**0.00**	0.01	0.00
B70	CS11-pana cupola - DREP	0.000	GS-SEISM/3	0.09	-0.01	-0.07	0.00	**0.02**	0.00
B73	CS11-pana cupola - DREP	0.000	Grup. fundamentală/14	1.47	0.03	0.05	0.00	0.00	**0.00**
B66	CS11-pana cupola - DREP	0.390	Grup. fundamentală/9	1.55	0.00	-0.20	0.00	-0.03	**0.00**
B77	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/8	**-1.64**	-0.01	-0.01	0.00	-0.07	0.03
B80	CS9-popi lemn cupola - DREP	0.379	GS-SEISM/3	**0.07**	0.16	-0.08	0.00	-0.01	0.02
B74	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/14	-0.82	**-0.50**	-0.17	0.00	0.08	**0.21**
B79	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/14	-0.84	**0.48**	0.20	0.00	-0.08	**-0.21**
B81	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/17	-1.25	0.08	**-0.20**	0.00	**0.13**	-0.05
B78	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/17	-1.04	0.22	**0.29**	0.00	**-0.15**	-0.09
B76	CS9-popi lemn cupola - DREP	0.000	Grup. fundamentală/9	-1.05	-0.37	0.02	**0.00**	-0.04	0.17
B74	CS9-popi lemn cupola - DREP	0.000	GS-SEISM/2	-0.42	-0.24	-0.10	**0.00**	0.03	0.11
B84	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/6	**-2.13**	0.00	0.84	0.00	0.18	0.00
B86	CS11-contrafise cupola - DREP	0.703	GS-SEISM/3	**0.31**	-0.02	-0.10	0.00	-0.04	0.00
B87	CS11-contrafise cupola - DREP	0.000	GS-SEISM/2	-1.00	**-0.02**	-0.47	0.00	0.09	0.01
B88	CS11-contrafise cupola - DREP	0.000	GS-SEISM/2	-0.83	**0.02**	-0.41	0.00	0.08	-0.01
B88	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/16	-2.09	0.01	**-0.87**	0.00	-0.42	0.00
B84	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/14	-2.07	0.00	**0.87**	0.00	**-0.43**	0.00
B85	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/9	-1.74	0.01	0.80	**0.00**	-0.38	0.00
B87	CS11-contrafise cupola - DREP	0.000	Grup. fundamentală/14	-1.69	-0.02	-0.76	**0.00**	0.17	0.00
B84	CS11-contrafise cupola - DREP	0.703	Grup. fundamentală/17	-2.10	0.00	0.85	0.00	**0.18**	0.00
B87	CS11-contrafise cupola - DREP	0.703	GS-SEISM/2	-0.98	-0.02	-0.49	0.00	-0.24	**-0.01**
B88	CS11-contrafise cupola - DREP	0.703	GS-SEISM/2	-0.81	0.02	-0.43	0.00	-0.22	**0.01**
B106	CS7- pane dolie - DREP	3.536	Grup. fundamentală/8	**-27.10**	-0.01	-2.83	0.00	-2.27	-0.01

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B91	CS7- pane dolie - DREP	1.097	Grup. fundamentală/7	**2.74**	-0.02	-0.50	0.00	0.13	-0.01
B101	CS7- pane dolie - DREP	1.111	Grup. fundamentală/9	-18.70	**-0.88**	1.60	0.19	0.10	-0.13
B106	CS7- pane dolie - DREP	2.452	Grup. fundamentală/8	-24.87	**0.80**	-1.60	-0.08	0.29	-0.04
B99	CS7- pane dolie - DREP	3.536	Grup. fundamentală/14	-26.02	-0.01	**-2.87**	0.00	-2.29	-0.01
B106	CS7- pane dolie - DREP	1.111	Grup. fundamentală/18	-18.80	0.49	**1.65**	-0.20	-0.03	0.15
B106	CS7- pane dolie - DREP	1.111	Grup. fundamentală/8	-19.78	0.64	1.62	**-0.21**	-0.03	0.15
B93	CS7- pane dolie - DREP	1.111	Grup. fundamentală/14	-19.63	-0.47	1.54	**0.21**	0.07	-0.18
B101	CS7- pane dolie - DREP	3.536	Grup. fundamentală/6	-26.53	-0.01	-2.87	0.00	**-2.29**	-0.01
B110	CS7- pane dolie - DREP	1.084	Grup. fundamentală/10	-21.89	-0.02	0.03	0.00	**1.03**	0.01
B93	CS7- pane dolie - DREP	1.149	Grup. fundamentală/14	-19.65	-0.47	1.51	0.21	0.13	**-0.20**
B108	CS7- pane dolie - DREP	2.387	Grup. fundamentală/8	-19.00	-0.55	-2.29	0.12	0.14	**0.18**
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/7	**-3.00**	0.03	1.22	0.00	-0.73	-0.02
B122	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/15	-2.55	**-0.08**	0.57	0.00	0.25	-0.03
B121	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/11	-2.59	**0.09**	0.56	0.00	0.25	0.03
B116	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/19	-2.22	0.00	**-1.03**	0.00	-0.53	-0.01
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/11	-2.71	-0.01	**1.28**	0.00	-0.70	0.01
B119	CS6- consola streasina la dolie - DREP	0.000	GS-SEISM/2	-0.61	-0.02	0.48	**0.00**	-0.38	0.04
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/11	-2.60	0.06	1.12	**0.00**	-0.64	-0.05
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/14	-2.91	-0.01	1.27	0.00	**-0.75**	0.01
B122	CS6- consola streasina la dolie - DREP	1.079	Grup. fundamentală/9	-2.91	-0.04	0.77	0.00	**0.32**	-0.01
B121	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/20	-2.76	0.07	1.15	0.00	-0.68	**-0.05**
B122	CS6- consola streasina la dolie - DREP	0.000	Grup. fundamentală/20	-2.72	-0.05	1.15	0.00	-0.69	**0.05**
B150	CS7- capriori - DREP	0.000	Grup. fundamentală/17	**-1.57**	-0.01	1.90	0.00	0.00	0.02
B141	CS7- capriori - DREP	2.249	Grup. fundamentală/9	**3.51**	0.00	-1.41	0.00	-0.47	0.00
B160	CS7- capriori - DREP	0.000	Grup. fundamentală/6	1.40	**-0.28**	0.19	0.00	0.00	0.13
B128	CS7- capriori - DREP	0.000	Grup. fundamentală/6	1.29	**0.28**	0.19	0.00	0.00	-0.14
B135	CS7- capriori - DREP	3.338	Grup. fundamentală/17	1.03	-0.01	**-2.45**	0.00	-1.35	-0.01
B162	CS7- capriori - DREP	0.000	Grup. fundamentală/7	-1.11	0.00	**1.91**	0.00	0.00	0.00
B150	CS7- capriori - DREP	0.000	GS-SEISM/1	-0.43	-0.24	0.52	**-0.03**	0.00	0.21
B125	CS7- capriori - DREP	0.000	GS-SEISM/1	-0.48	0.25	0.75	**0.03**	0.00	**-0.22**
B130	CS7- capriori - DREP	3.332	Grup. fundamentală/21	1.23	0.01	-2.42	0.00	**-1.36**	0.02
B162	CS7- capriori - DREP	1.298	Grup. fundamentală/7	-0.15	0.00	0.14	0.00	**1.45**	0.00
B125	CS7- capriori - DREP	0.000	GS-SEISM/3	-0.08	-0.24	0.07	-0.03	0.00	**0.21**
B207	CS7- pazie - DREP	0.000	GS-SEISM/4	**-0.17**	-0.01	-0.01	0.00	0.00	0.00
B201	CS7- pazie - DREP	0.406	Grup. fundamentală/9	**0.50**	0.00	0.15	0.00	-0.03	0.00
B165	CS7- pazie - DREP	0.772	Grup. fundamentală/15	0.32	**-0.04**	-0.15	0.00	-0.02	**-0.01**
B207	CS7- pazie - DREP	2.812	Grup. fundamentală/22	0.38	**0.04**	0.14	0.00	-0.02	-0.01
B207	CS7- pazie - DREP	2.812	Grup. fundamentală/7	0.36	-0.01	**-0.69**	0.00	-0.16	0.00
B183	CS7- pazie - DREP	0.772	Grup. fundamentală/12	0.34	0.01	**0.70**	0.00	-0.16	0.00
B201	CS7- pazie - DREP	0.764	Grup. fundamentală/5	0.40	0.01	0.66	**0.00**	-0.15	0.00
B207	CS7- pazie - DREP	2.372	Grup. fundamentală/7	0.36	0.03	-0.48	**0.00**	0.10	0.00
B165	CS7- pazie - DREP	3.584	Grup. fundamentală/10	0.34	-0.03	-0.48	0.00	**-0.18**	0.00
B189	CS7- pazie - DREP	1.785	Grup. fundamentală/14	0.27	0.03	-0.20	0.00	**0.14**	0.00
B177	CS7- pazie - DREP	2.806	Grup. fundamentală/20	0.33	-0.04	0.11	0.00	-0.02	**0.00**
B191	CS7- capriori streasina - DREP	1.019	GS-SEISM/4	**-0.28**	0.09	-0.01	0.00	0.05	0.06
B170	CS7- capriori streasina - DREP	1.017	Grup. fundamentală/6	**2.91**	0.49	-0.35	-0.01	0.22	**0.26**
B203	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/8	1.37	**-0.49**	0.47	0.02	0.00	0.23
B170	CS7- capriori streasina - DREP	0.339	Grup. fundamentală/6	2.76	**0.50**	0.46	-0.01	0.22	-0.07
B168	CS7- capriori streasina - DREP	1.017	Grup. fundamentală/9	1.00	-0.08	**-0.78**	0.01	-0.14	-0.05
B170	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/6	2.70	0.50	**0.79**	-0.01	0.00	-0.24
B211	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/7	1.43	0.48	0.48	**-0.02**	0.00	-0.22
B167	CS7- capriori streasina - DREP	0.000	Grup. fundamentală/10	1.30	-0.47	0.51	**0.02**	0.00	0.25
B190	CS7- capriori streasina - DREP	1.019	Grup. fundamentală/13	1.51	-0.41	-0.75	0.01	**-0.17**	-0.19
B170	CS7- capriori streasina - DREP	0.678	Grup. fundamentală/6	2.85	0.50	-0.04	-0.01	**0.29**	0.10
B203	CS7- capriori streasina - DREP	1.019	Grup. fundamentală/8	1.15	-0.49	-0.71	0.02	-0.12	**-0.26**
B237	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/6	**-2.86**	-0.52	-0.91	-0.01	-0.50	-0.29
B215	CS6- consola streasina la caprior - DREP	0.000	GS-SEISM/4	**0.28**	-0.14	0.08	0.01	-0.07	0.06
B246	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/7	-1.34	**-0.55**	-0.20	**-0.02**	0.15	0.24
B251	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/8	-1.29	**0.54**	-0.24	0.02	0.16	-0.24
B257	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/23	-2.29	0.49	**-1.05**	0.01	-0.46	0.29
B246	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/24	-0.56	-0.17	**0.24**	-0.01	-0.01	0.07
B234	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/10	-1.35	0.52	-0.09	**0.02**	0.05	-0.23
B237	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/9	-2.85	-0.52	-0.91	-0.01	**-0.50**	-0.29
B214	CS6- consola streasina la caprior - DREP	0.000	Grup. fundamentală/5	-2.26	0.48	-0.54	0.01	**0.23**	-0.21
B247	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/7	-2.72	-0.53	-0.80	-0.02	-0.42	**-0.31**
B257	CS6- consola streasina la caprior - DREP	0.998	Grup. fundamentală/9	-2.39	0.54	-0.88	0.02	-0.49	**0.32**
B269	CS8-grinda jos ornament - DREP	1.838	GS-SEISM/1	**-5.36**	0.01	0.17	0.00	0.09	0.00
B265	CS8-grinda jos ornament - DREP	1.838	GS-SEISM/4	**4.08**	-0.01	-0.20	0.00	-0.08	0.00
B268	CS8-grinda jos ornament - DREP	1.840	GS-SEISM/1	-3.99	**-0.01**	-0.15	0.00	-0.07	0.00
B270	CS8-grinda jos ornament - DREP	0.000	GS-SEISM/1	-4.14	**0.02**	0.17	0.00	-0.21	-0.02
B264	CS8-grinda jos ornament - DREP	2.758	GS-SEISM/2	-5.34	-0.01	**-0.23**	0.00	-0.28	-0.02
B265	CS8-grinda jos ornament - DREP	0.000	GS-SEISM/2	-5.24	0.01	**0.23**	**0.00**	**-0.28**	-0.02
B264	CS8-grinda jos ornament - DREP	0.919	GS-SEISM/2	-5.34	-0.01	-0.17	**0.00**	0.09	0.01
B265	CS8-grinda jos ornament - DREP	2.758	GS-SEISM/2	-5.24	0.01	0.15	0.00	**0.24**	0.02
B270	CS8-grinda jos ornament - DREP	0.000	Grup. fundamentală/19	-2.93	0.01	0.04	0.00	0.00	**-0.02**
B264	CS8-grinda jos ornament - DREP	0.000	Grup. fundamentală/7	-3.56	-0.01	0.05	0.00	-0.02	**0.02**
B274	CS15-contrafise stalp-grinda jos - DREP	0.000	GS-SEISM/2	**-9.80**	-0.08	-0.40	0.00	0.00	0.00

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B285	CS15-contrafise stalp-grinda jos - DREP	0.707	GS-SEISM/3	**7.29**	0.05	0.33	0.01	**0.24**	0.04
B271	CS15-contrafise stalp-grinda jos - DREP	0.000	Grup. fundamentală/9	-5.49	**-0.66**	-0.14	**-0.03**	0.00	0.00
B273	CS15-contrafise stalp-grinda jos - DREP	0.000	Grup. fundamentală/9	-5.20	**0.64**	-0.13	**0.03**	0.00	0.00
B274	CS15-contrafise stalp-grinda jos - DREP	0.707	GS-SEISM/2	-9.78	-0.08	**-0.42**	0.00	**-0.29**	-0.06
B285	CS15-contrafise stalp-grinda jos - DREP	0.000	GS-SEISM/3	7.28	0.05	**0.34**	0.01	0.00	0.00
B271	CS15-contrafise stalp-grinda jos - DREP	0.707	Grup. fundamentală/9	-5.47	-0.66	-0.16	-0.03	-0.10	**-0.47**
B273	CS15-contrafise stalp-grinda jos - DREP	0.707	Grup. fundamentală/9	-5.18	0.64	-0.15	0.03	-0.10	**0.46**
B288	CS10-capriori cupola - DREP	0.645	Grup. fundamentală/8	**-1.64**	0.00	**-0.24**	0.00	**-0.05**	0.00
B292	CS10-capriori cupola - DREP	0.000	GS-SEISM/3	**0.11**	0.01	0.03	0.00	-0.01	0.00
B288	CS10-capriori cupola - DREP	0.000	GS-SEISM/2	-0.72	**-0.01**	-0.02	0.00	0.01	0.00
B292	CS10-capriori cupola - DREP	0.000	GS-SEISM/2	-0.15	**0.01**	0.04	0.00	0.00	**0.00**
B287	CS10-capriori cupola - DREP	0.150	Grup. fundamentală/16	-1.13	0.00	**0.21**	0.00	-0.04	0.00
B294	CS10-capriori cupola - DREP	0.000	Grup. fundamentală/8	-0.98	0.00	0.04	**0.00**	0.00	0.00
B287	CS10-capriori cupola - DREP	0.150	Grup. fundamentală/14	-1.07	0.00	0.20	**0.00**	-0.04	0.00
B288	CS10-capriori cupola - DREP	0.000	Grup. fundamentală/8	-1.50	0.00	0.02	0.00	**0.01**	0.00
B287	CS10-capriori cupola - DREP	0.795	GS-SEISM/1	-0.41	0.01	-0.04	0.00	-0.01	**0.00**

6.2.2. Eforturi IN ACOPERIS -LA SLS

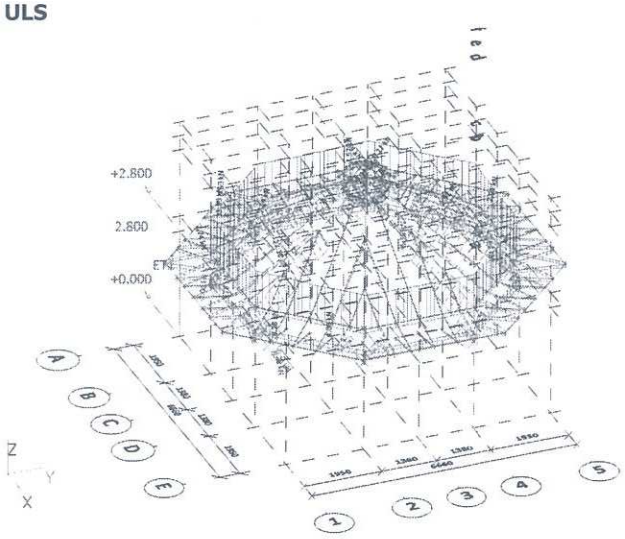
Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal, Nervuri / Latime activa
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Combinatii : SLS-VERIF.DEPLASARI

Element	CSS	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B23	CS5- pana de rupere panta - DREP	0.360	SLS-VERIF.DEPLASARI/27	**15.82**	0.89	1.90	-0.13	-0.34	0.10
B19	CS5- pana de rupere panta - DREP	2.760	SLS-VERIF.DEPLASARI/27	15.26	**-1.31**	**-2.30**	0.09	**-1.14**	**-0.27**
B16	CS5- pana de rupere panta - DREP	0.000	SLS-VERIF.DEPLASARI/27	15.29	**0.96**	**2.15**	**-0.13**	-1.11	-0.22
B20	CS5- pana de rupere panta - DREP	2.400	SLS-VERIF.DEPLASARI/27	15.76	-0.89	-1.91	**0.13**	-0.35	0.10
B16	CS5- pana de rupere panta - DREP	1.379	SLS-VERIF.DEPLASARI/27	14.90	0.20	0.02	0.02	**0.25**	0.10
B19	CS5- pana de rupere panta - DREP	2.400	SLS-VERIF.DEPLASARI/27	15.26	-1.28	-2.17	0.09	-0.34	**0.19**
B43	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-11.01**	**-1.20**	0.13	0.00	-0.21	0.66
B41	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.91	**0.77**	0.92	0.00	-0.61	-0.31
B46	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.99	0.36	**-0.86**	0.00	0.59	-0.25
B42	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.87	-0.47	**1.15**	0.00	**-0.64**	0.26
B44	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.53	-0.30	-0.41	**0.00**	0.38	**0.84**
B47	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.47	0.26	0.10	**0.00**	0.30	-0.84
B45	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.48	-0.23	-0.13	0.00	**0.81**	0.38
B40	CS2- montanti 1 - DREP	0.000	SLS-VERIF.DEPLASARI/27	-10.45	0.37	-0.21	0.00	-0.30	**-0.86**
B57	CS12- el.central coama - CIRC	1.203	SLS-VERIF.DEPLASARI/27	**2.25**	0.00	0.00	0.00	0.00	**0.00**
B57	CS12- el.central coama - CIRC	0.000	SLS-VERIF.DEPLASARI/27	2.12	**0.00**	0.00	**0.00**	**0.00**	**0.00**
B57	CS12- el.central coama - CIRC	0.000	SLS-VERIF.DEPLASARI/28	0.37	0.00	**0.00**	0.00	0.00	0.00
B57	CS12- el.central coama - CIRC	1.203	SLS-VERIF.DEPLASARI/28	0.50	0.00	0.00	0.00	**0.00**	0.00
B64	CS8-grinda talpa - DREP	0.106	SLS-VERIF.DEPLASARI/27	**-3.65**	0.01	0.67	-0.37	-0.19	-0.03
B65	CS8-grinda talpa - DREP	0.212	SLS-VERIF.DEPLASARI/27	-3.53	**-0.22**	0.68	-0.37	-0.13	-0.01
B64	CS8-grinda talpa - DREP	0.212	SLS-VERIF.DEPLASARI/27	-3.65	**0.15**	-0.71	0.36	-0.12	-0.03
B63	CS8-grinda talpa - DREP	0.424	SLS-VERIF.DEPLASARI/27	-3.55	-0.06	**-0.79**	-0.36	**-0.28**	-0.03
B62	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.55	0.05	**0.73**	**0.38**	-0.26	0.00
B62	CS8-grinda talpa - DREP	0.212	SLS-VERIF.DEPLASARI/27	-3.55	-0.08	-0.69	**-0.38**	-0.11	0.01
B64	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.65	0.01	0.70	-0.37	-0.26	**-0.03**
B65	CS8-grinda talpa - DREP	0.000	SLS-VERIF.DEPLASARI/27	-3.53	-0.20	0.72	-0.37	-0.28	**0.03**
B72	CS11-pana cupola - DREP	0.212	SLS-VERIF.DEPLASARI/27	**0.80**	-0.01	0.04	0.00	0.00	0.00
B72	CS11-pana cupola - DREP	0.424	SLS-VERIF.DEPLASARI/27	0.80	**-0.02**	-0.03	0.00	0.00	0.00
B66	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.79	**0.02**	0.02	0.00	0.00	0.00
B73	CS11-pana cupola - DREP	0.424	SLS-VERIF.DEPLASARI/27	0.76	0.00	**-0.10**	0.00	-0.01	0.00
B72	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.80	0.00	**0.11**	0.00	**-0.02**	0.00
B68	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.78	0.01	0.06	**0.00**	-0.01	0.00
B70	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.79	-0.01	0.06	**0.00**	-0.01	0.00
B71	CS11-pana cupola - DREP	0.212	SLS-VERIF.DEPLASARI/27	0.75	0.00	0.02	0.00	**0.00**	0.00
B73	CS11-pana cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.76	0.01	0.03	0.00	0.00	**0.00**
B66	CS11-pana cupola - DREP	0.390	SLS-VERIF.DEPLASARI/27	0.79	0.00	-0.10	0.00	-0.02	**0.00**
B77	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-0.82**	-0.01	0.01	0.00	-0.04	0.02
B74	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.45	**-0.24**	-0.09	0.00	0.04	**0.10**
B79	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.46	**0.23**	0.10	0.00	-0.04	**-0.10**
B81	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.67	0.04	**-0.09**	0.00	**0.06**	-0.03
B78	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.56	0.11	**0.13**	**0.00**	**-0.07**	-0.04
B76	CS9-popi lemn cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.56	-0.18	0.02	**0.00**	-0.02	0.08
B84	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	**-1.05**	0.00	0.43	0.00	**0.09**	0.00

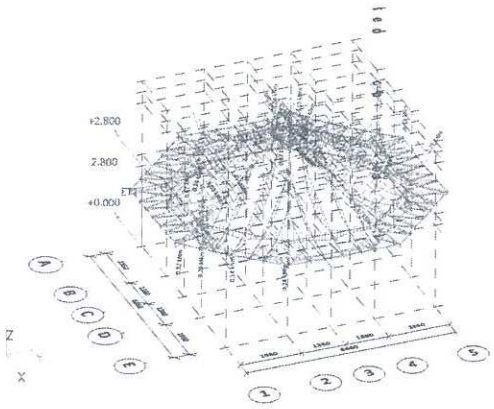
Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B87	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.87	**-0.01**	-0.39	**0.00**	0.09	0.00
B88	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.05	**0.01**	-0.42	0.00	0.09	0.00
B88	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	-1.04	0.01	**-0.44**	0.00	-0.21	**0.00**
B84	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.04	0.00	**0.44**	0.00	**-0.21**	0.00
B85	CS11-contrafise cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.87	0.00	0.41	**0.00**	-0.19	0.00
B87	CS11-contrafise cupola - DREP	0.703	SLS-VERIF.DEPLASARI/27	-0.85	-0.01	-0.40	0.00	-0.19	**0.00**
B106	CS7- pane dolie - DREP	3.536	SLS-VERIF.DEPLASARI/27	**-12.94**	0.00	-1.38	0.00	-1.08	0.00
B91	CS7- pane dolie - DREP	1.097	SLS-VERIF.DEPLASARI/27	**1.10**	0.00	-0.24	0.00	0.06	0.00
B101	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.32	**-0.38**	0.83	0.10	0.04	-0.07
B111	CS7- pane dolie - DREP	2.425	SLS-VERIF.DEPLASARI/27	-9.12	**0.33**	-1.19	-0.06	0.03	-0.06
B101	CS7- pane dolie - DREP	3.536	SLS-VERIF.DEPLASARI/27	-12.68	-0.01	**-1.40**	0.00	**-1.09**	-0.01
B106	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.80	0.27	**0.84**	**-0.11**	-0.02	0.08
B93	CS7- pane dolie - DREP	1.111	SLS-VERIF.DEPLASARI/27	-9.73	-0.19	0.80	**0.10**	0.02	-0.09
B110	CS7- pane dolie - DREP	1.084	SLS-VERIF.DEPLASARI/27	-10.79	0.00	0.02	0.00	**0.52**	0.00
B93	CS7- pane dolie - DREP	1.149	SLS-VERIF.DEPLASARI/27	-9.74	-0.19	0.79	0.10	0.05	**-0.10**
B108	CS7- pane dolie - DREP	2.387	SLS-VERIF.DEPLASARI/27	-9.42	-0.23	-1.16	0.06	0.07	**0.09**
B121	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-1.25**	**0.01**	0.46	**0.00**	-0.32	**-0.01**
B119	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.24	**-0.01**	0.46	**0.00**	-0.32	**0.01**
B117	CS6- consola streasina la dolie - DREP	1.079	SLS-VERIF.DEPLASARI/27	-0.95	0.00	**-0.32**	0.00	-0.23	0.00
B122	CS6- consola streasina la dolie - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.23	0.00	**0.46**	0.00	**-0.32**	0.00
B122	CS6- consola streasina la dolie - DREP	1.079	SLS-VERIF.DEPLASARI/27	-1.22	0.00	0.42	0.00	**0.16**	0.00
B150	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-0.72**	-0.01	0.97	0.00	0.00	0.01
B141	CS7- capriori - DREP	2.249	SLS-VERIF.DEPLASARI/27	**1.60**	0.00	-0.72	0.00	-0.24	0.00
B160	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.65	**-0.13**	0.10	0.00	0.00	0.06
B128	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.60	**0.13**	0.10	0.00	0.00	-0.06
B135	CS7- capriori - DREP	3.338	SLS-VERIF.DEPLASARI/27	0.60	0.00	**-1.25**	0.00	-0.69	-0.01
B162	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.67	0.00	**0.97**	0.00	0.00	0.00
B147	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.08	-0.01	0.35	**0.00**	0.00	-0.01
B152	CS7- capriori - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.08	0.01	0.35	**0.00**	0.00	0.01
B130	CS7- capriori - DREP	3.332	SLS-VERIF.DEPLASARI/27	0.64	0.00	-1.23	0.00	**-0.69**	0.01
B162	CS7- capriori - DREP	1.298	SLS-VERIF.DEPLASARI/27	-0.17	0.00	0.07	0.00	**0.73**	0.00
B132	CS7- capriori - DREP	1.012	SLS-VERIF.DEPLASARI/27	0.82	-0.10	-0.27	0.00	-0.09	**-0.06**
B139	CS7- capriori - DREP	1.023	SLS-VERIF.DEPLASARI/27	0.82	0.10	-0.28	0.00	-0.09	**0.06**
B207	CS7- pazie - DREP	3.172	SLS-VERIF.DEPLASARI/27	**0.24**	0.00	-0.07	0.00	-0.01	0.00
B165	CS7- pazie - DREP	0.772	SLS-VERIF.DEPLASARI/27	0.20	**-0.01**	-0.03	0.00	-0.01	**0.00**
B189	CS7- pazie - DREP	2.806	SLS-VERIF.DEPLASARI/27	0.20	**0.01**	0.03	0.00	-0.01	0.00
B207	CS7- pazie - DREP	2.812	SLS-VERIF.DEPLASARI/27	0.21	0.00	**-0.29**	0.00	-0.07	0.00
B183	CS7- pazie - DREP	0.772	SLS-VERIF.DEPLASARI/27	0.20	0.00	**0.30**	0.00	-0.07	0.00
B201	CS7- pazie - DREP	0.764	SLS-VERIF.DEPLASARI/27	0.21	0.00	0.30	**0.00**	-0.07	0.00
B207	CS7- pazie - DREP	2.372	SLS-VERIF.DEPLASARI/27	0.21	0.01	-0.21	**0.00**	0.04	0.00
B165	CS7- pazie - DREP	3.584	SLS-VERIF.DEPLASARI/27	0.18	-0.01	-0.19	0.00	**-0.08**	0.00
B189	CS7- pazie - DREP	1.785	SLS-VERIF.DEPLASARI/27	0.15	0.01	-0.10	0.00	**0.07**	0.00
B177	CS7- pazie - DREP	2.806	SLS-VERIF.DEPLASARI/27	0.20	-0.01	0.03	0.00	-0.01	**0.00**
B170	CS7- capriori streasina - DREP	1.017	SLS-VERIF.DEPLASARI/27	**1.18**	0.22	-0.19	-0.01	0.10	**0.12**
B203	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.58	**-0.22**	0.23	0.01	0.00	0.10
B170	CS7- capriori streasina - DREP	0.339	SLS-VERIF.DEPLASARI/27	1.10	**0.23**	0.22	-0.01	0.11	-0.03
B168	CS7- capriori streasina - DREP	1.017	SLS-VERIF.DEPLASARI/27	0.36	-0.04	**-0.39**	0.00	-0.07	-0.03
B170	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	1.07	0.23	**0.40**	-0.01	0.00	-0.11
B193	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.67	0.21	0.24	**-0.01**	0.00	-0.10
B167	CS7- capriori streasina - DREP	0.000	SLS-VERIF.DEPLASARI/27	0.51	-0.21	0.27	**0.01**	0.00	0.11
B190	CS7- capriori streasina - DREP	1.019	SLS-VERIF.DEPLASARI/27	0.85	-0.22	-0.38	0.01	**-0.08**	-0.11
B170	CS7- capriori streasina - DREP	0.678	SLS-VERIF.DEPLASARI/27	1.15	0.22	-0.03	-0.01	**0.14**	0.05
B203	CS7- capriori streasina - DREP	1.019	SLS-VERIF.DEPLASARI/27	0.47	-0.22	-0.37	0.01	-0.07	**-0.12**
B237	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	**-1.17**	-0.22	-0.27	-0.01	**-0.21**	-0.12
B246	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.55	**-0.24**	-0.17	-0.01	0.08	0.10
B251	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.55	**0.24**	-0.17	0.01	0.08	-0.11
B257	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	-0.95	0.23	**-0.34**	0.01	-0.21	0.13
B235	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/28	-0.07	0.00	**0.01**	0.00	0.00	0.00
B217	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.64	-0.23	-0.17	**-0.01**	0.08	0.10
B250	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.10	0.22	-0.26	**0.01**	0.11	-0.09
B214	CS6- consola streasina la caprior - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.95	0.21	-0.30	0.01	**0.11**	-0.10
B246	CS6- consola streasina la caprior - DREP	0.998	SLS-VERIF.DEPLASARI/27	-0.55	-0.24	-0.20	-0.01	-0.10	**-0.13**
B251	CS6- consola streasina la caprior - DREP	1.000	SLS-VERIF.DEPLASARI/27	-0.56	0.24	-0.21	0.01	-0.10	**0.13**
B263	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-1.73**	0.00	0.04	0.00	-0.02	0.00
B264	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.50	**0.00**	0.04	**0.00**	-0.02	0.01
B270	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.50	**0.00**	0.04	0.00	-0.02	**-0.01**
B268	CS8-grinda jos ornament - DREP	2.760	SLS-VERIF.DEPLASARI/27	-1.38	0.00	**-0.04**	0.00	**-0.03**	0.00
B265	CS8-grinda jos ornament - DREP	0.000	SLS-VERIF.DEPLASARI/27	-1.37	0.00	**0.04**	**0.00**	-0.03	0.00
B267	CS8-grinda jos ornament - DREP	1.287	SLS-VERIF.DEPLASARI/28	-0.19	0.00	0.00	0.00	**0.01**	0.00
B270	CS8-grinda jos ornament - DREP	2.760	SLS-VERIF.DEPLASARI/27	-1.50	0.00	-0.04	0.00	-0.02	**0.01**
B274	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	**-2.75**	-0.27	-0.08	-0.01	0.00	0.00
B271	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	-2.61	**-0.29**	-0.07	**-0.01**	0.00	0.00
B284	CS15-contrafise stalp-grinda jos - DREP	0.000	SLS-VERIF.DEPLASARI/27	-2.61	**0.28**	-0.07	**0.01**	0.00	0.00
B282	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.66	0.26	**-0.09**	0.01	**-0.06**	0.19
B271	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.60	-0.29	-0.08	-0.01	-0.05	**-0.20**
B284	CS15-contrafise stalp-grinda jos - DREP	0.707	SLS-VERIF.DEPLASARI/27	-2.59	0.28	-0.08	0.01	-0.05	**0.20**
B288	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	**-0.82**	0.00	**-0.12**	0.00	**-0.03**	0.00

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B294	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	**0.01**	0.00	0.03	0.00	0.00	0.00
B291	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.61	**0.00**	0.02	0.00	0.00	0.00
B294	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.49	**0.00**	0.02	**0.00**	0.00	0.00
B287	CS10-capriori cupola - DREP	0.150	SLS-VERIF.DEPLASARI/27	-0.56	0.00	**0.11**	**0.00**	-0.02	0.00
B288	CS10-capriori cupola - DREP	0.215	SLS-VERIF.DEPLASARI/27	-0.76	0.00	-0.02	0.00	**0.01**	0.00
B292	CS10-capriori cupola - DREP	0.000	SLS-VERIF.DEPLASARI/27	-0.58	0.00	0.02	0.00	0.00	**0.00**
B294	CS10-capriori cupola - DREP	0.645	SLS-VERIF.DEPLASARI/27	-0.57	0.00	-0.11	0.00	-0.02	**0.00**

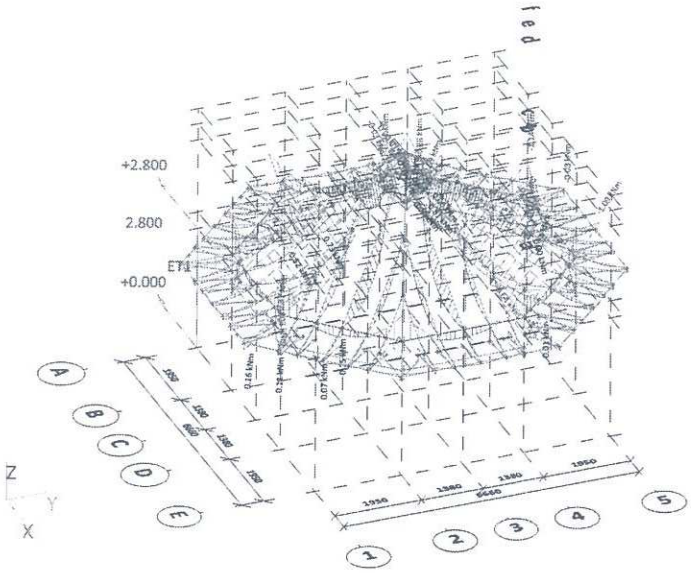
6.2.3. Eforturi acoperis; N-la ULS



6.2.4. Eforturi ; My-ULS



6.2.5. Eforturi My-SLS



7. VERIFICARI ELEMENTE STRUCTURALE

7.1. STALPI

7.1.1. Efort 3D- STALPI LA ULS

Calcul liniar
Clasa: TOATE ULS
Selectie: B32..B39
Filtru: Sectiune transversala = CS1-stalpi lemn - DREP (180; 180)
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	T_{xy} / T_{xu} [MPa]	T_{xz} / T_{xv} [MPa]
B32	0.000	7	GS-SEISM/1	**-6.3**	0.0	0.0
B32	0.000	7	GS-SEISM/2	**5.9**	0.0	0.0
B33	0.000	5	GS-SEISM/1	**-6.3**	0.0	0.0
B33	0.000	5	GS-SEISM/2	**5.9**	0.0	0.0
B34	0.000	7	GS-SEISM/1	**-6.4**	0.0	0.0
B34	0.000	7	GS-SEISM/2	**5.9**	0.0	0.0
B35	0.000	3	GS-SEISM/3	**-6.1**	0.0	0.0
B35	0.000	3	GS-SEISM/4	**5.7**	0.0	0.0
B36	0.000	3	GS-SEISM/3	**-6.0**	0.0	0.0
B36	0.000	3	GS-SEISM/4	**5.6**	0.0	0.0
B37	0.000	3	GS-SEISM/3	**-5.9**	0.0	0.0
B37	0.000	3	GS-SEISM/4	**5.6**	0.0	0.0
B38	0.000	7	GS-SEISM/1	**-6.3**	0.0	0.0
B38	0.000	7	GS-SEISM/2	**5.9**	0.0	0.0
B39	0.000	3	GS-SEISM/3	**-6.0**	0.0	0.0
B39	0.000	3	GS-SEISM/4	**5.7**	0.0	0.0

Nume	Combinatie
GS-SEISM/1	LC1 + LC2 + LC3 + 0.30*LC4 + 0.40*LC5 + LC9 + LC10 - LC11 + LC8
GS-SEISM/2	LC1 + LC2 + LC3 + LC9 - LC10 + LC11 + LC8
GS-SEISM/3	LC1 + LC2 + LC3 + 0.30*LC4 + 0.40*LC5 + LC9 - LC10 + LC11 + LC8
GS-SEISM/4	LC1 + LC2 + LC3 + LC9 + LC10 - LC11 + LC8

7.1.2. Efort 3D

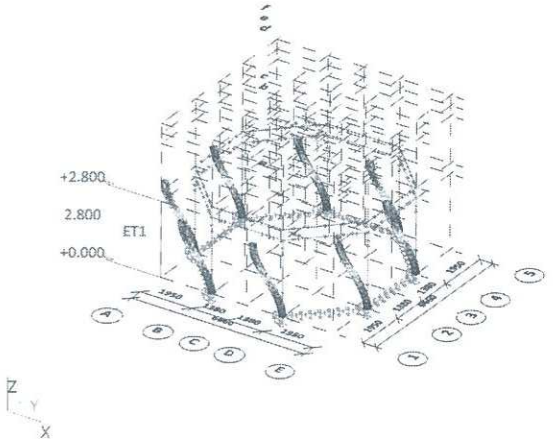
Calcul liniar
Combinatia: Grup. fundamentală
Selectie: B32..B39
Filtru: Sectiune transversala = CS1-stalpi lemn - DREP (180; 180)
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

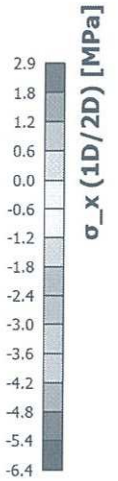
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	T_{xy} / T_{xu} [MPa]	T_{xz} / T_{xv} [MPa]
B32	2.800	5	Grup. fundamentală/1	**-4.0**	0.0	0.0
B32	2.800	1	Grup. fundamentală/1	**2.5**	0.0	0.0
B33	2.800	7	Grup. fundamentală/1	**-4.0**	0.0	0.0
B33	2.800	3	Grup. fundamentală/1	**2.6**	0.0	0.0
B34	2.800	7	Grup. fundamentală/2	**-3.2**	0.0	0.0
B34	2.800	3	Grup. fundamentală/2	**1.8**	0.0	0.0
B35	2.800	1	Grup. fundamentală/2	**-3.2**	0.0	0.0
B35	2.800	5	Grup. fundamentală/2	**1.8**	0.0	0.0
B36	2.800	1	Grup. fundamentală/3	**-3.2**	0.0	0.0
B36	2.800	5	Grup. fundamentală/3	**1.7**	0.0	0.0
B37	2.800	3	Grup. fundamentală/3	**-4.1**	0.0	0.0
B37	2.800	7	Grup. fundamentală/3	**2.6**	0.0	0.0
B38	2.800	5	Grup. fundamentală/4	**-3.1**	0.0	0.0

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B38	2.800	1	Grup. fundamentală/4	**1.7**	0.0	0.0
B39	2.800	3	Grup. fundamentală/4	**-4.0**	0.0	0.0
B39	2.800	7	Grup. fundamentală/4	**2.6**	0.0	0.0

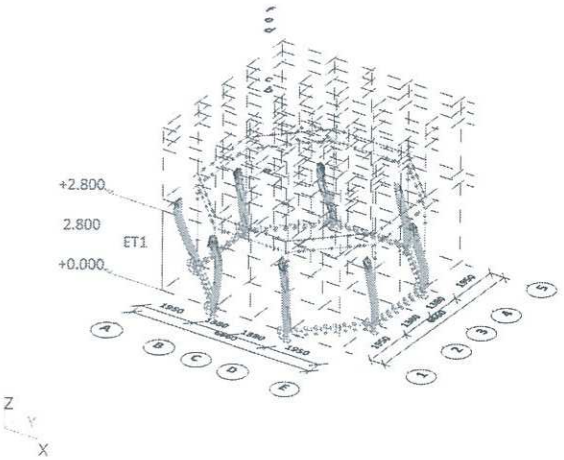
Nume	Combinatie
Grup. fundamentală/1	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D7 + 1.35*LC8
Grup. fundamentală/2	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D11 + 1.35*LC8
Grup. fundamentală/3	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D15 + 1.35*LC8
Grup. fundamentală/4	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D3 + 1.35*LC8

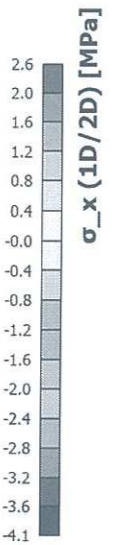
7.1.3. Efort 3D; σ_x (1D/2D)-ULS





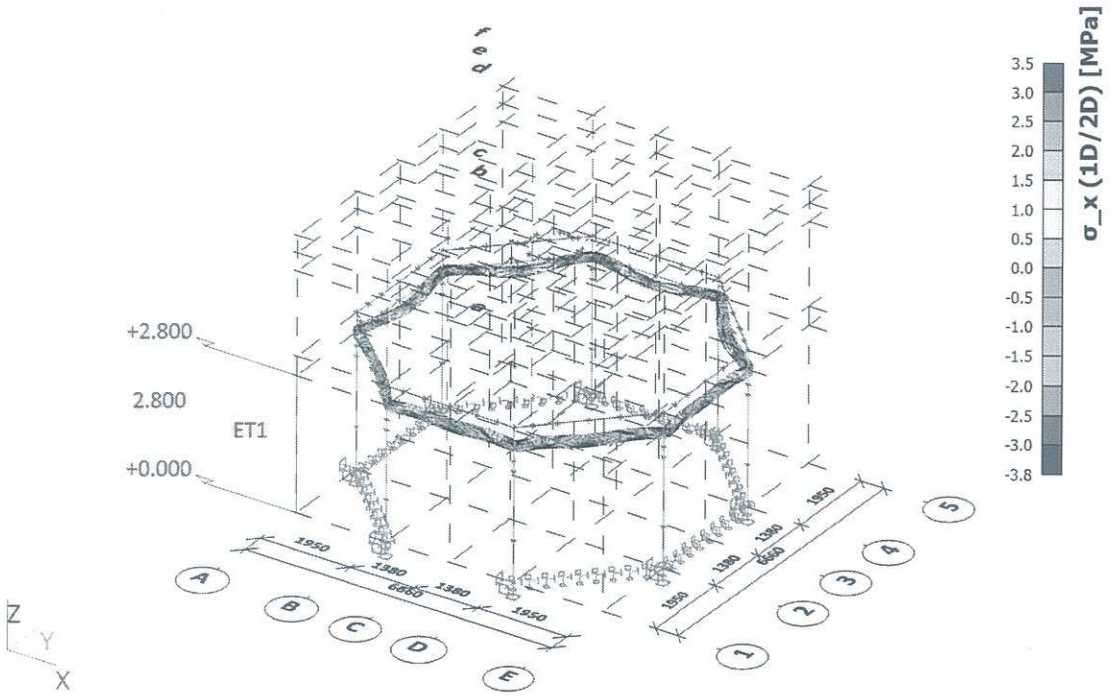
7.1.4. Efort 3D; σ_x (1D/2D)-LA GF





7.2. GRINZI

7.2.1. Efort 3D; σ_x (1D/2D)-GRINDA CADRU ULS



7.2.2. Efort 3D-GRINDA DE CADRU -GF

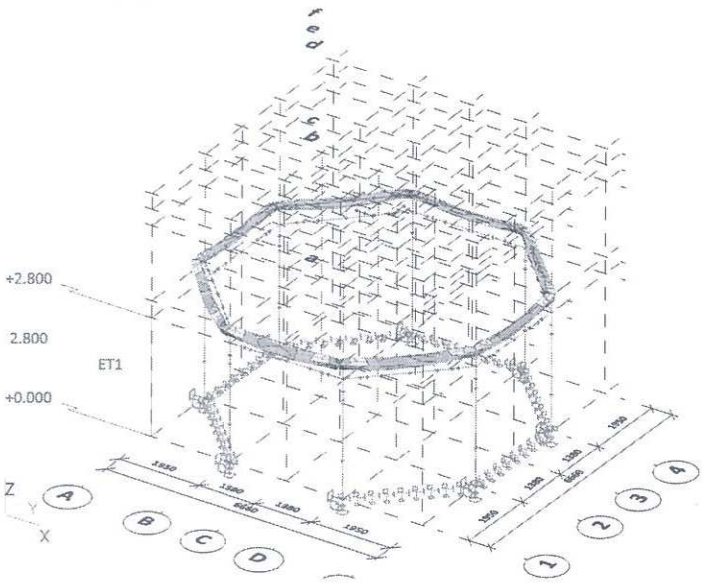
Calcul liniar
Combinatia: Grup. fundamentală
Selectie: B24..B31
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

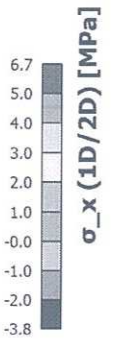
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B24	0.000	1	Grup. fundamentală/1	**-3.7**	0.0	0.0
B24	0.000	5	Grup. fundamentală/1	**3.3**	0.0	0.0
B25	0.000	1	Grup. fundamentală/2	**-3.7**	0.0	0.0
B25	0.000	5	Grup. fundamentală/3	**3.5**	0.0	0.0
B26	2.758	1	Grup. fundamentală/4	**-3.7**	0.0	0.0
B26	2.758	5	Grup. fundamentală/4	**3.4**	0.0	0.0
B27	2.760	1	Grup. fundamentală/4	**-3.8**	0.0	0.0
B27	2.760	5	Grup. fundamentală/5	**3.5**	0.0	0.0
B28	0.000	1	Grup. fundamentală/4	**-3.6**	0.0	0.0
B28	0.000	5	Grup. fundamentală/4	**3.3**	0.0	0.0
B29	2.760	1	Grup. fundamentală/6	**-3.8**	0.0	0.0
B29	2.760	5	Grup. fundamentală/7	**3.5**	0.0	0.0
B30	0.000	1	Grup. fundamentală/6	**-3.7**	0.0	0.0
B30	0.000	5	Grup. fundamentală/6	**3.4**	0.0	0.0
B31	2.760	1	Grup. fundamentală/8	**-3.6**	0.0	0.0
B31	2.760	5	Grup. fundamentală/8	**3.3**	0.0	0.0

Nume	Combinatie
Grup. fundamentală/1	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D13 + 1.35*LC8
Grup. fundamentală/2	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D1 + 1.35*LC8
Grup. fundamentală/3	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D3 + 1.35*LC8
Grup. fundamentală/4	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D5 + 1.35*LC8
Grup. fundamentală/5	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D7 + 1.35*LC8
Grup. fundamentală/6	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D9 + 1.35*LC8
Grup. fundamentală/7	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D11 + 1.35*LC8

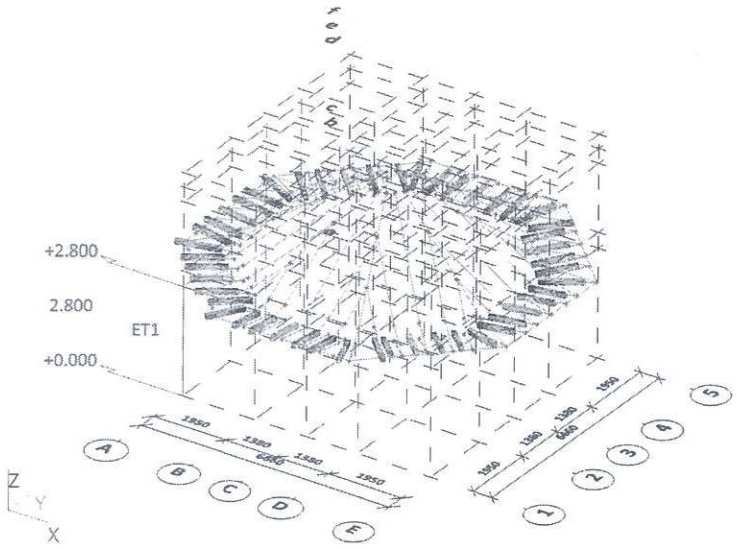
Nume	Combinatie
Grup. fundamentală/8	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D15 + 1.35*LC8

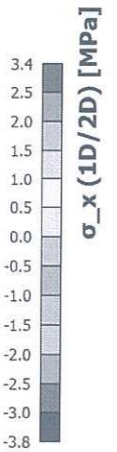
7.2.3. Efort 3D; σ_x-grinda rupere de panta-cosoroaba





7.2.4. Efort 3D; σ_x-consola streasina





7.2.5. Efort 3D-grinda rupere de panta

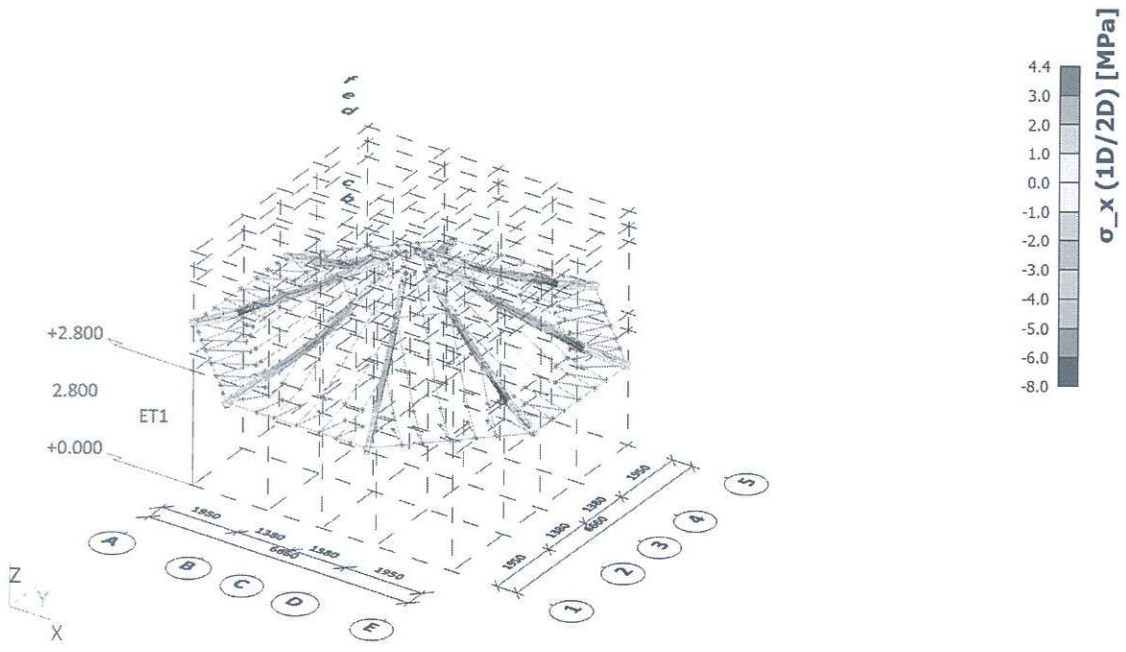
Calcul liniar
Combinatia: GF3
Selectie: B91..B93,B99,B101,B104..B114
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	T_{xy} / T_{xs} [MPa]	T_{xz} / T_{xs} [MPa]
B91	0.731	3	GF3/1	**-0.4**	0.0	0.0
B91	0.731	7	GF3/1	**0.6**	0.0	0.0
B92	0.731	5	GF3/1	**-0.4**	0.0	0.0
B92	0.731	1	GF3/1	**0.6**	0.0	0.0
B93	3.536	1	GF3/1	**-5.5**	0.0	0.0

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	T_{xy} / T_{xs} [MPa]	T_{xz} / T_{xs} [MPa]
B93	3.536	5	GF3/1	**3.1**	0.0	0.0
B99	3.536	7	GF3/1	**-5.5**	0.0	0.0
B99	3.536	3	GF3/1	**3.0**	0.0	0.0
B101	3.536	7	GF3/1	**-5.5**	0.0	0.0
B101	3.536	3	GF3/1	**3.1**	0.0	0.0
B104	0.731	3	GF3/1	**-0.4**	0.0	0.0
B104	0.731	7	GF3/1	**0.6**	0.0	0.0
B105	0.731	5	GF3/1	**-0.4**	0.0	0.0
B105	0.731	1	GF3/1	**0.6**	0.0	0.0
B106	3.536	7	GF3/1	**-5.5**	0.0	0.0
B106	3.536	3	GF3/1	**3.0**	0.0	0.0
B107	1.084+	3	GF3/1	**-3.1**	0.0	0.0
B107	1.084+	7	GF3/1	**1.0**	0.0	0.0
B108	1.084+	5	GF3/1	**-3.1**	0.0	0.0
B108	1.084+	1	GF3/1	**1.0**	0.0	0.0
B109	0.000	1	GF3/1	**-0.3**	0.0	0.0
B109	0.000	5	GF3/1	**0.4**	0.0	0.0
B110	1.084+	3	GF3/1	**-3.1**	0.0	0.0
B110	1.084+	7	GF3/1	**1.0**	0.0	0.0
B111	1.084+	5	GF3/1	**-3.1**	0.0	0.0
B111	1.084+	1	GF3/1	**1.0**	0.0	0.0
B112	0.000	1	GF3/1	**-0.4**	0.0	0.0
B112	0.000	5	GF3/1	**0.6**	0.0	0.0
B113	0.000	1	GF3/1	**-0.4**	0.0	0.0
B113	0.000	5	GF3/1	**0.5**	0.0	0.0
B114	0.000	7	GF3/1	**-0.4**	0.0	0.0
B114	0.000	3	GF3/1	**0.6**	0.0	0.0

Nume	Combinatie
GF3/1	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.50*LC5 + 1.35*LC9 + 1.35*LC8

7.2.6. Efort 3D; σ_x-caprior -dolie



7.2.7. Efort 3D-din combinatii GF

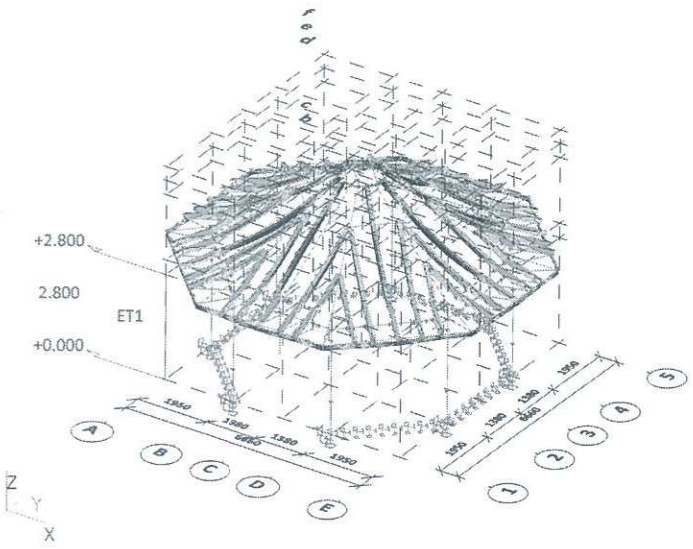
Calcul liniar
Combinatia: GF3
Selectie: B91..B93,B99,B101,B104..B114
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

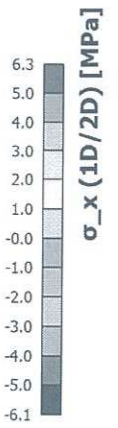
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	T_{xy} / T_{xs} [MPa]	T_{xz} / T_{xs} [MPa]
B91	0.731	3	GF3/1	**-0.4**	0.0	0.0
B91	0.731	7	GF3/1	**0.6**	0.0	0.0

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B92	0.731	5	GF3/1	**-0.4**	0.0	0.0
B92	0.731	1	GF3/1	**0.6**	0.0	0.0
B93	3.536	1	GF3/1	**-5.5**	0.0	0.0
B93	3.536	5	GF3/1	**3.1**	0.0	0.0
B99	3.536	7	GF3/1	**-5.5**	0.0	0.0
B99	3.536	3	GF3/1	**3.0**	0.0	0.0
B101	3.536	7	GF3/1	**-5.5**	0.0	0.0
B101	3.536	3	GF3/1	**3.1**	0.0	0.0
B104	0.731	3	GF3/1	**-0.4**	0.0	0.0
B104	0.731	7	GF3/1	**0.6**	0.0	0.0
B105	0.731	5	GF3/1	**-0.4**	0.0	0.0
B105	0.731	1	GF3/1	**0.6**	0.0	0.0
B106	3.536	7	GF3/1	**-5.5**	0.0	0.0
B106	3.536	3	GF3/1	**3.0**	0.0	0.0
B107	1.084+	3	GF3/1	**-3.1**	0.0	0.0
B107	1.084+	7	GF3/1	**1.0**	0.0	0.0
B108	1.084+	5	GF3/1	**-3.1**	0.0	0.0
B108	1.084+	1	GF3/1	**1.0**	0.0	0.0
B109	0.000	1	GF3/1	**-0.3**	0.0	0.0
B109	0.000	5	GF3/1	**0.4**	0.0	0.0
B110	1.084+	3	GF3/1	**-3.1**	0.0	0.0
B110	1.084+	7	GF3/1	**1.0**	0.0	0.0
B111	1.084+	5	GF3/1	**-3.1**	0.0	0.0
B111	1.084+	1	GF3/1	**1.0**	0.0	0.0
B112	0.000	1	GF3/1	**-0.4**	0.0	0.0
B112	0.000	5	GF3/1	**0.6**	0.0	0.0
B113	0.000	1	GF3/1	**-0.4**	0.0	0.0
B113	0.000	5	GF3/1	**0.5**	0.0	0.0
B114	0.000	7	GF3/1	**-0.4**	0.0	0.0
B114	0.000	3	GF3/1	**0.6**	0.0	0.0

Nume	Combinatie
GF3/1	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.50*LC5 + 1.35*LC9 + 1.35*LC8

7.2.8. Efort 3D; σ_x-capriori la TOATE ULS





7.2.9. Efort 3D- CAPRIORI LA ULS

Calcul liniar
Clasa: TOATE ULS
Selectie: B125..B164,B166..B170,B172..B176,B178..B182,B184,B185,B187,B188,B190..B194,B196..B200,B202..B206,B208..B213,
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

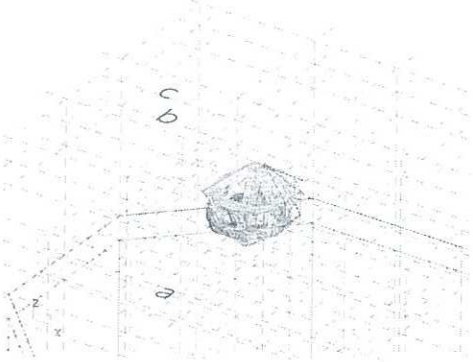
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B125	1.298	5	Grup. fundamentală/1	**-6.0**	0.0	0.0
B125	1.298	1	Grup. fundamentală/2	**6.0**	0.0	0.0
B126	0.954	3	Grup. fundamentală/3	**-2.7**	0.0	0.0
B126	0.954	7	Grup. fundamentală/2	**2.9**	0.0	0.0
B127	0.954	5	Grup. fundamentală/4	**-2.3**	0.0	0.0
B127	0.954	1	Grup. fundamentală/5	**2.7**	0.0	0.0
B128	1.023	1	Grup. fundamentală/6	**-1.3**	0.0	0.0
B128	1.023	5	Grup. fundamentală/6	**1.6**	0.0	0.0
B129	0.853	5	Grup. fundamentală/2	**-1.4**	0.0	0.0
B129	0.853	1	Grup. fundamentală/2	**1.5**	0.0	0.0
B130	1.296	5	Grup. fundamentală/1	**-5.8**	0.0	0.0
B130	3.332	5	Grup. fundamentală/6	**5.9**	0.0	0.0
B131	0.937	3	Grup. fundamentală/1	**-2.2**	0.0	0.0
B131	0.937	7	Grup. fundamentală/7	**2.5**	0.0	0.0
B132	1.012	7	Grup. fundamentală/2	**-1.3**	0.0	0.0
B132	1.012	3	Grup. fundamentală/6	**1.6**	0.0	0.0
B133	0.937	5	Grup. fundamentală/1	**-2.3**	0.0	0.0
B133	0.937	1	Grup. fundamentală/7	**2.6**	0.0	0.0
B134	1.012	1	Grup. fundamentală/8	**-1.3**	0.0	0.0
B134	1.012	5	Grup. fundamentală/6	**1.6**	0.0	0.0
B135	1.298	3	Grup. fundamentală/1	**-5.9**	0.0	0.0
B135	1.298	7	Grup. fundamentală/8	**5.9**	0.0	0.0
B136	0.954	3	Grup. fundamentală/9	**-2.3**	0.0	0.0
B136	0.954	7	Grup. fundamentală/10	**2.6**	0.0	0.0
B137	1.023	7	Grup. fundamentală/6	**-1.3**	0.0	0.0
B137	1.023	3	Grup. fundamentală/6	**1.7**	0.0	0.0
B138	0.954	5	Grup. fundamentală/9	**-2.3**	0.0	0.0
B138	0.954	1	Grup. fundamentală/11	**2.5**	0.0	0.0
B139	1.023	1	Grup. fundamentală/8	**-1.3**	0.0	0.0
B139	1.023	5	Grup. fundamentală/8	**1.7**	0.0	0.0
B140	1.296	3	Grup. fundamentală/9	**-5.9**	0.0	0.0
B140	1.296	7	Grup. fundamentală/5	**5.9**	0.0	0.0
B141	0.937	3	Grup. fundamentală/9	**-2.2**	0.0	0.0
B141	0.937	7	Grup. fundamentală/5	**2.6**	0.0	0.0
B142	1.012	7	Grup. fundamentală/6	**-1.3**	0.0	0.0
B142	1.012	3	Grup. fundamentală/8	**1.6**	0.0	0.0
B143	0.937	5	Grup. fundamentală/11	**-2.6**	0.0	0.0
B143	0.937	1	Grup. fundamentală/5	**2.8**	0.0	0.0
B144	1.012	3	Grup. fundamentală/3	**-1.5**	0.0	0.0
B144	1.012	7	Grup. fundamentală/3	**1.5**	0.0	0.0
B145	1.296	5	Grup. fundamentală/4	**-6.0**	0.0	0.0
B145	1.481	7	Grup. fundamentală/5	**5.9**	0.0	0.0
B146	0.937	3	Grup. fundamentală/11	**-2.7**	0.0	0.0
B146	1.125-	7	Grup. fundamentală/10	**3.0**	0.0	0.0
B147	0.843	5	Grup. fundamentală/3	**-1.4**	0.0	0.0
B147	0.843	1	Grup. fundamentală/2	**1.5**	0.0	0.0
B148	0.937	5	Grup. fundamentală/7	**-2.7**	0.0	0.0
B148	0.937	1	Grup. fundamentală/10	**3.1**	0.0	0.0
B149	0.843	3	Grup. fundamentală/6	**-1.4**	0.0	0.0
B149	1.012	7	Grup. fundamentală/6	**1.5**	0.0	0.0
B150	1.298	3	Grup. fundamentală/12	**-6.0**	0.0	0.0
B150	1.484	1	Grup. fundamentală/8	**6.0**	0.0	0.0
B151	0.954	5	Grup. fundamentală/2	**-2.8**	0.0	0.0
B151	0.954	1	Grup. fundamentală/3	**3.0**	0.0	0.0
B152	0.853	3	Grup. fundamentală/3	**-1.4**	0.0	0.0
B152	0.853	7	Grup. fundamentală/3	**1.5**	0.0	0.0
B153	0.843	5	Grup. fundamentală/8	**-1.4**	0.0	0.0
B153	0.843	1	Grup. fundamentală/3	**1.5**	0.0	0.0
B154	0.937	3	Grup. fundamentală/5	**-2.7**	0.0	0.0
B154	0.937	7	Grup. fundamentală/11	**3.0**	0.0	0.0
B155	1.296	5	Grup. fundamentală/12	**-6.0**	0.0	0.0
B155	1.481	1	Grup. fundamentală/7	**6.0**	0.0	0.0
B156	0.937	5	Grup. fundamentală/12	**-2.2**	0.0	0.0
B156	0.937	1	Grup. fundamentală/11	**2.5**	0.0	0.0
B157	1.012	1	Grup. fundamentală/2	**-1.3**	0.0	0.0
B157	1.012	5	Grup. fundamentală/3	**1.6**	0.0	0.0
B158	0.954	3	Grup. fundamentală/6	**-2.7**	0.0	0.0

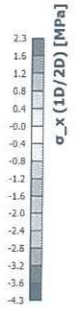
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B158	0.954	7	Grup. fundamentală/8	**3.1**	0.0	0.0
B159	0.853	5	Grup. fundamentală/8	**-1.4**	0.0	0.0
B159	0.853	1	Grup. fundamentală/8	**1.4**	0.0	0.0
B160	1.023	7	Grup. fundamentală/3	**-1.3**	0.0	0.0
B160	1.023	3	Grup. fundamentală/3	**1.7**	0.0	0.0
B161	0.954	3	Grup. fundamentală/12	**-2.3**	0.0	0.0
B161	0.954	7	Grup. fundamentală/10	**2.5**	0.0	0.0
B162	1.298	3	Grup. fundamentală/12	**-6.1**	0.0	0.0
B162	1.484	7	Grup. fundamentală/10	**6.0**	0.0	0.0
B163	0.954	5	Grup. fundamentală/6	**-2.7**	0.0	0.0
B163	0.954	1	Grup. fundamentală/11	**3.0**	0.0	0.0
B164	0.853	3	Grup. fundamentală/2	**-1.4**	0.0	0.0
B164	0.853	7	Grup. fundamentală/2	**1.5**	0.0	0.0
B166	0.169	3	Grup. fundamentală/10	**-0.9**	0.0	0.0
B166	0.169	7	Grup. fundamentală/10	**1.4**	0.0	0.0
B167	1.017	7	Grup. fundamentală/10	**-1.3**	0.0	0.0
B167	1.017	3	Grup. fundamentală/10	**1.5**	0.0	0.0
B168	1.017	7	Grup. fundamentală/6	**-0.8**	0.0	0.0
B168	1.017	3	Grup. fundamentală/6	**1.0**	0.0	0.0
B169	0.169	5	Grup. fundamentală/3	**-1.1**	0.0	0.0
B169	0.169	1	Grup. fundamentală/8	**1.3**	0.0	0.0
B170	1.017	3	Grup. fundamentală/8	**-2.0**	0.0	0.0
B170	1.017	7	Grup. fundamentală/8	**2.5**	0.0	0.0
B172	1.019	7	Grup. fundamentală/8	**-1.5**	0.0	0.0
B172	1.019	3	Grup. fundamentală/8	**1.8**	0.0	0.0
B173	1.019	7	Grup. fundamentală/8	**-1.6**	0.0	0.0
B173	1.019	3	Grup. fundamentală/8	**1.8**	0.0	0.0
B174	1.019	1	GS-SEISM/13	**-0.7**	0.0	0.0
B174	0.510-	7	Grup. fundamentală/3	**0.8**	0.0	0.0
B175	1.019	1	Grup. fundamentală/3	**-1.7**	0.0	0.0
B175	1.019	5	Grup. fundamentală/3	**1.9**	0.0	0.0
B176	1.019	1	Grup. fundamentală/3	**-1.6**	0.0	0.0
B176	1.019	5	Grup. fundamentală/3	**1.9**	0.0	0.0
B178	1.019	7	Grup. fundamentală/12	**-1.4**	0.0	0.0
B178	1.019	3	Grup. fundamentală/6	**1.7**	0.0	0.0
B179	1.019	7	Grup. fundamentală/6	**-1.6**	0.0	0.0
B179	1.019	3	Grup. fundamentală/6	**1.8**	0.0	0.0
B180	1.019	7	GS-SEISM/13	**-0.7**	0.0	0.0
B180	0.510-	7	Grup. fundamentală/8	**0.8**	0.0	0.0
B181	1.019	1	Grup. fundamentală/8	**-1.7**	0.0	0.0
B181	1.019	5	Grup. fundamentală/8	**1.9**	0.0	0.0
B182	1.019	1	Grup. fundamentală/8	**-1.4**	0.0	0.0
B182	1.019	5	Grup. fundamentală/8	**1.8**	0.0	0.0
B184	1.017	7	Grup. fundamentală/2	**-1.5**	0.0	0.0
B184	1.017	3	Grup. fundamentală/11	**1.9**	0.0	0.0
B185	1.017	7	Grup. fundamentală/2	**-1.8**	0.0	0.0
B185	1.017	3	Grup. fundamentală/2	**1.9**	0.0	0.0
B187	1.017	1	Grup. fundamentală/8	**-1.6**	0.0	0.0
B187	1.017	5	Grup. fundamentală/8	**1.8**	0.0	0.0
B188	1.017	1	Grup. fundamentală/4	**-1.4**	0.0	0.0
B188	1.017	5	Grup. fundamentală/11	**1.8**	0.0	0.0
B190	1.019	7	Grup. fundamentală/2	**-1.6**	0.0	0.0
B190	1.019	3	Grup. fundamentală/2	**1.9**	0.0	0.0
B191	1.019	7	Grup. fundamentală/2	**-1.7**	0.0	0.0
B191	1.019	3	Grup. fundamentală/2	**1.9**	0.0	0.0
B192	1.019	1	GS-SEISM/14	**-0.7**	0.0	0.0
B192	0.340	1	Grup. fundamentală/6	**0.8**	0.0	0.0
B193	1.019	1	Grup. fundamentală/6	**-1.6**	0.0	0.0
B193	1.019	5	Grup. fundamentală/6	**1.8**	0.0	0.0
B194	1.019	1	Grup. fundamentală/12	**-1.3**	0.0	0.0
B194	1.019	5	Grup. fundamentală/6	**1.7**	0.0	0.0
B196	1.017	7	Grup. fundamentală/3	**-1.6**	0.0	0.0
B196	1.017	3	Grup. fundamentală/5	**2.0**	0.0	0.0
B197	1.017	7	Grup. fundamentală/3	**-1.8**	0.0	0.0
B197	1.017	3	Grup. fundamentală/3	**1.9**	0.0	0.0
B198	0.508-	5	Grup. fundamentală/10	**-0.6**	0.0	0.0
B198	0.508-	1	Grup. fundamentală/10	**0.8**	0.0	0.0
B199	1.017	1	Grup. fundamentală/6	**-1.7**	0.0	0.0
B199	1.017	5	Grup. fundamentală/6	**1.9**	0.0	0.0
B200	1.017	1	Grup. fundamentală/6	**-1.5**	0.0	0.0
B200	1.017	5	Grup. fundamentală/5	**1.9**	0.0	0.0
B202	1.019	7	Grup. fundamentală/3	**-1.4**	0.0	0.0
B202	1.019	3	Grup. fundamentală/3	**1.8**	0.0	0.0
B203	1.019	7	Grup. fundamentală/3	**-1.7**	0.0	0.0
B203	1.019	3	Grup. fundamentală/3	**1.9**	0.0	0.0
B204	1.019	7	GS-SEISM/14	**-0.7**	0.0	0.0
B204	0.510-	1	Grup. fundamentală/3	**0.8**	0.0	0.0

Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B205	1.019	1	Grup. fundamentală/2	**-1.6**	0.0	0.0
B205	1.019	5	Grup. fundamentală/2	**1.8**	0.0	0.0
B206	1.019	1	Grup. fundamentală/2	**-1.5**	0.0	0.0
B206	1.019	5	Grup. fundamentală/2	**1.9**	0.0	0.0
B208	1.017	7	Grup. fundamentală/8	**-1.5**	0.0	0.0
B208	1.017	3	Grup. fundamentală/7	**1.9**	0.0	0.0
B209	1.017	7	Grup. fundamentală/8	**-1.6**	0.0	0.0
B209	1.017	3	Grup. fundamentală/8	**1.8**	0.0	0.0
B210	0.508-	3	Grup. fundamentală/11	**-0.6**	0.0	0.0
B210	0.508-	7	Grup. fundamentală/11	**0.8**	0.0	0.0
B211	1.017	1	Grup. fundamentală/2	**-1.7**	0.0	0.0
B211	1.017	5	Grup. fundamentală/2	**1.9**	0.0	0.0
B212	1.017	1	Grup. fundamentală/9	**-1.4**	0.0	0.0
B212	1.017	5	Grup. fundamentală/7	**1.8**	0.0	0.0
B213	0.508-	5	Grup. fundamentală/6	**-0.6**	0.0	0.0
B213	0.508-	1	Grup. fundamentală/6	**0.8**	0.0	0.0

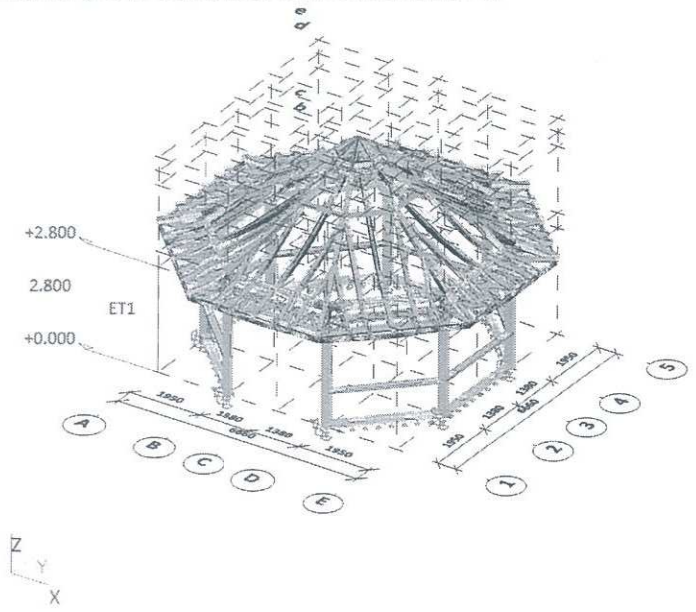
Nume	Combinatie
Grup. fundamentală/1	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D10 + 1.35*LC8
Grup. fundamentală/2	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D13 + 1.35*LC8
Grup. fundamentală/3	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D9 + 1.35*LC8
Grup. fundamentală/4	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D6 + 1.35*LC8
Grup. fundamentală/5	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D7 + 1.35*LC8
Grup. fundamentală/6	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D1 + 1.35*LC8
Grup. fundamentală/7	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D3 + 1.35*LC8
Grup. fundamentală/8	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D5 + 1.35*LC8
Grup. fundamentală/9	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D14 + 1.35*LC8
Grup. fundamentală/10	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D15 + 1.35*LC8
Grup. fundamentală/11	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D11 + 1.35*LC8
Grup. fundamentală/12	1.35*LC1 + 1.35*LC2 + 1.35*LC3 + 1.05*LC4 + 1.50*LC5 + 1.35*LC9 + 1.05*Vant 3D2 + 1.35*LC8
GS-SEISM/13	LC1 + LC2 + LC3 + 0.30*LC4 + 0.40*LC5 + LC9 + LC10 - LC11 + LC8
GS-SEISM/14	LC1 + LC2 + LC3 + 0.30*LC4 + 0.40*LC5 + LC9 - LC10 + LC11 + LC8

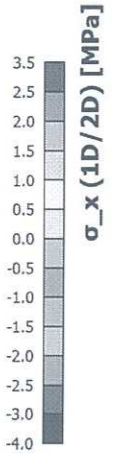
7.2.10. Efort 3D; σ_x (1D/2D)-turn acoperis la ULS



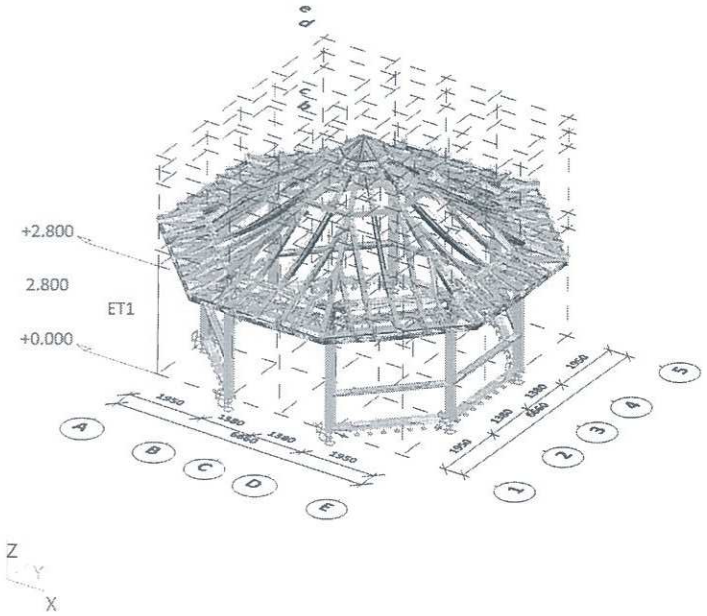


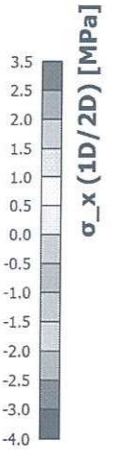
7.2.11. Efort 3D; σ_x -PAVILION DIN COMBINATII GF





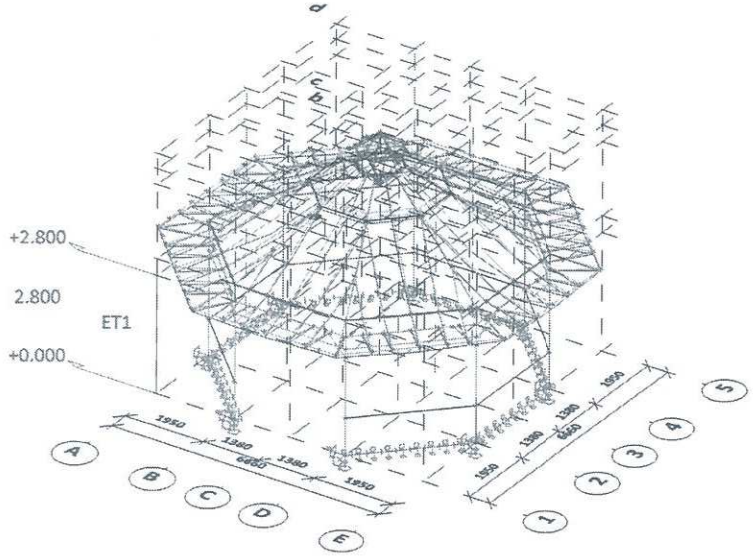
7.2.12. Efort 3D; σ_x-DIN GF. VANT +1/2 ZAPADA





8. Verificare deformatiilor la SLS

8.1. Structura deformata-INC. ZAPADA SIT CEA MAI DEFAVORABILA

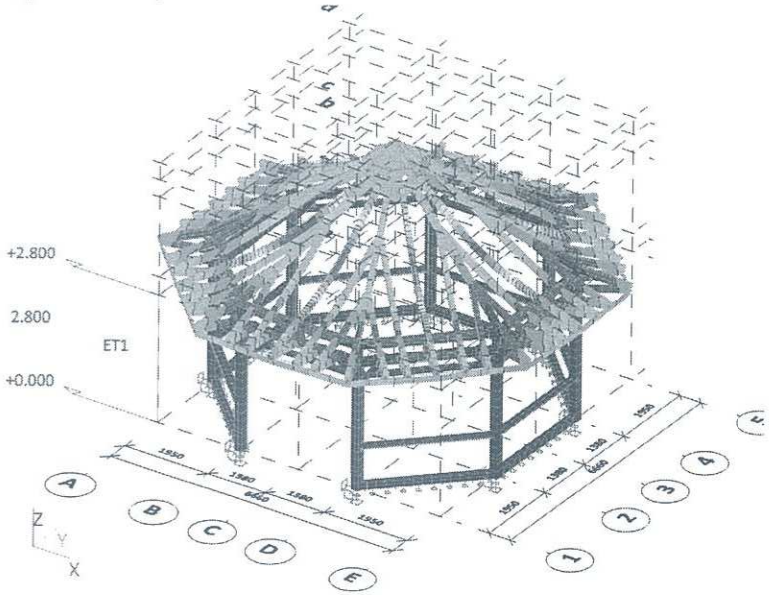


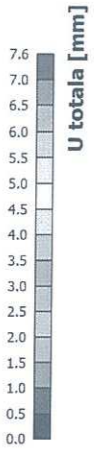
8.2. Structura deformata-DIN INCARCARE ZAPADA

Calcul liniar, Extrem : Globale, Sistem : Principal
Selectie : Toate
Cazuri de incarcare : LC5

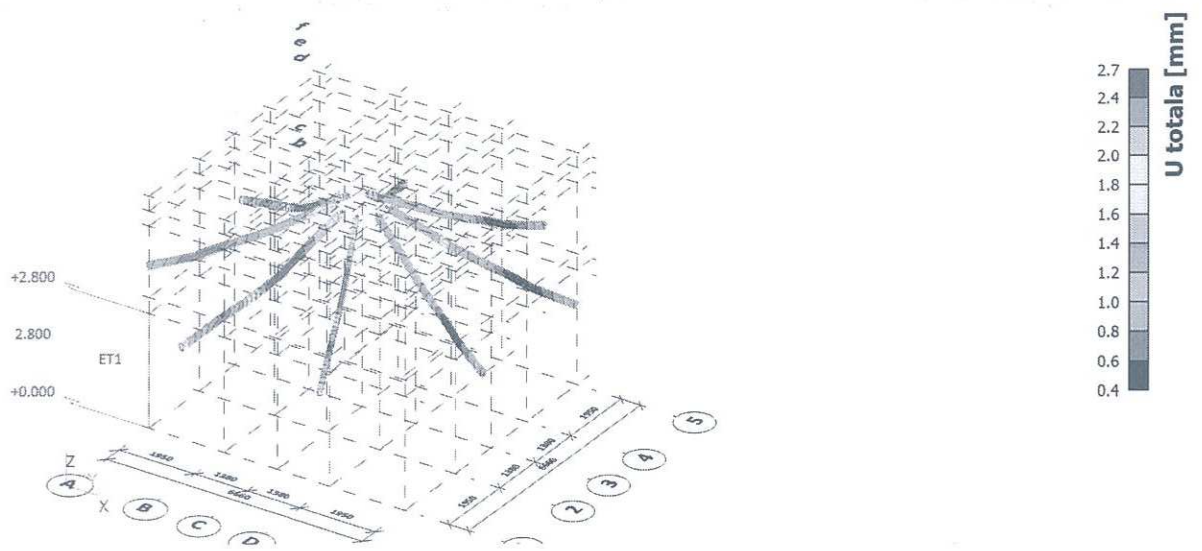
Caz	Element	dx [m]	Ux/ux [mm]	Uy/uy [mm]	Uz/uz [mm]	Fix/fix [mrad]	Fiy/fiy [mrad]	Fiz/fiz [mrad]	Resultant [mm]
LC5	B77	0.379	**-1.4**	0.0	0.1	0.0	-0.2	-0.1	1.4
LC5	B85	0.000	**0.9**	0.0	-1.0	0.1	-0.4	0.1	1.3
LC5	B304	0.397	0.4	**-0.5**	0.0	0.0	0.0	-2.0	0.7
LC5	B28	1.379	0.1	**0.5**	-0.4	2.3	0.0	0.0	0.7
LC5	B162	1.669	-0.9	0.0	**-6.0**	0.0	-0.3	0.0	6.1
LC5	B303	0.397	0.4	-0.1	**0.5**	0.0	-2.3	0.0	0.7
LC5	B63	0.212	0.0	0.0	-1.3	**-2.4**	-0.2	0.0	1.3
LC5	B64	0.212	0.0	0.0	-1.3	**2.4**	0.0	0.0	1.3
LC5	B162	2.782	-0.9	0.0	-3.1	0.0	**-3.6**	0.0	3.3
LC5	B162	0.000	-0.9	0.0	-0.1	0.0	**5.8**	0.0	0.9
LC5	B304	0.000	0.4	0.3	0.0	0.1	0.0	**-2.1**	0.5
LC5	B308	0.000	0.4	-0.4	-0.1	0.0	0.0	**2.4**	0.6

8.3. Deplasare 3D; U totala-SLS





8.4. Deplasare 3D; U totala



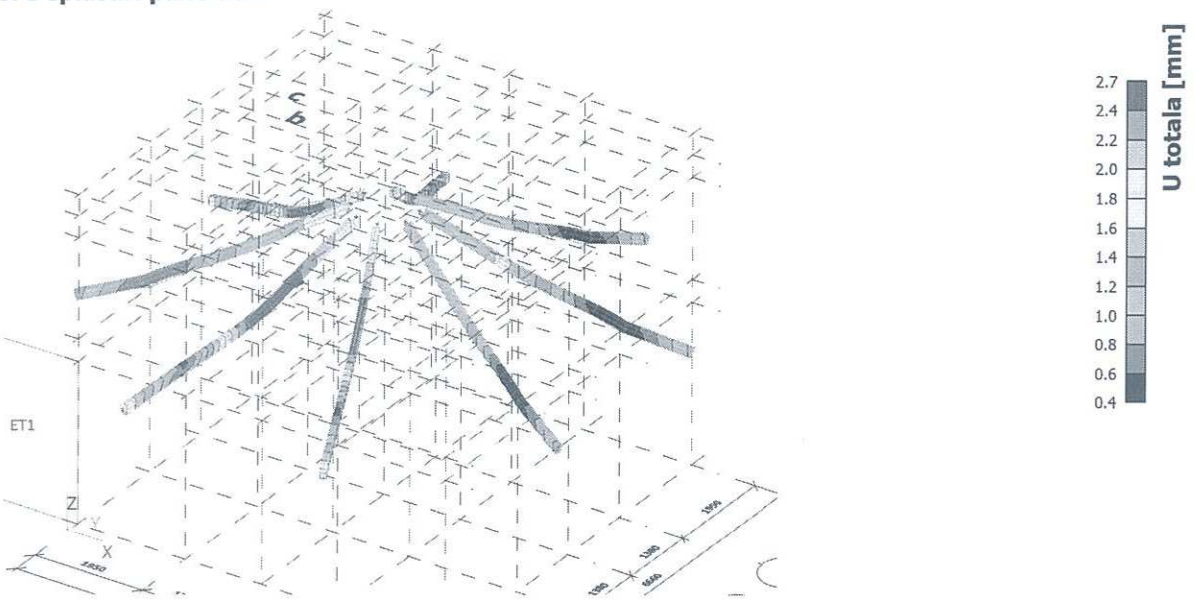
8.5. Deplasare 3D--pane dolii -

Calcul liniar
Combinatia: SLS-VERIF.DEPLASARI
Selectie: B91..B93,B99,B101,B104..B114
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Rezultate pe element 1D:
Extrema 1D: Element

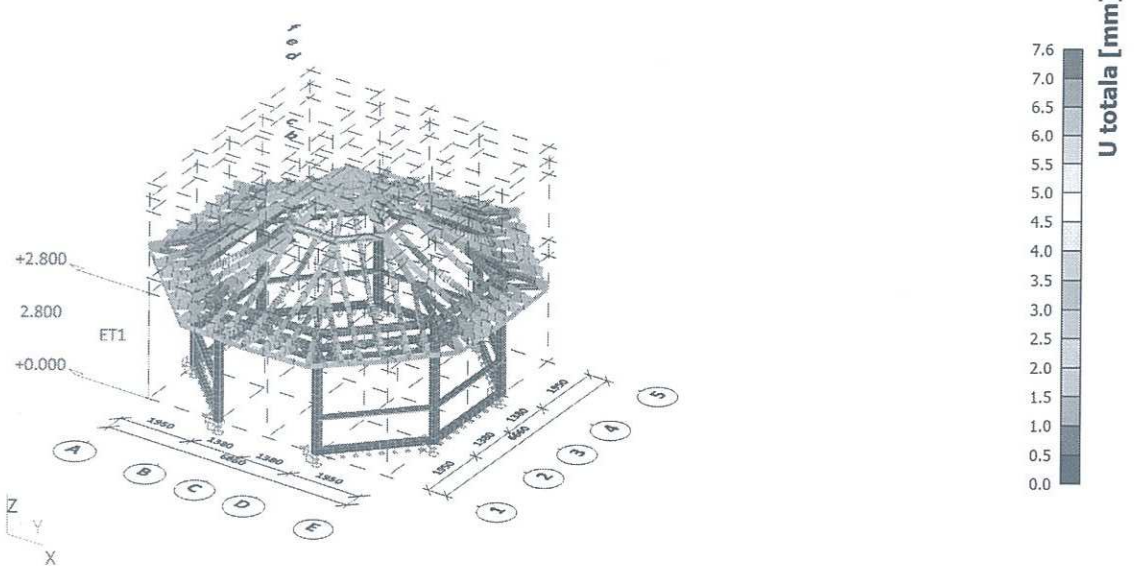
Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U totala [mm]
B91	1.097	7	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	-0.4	0.0	**0.1**
B91	0.000	5	SLS-VERIF.DEPLASARI/2	-0.8	0.1	-1.7	0.1	-1.4	0.0	**1.9**
B92	1.097	1	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	-0.4	0.0	**0.1**
B92	0.000	3	SLS-VERIF.DEPLASARI/2	-0.7	0.1	-1.8	0.0	-1.4	0.0	**1.9**
B93	3.536	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B93	1.335	3	SLS-VERIF.DEPLASARI/2	0.7	0.1	-1.4	0.0	0.1	0.0	**1.6**
B99	3.536	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B99	1.335	5	SLS-VERIF.DEPLASARI/2	0.6	0.0	-1.5	0.1	0.1	0.0	**1.6**
B101	3.536	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B101	1.335	3	SLS-VERIF.DEPLASARI/2	0.7	0.0	-1.5	-0.1	0.1	0.0	**1.6**
B104	1.097	7	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	-0.4	0.0	**0.1**
B104	0.000	5	SLS-VERIF.DEPLASARI/2	-0.7	-0.1	-1.7	0.1	-1.4	0.0	**1.9**
B105	1.097	1	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	-0.4	0.0	**0.1**
B105	0.000	3	SLS-VERIF.DEPLASARI/2	-0.7	-0.1	-1.7	-0.1	-1.4	0.0	**1.9**
B106	3.536	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B106	0.000	1	SLS-VERIF.DEPLASARI/2	0.9	0.0	-1.5	0.0	-0.3	0.0	**1.8**
B107	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B107	1.736-	7	SLS-VERIF.DEPLASARI/2	-0.7	0.0	-2.5	0.1	0.0	0.1	**2.6**
B108	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B108	1.736+	1	SLS-VERIF.DEPLASARI/2	-0.8	-0.1	-2.6	-0.1	0.1	0.0	**2.7**
B109	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B109	1.097	3	SLS-VERIF.DEPLASARI/2	0.7	0.0	-1.1	0.0	0.9	0.0	**1.3**
B110	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B110	1.736+	7	SLS-VERIF.DEPLASARI/2	-0.8	0.1	-2.6	0.1	0.1	0.0	**2.7**
B111	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B111	1.736-	1	SLS-VERIF.DEPLASARI/2	-0.7	0.0	-2.5	-0.1	0.0	-0.1	**2.6**
B112	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B112	1.097	5	SLS-VERIF.DEPLASARI/2	0.5	0.0	-1.2	0.0	0.9	0.0	**1.3**
B113	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B113	1.097	3	SLS-VERIF.DEPLASARI/2	0.5	0.0	-1.2	0.0	0.9	0.0	**1.3**
B114	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B114	1.097	3	SLS-VERIF.DEPLASARI/2	0.5	0.0	-1.2	0.0	0.9	0.0	**1.3**

Nume	Combinatie
SLS-VERIF.DEPLASARI/1	LC1 + LC2 + LC3 + LC8
SLS-VERIF.DEPLASARI/2	LC1 + LC2 + LC3 + LC5 + LC8

8.6. Deplasari pane dolii



8.7. Deplasare 3D; U totala



8.8. Deplasare -capriori

Calcul liniar
Combinatia: SLS-VERIF.DEPLASARI
Selectie: B125..B164,B166..B170,B172..B176,B178..B182,B184,B185,B187,B188,B190..B194,B196..B200,B202..B206,B208..B213,
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Rezultate pe element 1D:
Extrema 1D: Element

Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φx [mrad]	φy [mrad]	φz [mrad]	U totala [mm]
B125	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.0	1.4	0.0	**0.2**
B125	1.669	3	SLS-VERIF.DEPLASARI/2	-1.0	0.0	-7.3	-0.1	-0.5	-0.1	**7.4**
B126	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.1	0.6	0.0	**0.2**
B126	1.335	7	SLS-VERIF.DEPLASARI/2	-0.9	-0.2	-2.8	0.0	0.2	-0.1	**3.0**
B127	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	-0.1	0.5	0.0	**0.2**
B127	1.335	3	SLS-VERIF.DEPLASARI/2	-0.7	0.0	-2.1	-0.2	-0.1	-0.1	**2.2**
B128	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.2	0.0	**0.1**
B128	1.023	1	SLS-VERIF.DEPLASARI/2	-0.7	-0.1	-0.9	-0.3	0.9	0.1	**1.1**
B129	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B129	1.023	7	SLS-VERIF.DEPLASARI/2	-0.9	-0.1	-2.1	0.4	1.3	-0.3	**2.2**
B130	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.0	1.3	0.0	**0.2**

Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U totala [mm]
B130	1.481	1	SLS-VERIF.DEPLASARI/2	-0.9	0.0	-7.0	0.0	0.5	0.0	**7.1**
B131	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.1	0.5	0.0	**0.2**
B131	1.312	5	SLS-VERIF.DEPLASARI/2	-0.8	-0.1	-2.0	0.1	-0.1	-0.1	**2.1**
B132	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.1	0.2	0.0	**0.1**
B132	1.012	7	SLS-VERIF.DEPLASARI/2	-0.7	0.0	-0.8	0.3	0.9	-0.3	**1.1**
B133	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	-0.1	0.5	0.0	**0.2**
B133	1.312	3	SLS-VERIF.DEPLASARI/2	-0.7	0.1	-2.0	-0.1	-0.1	0.0	**2.2**
B134	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	-0.1	0.2	0.0	**0.1**
B134	1.012	1	SLS-VERIF.DEPLASARI/2	-0.6	0.0	-0.9	-0.3	0.9	0.2	**1.1**
B135	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.0	1.3	0.0	**0.2**
B135	1.484	7	SLS-VERIF.DEPLASARI/2	-0.9	0.0	-7.2	0.0	0.6	0.0	**7.2**
B136	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.1	0.5	0.0	**0.2**
B136	1.144-	7	SLS-VERIF.DEPLASARI/2	-0.7	-0.1	-2.1	0.2	0.3	0.0	**2.2**
B137	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.1	0.2	0.0	**0.1**
B137	1.023	7	SLS-VERIF.DEPLASARI/2	-0.6	0.0	-0.9	0.3	0.9	-0.2	**1.1**
B138	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	-0.1	0.5	0.0	**0.2**
B138	1.144-	1	SLS-VERIF.DEPLASARI/2	-0.8	0.1	-2.1	-0.1	0.3	0.0	**2.2**
B139	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	-0.1	0.2	0.0	**0.1**
B139	1.023	1	SLS-VERIF.DEPLASARI/2	-0.7	0.0	-0.9	-0.3	0.9	0.2	**1.1**
B140	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.0	1.3	0.0	**0.2**
B140	1.481	7	SLS-VERIF.DEPLASARI/2	-1.0	0.0	-7.1	0.1	0.6	0.1	**7.2**
B141	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.1	0.5	0.0	**0.2**
B141	1.312	5	SLS-VERIF.DEPLASARI/2	-0.7	-0.1	-2.0	0.1	-0.1	0.1	**2.2**
B142	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.1	0.2	0.0	**0.1**
B142	1.012	7	SLS-VERIF.DEPLASARI/2	-0.7	0.1	-0.9	0.4	0.9	-0.1	**1.1**
B143	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	-0.1	0.6	0.0	**0.2**
B143	1.312	7	SLS-VERIF.DEPLASARI/2	-0.9	0.1	-2.7	0.1	0.2	0.1	**2.9**
B144	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.1	**0.1**
B144	1.012	1	SLS-VERIF.DEPLASARI/2	-0.9	0.1	-2.0	-0.4	1.3	0.3	**2.2**
B145	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.0	1.4	0.0	**0.2**
B145	1.666	3	SLS-VERIF.DEPLASARI/2	-1.1	0.0	-7.3	-0.1	-0.4	-0.1	**7.3**
B146	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.1	0.6	0.0	**0.2**
B146	1.312	7	SLS-VERIF.DEPLASARI/2	-1.0	-0.1	-2.8	0.0	0.3	-0.1	**3.0**
B147	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B147	1.012	7	SLS-VERIF.DEPLASARI/2	-0.9	-0.1	-2.1	0.5	1.4	-0.3	**2.3**
B148	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	-0.1	0.6	0.0	**0.2**
B148	1.312	1	SLS-VERIF.DEPLASARI/2	-0.9	0.2	-2.8	0.0	0.3	0.0	**2.9**
B149	0.000	5	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B149	1.012	1	SLS-VERIF.DEPLASARI/2	-0.9	0.2	-2.0	-0.5	1.4	0.2	**2.2**
B150	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.0	1.4	0.0	**0.2**
B150	1.669	5	SLS-VERIF.DEPLASARI/2	-1.1	0.0	-7.4	0.1	-0.4	0.0	**7.5**
B151	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	-0.1	0.7	0.0	**0.2**
B151	1.335	1	SLS-VERIF.DEPLASARI/2	-1.0	0.1	-2.9	-0.1	0.2	0.1	**3.0**
B152	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B152	1.023	1	SLS-VERIF.DEPLASARI/2	-0.9	0.0	-2.1	-0.5	1.4	0.3	**2.3**
B153	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B153	1.012	7	SLS-VERIF.DEPLASARI/2	-1.0	-0.2	-2.0	0.4	1.4	-0.3	**2.3**
B154	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.1	0.6	-0.1	**0.2**
B154	1.312	1	SLS-VERIF.DEPLASARI/2	-1.0	-0.2	-2.8	-0.1	0.3	-0.1	**2.9**
B155	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.0	1.4	0.0	**0.2**
B155	1.666	5	SLS-VERIF.DEPLASARI/2	-1.1	0.0	-7.3	0.0	-0.4	0.0	**7.4**
B156	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	-0.1	0.5	0.0	**0.2**
B156	1.312	3	SLS-VERIF.DEPLASARI/2	-0.9	0.0	-1.9	-0.1	-0.1	0.0	**2.1**
B157	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.2	0.0	**0.2**
B157	1.012	1	SLS-VERIF.DEPLASARI/2	-0.8	-0.1	-0.7	-0.3	0.9	0.2	**1.1**
B158	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.1	0.6	-0.1	**0.2**
B158	1.335	7	SLS-VERIF.DEPLASARI/2	-0.9	-0.2	-2.8	0.1	0.2	0.0	**3.0**
B159	0.000	3	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B159	1.023	7	SLS-VERIF.DEPLASARI/2	-0.9	-0.2	-2.0	0.5	1.3	-0.3	**2.2**
B160	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.2	0.0	**0.2**
B160	1.023	7	SLS-VERIF.DEPLASARI/2	-0.8	0.1	-0.7	0.3	0.9	-0.2	**1.1**
B161	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.1	0.5	0.0	**0.2**
B161	1.144-	7	SLS-VERIF.DEPLASARI/2	-0.9	0.0	-1.9	0.2	0.3	0.0	**2.1**
B162	0.000	3	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.0	1.4	0.0	**0.2**
B162	1.669	3	SLS-VERIF.DEPLASARI/2	-1.1	0.0	-7.5	0.0	-0.4	0.0	**7.6**
B163	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	-0.1	0.7	0.1	**0.2**
B163	1.335	1	SLS-VERIF.DEPLASARI/2	-1.0	0.2	-2.8	0.0	0.2	0.1	**3.0**
B164	0.000	5	SLS-VERIF.DEPLASARI/1	-0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B164	1.023	1	SLS-VERIF.DEPLASARI/2	-1.0	0.2	-2.1	-0.5	1.4	0.3	**2.3**
B166	1.017	1	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	0.1	-0.4	0.0	**0.1**
B166	0.000	5	SLS-VERIF.DEPLASARI/2	-0.7	-0.2	-1.7	0.9	-1.2	-0.1	**1.9**
B167	1.017	1	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	0.1	-0.5	0.0	**0.1**
B167	0.000	5	SLS-VERIF.DEPLASARI/2	-0.8	-0.2	-2.5	1.2	-1.8	-0.2	**2.6**
B168	1.017	1	SLS-VERIF.DEPLASARI/1	-0.2	0.0	-0.1	0.0	-0.6	0.0	**0.2**
B168	0.000	5	SLS-VERIF.DEPLASARI/2	-1.0	-0.1	-3.2	0.3	-2.5	0.0	**3.3**
B169	1.017	7	SLS-VERIF.DEPLASARI/1	-0.1	0.0	-0.1	-0.1	-0.6	0.0	**0.2**
B169	0.000	3	SLS-VERIF.DEPLASARI/2	-1.0	0.1	-2.8	-0.8	-2.1	0.1	**3.0**

Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U totala [mm]
B170	1.017	7	SLS-VERIF.DEPLASARI/1	-0.1	0.0	0.0	-0.1	-0.6	0.0	**0.1**
B170	0.000	3	SLS-VERIF.DEPLASARI/2	-0.8	0.1	-2.2	-0.7	-1.6	0.1	**2.4**
B172	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B172	1.019	3	SLS-VERIF.DEPLASARI/2	0.9	0.2	-2.2	-0.8	2.0	-0.1	**2.4**
B173	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	-0.1	0.6	0.0	**0.2**
B173	1.019	3	SLS-VERIF.DEPLASARI/2	1.0	0.3	-2.9	-1.0	2.4	-0.2	**3.1**
B174	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.0	0.7	0.0	**0.2**
B174	1.019	3	SLS-VERIF.DEPLASARI/2	1.1	0.1	-3.5	0.0	2.8	0.0	**3.6**
B175	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.1	0.6	0.0	**0.2**
B175	1.019	5	SLS-VERIF.DEPLASARI/2	1.0	-0.1	-3.0	1.0	2.5	0.2	**3.1**
B176	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B176	1.019	5	SLS-VERIF.DEPLASARI/2	0.9	-0.1	-2.3	0.8	2.0	0.1	**2.4**
B178	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	-0.1	0.4	0.0	**0.1**
B178	1.019	3	SLS-VERIF.DEPLASARI/2	0.6	0.2	-1.7	-0.8	1.4	-0.1	**1.8**
B179	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	-0.1	0.5	0.0	**0.1**
B179	1.019	3	SLS-VERIF.DEPLASARI/2	0.8	0.2	-2.4	-1.1	1.9	-0.2	**2.5**
B180	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	0.0	0.6	0.0	**0.2**
B180	1.019	3	SLS-VERIF.DEPLASARI/2	0.9	0.0	-2.9	0.0	2.3	0.0	**3.1**
B181	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	0.1	0.5	0.0	**0.2**
B181	1.019	5	SLS-VERIF.DEPLASARI/2	0.8	-0.2	-2.4	1.1	1.9	0.2	**2.6**
B182	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.1	0.4	0.0	**0.1**
B182	1.019	5	SLS-VERIF.DEPLASARI/2	0.7	-0.1	-1.7	0.9	1.4	0.1	**1.8**
B184	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	-0.1	0.3	0.0	**0.1**
B184	1.017	3	SLS-VERIF.DEPLASARI/2	0.7	0.1	-1.7	-0.8	1.4	-0.1	**1.8**
B185	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	-0.1	0.5	0.0	**0.2**
B185	1.017	3	SLS-VERIF.DEPLASARI/2	0.8	0.2	-2.4	-1.1	1.9	-0.2	**2.6**
B187	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	0.1	0.5	0.0	**0.1**
B187	1.017	5	SLS-VERIF.DEPLASARI/2	0.8	-0.2	-2.4	1.1	1.9	0.2	**2.5**
B188	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.1	0.4	0.0	**0.1**
B188	1.017	5	SLS-VERIF.DEPLASARI/2	0.6	-0.2	-1.7	0.8	1.4	0.1	**1.8**
B190	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	-0.1	0.5	0.0	**0.1**
B190	1.019	3	SLS-VERIF.DEPLASARI/2	0.9	0.1	-2.2	-0.7	2.0	-0.1	**2.4**
B191	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	-0.1	0.6	0.0	**0.2**
B191	1.019	3	SLS-VERIF.DEPLASARI/2	1.0	0.1	-2.9	-0.8	2.4	-0.1	**3.0**
B192	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.0	0.6	0.0	**0.2**
B192	1.019	5	SLS-VERIF.DEPLASARI/2	1.0	-0.1	-3.2	0.3	2.6	0.0	**3.4**
B193	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	0.1	0.5	0.0	**0.1**
B193	1.019	5	SLS-VERIF.DEPLASARI/2	0.8	-0.3	-2.5	1.2	2.0	0.2	**2.6**
B194	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.1	0.4	0.0	**0.1**
B194	1.019	5	SLS-VERIF.DEPLASARI/2	0.7	-0.2	-1.7	0.9	1.4	0.1	**1.9**
B196	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B196	1.017	3	SLS-VERIF.DEPLASARI/2	0.9	0.1	-2.3	-0.8	2.1	-0.1	**2.5**
B197	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	-0.1	0.6	0.0	**0.2**
B197	1.017	3	SLS-VERIF.DEPLASARI/2	1.1	0.1	-3.0	-1.0	2.5	-0.2	**3.1**
B198	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.0	0.7	0.0	**0.2**
B198	1.017	5	SLS-VERIF.DEPLASARI/2	1.1	-0.1	-3.5	0.0	2.9	0.0	**3.6**
B199	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.1	0.6	0.0	**0.2**
B199	1.017	5	SLS-VERIF.DEPLASARI/2	1.0	-0.3	-2.9	1.0	2.5	0.2	**3.1**
B200	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.0	0.5	0.0	**0.1**
B200	1.017	5	SLS-VERIF.DEPLASARI/2	0.9	-0.2	-2.2	0.8	2.0	0.1	**2.4**
B202	0.000	7	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	-0.1	0.4	0.0	**0.2**
B202	1.019	3	SLS-VERIF.DEPLASARI/2	0.9	0.1	-1.7	-0.9	1.4	-0.1	**1.9**
B203	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	-0.1	0.5	0.0	**0.2**
B203	1.019	3	SLS-VERIF.DEPLASARI/2	1.0	0.1	-2.5	-1.2	2.0	-0.2	**2.7**
B204	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.0	0.6	0.0	**0.2**
B204	1.019	3	SLS-VERIF.DEPLASARI/2	1.2	0.0	-3.1	-0.2	2.5	0.0	**3.3**
B205	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.1	0.6	0.0	**0.2**
B205	1.019	5	SLS-VERIF.DEPLASARI/2	1.1	-0.2	-2.8	0.8	2.3	0.1	**3.0**
B206	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B206	1.019	5	SLS-VERIF.DEPLASARI/2	1.0	-0.2	-2.1	0.7	1.9	0.1	**2.4**
B208	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	0.0	0.0	0.5	0.0	**0.2**
B208	1.017	3	SLS-VERIF.DEPLASARI/2	1.0	0.2	-2.1	-0.7	1.9	-0.1	**2.4**
B209	0.000	7	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	-0.1	0.6	0.0	**0.2**
B209	1.017	3	SLS-VERIF.DEPLASARI/2	1.1	0.2	-2.7	-0.8	2.3	-0.1	**3.0**
B210	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.0	0.6	0.0	**0.2**
B210	1.017	5	SLS-VERIF.DEPLASARI/2	1.2	0.0	-3.1	0.2	2.5	0.0	**3.3**
B211	0.000	1	SLS-VERIF.DEPLASARI/1	0.2	0.0	-0.1	0.1	0.5	0.0	**0.2**
B211	1.017	5	SLS-VERIF.DEPLASARI/2	1.0	-0.1	-2.4	1.2	2.0	0.2	**2.6**
B212	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	0.0	0.1	0.4	0.0	**0.2**
B212	1.017	5	SLS-VERIF.DEPLASARI/2	0.9	-0.1	-1.7	0.9	1.4	0.1	**1.9**
B213	0.000	1	SLS-VERIF.DEPLASARI/1	0.1	0.0	-0.1	0.0	0.6	0.0	**0.2**
B213	1.017	5	SLS-VERIF.DEPLASARI/2	0.9	0.0	-2.9	0.0	2.3	0.0	**3.1**

Nume	Combinatie
SLS-VERIF.DEPLASARI/1	LC1 + LC2 + LC3 + LC8
SLS-VERIF.DEPLASARI/2	LC1 + LC2 + LC3 + LC5 + LC8

8.9. Date zveltete-capriori

Calcul liniar

Element	Nume CS	Parte	Deplasare y / Deplasare z	Ly [m] / Lz [m]	ky [-] / kz [-]	Iy [m] / Iz [m]	Lam y [-] / Lam z [-]	e0,y [mm] / e0,z [mm]	Iyz [m]	l LTB [m]
B132	CS7- capriori	1	Da	1.012	3.77	3.819	110.24	0.0	1.012	1.012
			Nu	1.012	0.81	0.819	28.37	0.0		
B125	CS7- capriori	1	Da	3.338	2.28	7.604	**219.50**	0.0	3.338	3.338
			Nu	3.338	0.58	1.948	67.47	0.0		
B138	CS7- capriori	1	Da	2.289	2.08	4.768	137.64	0.0	2.289	2.289
			Nu	2.289	0.77	1.756	60.83	0.0		
B153	CS7- capriori	1	Da	1.012	5.62	5.688	164.20	0.0	1.012	1.012
			Nu	1.012	0.80	0.814	28.21	0.0		
B159	CS7- capriori	1	Da	1.023	2.25	2.302	66.46	0.0	1.023	1.023
			Nu	1.023	0.78	0.794	27.49	0.0		
B146	CS7- capriori	1	Da	2.249	5.12	11.508	**332.19**	0.0	2.249	2.249
			Nu	2.249	0.59	1.334	46.20	0.0		
B133	CS7- capriori	1	Da	2.249	2.26	5.089	146.89	0.0	2.249	2.249
			Nu	2.249	0.55	1.229	42.56	0.0		
B164	CS7- capriori	1	Da	1.023	4.62	4.727	136.47	0.0	1.023	1.023
			Nu	1.023	0.82	0.838	29.03	0.0		
B137	CS7- capriori	1	Da	1.023	3.07	3.144	90.76	0.0	1.023	1.023
			Nu	1.023	0.60	0.614	21.25	0.0		
B162	CS7- capriori	1	Da	3.338	2.52	8.401	**242.51**	0.0	3.338	3.338
			Nu	3.338	0.64	2.134	73.91	0.0		

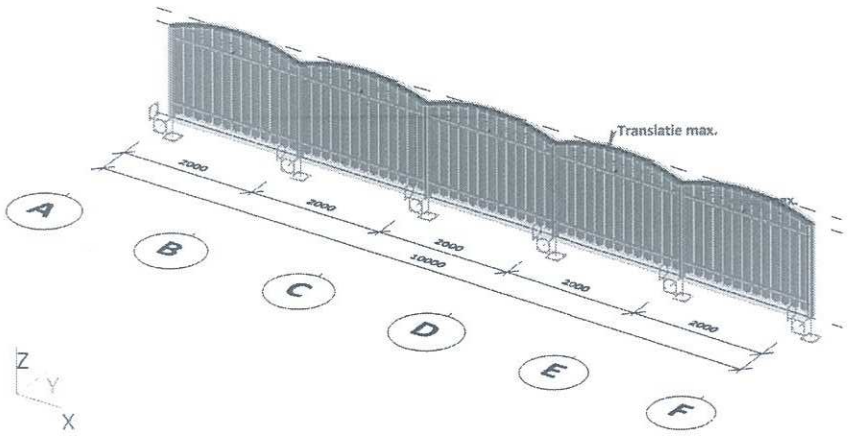
S.C. OVIRELANCE S.R.L.
sef de proiect
ing. Pascariu Marius-Adrian

Semnatura
.....

Intocmit,
Specialitatea Rezistenta
ing. Vlad Ciuca - Alexandru

.....

III.BREVIAR DE CALCUL
III.2. Breviar de calcul imprejmuire
1. MODEL ANALIZA
1.1. Model analiza



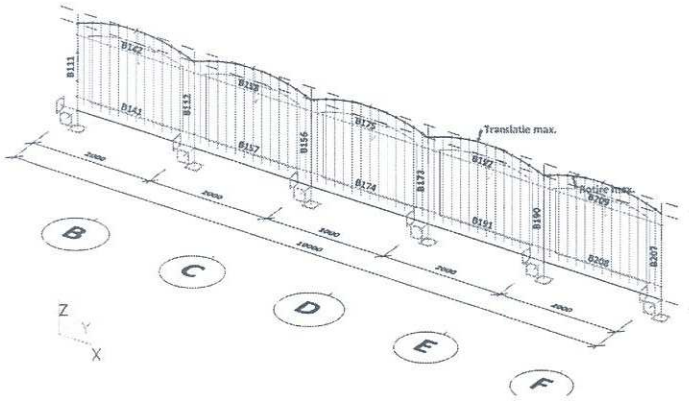
2. Cuprins

1. MODEL ANALIZA
2. Cuprins
3. DATE GENERALE
4. CARACTERISTICI TEREN
5. DATE INCARCARI/ACTIUNI/COMBINATII
6. REZULTATE
7. Verificarea structurii
8. VERIFICAREA FUNDATIILOR

3. DATE GENERALE
3.1. Proiect

Nume licenta	554999
Proiect	Imprejmuire spatiu public
Faza	PTh
Descriere	-
Autor	ing. Marius Pascariu
Structura	General XYZ
Nr. noduri :	176
Nr. de elemente liniare:	86
Nr. placi :	0
Nr. solide :	0
Nr. profile utilizate :	4
Nr. de cazuri de incarcare :	23
Nr. materiale utilizate :	4
Acceleratie gravitationala [m/s^2]	9.810
Normativ national	EC - EN

3.2. Model analiza cu identificarea elementelor
Distanta interax 2m , calcul realizat pentru o lungime totala 10m ,5 panouri.

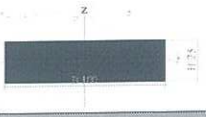


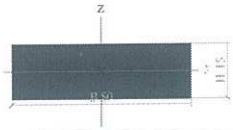
3.3. Sectiuni transversale

CS1-STALPI			
Tip	CFRHS60X40X3		
Formcode	2 - Sectiune cu goluri rectangulare		
Tip forma	Pereti subtiri		
Material obiect	S 235 JR (EN 10025-2)		
Fabricatie	prelucrata la rece		
Culoare			
Flambaj prin incovoiere y-y, Flambaj prin incovoiere z-z	c		c
A [m^2]		5.4100e-04	
A_y [m^2], A_z [m^2]		2.1616e-04	3.2424e-04
A_L [m^2/m], A_D [m^2/m]		1.9000e-01	3.6048e-01
$c_{Y,UCS}$ [mm], $c_{Z,UCS}$ [mm]		20	30
α [deg]		0.00	
I_y [m^4], I_z [m^4]		2.5380e-07	1.3440e-07
i_y [mm], i_z [mm]		22	16
$W_{el,y}$ [m^3], $W_{el,z}$ [m^3]		8.4600e-06	6.7200e-06
$W_{pl,y}$ [m^3], $W_{pl,z}$ [m^3]		1.0530e-05	7.9400e-06
$M_{pl,y,+}$ [Nm], $M_{pl,y,-}$ [Nm]		2.47e+03	2.47e+03
$M_{pl,z,+}$ [Nm], $M_{pl,z,-}$ [Nm]		1.86e+03	1.86e+03
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		2.9280e-07	7.2000e-11
β_y [mm], β_z [mm]		0	0
Imagine			

CS2 RIGLE MONTAJ			
Tip	CFRHS40X30X3		
Formcode	2 - Sectiune cu goluri rectangulare		
Tip forma	Pereti subtiri		
Material obiect	S 235		
Fabricatie	prelucrata la rece		
Culoare			
Flambaj prin incovoiere y-y, Flambaj prin incovoiere z-z	c		c
A [m^2]		3.6100e-04	
A_y [m^2], A_z [m^2]		1.5445e-04	2.0594e-04
A_L [m^2/m], A_D [m^2/m]		1.3000e-01	2.4048e-01
$c_{Y,UCS}$ [mm], $c_{Z,UCS}$ [mm]		15	20
α [deg]		0.00	
I_y [m^4], I_z [m^4]		7.2700e-08	4.6000e-08
i_y [mm], i_z [mm]		14	11
$W_{el,y}$ [m^3], $W_{el,z}$ [m^3]		3.6300e-06	3.0700e-06
$W_{pl,y}$ [m^3], $W_{pl,z}$ [m^3]		4.6100e-06	3.7700e-06
$M_{pl,y,+}$ [Nm], $M_{pl,y,-}$ [Nm]		1.08e+03	1.08e+03
$M_{pl,z,+}$ [Nm], $M_{pl,z,-}$ [Nm]		8.84e+02	8.84e+02
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		9.7200e-08	1.2600e-11
β_y [mm], β_z [mm]		0	0
Imagine			

CS5-ULUCI			
Tip	DREP		
Raport detaliat	100; 25		
Tip forma	Pereti grosi		
Material obiect	C14 (EN 338)		
Fabricatie	lemn		
Culoare			
A [m^2]		2.5000e-03	
A_y [m^2], A_z [m^2]		2.0833e-03	2.0833e-03
A_L [m^2/m], A_D [m^2/m]		2.5000e-01	2.5000e-01
$c_{Y,UCS}$ [mm], $c_{Z,UCS}$ [mm]		50	13
α [deg]		0.00	
I_y [m^4], I_z [m^4]		1.3021e-07	2.0833e-06
i_y [mm], i_z [mm]		7	29
$W_{el,y}$ [m^3], $W_{el,z}$ [m^3]		1.0417e-05	4.1667e-05
$W_{pl,y}$ [m^3], $W_{pl,z}$ [m^3]		9.6983e-06	3.8793e-05
$M_{pl,y,+}$ [Nm], $M_{pl,y,-}$ [Nm]		1.55e+02	1.55e+02
$M_{pl,z,+}$ [Nm], $M_{pl,z,-}$ [Nm]		6.21e+02	6.21e+02
d_y [mm], d_z [mm]		0	0
I_t [m^4], I_w [m^6]		4.3880e-07	0.0000e+00
β_y [mm], β_z [mm]		0	0

Imagine		

CS5-RIGLA SUP LEMN		
Tip	DREP	
Raport detaliat	50; 15	
Tip forma	Pereti grosi	
Material obiect	C14 (EN 338)	
Fabricatie	lemn	
Culoare		
A [m^2]	7.5000e-04	
A_y [m^2], A_z [m^2]	6.2500e-04	6.2500e-04
A_L [m^2/m], A_D [m^2/m]	1.3000e-01	1.3000e-01
$c_{Y,UCS}$ [mm], $c_{Z,UCS}$ [mm]	25	8
α [deg]	0.00	
I_y [m^4], I_z [m^4]	1.4062e-08	1.5625e-07
i_y [mm], i_z [mm]	4	14
$W_{el,y}$ [m^3], $W_{el,z}$ [m^3]	1.8750e-06	6.2500e-06
$W_{pl,y}$ [m^3], $W_{pl,z}$ [m^3]	1.7457e-06	5.8190e-06
$M_{pl,y,+}$ [Nm], $M_{pl,y,-}$ [Nm]	2.79e+01	2.79e+01
$M_{pl,z,+}$ [Nm], $M_{pl,z,-}$ [Nm]	9.31e+01	9.31e+01
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	4.5619e-08	0.0000e+00
β_y [mm], β_z [mm]	0	0
Imagine		

Explicari simboluri	
Formcode	h - Inaltime b - Latime s - Grosime r - Raza exterioara r1 - Raza interioara
A	Arie
A_y	Aria de forfecare pe directie principala y
A_z	Aria de forfecare pe directie principala z
A_L	Circumferinta pe unitate de lungime
A_D	Suprafata uscata pe unitate lungime
$c_{Y,UCS}$	Coordonata centru de greutate pe directia Y a sistemului de axe introdus
$c_{Z,UCS}$	Coordonata centru de greutate pe directia Z a sistemului de axe introdus
$I_{Y,LCS}$	Moment de inertie pe axa YLCS
$I_{Z,LCS}$	Moment de inertie pe axa ZLCS
$I_{YZ,LCS}$	Produs moment inertie in sistem SCL
α	Unghi rotire sistem principal de axe
I_y	Moment de inertie pe axa principala y
I_z	Moment de inertie pe axa principala z
i_y	Raza de giratie pe axa principala y
i_z	Raza de giratie pe axa principala z
$W_{el,y}$	Modulul de rezistenta elastic pe axa principala y
$W_{el,z}$	Modulul de rezistenta elastic pe axa principala z
$W_{pl,y}$	Modulul de rezistenta plastic al sectiunii pe axa principala y
$W_{pl,z}$	Modulul de rezistenta plastic al sectiunii pe axa principala z
$M_{pl,y,+}$	Moment plastic pe axa principala y pt. moment My pozitiv
$M_{pl,y,-}$	Moment plastic pe axa principala y pt. moment My negativ
$M_{pl,z,+}$	Moment plastic pe axa principala z pt. moment Mz pozitiv
$M_{pl,z,-}$	Moment plastic pe axa principala z pt. moment Mz negativ
d_y	Coordonata centrului de forfecare pe directia principala y, masurata din centrul de greutate
d_z	Coordonata centrului de forfecare pe directia principala z, masurata din centrul de greutate
I_t	Constanta de torsiune
I_w	Constanta de rasucire
β_y	Constanta mono-simetrie pe axa principala y
β_z	Mono-simetrie constanta pe axa principala z

3.4. Materiale

Otel EC3

Nume	ρ [kg/m^3]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Limita inferioara [mm]	Limita superioara [mm]	F_y [MPa]	F_u [MPa]	Culoare
S 235	7850.0	2.1000e+05	0.3	0	40	235.0	360.0	
		8.0769e+04	0.00	40	80	215.0	360.0	
S 235 JR (EN 10025-2)	7850.0	2.1000e+05	0.3	0	3	235.0	360.0	
		8.0769e+04	0.00	3	16	235.0	360.0	
				16	40	225.0	360.0	
				40	63	215.0	360.0	

Nume	ρ [kg/m³]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Limita inferioara [mm]	Limita superioara [mm]	F_y [MPa]	F_u [MPa]	Culoare
				63	80	215.0	360.0	
				80	100	215.0	360.0	
				100	150	195.0	350.0	
				150	200	185.0	340.0	
				200	250	175.0	340.0	

Nume	Tip	ρ [kg/m³]	Densitate in stare actuala [kg/m³]	E_{mod} [MPa]	μ	α [m/mK]	$f_{c,k,28}$ [MPa]	Culoare
C12/15	Beton	2500.0	2600.0	2.7100e+04	0.2	0.00	12.00	

Lemn EC5

Nume	Tipul de lemn ρ [kg/m³]	μ α [m/mK]	E_{mod} [MPa] G_{mod} [MPa]	$f_{m,k}$ [MPa]	$f_{t,0,k}$ [MPa]	$f_{t,90,k}$ [MPa]	$f_{c,0,k}$ [MPa]	$f_{c,90,k}$ [MPa]	$f_{v,k}$ [MPa]	Culoare
C14 (EN 338)	Solid	0	7.0000e+03	14.0	7.2	0.4	16.0	2.0	3.0	
	350.0	0.00	4.4000e+02							

3.5. Fundatii izolate

F1-GARD			
Tip	Prismatic		
Material, Conditie de turnare	C12/15	In Situ	
A [m], B [m]	0.45	0.45	
h1 [m], h2 [m], h3 [m]	0.500	0.400	0.050
a [m], b [m]	45	0.45	
ex [m], ey [m]	0.000	0.000	

4. CARACTERISTICI TEREN

4.1. Soluri

Nume	C1x [MN/m³]	C1z	C1y [MN/m³]	Rigiditate [MN/m³]	C2x [MN/m]	C2y [MN/m]
Balast +pietris -cf . studio geo	5.6000e+00	Flexibila	5.6000e+00	2.5000e+01	1.6000e+00	1.6000e+00

4.2. Profile geologice

Nume	Nivel apa [m]	Nume layer	Grosime [m]	Edef [MN/m²]	Poisson	Greutate in stare uscata [kN/m³]	Greutate in stare umeda [kN/m³]	m
	Straturi pamant necompresibil							
GP1	5.000	STRAT VEGETAL	0.200	2.6570e+00	0.2	15.8	18.2	0.2
	Da	BALAST	1.700	1.8000e+00	0.2	20.2	22.3	0.2

5. DATE INCARCARI/ACTIUNI/COMBINATII

- Acțiuni permanente (G_k) conform SREN 1991-1-1/ SREN 1991-1-1/NA

-Acțiuni variabile din exploatarea construcției/ utile (Q_k) conform SREN 1991-1-1/ SREN 1991-1-1/NA

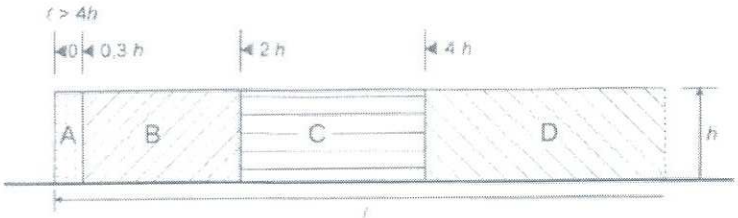
5.1. Presiuni vant

Nume	WP1
Date de intrare	SR 1991-1-4 , CR1-1-4-2012
prima inaltime [m]	0.000
a doua inaltime [m]	1.600
Pas [m]	1.000
Inaltime / Presiune	0.000000 / 289.553400
	1.000000 / 289.553400
	1.600000 / 289.553400
V ref [m/s]	30.000
Q ref [kN/m²]	0.6
Zona vant	Zona vant 4
Rugozitate	categoria II
C T	1
A temp	0.3
Ro [kg/m³]	1.3
b [m]	10.000
Hs [m]	646
E	1
Nivelul marii	0

Factor de anotimp $c_{season} = 1$

Val. fundamentala a vitezei de ref. a vantului $v_b = c_{dir} \cdot c_{season} \cdot v_{b,0} = 1 \cdot 1 \cdot 30 =$ **30 m/s**

Coeficienti presiune externa pt. pereti



$c_{p,A} = \mathbf{1.2}$

$c_{p,B} = \mathbf{1.2}$

$c_{p,C} = \mathbf{1.2}$

$c_{p,D} = \mathbf{1.2}$

Forte ce actioneaza pe fiecare regiune din perete

$w_A = c_{p,A} \cdot q_p = 1.2 \cdot 781 = \mathbf{0.938\ kN/m^2}$

$w_B = c_{p,B} \cdot q_p = 1.2 \cdot 781 = \mathbf{0.938\ kN/m^2}$

$w_C = c_{p,C} \cdot q_p = 1.2 \cdot 781 = \mathbf{0.938\ kN/m^2}$

$w_D = c_{p,D} \cdot q_p = 1.2 \cdot 781 = \mathbf{0.938\ kN/m^2}$

Factor de ecranare

Factorul de ecranare poate fi utilizat daca exista alti pereti sau garduri pe directia vantului cu o inaltime h egala sau mai mare decat peretele sau parapetul in cauza

Distanta fata de obstacol $x_{obs} = 30$ m

Spatiu obstacol x/h $x_p = \frac{x_{obs}}{h} = \frac{30}{6} = 5$

Factori de ecranare pt. $\phi = 1$ si 0,8 $\psi_{\phi 1} = 0.3$

$\psi_{\phi 0,8} = 0.3$

Factor de ecranare $\psi_\phi = \mathbf{0.3}$

Forte reduse in fiecare regiune de pe perete

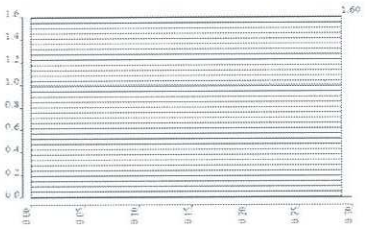
$w_{A,red} = w_A \cdot \psi_\phi = 938 \cdot 0.3 = \mathbf{0.281\ kN/m^2}$

$w_{B,red} = w_B \cdot \psi_\phi = 938 \cdot 0.3 = \mathbf{0.281\ kN/m^2}$

$w_{C,red} = w_C \cdot \psi_\phi = 938 \cdot 0.3 = \mathbf{0.281\ kN/m^2}$

$w_{D,red} = w_D \cdot \psi_\phi = 938 \cdot 0.3 = \mathbf{0.281\ kN/m^2}$

Desen



5.2. Date vant

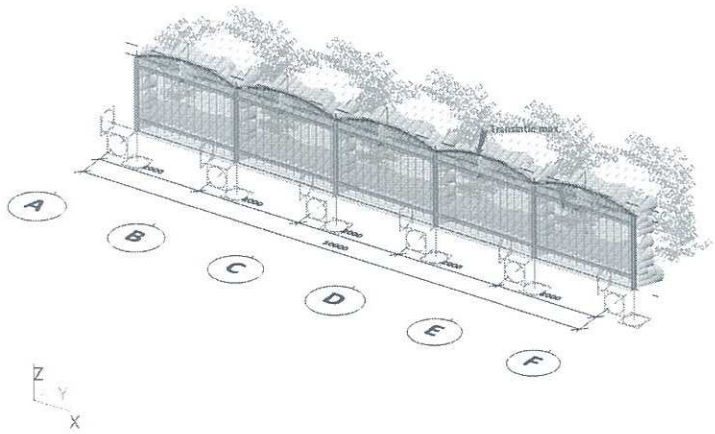
5.2.1. Date vant - WD1

Nume	Tip	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
WD1	Perete	Nu	0	1	C	-0.5000	-0.5000
				2	C	-0.5000	-0.5000
				3	C	-0.5000	-0.5000
				4	C	-0.5000	-0.5000
				5	C	-0.5000	-0.5000
				6	C	-0.5000	-0.5000
				7	C	-0.5000	-0.5000
				8	C	-0.5000	-0.5000
			90	1	D	1.0000	1.0000
				2	D	1.0000	1.0000
				3	D	1.0000	1.0000
				4	D	1.0000	1.0000
				5	D	1.0000	1.0000
				6	D	1.0000	1.0000
				7	D	1.0000	1.0000
				8	D	1.0000	1.0000
			180	1	C	-0.5000	-0.5000
				2	C	-0.5000	-0.5000
				3	C	-0.5000	-0.5000
				4	C	-0.5000	-0.5000
				5	C	-0.5000	-0.5000
				6	C	-0.5000	-0.5000
				7	C	-0.5000	-0.5000
				8	C	-0.5000	-0.5000
			270	1	E	-0.7000	-0.7000
				2	E	-0.7000	-0.7000
				3	E	-0.7000	-0.7000

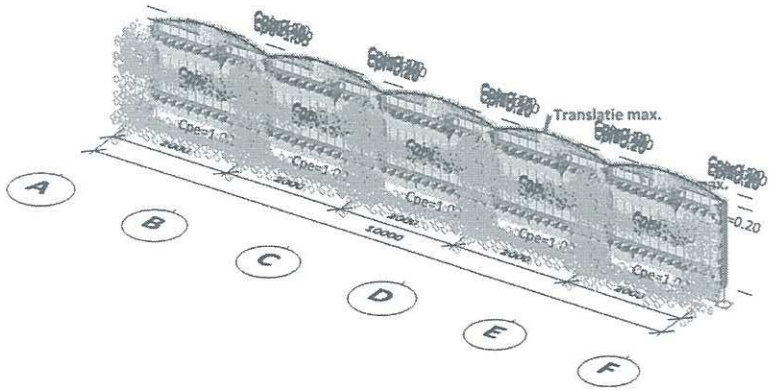
Nume	Tip	Inversare suprafata ext.	Directie incarcare	Regiune	Zone	+Cpe	-Cpe
				4	E	-0.7000	-0.7000
				5	E	-0.7000	-0.7000
				6	E	-0.7000	-0.7000
				7	E	-0.7000	-0.7000
				8	E	-0.7000	-0.7000

5.2.1.

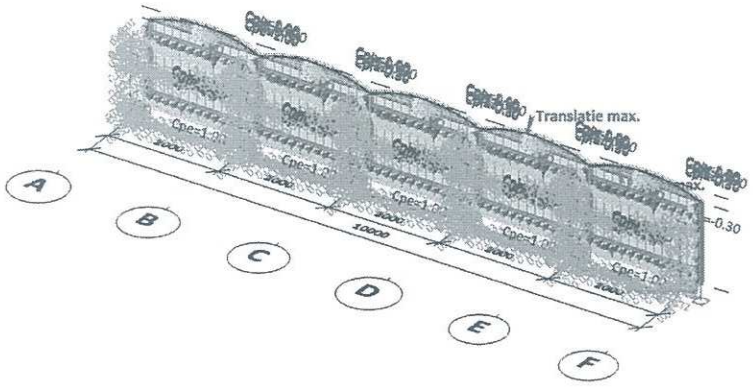
5.2.1.1. Vant 3D1 -0, + CPE, + CPI



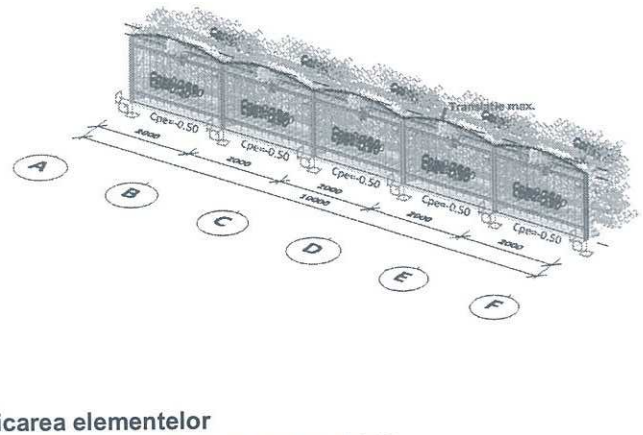
5.2.1.2. Vant 3D5 / 90, + CPE, + CPI



5.2.1.3. Vant 3D8 /90, - CPE, - CPI



5.2.1.4. Vant 3D9 / 180, + CPE, + CPI



5.3. Combinatii ce au dus la verificarea elementelor

Combinarea actiunilor pt.gruparea fundamentala cf. CR 0 -2012

Combinarea efectelor structurale ale acţiunilor în gruparea fundamentală:

1,35ΣGk+1,5Zk+(1,5x0,7)(Vk+Uk)

1,35ΣGk+1,5Vk+(1,5x0,7) (Zk+Uk)

1,35ΣGk+1,5Uk+(1,5x0,7) (Zk+Vk)

Gruparea accidentală de efecte structurale ale acţiunilor:

ΣGk+ψ(i,e)AEk+0,4Zk+0,3Uk; ψ (i,e) = 1,0

Stări limită de serviciu (SLS):

Structura, infrastructura şi terenul de fundare au fost verificate la stări limită de serviciu astfel încât efectele de calcul în secţiune, luate conform următoarelor combinaţii factorizate, să fie mai mici decât criteriile de serviciu considerate.

Gruparea fundamentală de efecte structurale ale acţiunilor:

ΣGk+Zk+0,7(Vk+Uk)

ΣGk+Vk+0,7 (Zk+Uk

ΣGk+Uk+0,7 (Zk+Vk)

Gruparea accidentală de efecte structurale ale acţiunilor:

ΣGk+0,5ψ (i,e)AEk+0,4Zk+0,3Uk

Nume	Descriere	Tip	Cazuri de incarcare	Coef. [-]
CO1-SLU	Gruparea fundamentala Ec.6.10.	EN-ULS (STR/GEO) Set B	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.00
			Vant 3D1 - 0, + CPE, + CPI	1.00
			Vant 3D2 - 0, + CPE, - CPI	1.00
			Vant 3D3 - 0, - CPE, + CPI	1.00
			Vant 3D4 - 0, - CPE, - CPI	1.00
			Vant 3D5 - 90, + CPE, + CPI	1.00
			Vant 3D6 - 90, + CPE, - CPI	1.00
			Vant 3D7 - 90, - CPE, + CPI	1.00
			Vant 3D8 - 90, - CPE, - CPI	1.00
			Vant 3D9 - 180, + CPE, + CPI	1.00
			Vant 3D10 - 180, + CPE, - CPI	1.00
			Vant 3D11 - 180, - CPE, + CPI	1.00
			Vant 3D12 - 180, - CPE, - CPI	1.00
			Vant 3D13 - 270, + CPE, + CPI	1.00
			Vant 3D14 - 270, + CPE, - CPI	1.00
			Vant 3D15 - 270, - CPE, + CPI	1.00
			Vant 3D16 - 270, - CPE, - CPI	1.00
CO2	VERIFICARE SEISM	EN-Seismic	LC1 -Greutate proprie	1.00
			LC3-Seism Sx - Sx	1.00
			LC4-seism Sy - Sy	1.00
			LC6-Panouri	1.00
CO3-SLS	VERIFICARE SAGEATA	EN-SLS Caracteristic	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.00
			Vant 3D1 - 0, + CPE, + CPI	1.00
			Vant 3D2 - 0, + CPE, - CPI	1.00
			Vant 3D3 - 0, - CPE, + CPI	1.00
			Vant 3D4 - 0, - CPE, - CPI	1.00
			Vant 3D5 - 90, + CPE, + CPI	1.00
			Vant 3D6 - 90, + CPE, - CPI	1.00
			Vant 3D7 - 90, - CPE, + CPI	1.00
			Vant 3D8 - 90, - CPE, - CPI	1.00
			Vant 3D9 - 180, + CPE, + CPI	1.00
			Vant 3D10 - 180, + CPE, - CPI	1.00
			Vant 3D11 - 180, - CPE, + CPI	1.00
			Vant 3D12 - 180, - CPE, - CPI	1.00

Nume	Descriere	Tip	Cazuri de incarcare	Coef. [-]
			Vant 3D13 - 270, + CPE, + CPI	1.00
			Vant 3D14 - 270, + CPE, - CPI	1.00
			Vant 3D15 - 270, - CPE, + CPI	1.00
			Vant 3D16 - 270, - CPE, - CPI	1.00
CO4	INTERACTIUNE TEREN	Liniar - starea ultima	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.00
			Vant 3D1 - 0, + CPE, + CPI	1.00
			Vant 3D2 - 0, + CPE, - CPI	1.00
			Vant 3D3 - 0, - CPE, + CPI	1.00
			Vant 3D4 - 0, - CPE, - CPI	1.00
			Vant 3D5 - 90, + CPE, + CPI	1.00
			Vant 3D6 - 90, + CPE, - CPI	1.00
			Vant 3D7 - 90, - CPE, + CPI	1.00
			Vant 3D8 - 90, - CPE, - CPI	1.00
			Vant 3D9 - 180, + CPE, + CPI	1.00
			Vant 3D10 - 180, + CPE, - CPI	1.00
			Vant 3D11 - 180, - CPE, + CPI	1.00
			Vant 3D12 - 180, - CPE, - CPI	1.00
			Vant 3D13 - 270, + CPE, + CPI	1.00
			Vant 3D14 - 270, + CPE, - CPI	1.00
			Vant 3D15 - 270, - CPE, + CPI	1.00
			Vant 3D16 - 270, - CPE, - CPI	1.00
CO5	VERIF FUNDATII	EN-ULS (STR/GEO) Set C	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.00
			Vant 3D1 - 0, + CPE, + CPI	1.00
			Vant 3D2 - 0, + CPE, - CPI	1.00
			Vant 3D3 - 0, - CPE, + CPI	1.00
			Vant 3D4 - 0, - CPE, - CPI	1.00
			Vant 3D5 - 90, + CPE, + CPI	1.00
			Vant 3D6 - 90, + CPE, - CPI	1.00
			Vant 3D7 - 90, - CPE, + CPI	1.00
			Vant 3D8 - 90, - CPE, - CPI	1.00
			Vant 3D9 - 180, + CPE, + CPI	1.00
			Vant 3D10 - 180, + CPE, - CPI	1.00
			Vant 3D11 - 180, - CPE, + CPI	1.00
			Vant 3D12 - 180, - CPE, - CPI	1.00
			Vant 3D13 - 270, + CPE, + CPI	1.00
			Vant 3D14 - 270, + CPE, - CPI	1.00
			Vant 3D15 - 270, - CPE, + CPI	1.00
			Vant 3D16 - 270, - CPE, - CPI	1.00
CO1-SLU1		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.35
			LC6-Panouri	1.35
CO1-SLU2		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
CO1-SLU3		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.35
			LC6-Panouri	1.35
			LC7-VANT - VANT	1.50
			Vant 3D1 - 0, + CPE, + CPI	1.05
			Vant 3D2 - 0, + CPE, - CPI	1.05
			Vant 3D3 - 0, - CPE, + CPI	1.05
			Vant 3D4 - 0, - CPE, - CPI	1.05
			Vant 3D5 - 90, + CPE, + CPI	1.05
			Vant 3D6 - 90, + CPE, - CPI	1.05
			Vant 3D7 - 90, - CPE, + CPI	1.05
			Vant 3D8 - 90, - CPE, - CPI	1.05
			Vant 3D9 - 180, + CPE, + CPI	1.05
			Vant 3D10 - 180, + CPE, - CPI	1.05
			Vant 3D11 - 180, - CPE, + CPI	1.05
			Vant 3D12 - 180, - CPE, - CPI	1.05
			Vant 3D13 - 270, + CPE, + CPI	1.05
			Vant 3D14 - 270, + CPE, - CPI	1.05
			Vant 3D15 - 270, - CPE, + CPI	1.05
			Vant 3D16 - 270, - CPE, - CPI	1.05
CO1-SLU4		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.50
			Vant 3D1 - 0, + CPE, + CPI	1.05
			Vant 3D2 - 0, + CPE, - CPI	1.05
			Vant 3D3 - 0, - CPE, + CPI	1.05
			Vant 3D4 - 0, - CPE, - CPI	1.05
			Vant 3D5 - 90, + CPE, + CPI	1.05
			Vant 3D6 - 90, + CPE, - CPI	1.05
			Vant 3D7 - 90, - CPE, + CPI	1.05
			Vant 3D8 - 90, - CPE, - CPI	1.05
			Vant 3D9 - 180, + CPE, + CPI	1.05
			Vant 3D10 - 180, + CPE, - CPI	1.05
			Vant 3D11 - 180, - CPE, + CPI	1.05
			Vant 3D12 - 180, - CPE, - CPI	1.05
			Vant 3D13 - 270, + CPE, + CPI	1.05
			Vant 3D14 - 270, + CPE, - CPI	1.05

Nume	Descriere	Tip	Cazuri de incarcare	Coef. [-]
			Vant 3D15 - 270, - CPE, + CPI	1.05
			Vant 3D16 - 270, - CPE, - CPI	1.05
CO1-SLU5		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.35
			LC6-Panouri	1.35
			LC7-VANT - VANT	1.05
			Vant 3D1 - 0, + CPE, + CPI	1.50
			Vant 3D2 - 0, + CPE, - CPI	1.50
			Vant 3D3 - 0, - CPE, + CPI	1.50
			Vant 3D4 - 0, - CPE, - CPI	1.50
			Vant 3D5 - 90, + CPE, + CPI	1.50
			Vant 3D6 - 90, + CPE, - CPI	1.50
			Vant 3D7 - 90, - CPE, + CPI	1.50
			Vant 3D8 - 90, - CPE, - CPI	1.50
			Vant 3D9 - 180, + CPE, + CPI	1.50
			Vant 3D10 - 180, + CPE, - CPI	1.50
			Vant 3D11 - 180, - CPE, + CPI	1.50
			Vant 3D12 - 180, - CPE, - CPI	1.50
			Vant 3D13 - 270, + CPE, + CPI	1.50
			Vant 3D14 - 270, + CPE, - CPI	1.50
			Vant 3D15 - 270, - CPE, + CPI	1.50
			Vant 3D16 - 270, - CPE, - CPI	1.50
CO1-SLU6		Infasuratoare - starea ultima	LC1 -Greutate proprie	1.00
			LC6-Panouri	1.00
			LC7-VANT - VANT	1.05
			Vant 3D1 - 0, + CPE, + CPI	1.50
			Vant 3D2 - 0, + CPE, - CPI	1.50
			Vant 3D3 - 0, - CPE, + CPI	1.50
			Vant 3D4 - 0, - CPE, - CPI	1.50
			Vant 3D5 - 90, + CPE, + CPI	1.50
			Vant 3D6 - 90, + CPE, - CPI	1.50
			Vant 3D7 - 90, - CPE, + CPI	1.50
			Vant 3D8 - 90, - CPE, - CPI	1.50
			Vant 3D9 - 180, + CPE, + CPI	1.50
			Vant 3D10 - 180, + CPE, - CPI	1.50
			Vant 3D11 - 180, - CPE, + CPI	1.50
			Vant 3D12 - 180, - CPE, - CPI	1.50
			Vant 3D13 - 270, + CPE, + CPI	1.50
			Vant 3D14 - 270, + CPE, - CPI	1.50
			Vant 3D15 - 270, - CPE, + CPI	1.50
			Vant 3D16 - 270, - CPE, - CPI	1.50

5.4. Clase rezultante

Nume	Lista
RC1	LC1 -Greutate proprie
	LC3-Seism Sx
	LC4-seism Sy
	LC6-Panouri
	LC7-VANT
	Vant 3D1
	Vant 3D2
	Vant 3D3
	Vant 3D4
	Vant 3D5
	Vant 3D6
	Vant 3D7
	Vant 3D8
	Vant 3D9
	Vant 3D10
	Vant 3D11
	Vant 3D12
	Vant 3D13
	Vant 3D14
	Vant 3D15
	Vant 3D16
	LC9-IMPINGERE TEREN
	LC8-ACC-OAMENI CATARATI
	CO1-SLU - EN-ULS (STR/GEO) Set B
	CO2 - EN-Seismic
	CO4 - Liniar - starea ultima
	CO5 - EN-ULS (STR/GEO) Set C
	CO1-SLU1 - Infasuratoare - starea ultima
	CO1-SLU2 - Infasuratoare - starea ultima
	CO1-SLU3 - Infasuratoare - starea ultima
	CO1-SLU4 - Infasuratoare - starea ultima
	CO1-SLU5 - Infasuratoare - starea ultima
	CO1-SLU6 - Infasuratoare - starea ultima
GEO	CO1-SLU - EN-ULS (STR/GEO) Set B
	CO5 - EN-ULS (STR/GEO) Set C
	CO3-SLS - EN-SLS Caracteristic
GEO-FUNDATII	CO1-SLU - EN-ULS (STR/GEO) Set B

Nume	Lista
	CO5 - EN-ULS (STR/GEO) Set C

6. REZULTATE

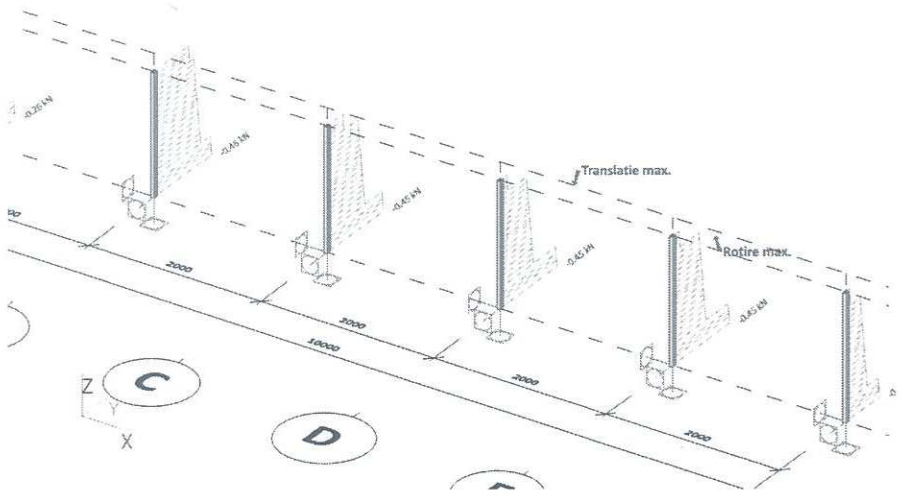
6.1. Stalpi

6.1.1. Eforturi iN STALPI -CLASA RC1

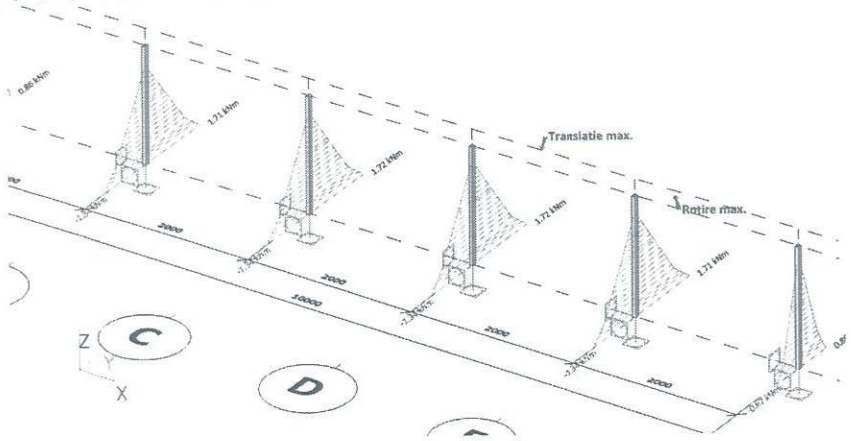
Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal
Selectie : Toate
Clasa : RC1
Sectiune transversala : CS1-STALPI - CFRHS60X40X3

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B112	CS1-STALPI - CFRHS60X40X3	0.000	CO1-SLU/5	**-0.46**	0.01	0.00	0.00	0.00	0.00
B207	CS1-STALPI - CFRHS60X40X3	0.000	LC3-Seism Sx	**0.00**	0.02	0.00	0.00	0.00	-0.02
B156	CS1-STALPI - CFRHS60X40X3	0.220	CO2/6	-0.21	**-0.03**	0.00	0.00	0.00	0.02
B156	CS1-STALPI - CFRHS60X40X3	1.220	CO1-SLU/5	-0.14	**0.13**	0.00	0.00	0.00	-0.02
B190	CS1-STALPI - CFRHS60X40X3	0.000	CO4/7	-0.34	-0.01	**-2.27**	0.01	1.71	0.00
B190	CS1-STALPI - CFRHS60X40X3	0.000	CO1-SLU/8	-0.45	-0.01	**1.77**	0.00	-1.34	0.00
B207	CS1-STALPI - CFRHS60X40X3	0.000	CO4/7	-0.20	0.01	-1.05	**-0.26**	0.86	0.00
B207	CS1-STALPI - CFRHS60X40X3	0.000	CO1-SLU/8	-0.27	0.01	0.82	**0.21**	-0.67	0.00
B156	CS1-STALPI - CFRHS60X40X3	0.000	CO1-SLU/9	-0.45	0.04	1.73	0.00	**-1.34**	0.00
B156	CS1-STALPI - CFRHS60X40X3	0.000	CO4/7	-0.33	0.03	-2.22	0.00	**1.72**	0.00
B156	CS1-STALPI - CFRHS60X40X3	1.220	CO1-SLU/5	-0.24	-0.03	0.00	0.00	0.00	**-0.02**
B190	CS1-STALPI - CFRHS60X40X3	0.000	CO2/10	-0.34	-0.03	-0.01	0.00	0.01	**0.02**

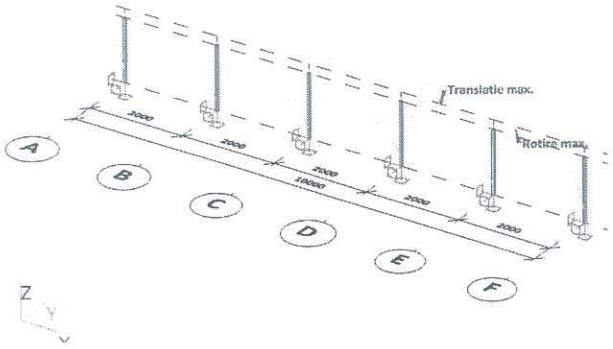
6.1.2. Eforturi in stalpi - N,clasa RC1



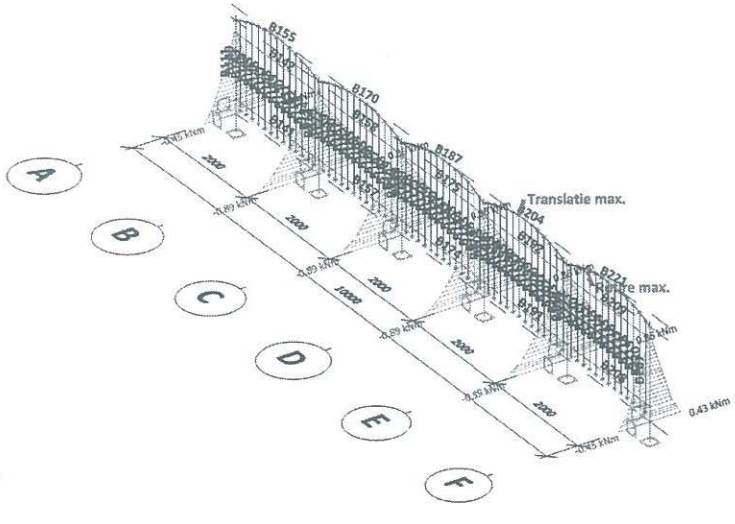
6.1.3. Eforturi in stalpi ; My-clasa RC1



6.1.4. Deformatii pe element



6.1.5. Eforturi ; My-la SLS



6.1.6. Eforturi maxime in stalpi la SLS

Calcul liniar, Extrem : Globale, Sistem : Principal
Selectie : Toate
Combinatii : CO3-SLS
Sectiune transversala : CS1-STALPI - CFRHS60X40X3

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B112	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/1	**-0.34**	0.01	0.00	0.00	0.00	0.00
B207	CS1-STALPI - CFRHS60X40X3	1.400	CO3-SLS/1	**-0.02**	0.07	0.00	0.00	0.00	0.00
B111	CS1-STALPI - CFRHS60X40X3	1.220	CO3-SLS/1	-0.07	**-0.13**	0.00	0.00	0.00	0.02
B156	CS1-STALPI - CFRHS60X40X3	1.220	CO3-SLS/1	-0.10	**0.10**	0.00	0.00	0.00	-0.02
B190	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/3	-0.34	-0.01	**-1.14**	0.00	0.86	0.00
B190	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/2	-0.34	-0.01	**1.18**	0.00	-0.89	0.00
B111	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/2	-0.19	-0.03	0.55	**-0.14**	-0.45	0.00
B207	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/2	-0.20	0.01	0.55	**0.14**	-0.45	0.00
B156	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/4	-0.33	0.03	1.16	0.00	**-0.89**	0.00
B156	CS1-STALPI - CFRHS60X40X3	0.000	CO3-SLS/3	-0.33	0.03	-1.11	0.00	**0.86**	0.00
B156	CS1-STALPI - CFRHS60X40X3	1.220	CO3-SLS/1	-0.18	-0.02	0.00	0.00	0.00	**-0.02**
B111	CS1-STALPI - CFRHS60X40X3	1.220	CO3-SLS/1	-0.11	0.03	0.00	0.00	0.00	**0.02**

6.1.7. Deformatii pe element

Calcul liniar, Extrem : Sectiune transversala
Selectie : Toate
Combinatii : CO3-SLS
Sectiune transversala : CS1-STALPI - CFRHS60X40X3

Element	dx [m]	Caz	ux [mm]	uy [mm]	uz [mm]	fix [mrad]	fiy [mrad]	fiz [mrad]	Rezultanta [mm]
B112	1.400	CO3-SLS/1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
B111	0.758	CO3-SLS/1	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0
B111	1.400	CO3-SLS/1	0.0	**0.1**	0.0	0.0	0.0	**0.3**	0.1
B173	1.400	CO3-SLS/2	0.0	0.0	**-9.2**	0.0	**9.2**	0.0	9.2
B173	1.400	CO3-SLS/3	0.0	0.0	**8.8**	0.0	**-8.8**	0.0	8.8
B207	1.400	CO3-SLS/4	0.0	0.0	-4.7	**-4.4**	4.8	-0.2	4.7
B111	1.400	CO3-SLS/2	0.0	0.1	-4.7	**4.4**	4.7	0.3	4.7
B156	1.400	CO3-SLS/1	0.0	0.0	0.0	0.0	0.0	**-0.2**	0.0

6.1.8. Reactiuni

Calcul liniar, Extrem : Nod
Selectie : Toate
Clasa : GEO-FUNDATII

Reazem	Caz	Rx [kN]	Ry [kN]	Rz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
Sn12/N23	CO1-SLU/1	**0.03**	0.00	**0.19**	0.00	**0.00**	0.00
Sn12/N23	CO1-SLU/5	**0.04**	0.00	**0.26**	0.00	**0.00**	0.00
Sn12/N23	CO1-SLU/9	0.04	**-0.82**	0.26	0.67	0.00	-0.20
Sn12/N23	CO1-SLU/11	0.04	**0.79**	0.26	**-0.65**	0.00	**0.20**
Sn12/N23	CO1-SLU/8	0.04	-0.82	0.26	**0.67**	0.00	**-0.20**
Sn56/N260	CO1-SLU/5	**-0.01**	0.00	**0.46**	0.00	**0.00**	0.00
Sn56/N260	CO1-SLU/1	**-0.01**	0.00	**0.34**	0.00	**0.00**	0.00
Sn56/N260	CO1-SLU/8	-0.01	**-1.77**	0.46	**1.34**	0.00	0.00
Sn56/N260	CO1-SLU/11	-0.01	**1.71**	0.46	**-1.29**	0.00	**0.00**
Sn56/N260	CO1-SLU/9	-0.01	-1.77	0.46	1.34	0.00	**0.00**
Sn57/N297	CO1-SLU/5	**-0.04**	0.00	**0.45**	0.00	**0.00**	0.00
Sn57/N297	CO1-SLU/1	**-0.03**	0.00	**0.33**	0.00	**0.00**	0.00
Sn57/N297	CO1-SLU/9	-0.04	**-1.73**	0.45	**1.34**	0.00	**0.00**
Sn57/N297	CO1-SLU/11	-0.04	**1.67**	0.45	**-1.29**	0.00	**0.00**
Sn58/N331	CO1-SLU/1	**0.01**	0.00	**0.34**	0.00	**0.00**	0.00
Sn58/N331	CO1-SLU/5	**0.01**	0.00	**0.45**	0.00	**0.00**	0.00
Sn58/N331	CO1-SLU/8	0.01	**-1.73**	0.45	**1.34**	0.00	0.00
Sn58/N331	CO1-SLU/11	0.01	**1.67**	0.45	**-1.29**	0.00	**0.00**
Sn58/N331	CO1-SLU/9	0.01	-1.73	0.45	1.34	0.00	**0.00**
Sn59/N381	CO1-SLU/1	**0.01**	0.00	**0.34**	0.00	**0.00**	0.00
Sn59/N381	CO1-SLU/5	**0.01**	0.00	**0.45**	0.00	**0.00**	0.00
Sn59/N381	CO1-SLU/8	0.01	**-1.77**	0.45	1.34	0.00	0.00
Sn59/N381	CO1-SLU/11	0.01	**1.71**	0.45	**-1.28**	0.00	**0.00**
Sn59/N381	CO1-SLU/9	0.01	-1.77	0.45	**1.34**	0.00	**0.00**
Sn60/N431	CO1-SLU/5	**-0.01**	0.00	**0.27**	0.00	**0.00**	0.00
Sn60/N431	CO1-SLU/1	**-0.01**	0.00	**0.20**	0.00	**0.00**	0.00
Sn60/N431	CO1-SLU/9	-0.01	**-0.82**	0.27	**0.67**	0.00	**0.21**
Sn60/N431	CO1-SLU/11	-0.01	**0.79**	0.27	**-0.65**	0.00	**-0.20**

6.1.9. REZULTATE DE CALCUL IN REAZEME

Grup de noduri :Grupa de cazuri de incarare(i) :Tabel fundatie:

Caz incarcare/Nod		N23	N260	N297	N331	N381	N431
Incarcari permanente							
LC1 -Greutate proprie,LC6-Panouri	Rx [kN]	0.03	-0.01	-0.03	0.01	0.01	-0.01
LC1 -Greutate proprie,LC6-Panouri	Ry [kN]	0.00	-0.00	-0.00	0.00	0.00	-0.00
LC1 -Greutate proprie,LC6-Panouri	Rz [kN]	0.19	0.34	0.33	0.34	0.34	0.20
LC1 -Greutate proprie,LC6-Panouri	Mx [kNm]	-0.00	0.00	0.00	-0.00	-0.00	0.00
LC1 -Greutate proprie,LC6-Panouri	My [kNm]	-0.00	-0.00	0.00	0.00	0.00	0.00
LC1 -Greutate proprie,LC6-Panouri	Mz [kNm]	0.00	-0.00	-0.00	-0.00	0.00	0.00
Incarcari variabile- neexclusive							
LC3-Seism Sx	Rx [kN]	0.02	-0.02	-0.02	-0.02	-0.02	-0.02
LC3-Seism Sx	Ry [kN]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LC3-Seism Sx	Rz [kN]	-0.01	0.00	0.01	0.00	-0.00	-0.00
LC3-Seism Sx	Mx [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
LC3-Seism Sx	My [kNm]	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
LC3-Seism Sx	Mz [kNm]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Incarcari variabile- neexclusive							
LC4-seism Sy	Rx [kN]	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LC4-seism Sy	Ry [kN]	-0.01	-0.02	-0.03	-0.03	-0.02	-0.01
LC4-seism Sy	Rz [kN]	-0.00	0.00	0.00	0.00	-0.00	-0.00
LC4-seism Sy	Mx [kNm]	0.01	0.02	0.03	0.03	0.02	0.01
LC4-seism Sy	My [kNm]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LC4-seism Sy	Mz [kNm]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Incarcari variabile- neexclusive							
LC9-IMPINGERE TEREN	Rx [kN]	0.00	0.00	0.00	0.00	0.00	0.00
LC9-IMPINGERE TEREN	Ry [kN]	0.00	0.00	0.00	0.00	0.00	0.00
LC9-IMPINGERE TEREN	Rz [kN]	0.00	0.00	0.00	0.00	0.00	0.00
LC9-IMPINGERE TEREN	Mx [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
LC9-IMPINGERE TEREN	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
LC9-IMPINGERE TEREN	Mz [kNm]	0.00	0.00	0.00	0.00	0.00	0.00

Caz incarcare/Nod		N23	N260	N297	N331	N381	N431
Incarcari variabile - exclusive							
LC7-VANT	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
LC7-VANT	Ry [kN]	0.21	0.45	0.44	0.44	0.45	0.21
LC7-VANT	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
LC7-VANT	Mx [kNm]	-0.17	-0.34	-0.34	-0.34	-0.34	-0.17
LC7-VANT	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
LC7-VANT	Mz [kNm]	0.05	-0.00	0.00	-0.00	0.00	-0.05
Incarcari variabile - exclusive							
Vant 3D1	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D1	Ry [kN]	0.30	0.64	0.62	0.62	0.64	0.30
Vant 3D1	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D1	Mx [kNm]	-0.24	-0.48	-0.48	-0.48	-0.48	-0.24
Vant 3D1	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D1	Mz [kNm]	0.07	-0.00	0.00	-0.00	0.00	-0.07
Incarcari variabile - exclusive							
Vant 3D2	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D2	Ry [kN]	0.08	0.18	0.18	0.18	0.18	0.08
Vant 3D2	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D2	Mx [kNm]	-0.07	-0.14	-0.14	-0.14	-0.14	-0.07
Vant 3D2	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D2	Mz [kNm]	0.02	-0.00	0.00	-0.00	0.00	-0.02
Incarcari variabile - exclusive							
Vant 3D3	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D3	Ry [kN]	0.30	0.64	0.62	0.62	0.64	0.30
Vant 3D3	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D3	Mx [kNm]	-0.24	-0.48	-0.48	-0.48	-0.48	-0.24
Vant 3D3	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D3	Mz [kNm]	0.07	-0.00	0.00	-0.00	0.00	-0.07
Incarcari variabile - exclusive							
Vant 3D4	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D4	Ry [kN]	0.08	0.18	0.18	0.18	0.18	0.08
Vant 3D4	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D4	Mx [kNm]	-0.07	-0.14	-0.14	-0.14	-0.14	-0.07
Vant 3D4	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D4	Mz [kNm]	0.02	-0.00	0.00	-0.00	0.00	-0.02
Incarcari variabile - exclusive							
Vant 3D5	Rx [kN]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Vant 3D5	Ry [kN]	-0.34	-0.73	-0.71	-0.71	-0.73	-0.34
Vant 3D5	Rz [kN]	-0.00	-0.00	0.00	0.00	0.00	-0.00
Vant 3D5	Mx [kNm]	0.28	0.55	0.55	0.55	0.55	0.28
Vant 3D5	My [kNm]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Vant 3D5	Mz [kNm]	-0.08	0.00	-0.00	0.00	-0.00	0.08
Incarcari variabile - exclusive							
Vant 3D6	Rx [kN]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Vant 3D6	Ry [kN]	-0.55	-1.18	-1.16	-1.16	-1.18	-0.55
Vant 3D6	Rz [kN]	-0.00	-0.00	0.00	0.00	0.00	-0.00
Vant 3D6	Mx [kNm]	0.45	0.89	0.89	0.89	0.89	0.45
Vant 3D6	My [kNm]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Vant 3D6	Mz [kNm]	-0.14	0.00	-0.00	0.00	-0.00	0.14
Incarcari variabile - exclusive							
Vant 3D7	Rx [kN]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Vant 3D7	Ry [kN]	-0.34	-0.73	-0.71	-0.71	-0.73	-0.34
Vant 3D7	Rz [kN]	-0.00	-0.00	0.00	0.00	0.00	-0.00
Vant 3D7	Mx [kNm]	0.28	0.55	0.55	0.55	0.55	0.28
Vant 3D7	My [kNm]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Vant 3D7	Mz [kNm]	-0.08	0.00	-0.00	0.00	-0.00	0.08
Incarcari variabile - exclusive							
Vant 3D8	Rx [kN]	-0.00	-0.00	-0.00	0.00	0.00	0.00
Vant 3D8	Ry [kN]	-0.55	-1.18	-1.16	-1.16	-1.18	-0.55
Vant 3D8	Rz [kN]	-0.00	-0.00	0.00	0.00	0.00	-0.00
Vant 3D8	Mx [kNm]	0.45	0.89	0.89	0.89	0.89	0.45
Vant 3D8	My [kNm]	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Vant 3D8	Mz [kNm]	-0.14	0.00	-0.00	0.00	-0.00	0.14
Incarcari variabile - exclusive							
Vant 3D9	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D9	Ry [kN]	0.30	0.64	0.62	0.62	0.64	0.30
Vant 3D9	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D9	Mx [kNm]	-0.24	-0.48	-0.48	-0.48	-0.48	-0.24
Vant 3D9	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D9	Mz [kNm]	0.07	-0.00	0.00	-0.00	0.00	-0.07
Incarcari variabile - exclusive							
Vant 3D10	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D10	Ry [kN]	0.08	0.18	0.18	0.18	0.18	0.08
Vant 3D10	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D10	Mx [kNm]	-0.07	-0.14	-0.14	-0.14	-0.14	-0.07
Vant 3D10	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D10	Mz [kNm]	0.02	-0.00	0.00	-0.00	0.00	-0.02
Incarcari variabile - exclusive							
Vant 3D11	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D11	Ry [kN]	0.30	0.64	0.62	0.62	0.64	0.30
Vant 3D11	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D11	Mx [kNm]	-0.24	-0.48	-0.48	-0.48	-0.48	-0.24
Vant 3D11	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00

Caz incarcare/Nod		N23	N260	N297	N331	N381	N431
Vant 3D11	Mz [kNm]	0.07	-0.00	0.00	-0.00	0.00	-0.07
Incarcari variabile - exclusive							
Vant 3D12	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D12	Ry [kN]	0.08	0.18	0.18	0.18	0.18	0.08
Vant 3D12	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D12	Mx [kNm]	-0.07	-0.14	-0.14	-0.14	-0.14	-0.07
Vant 3D12	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D12	Mz [kNm]	0.02	-0.00	0.00	-0.00	0.00	-0.02
Incarcari variabile - exclusive							
Vant 3D13	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D13	Ry [kN]	0.38	0.82	0.80	0.80	0.82	0.38
Vant 3D13	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D13	Mx [kNm]	-0.31	-0.62	-0.62	-0.62	-0.62	-0.31
Vant 3D13	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D13	Mz [kNm]	0.09	-0.00	0.00	-0.00	0.00	-0.09
Incarcari variabile - exclusive							
Vant 3D14	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D14	Ry [kN]	0.17	0.36	0.36	0.36	0.36	0.17
Vant 3D14	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D14	Mx [kNm]	-0.14	-0.27	-0.28	-0.27	-0.27	-0.14
Vant 3D14	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D14	Mz [kNm]	0.04	-0.00	0.00	-0.00	0.00	-0.04
Incarcari variabile - exclusive							
Vant 3D15	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D15	Ry [kN]	0.38	0.82	0.80	0.80	0.82	0.38
Vant 3D15	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D15	Mx [kNm]	-0.31	-0.62	-0.62	-0.62	-0.62	-0.31
Vant 3D15	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D15	Mz [kNm]	0.09	-0.00	0.00	-0.00	0.00	-0.09
Incarcari variabile - exclusive							
Vant 3D16	Rx [kN]	0.00	0.00	0.00	-0.00	-0.00	-0.00
Vant 3D16	Ry [kN]	0.17	0.36	0.36	0.36	0.36	0.17
Vant 3D16	Rz [kN]	0.00	0.00	-0.00	-0.00	-0.00	0.00
Vant 3D16	Mx [kNm]	-0.14	-0.27	-0.28	-0.27	-0.27	-0.14
Vant 3D16	My [kNm]	0.00	0.00	0.00	0.00	0.00	0.00
Vant 3D16	Mz [kNm]	0.04	-0.00	0.00	-0.00	0.00	-0.04
Extreme							
	Max Rz [kN]	0.20	0.34	0.34	0.34	0.34	0.20
	Min Rz [kN]	0.19	0.34	0.32	0.33	0.33	0.20
	Max Rx [kN]	0.05	0.02	-0.01	0.03	0.03	0.01
	Min Rx [kN]	0.01	-0.03	-0.05	-0.01	-0.01	-0.02
	Max Ry [kN]	0.60	1.29	1.27	1.27	1.30	0.60
	Min Ry [kN]	-0.56	-1.20	-1.18	-1.18	-1.20	-0.56
	Max Mx [kNm]	0.46	0.91	0.93	0.93	0.91	0.46
	Min Mx [kNm]	-0.49	-0.98	-0.99	-0.99	-0.98	-0.49
	Max My [kNm]	0.02	0.02	0.02	0.02	0.02	0.02
	Min My [kNm]	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01
	Max Mz [kNm]	0.15	0.00	0.00	0.00	0.00	0.14
	Min Mz [kNm]	-0.14	-0.00	-0.00	-0.00	-0.00	-0.15

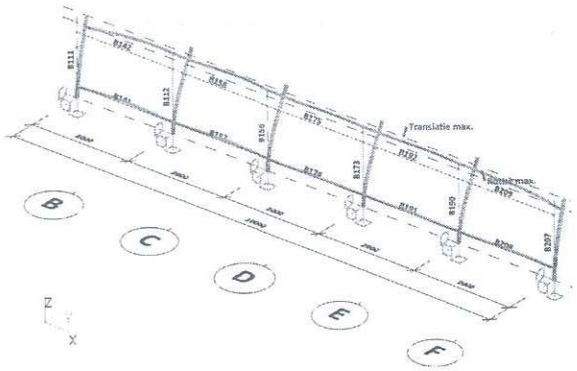
6.1.10. Deplasare 3D STALPI -SLS

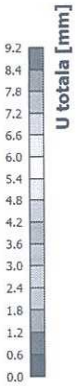
Calcul liniar
Combinatia: CO3-SLS
Selectie: Tot
Filtru: Material = S 235 JR (EN 10025-2)
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Rezultate pe element 1D:
Extrema 1D: Global

Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U totala [mm]
B111	0.000	1	CO3-SLS/1	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
B173	1.400	1	CO3-SLS/2	-0.3	0.0	-9.2	0.0	9.2	0.0	**9.2**

Nume	Combinatie
CO3-SLS/1	LC1 -Greutate proprie + LC6-Panouri
CO3-SLS/2	LC1 -Greutate proprie + LC6-Panouri + Vant 3D8

6.1.11. Deplasare 3D; U totala





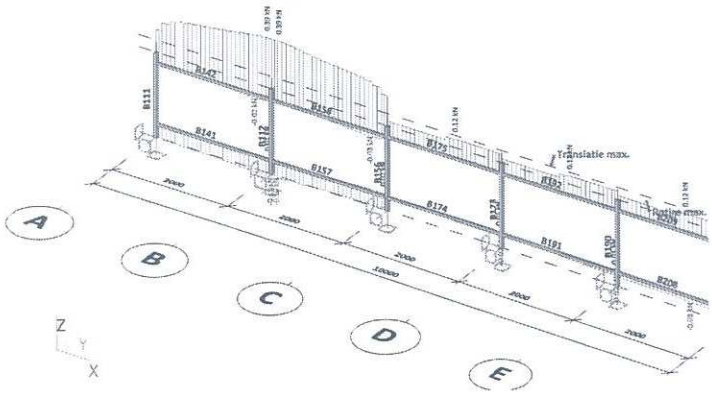
6.2. Rigle montaj

6.2.1. Eforturi in rigle -clasa RC

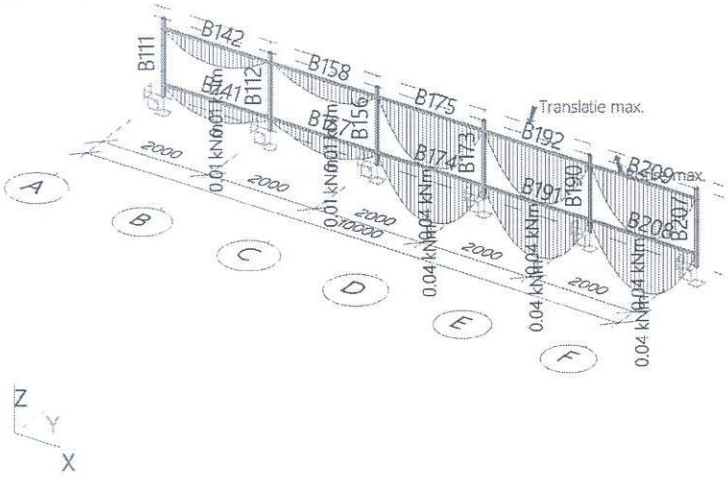
Calcul liniar, Extrem : Sectiune transversala, Sistem : Principal
Selectie : Toate
Clasa : RC1
Sectiune transversala : CS2 RIGLE MONTAJ - CFRHS40X30X3

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B141	CS2 RIGLE MONTAJ - CFRHS40X30X3	1.950	CO1-SLU/12	**-0.11**	-0.29	-0.04	-0.01	0.00	-0.09
B158	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.100	CO1-SLU/5	**0.39**	0.00	0.03	0.00	0.00	0.00
B142	CS2 RIGLE MONTAJ - CFRHS40X30X3	2.000	CO4/7	0.29	**-0.71**	-0.01	-0.03	0.00	-0.20
B158	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.000	CO4/7	0.29	**0.68**	0.01	0.00	0.00	-0.21
B191	CS2 RIGLE MONTAJ - CFRHS40X30X3	2.000	CO1-SLU/5	-0.02	0.00	**-0.09**	0.00	0.00	0.00
B174	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.000	CO1-SLU/5	0.00	0.00	**0.09**	0.00	0.00	0.00
B142	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.000	CO4/7	0.16	0.61	0.03	**-0.03**	0.00	-0.14
B209	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.000	CO4/7	0.07	0.60	0.06	**0.03**	0.00	-0.19
B209	CS2 RIGLE MONTAJ - CFRHS40X30X3	1.000	LC3-Seism Sx	0.00	0.00	0.00	0.00	**0.00**	0.00
B209	CS2 RIGLE MONTAJ - CFRHS40X30X3	0.850	CO1-SLU/5	0.10	0.00	0.01	0.00	**0.04**	0.00
B158	CS2 RIGLE MONTAJ - CFRHS40X30X3	2.000	CO4/7	0.19	-0.69	-0.02	0.00	0.00	**-0.22**
B158	CS2 RIGLE MONTAJ - CFRHS40X30X3	2.000	CO1-SLU/8	0.26	0.54	-0.03	0.00	0.00	**0.17**

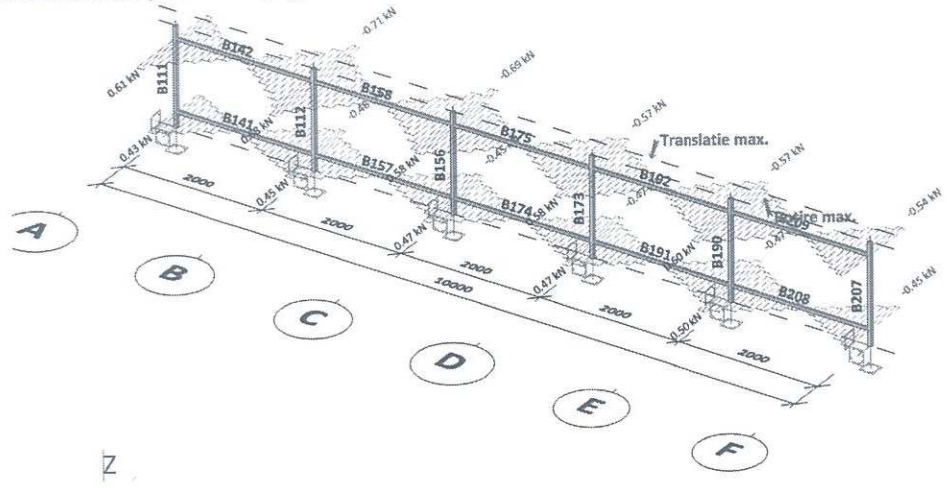
6.2.2. Eforturi in rigle; N



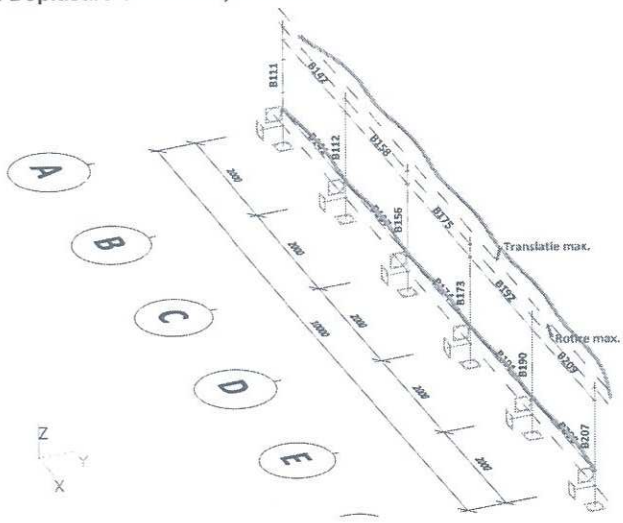
6.2.3. Eforturi in rigle; My

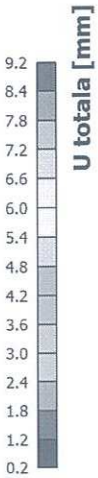


6.2.4. Eforturi interne pe element; Vy



6.2.5. Deplasare 3D-RIGLE; U totala





6.2.6. Deplasare 3D-RIGLE -SLS

Calcul liniar
Combinatia: CO3-SLS
Selectie: Tot
Filtru: Material = S 235
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Rezultate pe element 1D:
Extrema 1D: Global

Nume	dx [m]	Fibra	Caz	ux [mm]	uy [mm]	uz [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U totala [mm]
B157	0.000	6	CO3-SLS/1	0.0	0.0	0.0	0.0	0.4	0.0	**0.0**
B192	1.000-	9	CO3-SLS/2	0.0	9.2	-0.9	-9.0	0.0	0.0	**9.2**

Nume	Combinatie
CO3-SLS/1	LC1 -Greutate proprie + LC6-Panouri
CO3-SLS/2	LC1 -Greutate proprie + LC6-Panouri + Vant 3D8

6.3. Panou gard

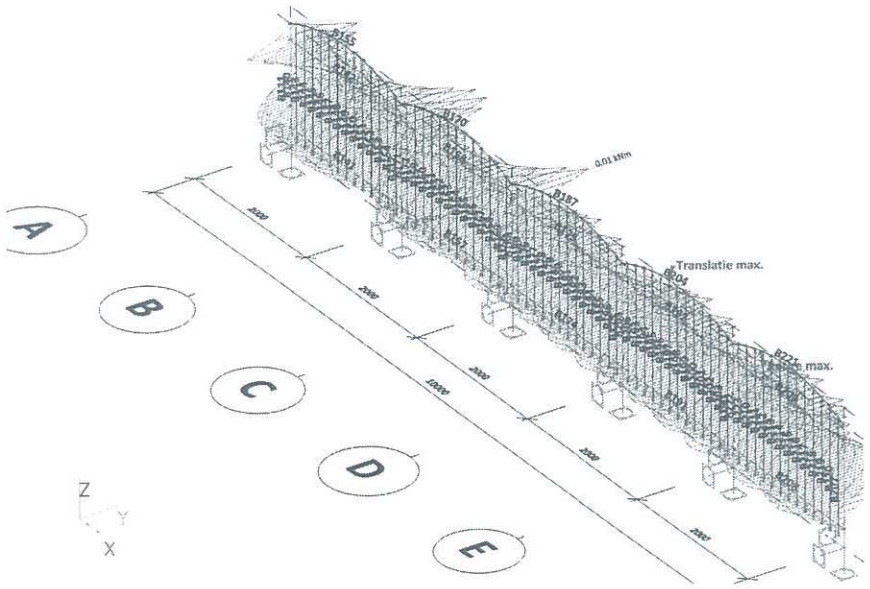
6.3.1. Eforturi maxime in montanti-clasa

Calcul liniar, Extrem : Globale, Sistem : Principal
Selectie : Toate
Clasa : RC1
Sectiune transversala : CS5-ULUCI - DREP (100; 25)

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B140	CS5-ULUCI - DREP	1.120	CO2/14	**-0.02**	-0.04	0.00	0.00	0.00	0.00
B180	CS5-ULUCI - DREP	1.500	CO1-SLU/5	**0.02**	-0.02	0.00	0.00	0.00	0.00

Element	css	dx [m]	Caz	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
B140	CS5-ULUCI - DREP	1.120	CO1-SLU/5	-0.02	**-0.05**	0.00	0.00	0.00	0.01
B169	CS5-ULUCI - DREP	1.120	CO1-SLU/5	-0.01	**0.03**	0.00	0.00	0.00	0.00
B169	CS5-ULUCI - DREP	1.120	CO4/7	-0.01	0.03	**-0.08**	0.00	0.01	0.00
B172	CS5-ULUCI - DREP	1.120	CO4/7	0.01	0.00	**0.06**	0.00	0.01	0.00
B140	CS5-ULUCI - DREP	0.000	LC1 -Greutate proprie	0.00	0.00	0.00	**0.00**	0.00	0.00
B169	CS5-ULUCI - DREP	1.120	CO1-SLU/8	-0.01	0.00	-0.04	0.00	**-0.01**	0.00
B169	CS5-ULUCI - DREP	1.120	CO4/7	-0.01	0.00	0.06	0.00	**0.01**	0.00
B140	CS5-ULUCI - DREP	1.339	CO2/6	-0.02	-0.04	0.00	0.00	0.00	**0.00**
B140	CS5-ULUCI - DREP	1.120	CO1-SLU/5	0.00	0.01	0.00	0.00	0.00	**0.01**

6.3.2. Eforturi panou; My- clasa



7. Verificarea structurii

7.1. VERIFICARE STALPI

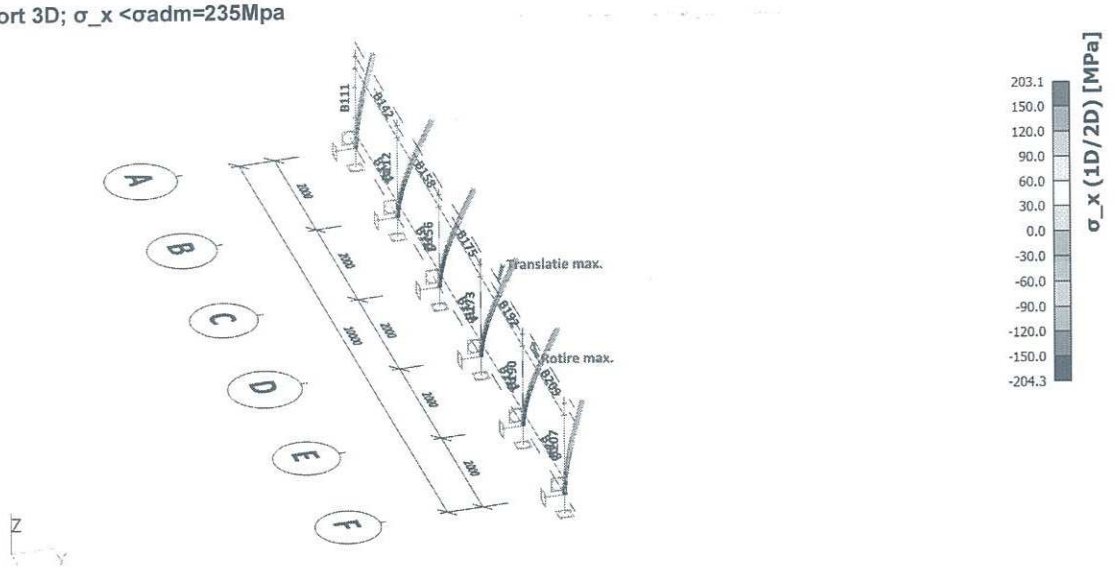
7.1.1. Efort 3D

Calcul liniar
Clasa: RC1
Selectie: Tot
Filtru: Sectiune transversala = CS1-STALPI - CFRHS60X40X3
Locatie: In noduri, med. pe macro. Sistem: SCL retea element
Eforturi initiale
Rezultate pe element 1D:
Extrema 1D: Element

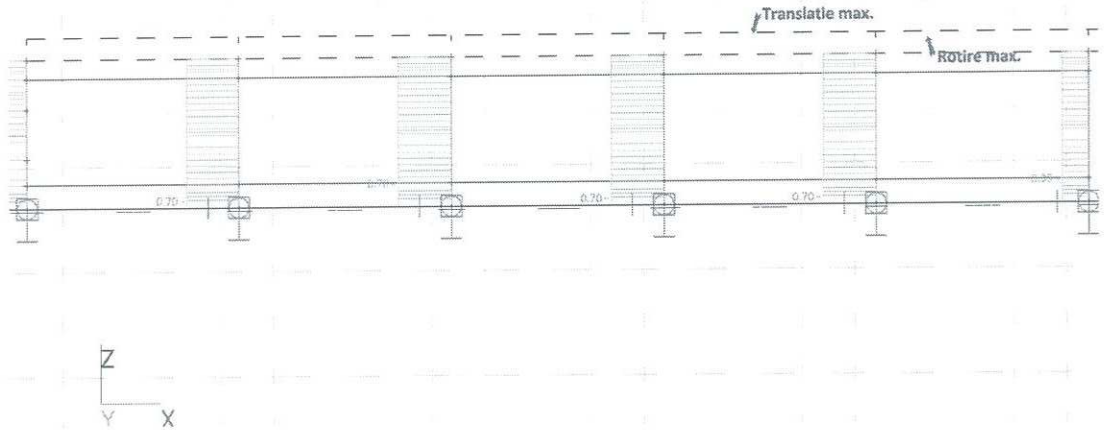
Nume	dx [m]	Fibra	Caz	σ_x [MPa]	τ_{xy} / τ_{xs} [MPa]	τ_{xz} / τ_{xs} [MPa]
B111	0.000	11	CO4/1	**-102.7**	20.6	-1.5
B111	0.000	3	CO4/1	**101.9**	20.6	-1.5
B112	0.000	11	CO4/1	**-203.6**	-0.4	-3.3
B112	0.000	3	CO4/1	**202.3**	-0.4	-3.3
B156	0.000	9	CO4/1	**-204.3**	0.2	-3.2
B156	0.000	1	CO4/1	**203.1**	0.2	-3.2
B173	0.000	9	CO4/1	**-204.3**	0.0	-3.2
B173	0.000	1	CO4/1	**203.1**	0.0	-3.2
B190	0.000	9	CO4/1	**-203.5**	0.4	-3.3
B190	0.000	1	CO4/1	**202.3**	0.4	-3.3
B207	0.000	9	CO4/1	**-102.8**	-20.8	-1.5
B207	0.000	1	CO4/1	**102.0**	-20.8	-1.5

Nume	Combinatie
CO4/1	LC1 -Greutate proprie + LC6-Panouri + LC7-VANT + Vant 3D1 + Vant 3D2 + Vant 3D3 + Vant 3D4 + Vant 3D5 + Vant 3D6 + Vant 3D7 + Vant 3D8 + Vant 3D9 + Vant 3D10 + Vant 3D11 + Vant 3D12 + Vant 3D13 + Vant 3D14 + Vant 3D15 + Vant 3D16

7.1.2. Efort 3D; σ_x <σadm=235Mpa



7.1.3. Verificare unitara stalpi -clasa



7.1.4. Breviar de calcul detaliat .Verificare stalp element cel mai solicitat

Calcul liniar, Extrem : Globale
Selectie : Toate
Clasa : RC1
Sectiune transversala : CS1-STALPI - CFRHS60X40X3

Element	css	mat	Caz	dx [m]	verificare unitara [-]	verificare sectiune [-]	verificare stabilitate [-]
B156	CS1-STALPI - CFRHS60X40X3	S 235 JR (EN 10025-2)	CO4/1	0.220	0.70	0.50	0.70

7.1.5. Verificare stalp -element cel mai solicitat

Calcul liniar, Extrem : Globale
Selectie : Toate
Clasa : RC1
Sectiune transversala : CS1-STALPI - CFRHS60X40X3
EN 1993-1-1 Verificare normativ
Anexa nationala: AN SR-EN Romania

Element B156	**1.400 m**	**CFRHS60X40X3**	**S 235 JR (EN 10025-2)**	**CO4/1**	**0.70 -**

Nota: EN 1993-1-3 articolul 1.1(3) specifica ca aceasta parte nu se aplica formelor prelucrate la rece cu sectiuni CHS si RHS.
Este realizata verificarea implicita dupa EN 1993-1-1 in loc de verificarea dupa EN 1993-1-3.

Coeficienti partiali de siguranta	
Gamma M0 pt. rezistenta sectiunilor transv.	1.00
Gamma M1 pt. rezistenta la instabilitate	1.00
Gamma M2 pt. rezistenta sectiunilor nete	1.25

Material		
Rezistenta la curgere fy	235.0	MPa
Rezistenta ultima fu	360.0	MPa
Fabricatie	Prelucrat la rece	

...::VERIFICARE SECTIUNE::...

Clasificare pt. proiectarea sectiunii transv.
Conform EN 1993-1-1 articol 5.5.2
Clasificare peretilor interiori comprimati
Conform EN 1993-1-1 Tabel 5.2 Pagina 1

Raport maxim latime pe grosime	17.00
Limita Clasa 1	71.02
Limita Clasa 2	81.78
Limita Clasa 3	120.83

=> Sectiune clasificata in Clasa 1 pt. proiectarea sectiunii transv.
Verificarea critica este la pozitia 0.220 m

Eforturi interne	Calculat	Unitate
N,Ed	-0.22	kN
Vy,Ed	-0.02	kN
Vz,Ed	-1.28	kN
T,Ed	0.00	kNm
My,Ed	1.23	kNm
Mz,Ed	0.01	kNm

Verificare la compresiune
Conform cu EN 1993-1-1 articol 6.2.4 si formula (6.9)

A	5.4100e-04	m^2
Nc,Rd	127.14	kN
Verificare unitara	0.00	-

Verificare moment incovoietor pt. My
Conform cu EN 1993-1-1 articol 6.2.5 si formula (6.12),(6.13)

Wpl,y	1.0530e-05	m^3
Mpl,y,Rd	2.47	kNm
Verificare unitara	0.50	-

Verificare moment incovoietor pt. Mz
Conform cu EN 1993-1-1 articol 6.2.5 si formula (6.12),(6.13)

Wpl,z	7.9400e-06	m^3
Mpl,z,Rd	1.87	kNm
Verificare unitara	0.00	-

Verificare la taietoare pt. Vy
Conform cu EN 1993-1-1 articol 6.2.6 si formula (6.17)

Eta	1.20	
Av	2.1640e-04	m^2
Vpl,y,Rd	29.36	kN
Verificare unitara	0.00	-

Verificare la taietoare pt. Vz
Conform cu EN 1993-1-1 articol 6.2.6 si formula (6.17)

Eta	1.20	
Av	3.2460e-04	m^2
Vpl,z,Rd	44.04	kN
Verificare unitara	0.03	-

Verificare la torsiune
Conform cu EN 1993-1-1 articol 6.2.7 si formula (6.23)

Tau,t,Ed	0.1	MPa
Tau,Rd	135.7	MPa
Verificare unitara	0.00	-

Nota: Verificarea unitara la torsiune este sub valoarea limita de 0.05. Prin urmare, torsiunea este omisa in verificarile combinate.
Verificare combinata la forta axiala, taietoare si incovoiere
Conform cu EN 1993-1-1 articol 6.2.9.1 si formula (6.41)

MN,y,Rd	2.47	kNm
Alfa	1.66	
MN,z,Rd	1.87	kNm
Beta	1.66	

Verif. unitara (6.41) = 0.32 + 0.00 = 0.32 -
Nota: Deoarece fortele taietoare sunt mai mici decat jumatate din rezistenta plastica la forfecare, efectul lor asupra rezistentelor la incovoiere este omis.
Elementul satisface verificarea sectionala.

...::VERIFICARE STABILITATE::...
Clasificare pt. proiectarea flambajului pe element
Pozitia decisiva pt. clasificarea stabilitatii: 0.000 m
Clasificare peretilor interiori comprimati
Conform EN 1993-1-1 Tabel 5.2 Pagina 1

Raport maxim latime pe grosime	17.00
Limita Clasa 1	71.69
Limita Clasa 2	82.55
Limita Clasa 3	122.65

=> Sectiune clasificata in Clasa 1 pt. proiectarea flambajului pe element

Verificare Flambaj la Incovoiere
Conform cu EN 1993-1-1 articol 6.3.1.1 si formula (6.46)

Parametri de flambaj	yy	zz	
Tip deplasare	deplasare	nedeplasat	
Lungime sistem L	1.400	1.000	m
Factor de flambaj k	2.00	0.82	
Lungime de flambaj Lcr	2.800	0.823	m
Incarcare critica Euler Ncr	67.09	411.30	kN
Zveltete Lambda	129.28	52.21	
Zveltete relativa Lambda,rel	1.38	0.56	
Zveltete limita Lambda,rel,0	0.20	0.20	

Nota: Zveltetea sau forta de compresiune sunt de asa natura incat efectele de flambaj prin incovoiere pot fi ignorate conform cu EN 1993-1-1 articol 6.3.1.2(4).
Verificare flambaj rasucire(incovoiere)
Conform cu EN 1993-1-1 articol 6.3.1.1 si formula (6.46)
Nota: Sectiunea transversala de tipul RHS nu este susceptibila la flambajul de rasucire (-incovoiere).
Verificare flambare prin incovoiere-rasucire
Conform cu EN 1993-1-1 articol 6.3.2.1
Nota: Sectiunea transversala de tip RHS cu 'h / b < 10 / Lambda,rel,z'.
Aceasta sectiune nu este susceptibila pentru flambajul prin incovoiere-rasucire

Verificare la incovoiere si compresiune axiala
Conform cu EN 1993-1-1 articol 6.3.3 si formula (6.61),(6.62)

Parametri verificare incovoiere si compresiune axiala		
Metoda de interactiune	metoda 1 alternativa	
Arie sectiune transversala A	5.4100e-04	m^2
Modul de rezistenta plastic al sectiunii Wpl,y	1.0530e-05	m^3
Modul de rezistenta plastic al sectiunii Wpl,z	7.9400e-06	m^3
Forta de compresiune de calcul N,Ed	0.22	kN
Moment incovoietor de calcul (maxim) My,Ed	1.72	kNm
Moment incovoietor de calcul (maxim) Mz,Ed	-0.02	kNm
Rezistenta caracteristica la compresiune N,Rk	127.14	kN
Rezistenta caracteristica la moment My,Rk	2.47	kNm
Rezistenta caracteristica la moment Mz,Rk	1.87	kNm
Factor de reducere Chi,y	1.00	
Factor de reducere Chi,z	1.00	
Factor de reducere Chi,LT	1.00	
Factor de interactiune k,yy	1.00	
Factor de interactiune k,yz	0.59	
Factor de interactiune k,zy	0.62	
Factor de interactiune k,zz	1.00	

Momentul maxim My,Ed este derivat din pozitia B156 a elementului 1D 0.000 m.
Momentul maxim Mz,Ed este derivat din pozitia B156 a elementului 1D 1.220 m.

Parametri metoda 1 de interactiune		
Incarcare critica Euler N,cr,y	67.09	kN
Incarcare critica Euler N,cr,z	411.30	kN
Incarcarea critica elastica N,cr,T	33165.81	kN
Modul de rezistenta plastic al sectiunii Wpl,y	1.0530e-05	m^3
Modul de rezistenta elastic al sectiunii Wel,y	8.4600e-06	m^3
Modul de rezistenta plastic al sectiunii Wpl,z	7.9400e-06	m^3
Modul de rezistenta elastic al sectiunii Wel,z	6.7200e-06	m^3
Moment de inertie Iy	2.5380e-07	m^4
Moment de inertie Iz	1.3440e-07	m^4
Constanta de torsiune It	2.9280e-07	m^4
Metoda pentru factorul de moment echivalent C,my,0	Tabel A.2 Linia 2 (General)	
Moment incovoietor de calcul (maxim) My,Ed	1.72	kNm
Deformatia relativa maxima delta,z	-3.0	mm
Factor moment echivalent C,my,0	1.00	
Metoda pentru factorul de moment echivalent C,mz,0	Tabel A.2 Linia 2 (General)	
Moment incovoietor de calcul (maxim) Mz,Ed	-0.02	kNm
Deformatia relativa maxima delta,y	0.0	mm
Factor moment echivalent C,mz,0	1.00	
Factor mu,y	1.00	
Factor mu,z	1.00	
Factor epsilon,y	497.04	
Factor a,LT	0.00	
Moment critic pt. incovoiere uniforma Mcr,0	81.42	kNm
Zveltete relativa Lambda,rel,0	0.17	
Zveltete relativa limita Lambda,rel,0,lim	0.27	
Factor moment echivalent C,my	1.00	
Factor moment echivalent C,mz	1.00	
Factor moment echivalent C,mLT	1.00	
Factor b,LT	0.00	
Factor c,LT	0.00	
Factor d,LT	0.00	
Factor e,LT	0.00	
Factor w,y	1.24	
Factor w,z	1.18	
Factor n,pl	0.00	
Zveltete relativa maxima Lambda,rel,max	1.38	

Parametri metoda 1 de interactiune		
Factor C,yy	1.00	
Factor C,yz	1.00	
Factor C,zy	1.00	
Factor C,zz	1.00	

Verif. unitara (6.61) = 0.00 + 0.70 + 0.01 = 0.70 -
Verif. unitara (6.62) = 0.00 + 0.43 + 0.01 = 0.44 -

Elementul satisface verificarea la stabilitate.

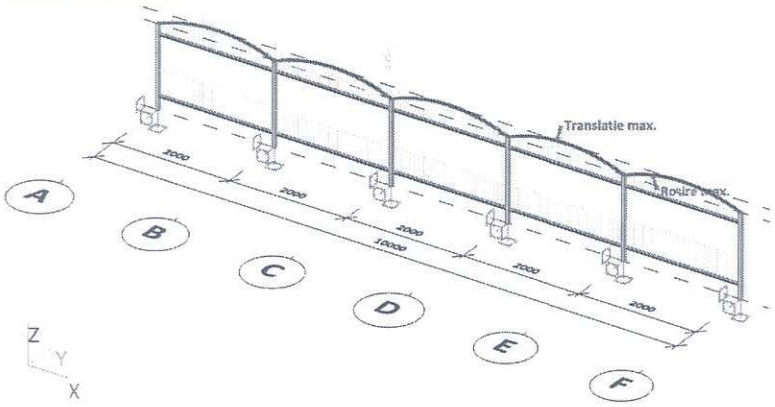
7.1.6. Verfificare Deformatie relativa-stalpi

Calcul liniar, Extrem : Globale, Sistem : Principal
Selectie : Toate
Combinatii : CO3-SLS
Sectiune transversala : CS1-STALPI - CFRHS60X40X3

Element	dx [m]	Caz - combinatie	uy [mm]	Rel uy [1/xx]	uz [mm]	Rel uz [1/xx]	Verif. uy [-]	Verif. uz [-]
B111	0.817	CO3-SLS/2	**-0.1**	**1/10000**	-2.0	1/684	**0.00**	0.07
B156	0.867	CO3-SLS/5	**0.0**	**1/10000**	4.2	1/332	**0.00**	0.15
B173	1.400	CO3-SLS/2	0.0	0	**-9.2**	**1/151**	0.00	**0.33**
B173	1.400	CO3-SLS/4	0.0	0	**8.8**	**1/159**	0.00	**0.31**

7.2. Verificare rigle

7.2.1. Verificare otel; verificare unitara



7.2.2. Deformatie relativa-rigle

Calcul liniar, Extrem : Globale, Sistem : Principal
Selectie : Toate
Combinatii : CO3-SLS
Sectiune transversala : CS2 RIGLE MONTAJ - CFRHS40X30X3

Element	dx [m]	Caz - combinatie	uy [mm]	Rel uy [1/xx]	uz [mm]	Rel uz [1/xx]	Verif. uy [-]	Verif. uz [-]
B209	1.000	CO3-SLS/4	**-2.3**	**1/857**	0.0	0	**0.23**	0.00
B209	1.000	CO3-SLS/2	**2.4**	**1/832**	0.0	0	**0.24**	0.00
B208	0.925	CO3-SLS/4	-1.3	1/1485	**0.0**	1/10000	0.13	0.01
B141	0.000	CO3-SLS/6	0.0	0	**0.0**	**0**	0.00	**0.00**
B208	0.925	CO3-SLS/4	-1.3	1/1485	0.0	**1/10000**	0.13	**0.01**

8. VERIFICAREA FUNDATIILOR

Date teren:

Ţinând cont de prevederile din NP 112-2014 si studiul geotehnic efectuat de S.C. STAROL S.RL. prin geolog Murariu Daniel se poate aprecia valoarea presiunii convenţionale la adancimea de fundare de 1,10 m fata de terenul natural la o valoare de **226,56 kPa** pentru combinatia de incarcari A1+M1+R1 fara verificare la seism.

Presiunea conventionala ce poate fi luata in calcul pentru predimensionarea fundatiilor la o adancime de 1.1m, va fi de 227kPa, fara corectie seismica , valoare obtinuta prin prelucrarea datelor din teren si laborator prin metoda Terzaghi şi Brich – Hansen (EC8).

Stratificatia terenului :

Foraj F2

- Sol vegetal în grosime de 0,20 m
- Pietrişuri si bolovănişuri în matrice argilo - nisipoasă 2,80m;

Tip pamant	Greutatea specifica Kg/mc	Fi-unghi de frecare (°)	c Coeziune (kN/m²)	Cu-Coeziune nedrenată (kN/m²)	Ey: Modulul Elastic	Ed: Modul Endometric;	Ni-coeficient Poisson
necoeziv :pietrisuri si bolovanisuri :	19.32	36.73	0	94.83	16612.4	6495.43	0.35

Date de calcul :

Calculul la stările limită ultime s-a realizat pentru grupările de acţiuni (efecte ale acţiunilor) definite conform codului CR0:

a. Combinarea (efectelor) acţiunilor pentru situaţiile de proiectare sau normală şi tranzitorie (Gruparea fundamentală, GF);

b. Combinarea (efectelor) acţiunilor pentru situaţia de proiectare seismică (Gruparea seismică, GS).

(2) Pentru stabilirea dimensiunilor în plan ale fundaţiei s-a efectuat calculul la următoarele stări limită ultime de tip GEO:

(2.1) Capacitatea portanta

(2.2) Rezistenţa la lunecare

(2.3) Stabilitatea generală

- Pentru calculul la starea limită de capacitate portantă trebuie satisfăcută condiţia [6.1 SR EN 1997-1]:

$V_d \leq R_d$

unde:

V_d valoarea de calcul a acţiunii verticale sau componenta verticală a unei acţiuni totale aplicată la baza fundaţiei
V_d se determină conform prevederilor din capitolul II.2
Nota - V_d trebuie să includă greutatea proprie a fundaţiei, greutatea oricărui material de umplutură şi toate presiunile pământului, fie favorabile, fie nefavorabile. Presiunile apei care nu se datorează încărcărilor transmise terenului de fundare, trebuie incluse ca acţiuni.

R_d valoarea de calcul a capacităţii portante

- Limitarea excentricităţilor

Fundaţie cu baza dreptunghiulară:

$$\frac{(e_L)^2}{L^2} + \frac{(e_B)^2}{B^2} \leq 1 \quad \text{(I.14 a)}$$

unde:

e_L excentricitatea forţei N faţă de axa transversală (lăţimea bazei fundaţiei, B)

e_B excentricitatea forţei N faţă de axa longitudinală (lungimea bazei fundaţiei, L)

- **Rezistenţa la lunecare**

Pentru calculul la starea limită de rezistenţă la lunecare trebuie satisfăcută condiţia [6.2 SR EN 1997-1]:

$$H_d \leq R_d + R_{p;d} \quad \text{(I.23)}$$

unde:

H_d valoarea de calcul a acţiunii orizontale sau componenta orizontală a unei acţiuni totale aplicată paralel cu baza fundaţiei
H_d se determină conform prevederilor din capitolul II.2

R_d valoarea de calcul a rezistenţei ultime la lunecare

$R_{p;d}$ valoarea de calcul a rezistenţei frontale şi/sau laterale mobilizate ca urmare a efectului H_d asupra fundaţiei

Notă - H_d trebuie să includă valoarea de calcul a oricărei presiuni active a pământului asupra fundaţiei.

8.1. Fundatii izolate

Nume	Tip	Material Conditie de turnare	A [m] B [m]	h1 [m]	h2 [m]	h3 [m]	a [m] b [m]	ex [m] ey [m]
F1-GARD	Prismatic	C12/15 In Situ	0.45 0.45	0.500	0.400	0.050	0.450 0.450	0.000 0.000

8.2. Verificare fundatie izolata

Calcul liniar, Extrem : Globale
Selectie : Toate
Clasa : GEO-FUNDATII
Verificare fundatie izolata
Verificare stabilitate EN 1997-1

Sn59/N381	CO1-SLU/1	0.68

...::Introducere & Incarcare::...

Date de proiectare

Abordare	1 (Combinatia 1)
Setare factor partial	M1 "+" R1
Gamma Fi'	1.00
Gamma c'	1.00
Gamma cu	1.00
Gamma qu	1.00
Gamma gamma	1.00
Gamma R;v	1.00
Gamma R;h	1.00

Date fundatie izolata

Nume	F1-GARD
Material	C12/15
Tip	Prismatic
Conditie de turnare	Beton turnat

Geometrie fundatie izolata

A [m]	B [m]	h1 [m]	h2 [m]	h3 [m]	a [m]	b [m]	ex [m]	ey [m]
0.45	0.45	0.500	0.400	0.050	0.45	0.45	0.000	0.000

Date teren

Nume	Gravel/Slightly silty/Moderate	
Tip	Drenata	
Densitatea	1800.0	kg/m^3
Fi'	35.00	deg
Sigma oc	0.0	MPa
c'	0.0	MPa
cu	0.0	MPa

Material de umplutura

Densitatea	1900.0	kg/m^3
Inaltime	0.400	m

Nivelul apei subterane

Nivel	Fara influenta

Incarcare

Reactiune		Factor eliminare	Incarcare		
Rx	0.00	1.00	Hx	0.00	kN
Ry	-1.76	1.00	Hy	-1.76	kN
Rz	0.34	1.00	P	0.34	kN
Mx	-1.33	1.00	Mx	-1.33	kNm
My	0.00	1.00	My	0.00	kNm

...::Verificarea stabilitatii la ULS::...

Determinarea geometriei efective
Conform cu EN 1997-1 Anexa D

Tabel cu valori		
Greutate material de umplutura	5.00	kN
Greutate fundatie izolata	5.13	kN
Factor partial de siguranta	1.00	
Greutate de calcul G pt. fundatie si umplutura	10.12	kN
gx	0.000	m
gy	0.000	m
px	0.000	m
py	0.000	m
h	0.900	m
Valoare de calcul pt. incarcarea verticala Vd	10.46	kN
Valoare de calcul pt. incarcarea orizontala Hd	1.76	kN
Excentricitate ex	0.000	m
Excentricitate ey	-0.279	m

Verificarea rezistentei capacitatii portante
Conform cu EN 1997-1 articol 6.5.2.1 si Anexa D

Capacitatea portanta a fundatiei conform cu EN 1997-1, anexa D

Nod 163:

Calculul capacităţii portante în condiţii nedrenate se face cu relaţia [D.1 SR EN 1997-1]:

$$R_d = A' (\pi+2)\, c_{u;d}\, b_c\, s_c\, i_c + q \qquad (F.1)$$

unde:

R_d valoarea de calcul a capacităţii portante

A' aria redusă a bazei fundaţiei

$A' = L' \; B'$

unde:

L', B' se determină conform pct. I.6.1.3

$c_{u;d}$ valoarea de calcul a coeziunii nedrenate

b_c factor adimensional pentru înclinarea bazei fundaţiei:
$b_c = 1 - 2\alpha / (\pi + 2)$
α înclinarea bazei fundaţiei faţă de orizontală (Fig. I.5)

s_c factor adimensional pentru forma bazei fundaţiei:
$s_c = 1 + 0{,}2 \; (B'/L')$ pentru o fundaţie rectangulară
$s_c = 1{,}2$ pentru o fundaţie pătrată sau circulară

i_c factor adimensional pentru înclinarea încărcării V produsă de încărcarea orizontală H

$$i_c = \frac{1}{2}\left(1 + \sqrt{1 - \frac{H}{A' c_{u;d}}}\right) \text{ pentru } H \le A' c_{u;d}$$

q suprasarcina totală la nivelul bazei fundaţiei

Tabel cu valori		
Factor al capacitatii portante Nq	33.30	
Factor al capacitatii portante Nc	46.12	
Factor al capacitatii portante N gamma	45.23	
Factor bq pt. inclinarea bazei fundatiei izolate	1.00	
Factor bc pt. inclinarea bazei fundatiei izolate	1.00	
bgamma pt. inclinarea bazei fundatiei izolate	1.00	
Factor forma sq	1.04	
Factor forma sc	1.04	
Factor forma sgamma	0.98	
Unghi theta	89.95	deg
Exponent mB	1.93	
Exponent mL	1.07	
Exponent m	1.93	
Factor inclinare incarcare iq	0.70	
Factor inclinare incarcare ic	0.69	
Factor inclinare incarcare i gamma	0.58	
Densitate efectiva material umplutura	19.0	kN/m^3
Incarcarea geostatica efectiva de calcul q'	24.70	kN/m^2
Densitatea efectiva a terenului	18.0	kN/m^3
Rezistenta de calcul capacitate portanta Rd	15.37	kN
Verificare unitara (6.1)	**0.68**	

Verificare rezistenta la lunecare
Conform cu EN 1997-1 articol 6.5.3

Tabel cu valori		
Unghiul de frecare delta de calcul	35.00	deg
Rezistenta de calcul a presiunii terenului Rpd	0.00	kN
Rezistenta de calcul la taietoare Rd	7.32	kN
Verificare unitara (6.2)	**0.24**	

S.C. OVIRELANCE S.R.L. sef de proiect ing. Pascariu Marius-Adrian	Semnătura .....
Intocmit, Specialitatea Rezistenta ing. Vlad Ciuca - Alexandru	.....

III. 4.Breviare de calcul ziduri de sprijin

Borderou

III. 4.Breviare de calcul ziduri de sprijin 1
1.Calculul caracteristicilor si cantitatilor zidurilor de sprijin 1
2.Dimensionarea zidurilor de sprijin : 2
- Predimensionarea zidului de sprijin → dimensiuni secţiune transversală 2

3. Dimensionare. RAPORT DE CALCUL 4
3.1.Breviar de calcul. Zid de rambleu tip 2.5R ,he =2.5m 10
3.1.2.Analiza la stabilitate a taluzurilor Zid He=2.5m 26
3.1.3. Calcul zid de debleu He = 2.0m tip 2R 30
3.1.4. Calcul zid de debleu He = 1.50m tip 1D 41

1.Calculul caracteristicilor si cantitatilor zidurilor de sprijin

Tabel . Caracteristici zid de sprijin

Nr. Crt.	Zid tip	Dimensiuni/ML												
-	-	Inaltime	Inaltime elevatie	Adancime fundatie	Grosime coronament	Grosime baza elevatie	Latime rebord aval	Latime rebord amonte	Latime fundatie	Inaltime fundatii aval	Inaltime fundatii amonte	Grosime baza pinten	Inaltime baza pinten	Lati dre
-	-	H	He	hf	k	a	a'	b	B	hf1	hf2	gp	hp	d
-	(UM)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
1	1 D	1.90	1.50	0.40	0.30	0.45	0.30	0.50	1.25	0.40	0.40	0.40	0.40	0.45

Cantitati/ML				
Volum elevatie	Volum fundatie	Volum pinten	Volum total	Volum dren
Ve	Vf	Vp	Vt	Vdr
(mc)	(mc)	(mc)	(mc)	(mc)
0.5625	0.5	0.16	1.22	0.18

	lungime zid	beton egalizare	beton in fundatii	beton elevatii	cofraje elevatie	hidroizolatii	beton chiuneta dren	volum bolovani rau	volum balast
	10.00	0.83	6.60	5.63	30.00	24.50	0.90	0.50	1.30
total:	10.00	0.83	6.60	5.63	30.00	24.50	0.90	0.5	1.3

Tabel . Caracteristici zid de sprijin

Nr. Crt.	Zid tip	Dimensiuni												
		Inaltime	Inaltime elevatie	Adancime fundatie	Grosime coronament	Grosime baza elevatie	Latime rebord aval	Latime rebord amonte	Latime fundatie	Inaltime fundatii aval	Inaltime fundatii amonte	Grosime baza pinten	Inaltime baza pinten	Latime dren
-	-	H	He	hf	k	a	a'	b	B	hf1	hf2	gp	hp	d
-	-	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
1	2R	2.4	2	0.4	0.3	0.48	0.3	0.6	1.38	0.4	0.4	0.4	0.4	0.45
2	2,5R	3.1	2.5	0.6	0.4	0.58	0.4	1.15	2.13	0.6	0.6	0.45	0.4	0.5

Cantitati				
Volum elevatie	Volum fundatie	Volum pinten	Volum total	Volum dren
Ve	Vf	Vp	Vt	Vdr
(mc)	(mc)	(mc)	(mc)	(mc)
0.78	0.552	0.16	1.492	0.315
1.225	1.278	0.18	2.68	0.4

	Lungime	beton egalizare	beton in fundatii	beton elevatii	cofraje elevatie	hidroizolatii	beton chiuneta dren	volum bolovani rau	volum petris +nisip
	m	mc	mc	mc	mp	mp	mc	mc	mc
	16	1.424	11.392	12.48	64	48.8	1.44	2.8	2.24
	9	1.161	13.122	11.025	45	37.35	0.9	2.16	1.44
TOTAL	25	**2.585**	**24.514**	**23.505**	**109**	**86**	**2.34**	**5.0**	**3.7**

2.Dimensionarea zidurilor de sprijin :

- Predimensionarea zidului de sprijin_→ dimensiuni secţiune transversală

Elementele secţiunii transversale sunt determinate în funcţie de înălţimea totală *h* a zidului conform notaţiilor din figura 1.

Dimensiunile secţiunii tranversale se rotujesc superior la multiplu de 5 cm.

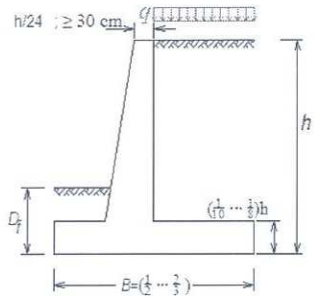


Fig. 1

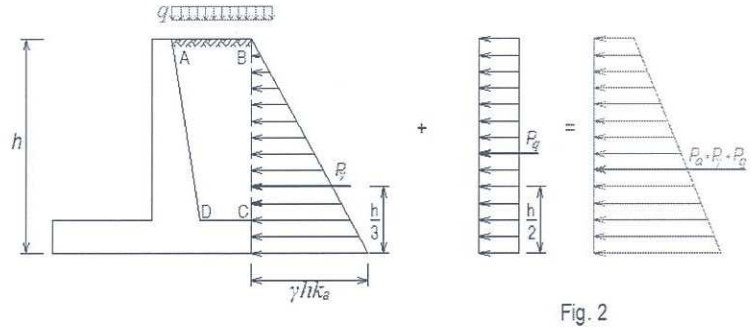


Fig. 2

Predimensionare zid de sprijin tip cornier si perete										
Nr. Crt.	Zid tip	Inaltime	Latime rebord aval		Latime rebord aval-adoptat	Grosime coronament	Grosime coronament-adoptat	Inaltime fundatii aval		I f a
-	-	H	a' =1/10...1/12 H		a'	k= H/24 ≥30cm	k	hf =1/8...1/12 H		h
-	-	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(
-	-		1 /10	1/ 12		H/24		H/ 8	H / 12	
1	2R	3,1	0,31	0,26	**0,3**	0,13	**0,3**	0,39	0,26	0
2	2,5 R	3,6	0,36	0,30	**0,4**	0,15	**0,3**	0,45	0,30	0
3	1 Dm	1,9	0,19	0,16	**0,30**	0,08	**0,30**	0,24	0,16	0

Intocmit,
Sef de proiect ,
Specialitatea CFDP
ing. Pascariu Marius-Adrian

S.C. OVIRELANCE S.R.L. J33/1439/2004 CUI 16354756 SUCEAVA

CERCEL C. CONSTANTIN FLORIN ROMANIA NR. 1237 A4, B2, D2 INGINER VERIFICATOR PROIECTE

3. Dimensionare. RAPORT DE CALCUL

Norme de referintã

Eurocodul 7

Proiectare geotehnicã. Partea 1: Reguli generale.

Eurocodul 8

Indicatii de proiect pentru rezistenta seismicã a structurilor. Partea 5: Fundatii, structuri sustinere si aspecte geotehnice.

Calculul împingerii active cu metoda Coulomb

Calculul împingerii active cu metoda lui *Columb* se bazează pe studiul echilibrului limitã global al sistemului foramt din zid si teren.

Pentru terenuri omogene diagrama presiunilor este liniarã având distributia:

$P_t = K_a \times \gamma_t \times z$

Împingerea *St* este aplicatã la 1/3 H de valoare:

$$S_t = \frac{1}{2}\gamma_t H^2 K_a$$

Indicând cu:

$$K_a = \frac{\operatorname{sen}^2(\beta-\phi)}{\operatorname{sen}^2\beta \times \operatorname{sen}^2(\beta+\delta) \times \left[1+\sqrt{\frac{\sin(\delta+\phi)\times\sin(\phi-\varepsilon)}{\operatorname{sen}(\beta+\delta)\times\operatorname{sen}(\beta-\varepsilon)}}\right]^2}$$

Valori limitã K_A:

$\delta < (\beta-\phi-\varepsilon)$ dupã Muller-Breslau

γ_t Greutate volumicã a terenului;

β Înclinatie a peretelui intern în functie de orizontala care trece prin talpã;

ϕ Unghiul de rezistentã la forfecare al terenului;

δ Unghi de forfecare sol-zid;

ε Înclinatie fatã de orizontalã, pozitivã dacã este în sens invers acelor de ceasornic;

H Înãltimea peretelui.

Calculul împingerii active dupã Rankine

Dacã $\varepsilon = \delta = 0$ e $\beta = 90°$ (zid cu perete vertical si terasament cu suprafatã porizontalã) împingerea *St* este de forma:

$$S_t = \frac{\gamma \cdot H^2}{2}\frac{(1-\sin\phi)}{(1+\sin\phi)} = \frac{\gamma \cdot H^2}{2}\tan^2\left(45-\frac{\phi}{2}\right)$$

care coincide cu ecuatia lui Rankine pentru calculul împingerii active a terenului cu terasamentul orizontal.

De fapt Rankine a adoptat de fapt aceleasi ipoteze ca si Coulomb, cu exceptia faptului cã nu a luat în considerare forfecarea sol-zid si prezenta coeziunii. În formularea sa generalã expresia lui Ka a lui Rankine este urmãtoarea:

$$Ka = \cos\varepsilon \frac{\cos\varepsilon - \sqrt{\cos^2\varepsilon - \cos^2\phi}}{\cos\varepsilon + \sqrt{\cos^2\varepsilon - \cos^2\phi}}$$

Calcularea împingerii active cu metoda lui Mononobe & Okabe

Calcularea împingerii active cu metoda lui *Mononobe & Okabe* priveste evaluarea împingerii în conditii seismice cu metoda pseudo-staticã. Aceasta se bazează pe echilibrul limitã global al sistemului format din zid si din terenul omogen din spatele zidului care participã la ruptură într-o configuratie de calcul în care unghiul ε, de înclinatie a planului de rezemare fatã de planul orizontal, si unghiul β, de înclinatie a peretelui intern în functie de orizontala care trece prin talpã, sunt mãrite cu o cantitate θ astfel încât:

$tg\ \theta = k_h/(1\pm k_V)$

cu k_h coeficient seismic orizontal si k_V vertical.

În absenta studiilor suprafetelor coeficientii k_h e k_V trebuiesc calculati:

$k_h = S\ a_g/r$ $\qquad$ $k_v = 0{,}5\ k_h$

unde Sa_g reprezintã valoarea de acceleratie seismicã maximã a terenului pentru variile categorii de profil stratigrafic. Factorului r îi poate fi desemnatã valoarea $r = 2$ în cazul lucrãrilor destul de flexibile (ziduri libere de greutate), în timp ce în celelalte cazuri i se dã valaorea 1. (ziduri în b.a. rezistenti la flexie, ziduri pe piloti sau tiranti, ziduri cu goluri).

Efectul datorat coeziunii

Coeziunea induce presiuni negative constante egale cu:

$$P_c = -2 \cdot c \cdot \sqrt{K_a}$$

Nefiind posibilã stabilirea a priori care este reducerea indusã de împingere prin efectul coeziunii, a fost calculatã înãltimea criticã Z_c în felul urmãtor:

$$Z_c = \frac{2 \times c}{\gamma} \times \frac{1}{\sqrt{K_A}} - \frac{Q \times \frac{\text{sen}\beta}{\text{sen}(\beta+\varepsilon)}}{\gamma}$$

Unde:

Q = Sarcina agentã pe terasament;

Dacã $Z_c<0$ este posibilã suprapunerea directã a efectelor:

$S_c = P_c \times H$

cu punctul de aplicare egal cu *H/2*;

Sarcina uniformã pe terasament

O sarcinã Q, uniform distribuitã induce presiuni constante egale cu:

$P_q = K_A \times Q \times \text{sen}\beta/\text{sen}(\beta+\varepsilon)$

Pentru intgrare, o împingere egalã cu S_q:

$$S_q = K_a \cdot Q \cdot H \frac{\text{sen}\beta}{\text{sen}(\beta+\varepsilon)}$$

Cu punct de aplicare la H/2, indicând cu K_a coeficentul de împingere activã conform lui *Muller-Breslau.*

Împingerea activã în conditii seismice

In presenta seismicitãtii forta de calcul exercitatã de terasament asupra zidului este datã de:

$$E_d = \frac{1}{2}\gamma(1 \pm k_v)KH^2 + E_{ws} + E_{wd}$$

unde:

H	înãltimea zidului;
k_V	coeficientul seismic vertical;
γ	greutatea pe unitate de volum a terenului;
K	coeficienti de împingere activã totalã (sataticã si dinamicã);
E_{ws}	împingere hidrostaticã a apei;
E_{wd}	împingere hidrodinamicã.spinta idrodinamica.

Pentru terenuri impermeabile împingerea hidrodinamicã $E_{wd} = 0$, dar se efecueazã o corectie asupra evaluãrii unghiului θ a formului lui *Mononobe & Okabe* dupã cum urmeazã:

$$\text{tg}\vartheta = \frac{\gamma_{sat}}{\gamma_{sat} - \gamma_w} \frac{k_h}{1 \mp k_v}$$

În terenurile cu permeabilitate ridicatã în conditii dinamice continuã sã se aplice corectia de mai sus, dar împingerea hidrodinamicã ia forma:

$$E_{wd} = \frac{7}{12} k_h \gamma_w H'^2$$

Cu H' înãltimea nivelului pânzei freatice mãsuratã plecând de la baza zidului.

Împingerea hidrostaticã

Pânza freaticã cu suprafata distantã H_w de la baza zidului induce presiuni hidrostatice normale peretelui care, la adâncimea z, se exprimã astfel:

$P_w(z) = \gamma_w \times z$

Cu rezultantele egale cu:

$S_w = 1/2 \times \gamma_w \times H^2$

Împingerea terenului înnecat se obtine înlocuind γ_t cu γ'_t ($\gamma'_t = \gamma_{saturat} - \gamma_w$), greutate eficace a materialului înnecat în apã.

Rezistenta pasivã

Pentru teren omogen diagrama presiunilor liniare de tipul:

$P_t = K_p \times \gamma_t \times z$

pentru integrare se obtine împingerea pasivã:

$$S_p = \frac{1}{2} \cdot \gamma_t \cdot H^2 \cdot K_p$$

Indicând cu:

$$K_p = \frac{\text{sen}^2(\phi + \beta)}{\text{sen}^2\beta \times \text{sen}(\beta - \delta) \times \left[1 - \sqrt{\frac{\sin(\delta + \phi) \times \sin(\phi + \varepsilon)}{\text{sen}(\beta - \delta) \times \text{sen}(\beta - \varepsilon)}}\right]^2}$$

(Muller-Breslau) cu valori limitã ale lui δ egale cu:

$\delta < \beta - \phi - \varepsilon$

Expresia lui K_p în functie de formulare lui Rankine ia urmãtoarea formã:

$$Kp = \frac{\cos\varepsilon + \sqrt{\cos^2\varepsilon - \cos^2\phi}}{\cos\varepsilon - \sqrt{\cos^2\varepsilon - \cos^2\phi}}$$

Sarcina limitã a fundatiilor superficiale pe terenuri

Brich - Hansen (EC 7–EC 8)

Atât timp cât fundatia unui zid poate rezista la sarcina proiectului respectând siguranta în ceea ce priveste ruptura generalã, trebuie sã respecte egalitatea:

$Vd = Rd$

Unde Vd este sarcina proiectului, normal la baza fundatiei, care cuprinde si greutatea zidului; în timp ce Rd reprezintã sarcina limitã a proiectului fundatiei în ceea ce priveste sarcinile normale, tinând caont si de efectul sarcinilor înclinate sau excentrice.

În evaluarea analiticã a sarcinii limitã a proiectului Rd trebuie sã se considere situatiile pe termen lung si scurt.

Sarcina limitã a proiectului în conditii nedrenate se calculeazã ca:

$R/A' = (2 + \pi)\, c_u\, s_c\, i_c + q$

Unde:

A' = B' L' Aria funadatiei eficace a proiectului, înteleasã, în cazul sarcinii excentrice, ca si arie redusã în al cãrei centru se aplicã rezultanta de sarcinii;

c_u Coeziunea nedrenatã;

q Presiunea litostaticã totalã pe suprafata de sprijin;

s_c Factor de formã;

$s_c = 1 + 0{,}2\,(B'/L')$ Pentru fundatii dreptunghiulare;

$s_c = 1{,}2$ Pentru fundatii pãtrate sau circulare;

i_c Factor corectiv pentru înclinatia sarcinii datoratã unei sarcini H.

$i_c = 0{,}5\left(1+\sqrt{1-H/A'c_u}\right)$

Pentru conditii drenate sarcina limitã a proiectului se calculeazã dupã cum urmeazã:

$R/A' = c'\,N_c\,s_c\,i_c + q'\,N_q\,s_q\,i_q + 0{,}5\,\gamma'\,B'\,N_\gamma\,s_\gamma\,i_\gamma$

Unde:

$N_q = e^{\pi\tan\varphi'}\tan^2(45+\phi'/2)$

$N_c = (N_q-1)\cot\phi'$

$N_\gamma = 2(N_q-1)\tan\phi'$

Factori de formã

$s_q = 1+(B'/L')\,sen\phi'$ Pentru formã dreptunghiularã;

$s_q = 1+sen\phi'$ Pentru formã pãtratã sau circualrã;

$s_\gamma = 1-0{,}3(B'/L')$ Pentru forma dreptunghiularã;

$s_\gamma = 0{,}7$ Pentru formã pãtratã sau circularã;

$s_c = (s_q\cdot N_q-1)/(N_q-1)$ Pentru formã dreptunghiularã, pãtratã sau circularã.

Factori înclinatie rezultantã datoratã unei sarcini orizontale H paralelã la L'

$i_q = i_\gamma = 1- H/(V + A'\,c'\,\cot\phi')$

$i_c = (i_q\,N_q - 1)/(N_q - 1)$

Factori înclinatie rezultantã datoratã unei sarcini orizontale H paralelã la B'

$i_q = [1-0{,}7H/(V+A'\cdot c'\cdot\cot\phi')]^3$

$i_\gamma = [1-H/(V+A'\cdot c'\cdot\cot\phi')]^3$

$i_c = (i_q\cdot N_q-1)/(N_q-1)$

Pe lângã factorii corectivi de mai sus se considerã aceia compementari la adâncimea planului de sustinere si a planului orizontal (*Hansen*).

- **Verificarea zidului la alunecare pe talpă, figura 3**

Coeficientul de siguranţă la alunecare:

$$V_L = \frac{F}{L} = \frac{f\cdot N}{P_a} = \frac{f\cdot(\sum_1^4 G_i)}{P_a}$$

N, P_a – rezutantele forţelor verticale, respecti, orizontale ce acţionează asupra tălpii zidului;

f - coeficientul de frecare dintre talpa zidului şi terenul de fundare.

Obs. În G_n trebuie inclus şi efectul suprasarcinii q ce acţionează pe suprafaţa $\overline{AB}\cdot 1$.

Verificare stabilitate zid la alunecare pe talpă: $V_L \geq 1{,}3$.

Din considerente economice valoarea V_L se plafonează la 1,4, cu condiţia ca toate celelalte verificări să f împlinite.

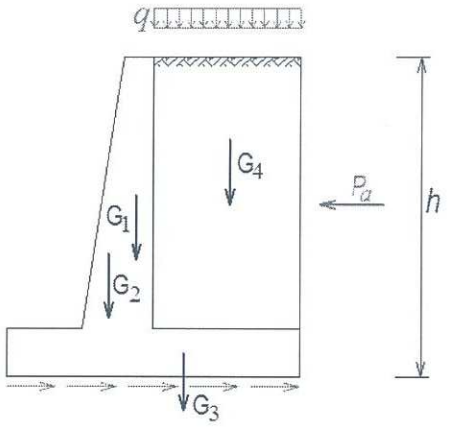


Fig. 3

- **Verificarea stabilităţii zidului la răsturnare, figura 4**

Sub acţiunea împingerii active P_a cunoscută ca punct de aplicare, mărime şi discuţie zidul se poate roti în jurul punctului M. Momentul de răsturnareeste dat de împingerea activă P_a, iar momentul de stabilitate de greutatea zidului (G_1 ... G_n).

Coeficientul de siguraţă la răsturnare:

$$V_R = \frac{M_s}{M_r} = \frac{\sum G_i \cdot b_i}{P_a \cdot b_a} \geq 1{,}5$$

M_s – momentul de stabilitate corespunzător tuturor forţelor ce se opun tendinţei de răsturnare a zidului în raport cu punctul M;

M_r – momentul de răsturnare corespunzător forţei P_a;

b_i - distanţa dintre punctul M şi dreapta suport a greutăţii G;

b_a - distanţa dintre punctul M şi dreapta suport a împingerii active P_a.

Verificare stabilitate la răsturnare: : $V_L \geq 1{,}5$.

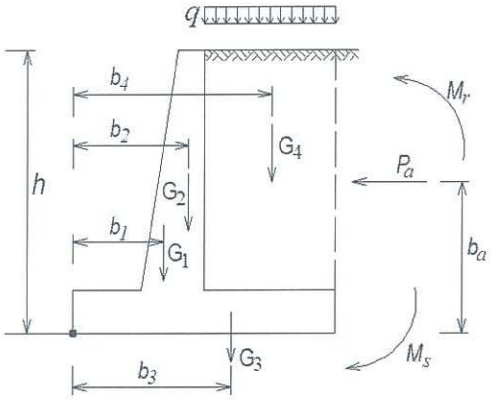


Fig. 4

- **Verificarea presiunilor pe teren, figura 5.a.**

Acţiunea compusă a forţelor care acţionează asupra zidului de sprin se transmite către terenul de fundare prin intermediul tălpii acesteia. Se face reducerea tuturor forţelor în raport cu cele din greutatea tălpii, figura 5.b.

Admiţând o distribuţie liniară a presiunilor pe teren, valorile extreme ale acestora sunt:

$$p_{min}^{max} = \frac{N}{A} \pm \frac{M}{W}, \; kN/m^2$$

N – rezultanta forţei verticale;

M – momentul tuturor forţelor în raport cu mjlocul tălpii;

A – aria suprafeţei de rezemare a zidului pe teren.

$$A = B \cdot 1 \; (m^2)$$

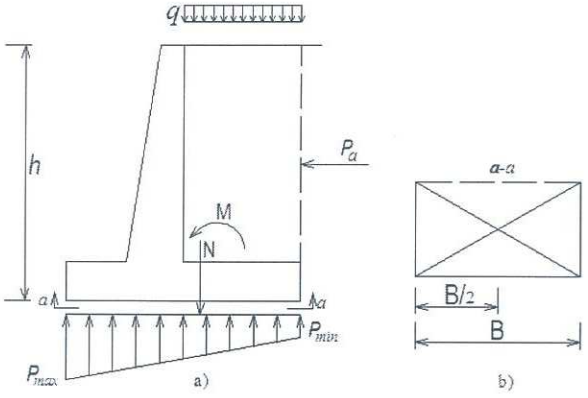


Fig. 5

$w = \frac{B^2 \cdot 1}{6}$, m^3 - modulul de rezistenţă

Presiunile calculate trebuie să împlinească simultan condiţiile:

$P_{med} = \frac{P_{min} + P_{max}}{2} \leq P_{conv}$

$P_{conv} \leq 1{,}2\, P_{conv}$ pentru încărcări din grupări fundamentale

$P_{conv} \leq 1{,}4\, P_{conv}$ pentru încărcări din grupări speciale

$P_{min} \geq 0$

Principii generale privind armarea zidului de sprijin de tip cornier:

1. Dimensionarea armăturilor de rezistenţă. În figurile 10 – 11 este prezentă schema de încărcare corespuzatoare ipotezelor de calcul 1 şi 2, pe baza cărora se determină mmentul încovoietor *M* şi forţa tăietoare *T*, în diferite secţiuni.

Aria necesară de armătură de rezistenţă în diferite secţiuni caracteristice se determină în funcţie de valorile momentului încovoietor *M* şi respectiv de valorile forţei tăietoare *T* , utilizând relaţiile de calcul pentru elemente din beton amat.

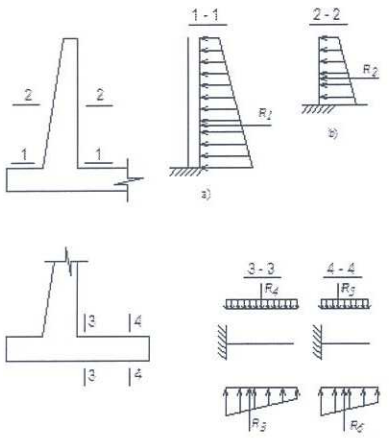


Fig 10

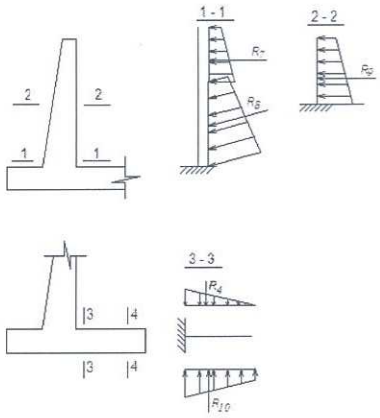


Fig. 11

2. Criterii constructive:

procent minim pentru armătura de rezistenţă = 0,05 % ;

barele de rezistenţă au diametrul minim de 10 mm şi se dispun la distanţe între ele de 10 – 20 cm;

armătura de rapartiţie ce se dispune în lungul zidului este de minim Φ8/20.

În figura 12 este prezentată o secţiune transversală printr-un zid de sprijin de tip cornier din beton armat şi schema generală de dispunere a armăturilor de rezistenţă (barele aflate în planul secţiunii) şi de repartiţie.

Solicitări zid

Pentru calculul solicitărilor zidul este discretizat în n strate în functie de sectiunile semnificative iar pentru orice fâsie au fost calculate împingerile terenului (apreciate în functie de un plan de ruptură amonte), rezultantele fortelor orizontale si verticale si fortele inertiale.

Calculul împingerilor pentru verificările globale

Împingerile au fost apreciate în functie de planul de ruptură care trece prin spatele inferioră a consolei de fundatiei amonte, astfel de plan a fost discretizat în *n* fâsii.

Conventii semne

Forte verticali	positive dacă sunt directe din partea superioară spre cea inferioară;
Forte orizontale	positive dacă sunt directe dina monte în aval;
Cupluri	positive dacă sunt directionate în sens invers limbilor de ceasoric;
Unghiuri	positive dacă sunt directionate în sens invers limbilor de ceasoric.

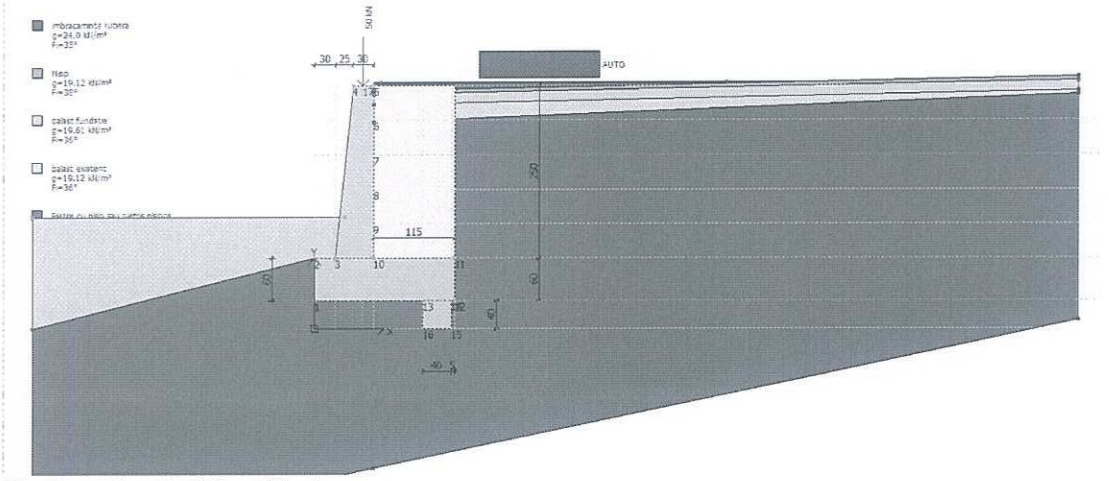
Date generale

3.1.Breviar de calcul. Zid de rambleu tip 2.5R ,he =2.5m

ZID He = 2,5 m
Calcul de rezistentã — Stãri limitã ultime

Date generale zid

Inãltime zid	250.0 cm
Grosime capãt zid	30.0 cm
Gorsime zid aval capãt	25.0 cm
Gorsime zid amonte capãt	0.0 cm
Lungime talpã aval	30.0 cm
Lungime talpã amonte	115.0 cm
Svaso mensola a valle	0.0 cm
Inãltime obelisc aval	0.0 cm
Inãltime exteremitate fundatie aval	60.0 cm
Inãltime extremitate fundatie amonte	60.0 cm
Distanta pinten-zona amonte	5.0 cm
Inãltime pinten	40.0 cm
Grosime pinten	40.0 cm
Greutate volumicã rambleu	24.0 KN/m³
Inãltime rambleu	5.0 cm



Rezistentã materiale utilizate

Clasã conglomerat Rck 37

Coeficient partial de sigurantã beton	1.5
Rezistentã la compresiune de calcul fcd	20.47 N/mm²
Rezistentã la tractiunea de calcul fctd	1.39 N/mm²

Tip otel PC 52

Modul elastic	210000 N/mm²
Factor partial de sigurantã otel	1.05
fyk (Tensiune de curgere caracteristicã)	345 N/mm²
fyd (Rezistentã ultimã de calcul)	328.57 N/mm²
Deformatie ultimã de calcul	0.01
Strat de acoperire	3.0 cm

Stratigrafie

DH	Pas minim
Eps	Inclinatia stratului
Gamma	Greutate volumicã
Fi	Unghiul de rezistentã la tãiere
c	Coeziune
Delta	Unghiul de forfecare zid-teren

P.F. Prezentã pânzã freaticã (Da/Nu)

Ns	DH (cm)	Eps (°)	Gamma (KN/m³)	Fi (°)	c (kPa)	Delta (°)	P.F.	Litologie	Descriere
1	8	1	24.00	35	0.00	23	Nu		imbracaminte rutiera
2	5	1	19.12	38	0.00	25	Nu		Nisip
3	15	1	19.61	36	0.00	24	Nu		balast fundatie
4	25	2	19.12	36	0.00	24	Nu		balast existent
5	497	12	19.32	37	0.00	24	Nu		Pietris cu nisip sau pietris nisipos

Sarcini concentrate

Descriere	Pozitie x (cm)	Pozitie y (cm)	Fx (kN/m)	Fy (kN/m)	Mz (kNm/m)
imprejmuire	70.0	350.0	0.0	0.5	0.0

Sarcini distribuite

Descriere	Abscisa initialã (cm)	Abscisa finalã (cm)	Valoare initialã (kPa)	Valoare finalã (kPa)	Adâncime (cm)
AUTO	150.0	320.0	75.0	75.0	0.0

FACTORI DE COMBINATIE

A1+M1+R1 (Alunecare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.50
6	Impingere seismicã în y	1.00
7	AUTO	1.00
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1
2	Coeziune eficace	1
3	Rezistentã nedrenatã	1
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A1+M1+R1 (Sarcinã limitã)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.30
2	Impingere teren	1.50
3	Greutate teren pe consolã	1.30
4	Impingere pânzã freaticã	1.50
5	Impingere seismicã în x	1.50
6	Impingere seismicã în y	1.50
7	AUTO	1.00
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1
2	Coeziune eficace	1
3	Rezistentã nedrenatã	1
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1.5
2	Alunecare	1

3	Contributie împingere pasivã	1

A2+M2+R2 (Alunecare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.30
6	Impingere seismicã în y	0.00
7	AUTO	1.00
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A2+M2+R2 (Sarcinã limitã)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.30
6	Impingere seismicã în y	0.00
7	AUTO	1.30
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

EQU+M2 (Rãsturnare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	0.90
2	Impingere teren	1.50
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.50
5	Impingere seismicã în x	1.50
6	Impingere seismicã în y	0.00
7	AUTO	1.50
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1

2	Alunecare	1
3	Contributie împingere pasivã	1

Combinatie nr. 6

Nr.	Forte	Factor de combinatie
1	Greutate zid	0.90
2	Impingere teren	1.50
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.50
5	Impingere seismicã în x	1.50
6	Impingere seismicã în y	0.00
7	AUTO	1.50
8	imprejmuire	1.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A1+M1+R1 (Alunecare)
CALCUL ÎMPINGERI
Discretizare teren

Qi	Cotã initialã strat (cm);
Qf	Cotã finalã strat (cm)
Gamma	Greutate volumicã (KN/m³);
Eps	Inclinatia stratului (°);
Fi	Unghi de rezistentã la tãiere (°);
Delta	Unghi de frecare teren zid (°);
c	Coeziune (kPa);
ß	Unghi perpendicular pe perete laturã amonte (°);
Note	In note este specificatã prezenta pânzei freatice

Qi	Qf	Gamma	Eps	Fi	Delta	c	ß	Note
350.0	342.0	19.0	1.14	26.0	14.0	0.0	0.0	
342.0	337.0	19.0	1.14	26.0	14.0	0.0	0.0	
337.0	322.0	19.0	1.14	26.0	14.0	0.0	0.0	
322.0	300.0	19.0	2.29	26.0	14.0	0.0	0.0	
300.0	297.0	19.0	2.29	26.0	14.0	0.0	0.0	
297.0	250.0	19.0	12.0	26.0	14.0	0.0	0.0	
250.0	200.0	19.0	12.0	26.0	14.0	0.0	0.0	
200.0	150.0	19.0	12.0	26.0	14.0	0.0	0.0	
150.0	100.0	19.0	12.0	26.0	14.0	0.0	0.0	

Coeficienti de împingere si înclinatii

μ	Unghi de directie a împingerii.
Ka	Coeficient de împingere activã.
Kd	Coeficient de împingere dinamicã.
Dk	Coeficient de crestere dinamicã.
Kax, Kay	Componente în functie de x si y ale coeficientului de împingere activã.
Dkx, Dky	Componente în functie de x si y ale coeficientului de crestere dinamicã.

μ	Ka	Kd	Dk	Kax	Kay	Dkx	Dky
14.0	0.36	0.0	0.0	0.35	0.09	0.0	0.0
14.0	0.36	0.0	0.0	0.35	0.09	0.0	0.0
14.0	0.36	0.0	0.0	0.35	0.09	0.0	0.0

14.0	0.36	0.0	0.0	0.35	0.09	0.0	0.0
14.0	0.36	0.0	0.0	0.35	0.09	0.0	0.0
14.0	0.42	0.0	0.0	0.41	0.1	0.0	0.0
14.0	0.42	0.0	0.0	0.41	0.1	0.0	0.0
14.0	0.42	0.0	0.0	0.41	0.1	0.0	0.0
14.0	0.42	0.0	0.0	0.41	0.1	0.0	0.0

Impingeri rezultante si punct de aplicare

Qi	Cotã început strat.
Qf	Cotã început strat.
Rpx, Rpy	Componente ale împingerii în zona j (kN);
Z(Rpx)	Ordonatã punct de aplicare a împingerii rezultante (cm);
Z(Rpy)	Ordonatã punct de aplicare a împingerii rezultante (cm);

	Qi	Qf	Rpx	Rpy	z(Rpx)	z(Rpy)
1	350.0	342.0	2.15	0.54	345.98	345.98
2	342.0	337.0	1.37	0.34	339.49	339.49
3	337.0	322.0	4.24	1.06	329.44	329.44
4	322.0	300.0	6.65	1.66	310.88	310.88
5	300.0	297.0	0.94	0.23	298.5	298.5
6	297.0	250.0	17.99	4.49	273.01	273.01
7	250.0	200.0	21.59	5.38	224.51	224.51
8	200.0	150.0	24.12	6.01	174.56	174.56
9	150.0	100.0	26.65	6.64	124.6	124.6

CARCTERISTICI ZID (Greutate, Centru de greutate, Inertie)

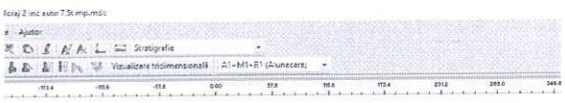
Py	Greutate zid (kN);
Px	Fortã de inertie (kN);
Xp, Yp	Coordonate centru de greutate sarcini (cm);

Cotã	Px	Py	Xp	Yp
342.0	0.0	0.6	69.8	346.0
337.0	0.0	1.0	69.7	343.5
322.0	0.0	2.2	69.3	335.8
300.0	0.0	4.05	68.7	324.4
297.0	0.0	4.32	68.6	322.8
250.0	0.0	8.75	67.4	297.6
200.0	0.0	14.05	66.0	270.0
150.0	0.0	20.0	64.6	241.7
100.0	0.0	26.55	63.1	212.7

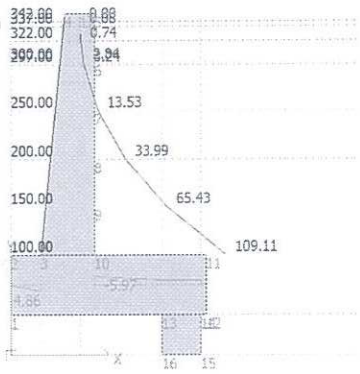
Solicitări pe zid

Cotã	Origine ordonata minimã a zidului (cm)
Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);
H	Inãltime sectiune de calcul (cm);

Cotã	Fx	Fy	M	H
342.0	2.15	1.64	0.0	30.8
337.0	3.52	2.38	0.08	31.3
322.0	7.75	4.63	0.74	32.8
300.0	14.41	8.14	2.84	35.0
297.0	15.35	8.65	3.24	35.3
250.0	33.34	17.56	13.53	40.0
200.0	54.93	28.24	33.99	45.0
150.0	79.05	40.21	65.43	50.0
100.0	105.7	53.4	109.11	55.0



DIAGRAMĂ MOMENTE kNm



Armãturi - Verificări sectiuni (S.L.U.)

Afv	Arie arãturã aval.
Afm	Arie armãturã amonte.
Nu	Efort normal ultim (kN);
Mu	Moment încovoietor ultim (kNm);
Vcd	Rezistentã la tãiere conglomerat Vcd (kN);
Vwd	Rezistentã la tãiere cutã (kN);
Sic. VT	Mãsurã Sigurantã Tãiere (Vcd+Vwd)/Vsdu (Verificat dacã >=1).
Vsdu	Tãierea de calcul (kN);

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
5Ø14 (7.7)	5Ø14 (7.7)	1.56	67.81	S	126.85	0.0	59.12
3Ø14 (4.62)	5Ø14 (7.7)	2.35	69.16	S	129.03	0.0	36.72
3Ø14 (4.62)	5Ø14 (7.7)	4.58	73.21	S	135.6	0.0	17.5
3Ø14 (4.62)	5Ø14 (7.7)	8.17	79.26	S	145.25	0.0	10.09
3Ø14 (4.62)	5Ø14 (7.7)	8.6	80.08	S	146.58	0.0	9.56
3Ø14 (4.62)	6Ø14 (9.24)	17.5	111.17	S	169.56	0.0	5.09
3Ø14 (4.62)	6Ø14 (9.24)	28.31	128.72	S	191.93	0.0	3.5
4Ø14 (6.16)	7Ø14 (10.78)	40.27	169.52	S	216.64	0.0	2.74
4Ø14 (6.16)	8Ø14 (12.32)	53.42	216.13	S	241.53	0.0	2.29

VERIFICĂRI GLOBALE

Plan de rupturã trecând prin (xr1,yr1) = (200.0/40.0)
Plan de rupturã trecând prin (xr2,yr2) = (200.0/350.0)
Centru de rotatie (xro,yro) = (0.0/40.0)

Solicitări totale

Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);

	Fx	Fy	M
Impingere teren	78.5	54.79	-3.5
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	26.55	-16.75
Greutate fundatie	0.0	30.0	-30.0
Greutate pinten	0.0	4.0	-7.0
Suprasarcinã	0.0	86.25	-122.91

Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	54.63	-77.84
Impingeri fundatie	-6.36	-3.1	0.4
	72.14	**254.98**	**-259.9**

Moment stabilizare	-365.52	kNm
Moment răsturnare	105.62	kNm

Verificare la deplasare

Sumă forte orizontale	78.5 kN
Sumă forte verticale	258.08 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	268.59 kN
Forte paralele la planul de alunecare	25.04 kN
Rezistentă teren	206.78 kN
Coef. de siguranță deplasare Csd	**8.26**
Deplasare verificată Csd>1.3	

Verificare la răsturnare

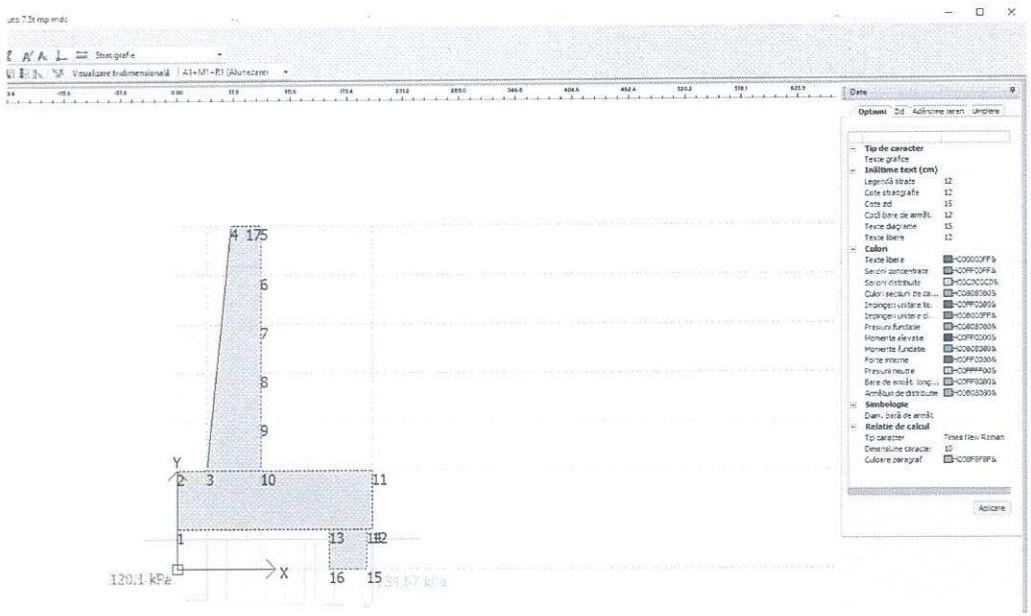
Moment stabilizare	-365.52 kNm
Moment răsturnare	105.62 kNm
Coef. de siguranță răsturnare Csv	**3.46**
Zid verificat la răsturnare Csv>1.5	

Sarcină limită - Metoda lui Vesic (1973)

Sumă forte în directie x	72.14 kN
Sumă forte în directie y (Fy)	254.98 kN
Sumă momente	-259.9 kNm
Lătime fundatie	200.0 cm
Lungime 10000.0	cm
Exentricitate la B	1.93 cm
Greutate volumică	19.32 KN/m³
Unghi de rezistentă la tăiere	36.73 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.01
sc	1.0
sg	0.99
iq	0.52
ic	0.51
ig	0.37
Sarcină limită verticală (Qlim)	1788.82 kN
Factor de siguranță (Csq=Qlim/Fy)	**7.02**
Sarcină limită verificată Csq>1.5	

Tensiuni pe teren

Absicisă centru tensiune	101.93 cm
Lătime fundatie	200.0 cm
x = 0.0 cm Tensiune...	120.1 kPa
x = 200.0 cm Tensiune...	134.87 kPa



FUNDATIE AVAL

Xprogr.	Fx	Fy	M	H
30.0	-2.34	-32.9	-4.86	60.0

Armãturi - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	4Ø14 (6.16)	2.3	223.54	S	255.14	0.0	7.76

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
85.0	-8.31	-17.92	-5.97	60.0
155.0	-8.31	26.31	-2.88	60.0
195.0	20.24	51.16	-2.76	60.0

Armãturi - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	8Ø14 (12.32)	8.31	225.06	S	255.99	0.0	14.29
8Ø14 (12.32)	8Ø14 (12.32)	8.31	225.06	S	255.99	0.0	9.73
4Ø14 (6.16)	8Ø14 (12.32)	-20.23	217.4	S	251.92	0.0	4.93

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-28.55	-3.77	8.33	40.0

Armãturi - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
6Ø14 (9.24)	3Ø14 (4.62)	59.0	118.51	S	175.32	0.0	63.03

A1+M1+R1 (Sarcinã limitã)
Armãturi - Verificări sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
5Ø14 (7.7)	5Ø14 (7.7)	1.76	67.84	S	126.87	0.0	58.84
3Ø14 (4.62)	5Ø14 (7.7)	2.7	69.21	S	129.07	0.0	36.5
3Ø14 (4.62)	5Ø14 (7.7)	5.29	73.31	S	135.69	0.0	17.34
3Ø14 (4.62)	5Ø14 (7.7)	9.34	79.44	S	145.43	0.0	9.96
3Ø14 (4.62)	5Ø14 (7.7)	9.97	80.3	S	146.76	0.0	9.43
3Ø14 (4.62)	6Ø14 (9.24)	20.34	111.67	S	169.96	0.0	4.98
3Ø14 (4.62)	6Ø14 (9.24)	32.91	129.65	S	192.58	0.0	3.4
4Ø14 (6.16)	7Ø14 (10.78)	46.94	171.01	S	217.59	0.0	2.65
4Ø14 (6.16)	8Ø14 (12.32)	62.54	218.37	S	242.83	0.0	2.2

VERIFICĂRI GLOBALE

Solicitări totale

Fx Fortă în directia x (kN);
Fy Fortă în directia y (kN);
M Moment (kNm);

	Fx	Fy	M
Impingere teren	82.69	57.85	-5.23
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	34.51	-21.78
Greutate fundatie	0.0	39.0	-39.0
Greutate pinten	0.0	5.2	-9.1
Suprasarcinã	0.0	86.25	-122.91
Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	71.01	-101.19
Impingeri fundatie	-6.36	-3.1	0.4
	76.33	**292.58**	**-301.1**

Moment stabilizare	-411.11	kNm
Moment rãsturnare	110.01	kNm

Verificare la deplasare

Sumã forte orizontale	82.69 kN
Sumã forte verticale	295.69 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	306.27 kN
Forte paralele la planul de alunecare	21.59 kN
Rezistentã teren	234.9 kN
Coef. de sigurantã deplasare Csd	**10.88**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-411.11 kNm
Moment rãsturnare	110.01 kNm
Coef. de sigurantã rãsturnare Csv	**3.74**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	76.33 kN
Sumã forte în directie y (Fy)	292.58 kN
Sumã momente	-301.1 kNm
Lãtime fundatie	200.0 cm
Lungime 10000.0	cm
Exentricitate la B	2.91 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	36.73 °

Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.01
sc	1.0
sg	0.99
iq	0.55
ic	0.54
ig	0.41
Sarcinã limitã verticalã (Qlim)	1898.7 kN
Factor de sigurantã (Csq=Qlim/Fy)	**4.33**

Sarcinã limitã verificatã Csq>1.5

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	8Ø14 (12.32)	3.57	223.76	S	255.3	0.0	7.37
8Ø14 (12.32)	8Ø14 (12.32)	3.57	223.76	S	255.3	0.0	12.54
4Ø14 (6.16)	8Ø14 (12.32)	-21.64	217.02	S	251.71	0.0	4.73

PINTEN DE FUNDATIE

Cotã	Cota fatã de capãtul zidului
Fx	Fortã în directia x (daN);
Fy	Fortã în directia y (daN);
M	Moment (daNm);
H	Inãltime sectiune (cm);

Cotã	Fx	Fy	M	H
40.0	-25.17	-5.66	7.84	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
6Ø14 (9.24)	3Ø14 (4.62)	59.0	118.51	S	175.32	0.0	63.03

A2+M2+R2 (Alunecare)

Impingeri rezultante si punct de aplicare

	Qi	Qf	Rpx	Rpy	z(Rpx)	z(Rpy)
1	100.0	40.0	-2.13	-0.95	60.0	60.0
2	40.0	0.0	-3.7	-1.85	18.45	17.9

Solicitãri totale

	Fx	Fy	M
Impingere teren	89.22	57.22	6.3
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	26.55	-16.75
Greutate fundatie	0.0	30.0	-30.0
Greutate pinten	0.0	4.0	-7.0
Suprasarcinã	0.0	86.25	-122.91
Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	54.63	-77.84
Impingeri fundatie	-5.83	-2.79	0.37
	83.39	**257.71**	**-250.12**

Moment stabilizare	-370.43	kNm
Moment rãsturnare	120.31	kNm

Verificare la deplasare

Sumã forte orizontale	89.22 kN
Sumã forte verticale	260.5 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	273.12 kN
Forte paralele la planul de alunecare	35.05 kN
Rezistentã teren	191.1 kN
Coef. de sigurantã deplasare Csd	**5.45**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-370.43 kNm
Moment rãsturnare	120.31 kNm
Coef. de sigurantã rãsturnare Csv	**3.08**
Zid verificat la rãsturnare Csv>1.5	

Armãturi - Verificãri sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
5Ø14 (7.7)	5Ø14 (7.7)	1.76	67.84	S	126.87	0.0	42.43
3Ø14 (4.62)	5Ø14 (7.7)	2.7	69.21	S	129.08	0.0	26.4
3Ø14 (4.62)	5Ø14 (7.7)	5.47	73.34	S	135.7	0.0	12.65
3Ø14 (4.62)	5Ø14 (7.7)	9.54	79.47	S	145.44	0.0	7.35
3Ø14 (4.62)	5Ø14 (7.7)	10.16	80.33	S	146.77	0.0	6.97
3Ø14 (4.62)	6Ø14 (9.24)	20.55	111.71	S	169.98	0.0	3.74
3Ø14 (4.62)	6Ø14 (9.24)	33.03	129.67	S	192.6	0.0	2.6
4Ø14 (6.16)	7Ø14 (10.78)	46.8	170.98	S	217.57	0.0	2.06
4Ø14 (6.16)	8Ø14 (12.32)	61.93	218.22	S	242.73	0.0	1.74

VERIFICÃRI GLOBALE

Solicitãri totale

	Fx	Fy	M
Impingere teren	106.67	68.19	10.84
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	26.55	-16.75
Greutate fundatie	0.0	30.0	-30.0
Greutate pinten	0.0	4.0	-7.0
Suprasarcinã	0.0	112.13	-159.78
Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	54.63	-77.84
Impingeri fundatie	-5.83	-2.79	0.37
	100.84	**294.56**	**-282.46**

Moment stabilizare	-429.26	kNm
Moment rãsturnare	146.8	kNm

Verificare la deplasare

Sumã forte orizontale	106.67 kN
Sumã forte verticale	297.35 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	312.72 kN
Forte paralele la planul de alunecare	44.74 kN
Rezistentã teren	217.97 kN
Coef. de sigurantã deplasare Csd	**4.87**

Deplasare verificatã Csd>1.3

Verificare la rãsturnare

Moment stabilizare	-429.26 kNm
Moment rãsturnare	146.8 kNm
Coef. de sigurantã rãsturnare Csv	**2.92**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	100.84 kN
Sumã forte în directie y (Fy)	294.56 kN
Sumã momente	-282.46 kNm
Lãtime fundatie	200.0 cm
Lungime 10000.0	cm
Exentricitate la B	4.11 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.01
sc	1.0
sg	0.99
iq	0.44
ic	0.42
ig	0.29
Sarcinã limitã verticalã (Qlim)	973.53 kN
Factor de sigurantã (Csq=Qlim/Fy)	**3.31**
Sarcinã limitã verificatã Csq>1.5	

Tensiuni pe teren

Absicisã centru tensiune	95.89 cm
Lãtime fundatie	200.0 cm
x = 0.0 cm Tensiune...	165.43 kPa
x = 200.0 cm Tensiune...	129.13 kPa

FUNDATIE AVAL

Xprogr.	Fx	Fy	M	H
30.0	-2.13	-45.26	-6.77	60.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	4Ø14 (6.16)	2.14	223.49	S	255.11	0.0	5.64

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
85.0	-21.07	-10.62	-12.52	60.0
155.0	-21.07	43.89	-0.04	60.0
195.0	26.46	64.81	-3.45	60.0

Armături - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	8Ø14 (12.32)	21.07	228.54	S	257.81	0.0	24.27
8Ø14 (12.32)	8Ø14 (12.32)	21.07	228.54	S	257.81	0.0	5.88
4Ø14 (6.16)	8Ø14 (12.32)	-26.5	215.69	S	251.04	0.0	3.87

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-47.53	0.66	12.51	40.0

Armături - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
6Ø14 (9.24)	3Ø14 (4.62)	59.0	118.51	S	175.32	0.0	63.03

VERIFICĂRI GLOBALE

Solicitări totale

	Fx	Fy	M
Impingere teren	123.08	78.68	12.5
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	23.89	-15.08
Greutate fundatie	0.0	27.0	-27.0
Greutate pinten	0.0	3.6	-6.3
Suprasarcinã	0.0	129.38	-184.36
Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	54.63	-77.84
Impingeri fundatie	-5.83	-2.79	0.37
	117.26	**316.25**	**-300.0**

Moment stabilizare	-469.44	kNm
Moment rãsturnare	169.44	kNm

Verificare la deplasare

Sumã forte orizontale	123.08 kN
Sumã forte verticale	319.04 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	337.27 kN
Forte paralele la planul de alunecare	56.46 kN
Rezistentã teren	234.61 kN
Coef. de sigurantã deplasare Csd	**4.16**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-469.44 kNm
Moment rãsturnare	169.44 kNm
Coef. de sigurantã rãsturnare Csv	**2.77**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	117.26 kN
Sumã forte în directie y (Fy)	316.25 kN
Sumã momente	-300.0 kNm

Lãtime fundatie	200.0 cm
Lungime 10000.0	cm
Exentricitate la B	5.14 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.01
sc	1.0
sg	0.99
iq	0.4
ic	0.38
ig	0.25
Sarcinã limitã verticalã (Qlim)	861.66 kN
Factor de sigurantã (Csq=Qlim/Fy)	**2.72**
Sarcinã limitã verificatã Csq>1.5	

FUNDATIE AVAL

Xprogr.	Fx	Fy	M	H
30.0	-2.13	-50.55	-7.57	60.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	4Ø14 (6.16)	2.14	223.49	S	255.11	0.0	5.05

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
85.0	-28.48	-8.93	-15.0	60.0
155.0	-28.48	53.36	1.52	60.0
195.0	30.53	75.0	-3.98	60.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	8Ø14 (12.32)	28.44	230.54	S	258.87	0.0	29.01
8Ø14 (12.32)	8Ø14 (12.32)	28.44	230.54	S	258.87	0.0	4.85
4Ø14 (6.16)	8Ø14 (12.32)	-30.53	214.59	S	250.46	0.0	3.34

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-59.01	2.78	15.16	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
6Ø14 (9.24)	3Ø14 (4.62)	59.0	118.51	S	175.32	0.0	63.03

Armãturi - Verificãri sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT

5Ø14 (7.7)	5Ø14 (7.7)	1.96	67.86	S	126.88	0.0	36.78
3Ø14 (4.62)	5Ø14 (7.7)	2.88	69.23	S	129.09	0.0	22.89
3Ø14 (4.62)	5Ø14 (7.7)	5.64	73.36	S	135.72	0.0	10.97
3Ø14 (4.62)	5Ø14 (7.7)	9.93	79.53	S	145.49	0.0	6.37
3Ø14 (4.62)	5Ø14 (7.7)	10.55	80.39	S	146.82	0.0	6.04
3Ø14 (4.62)	6Ø14 (9.24)	21.43	111.86	S	170.1	0.0	3.24
3Ø14 (4.62)	6Ø14 (9.24)	34.44	129.95	S	192.8	0.0	2.26
4Ø14 (6.16)	7Ø14 (10.78)	48.84	171.44	S	217.86	0.0	1.79
4Ø14 (6.16)	8Ø14 (12.32)	64.55	218.86	S	243.12	0.0	1.51

Solicitări totale

	Fx	Fy	M
Impingere teren	123.08	78.68	12.5
Sarcini externe	0.0	0.5	-0.35
Greutate zid	0.0	23.89	-15.08
Greutate fundatie	0.0	27.0	-27.0
Greutate pinten	0.0	3.6	-6.3
Suprasarcinã	0.0	129.38	-184.36
Impingere rambleu	0.0	1.37	-1.95
Teren fundatie	0.0	54.63	-77.84
Impingeri fundatie	-5.83	-2.79	0.37
	117.26	**316.25**	**-300.0**

Moment stabilizare	-469.44	kNm
Moment rãsturnare	169.44	kNm

Verificare la deplasare

Sumã forte orizontale	123.08 kN
Sumã forte verticale	319.04 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-11.59 °
Forte normale la planul de alunecare	337.27 kN
Forte paralele la planul de alunecare	56.46 kN
Rezistentã teren	234.61 kN
Coef. de sigurantã deplasare Csd	**4.16**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-469.44 kNm
Moment rãsturnare	169.44 kNm
Coef. de sigurantã rãsturnare Csv	**2.77**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	117.26 kN
Sumã forte în directie y (Fy)	316.25 kN
Sumã momente	-300.0 kNm
Lãtime fundatie	200.0 cm
Lungime 10000.0	cm
Exentricitate la B	5.14 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.01
sc	1.0

sg	0.99
iq	0.4
ic	0.38
ig	0.25
Sarcinã limitã verticalã (Qlim)	861.66 kN
Factor de sigurantã (Csq=Qlim/Fy)	**2.72**
Sarcinã limitã verificatã Csq>1.5	

Tensiuni pe teren

Absicisã centru tensiune	94.86 cm
Lãtime fundatie	200.0 cm
x = 0.0 cm Tensiune...	182.5 kPa
x = 200.0 cm Tensiune...	133.75 kPa

FUNDATIE AVAL

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø14 (12.32)	8Ø14 (12.32)	28.44	230.54	S	258.87	0.0	29.01
8Ø14 (12.32)	8Ø14 (12.32)	28.44	230.54	S	258.87	0.0	4.85
4Ø14 (6.16)	8Ø14 (12.32)	-30.53	214.59	S	250.46	0.0	3.34

PINTEN DE FUNDATIE

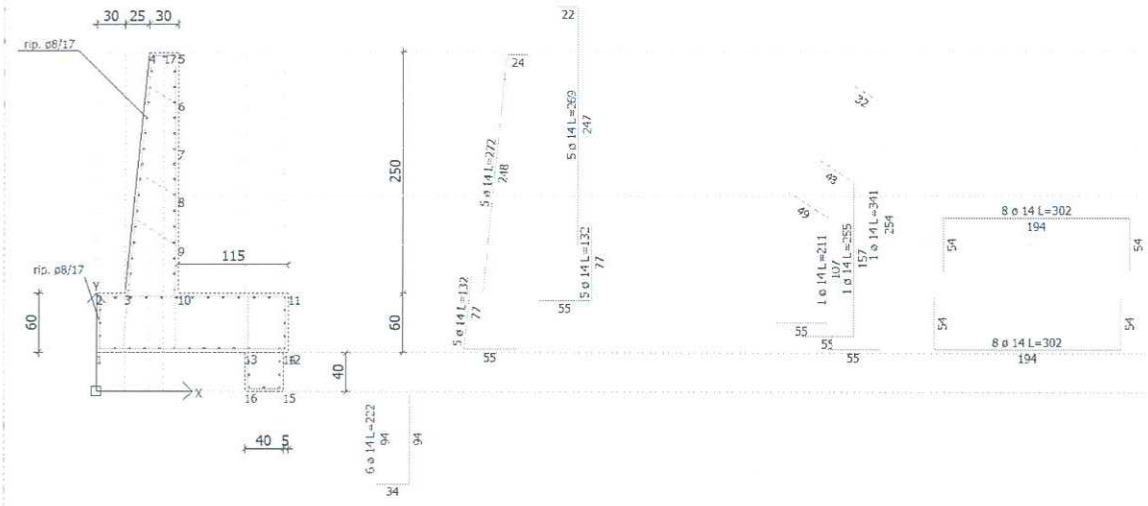
Cotã	Fx	Fy	M	H
40.0	-59.01	2.78	15.16	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
6Ø14 (9.24)	3Ø14 (4.62)	59.0	118.51	S	175.32	0.0	63.03

Estimare materiale

Volum conglomerat	2.18 m³
Bare de otel =14	1.303 kN



3.1.2.Analiza la stabilitate a taluzurilor Zid He=2.5m

FORMULE DE CALCUL

Introducere în analiza stabilitãtii

Rezolvarea problemei stabilitãtii necesitã luarea în calcul a ecuatiilor de echilibru si a legãturilor constitutive (descriu coimportamentul terenurilor). Astfel de ecuatii sunt foarte comlexe întrucât terenurile sunt sisteme multifazice, care pot fi readuse la forma sistemelor monofazice numai în conditiile în care sunt seci sau în conditii drenate.
In cea mai mare parte a cazurilor avem de-a face cu terenuri saturate si cel putin bifazice, ceea ce îngreuneazã utilizarea ecuatiilor de echilibru pentru cã terenurile prezintã un comportament non-linear cu mici deformatii, sunt anisotropi iar comportamentul lor depinde de efortul deviator dar si a cel normal.
Din cauza acestor dificultãti se introduc ipotezele simplificante:
(a) Se folosesc legi constitutive simplificate (modelul rigid perfect plastificat).
Se prezumã cã rezistenta materialului este exprimatã numai prin parametri coeziune (c) si prin unghiul de rezistentã la tãiere (φ), constanti pentru teren si caracteristici stãrii plastice.
Deci, se prezumã normal criteriul de rupturã a lui Mohr-Coulomb.
(b) In unele cazuri sunt satisfãcute in parte ecuatiile de echilibru.

Metoda echilibrului limitã (LEM)

Metoda echilibrului limitã constã în studiul echilibrului unui corp rigid, constituit din taluz si dintr-o suprafatã de foraj de orice formã (linie, arc de cerc, spiralã logaritmicã), din acest tip de echilibru se calculeazã tensiunile la tãiere (t) si se confruntã cu rezistenta disponibilã (t_f), valutatã în functie de criteriul de rupturã *Coulomb;* de aici se naste prima indicatie asupra stabilitãtii prin coeficientul de sigurantã $F = t_f / t$.

Printre metodele de echilibru, unii iau în considerare echilibrul global al corpului rigid (*Culman*), altii, din cauza neomogeniitãtii, divid corpul în fâsii considerând, pe rând, echilibrul lui (*Fellenius, Bishop, Janbu, Spenser*).
De aici începe discutia asupra metodelor echilibrului limitã a fâsiilor.

Metoda fâsiilor

Masa supusã alunecãrilor este divizatã într-un numãr de fâsii. Dacã numãrul acestora este egal cu n, problema prezintã urmãtoarele valori necunoscute:
n valorile fortelor normale N_i care actioneazã asupra bazei fiecãrei fâsii;
n valorile fortelor de tãiere la baza fâsiei T_i
(n-1) fortele normale E_i care actioneazã asupra interfetei fâsiilor;
(n-1) forte tangenziale X_i care actioneazã asupra interfetei fâsiilor;
n valorile coordonatei care individualizeazã punctul de aplicare a N_i
(n-1) valorile coordonatei care individualizeazã punctul de aplicare a X_i
o necunoscutã constituitã din factorul de sigurantã F.
complexiv, necunoscutele sunt *(6n-2)*.

în timp ce ecuatiile disponibile sunt:
Ecuatii de echilibru a momentelor n
Ecuatii de echilibru a deplasãrii verticale n
Ecuatii care se referã la criteriul de rupturã n
Numãrul total de ecuatii $4n$

Problema este statistic indeterminatã iar gradul de indeterminare este de
$i = (6n-2)-(4n) = 2n-2$.

Gradul de indeterminare se reduce ulterior cu *(n-2)* cu asumptia cã :
N_i este aplicat în punctul mediu al fâsiei, ipotizând cã tensiunile normale totale sunt uniform distribuite.
Diversele metode care se bazeazã pe teoria echilibrului limitã se diferentiazã prin modul în care se eliminã *(n-2)* indeterminate.

Metoda lui BISHOP (1955)

Cu o asemenea metodã nu se neglijeazã nici un efect al fortelor agenti asupra blocurilor si a fost primul în descrierea problemelor legate de metodele traditionale.
Ecuatiile utilizate pentru rezolvarea problemei sunt:

$\Sigma F_V = 0$, $\Sigma M_0 = 0$, Criteriu de ruptura.

$$F = \frac{\Sigma\{c_i \times b_i + (W_i - u_i \times b_i + \Delta X_i) \times \tan\varphi_i\} \times \frac{\sec\alpha_i}{1 + \tan\alpha_i \times \tan\varphi_i / F}}{\Sigma W_i \times \sin\alpha_i}$$

Valoriale lui *F* si ale *ΔX* pentru orice element care satisfac aceasta ecuatie dau o solutie riguroasa problemi. Ca si prima aproximatie este bine de introdus *ΔX= 0* si repetarea pentru calculul factorului de siguranta., un asemenea procedeu este cunoscut ca ***Bishop ordinari,*** erorile comise in comparatie cu alte metode sunt de circa 1 %.

Metoda lui SARMA (1973)

Metoda lui Sarma este simplã dar un model bun pentru analiza stabilitãtii taluzurilor, care permite determinarea acceleratiei seismice orizontale cerutã pânã în momentul în care, terenul delimitat de suprafata de alunecare si de profilul topografic, ajunge starea de echilibru limitã (accelerare criticã Kc) si, în acelasi timp, permite calcularea factorul de sigurantã obtinut la fel ca si pentru celelalte metode comune din geotehnicã. Este vorba despre o metodã bazatã pe principiul echilibrului limitã si al fâsiilor, astfel este considerat echilibrul unei mase de teren în alunecare împãrtitã în fâsii verticale de grosime suficient de micã pentru a considera admisiblilã asumptia cã efortul normal Ni actioneazã în punctul mediu la baza fâsiei.
Ecuatiile de luare în considerare sunt:

1. Ecuatia echilibrului la deplasarea orizontalã al fâsiei;
2. Ecuatia echilibrului la deplasarea verticalã al fâsiei;
3. Ecuatia echilibrului momentelor.

Conditii de echilibru la deplasarea orizzontala sau vertical:

$N_i \cos\alpha_i + T_i \sin\alpha_i = W_i - \Delta X_i$
$T_i \cos\alpha_i - N_i \sin\alpha_i = KW_i + \Delta E_i$

Trebuie sa se stie ca in absenta fortelor externe pe suprafata libera avem:

$\Sigma\Delta E_i = 0$
$\Sigma\Delta X_i = 0$
Unde *Ei* si *Xi* reprezinta, respectiv, fortele orizzontale si verticale pe fata fasiei generice *i*.
Ecuatia echilibrului momentelor este scrisa alegand ca si punct de referinta baricentrul in interiorul masei; pana cand, dupa ce s-a parcurs o serie de pozitii si transformari trigonometrice si algebrice, in metoda lui **Sarma** solutia problemi vine din rezolvarea a doua ecuatii:

$$*\sum \Delta X_i \cdot tg\left(\psi_i' - \alpha_i\right) + \sum \Delta E_i = \sum \Delta_i - K \cdot \sum W_i$$

$$**\sum \Delta X_i \cdot \left[\left(y_{mi} - y_G\right) \cdot tg\left(\psi_i' - \alpha'\right) + \left(x_i' - x_G\right)\right] = \sum W_i \cdot \left(x_{mi} - x_G\right) + \sum \Delta_i \cdot \left(y_{mi} - y_G\right)$$

Dar rezolvarea impune gasirea valorii *K* (accelerare seismica) corespondenta unui anumit factor de siguranta; si in particolar, gasirea valorii acceleratiei *K* care corespunde factorului de siguranta F = 1 , sau *accelerarii critice*.
Intre timp cunoastem:
K = Kc *accelerarea critica* se F = 1
F = Fs *factorul de siguranta in conditii statice* sau K = 0

Cea de-a doua parte a a problemi metodi lui Sarma consta in gasirea unei distributii de forfe interne *Xi* si *Ei* astfel incat sa verifice echilibrul fasiei si acela global, fara sa deformeze criterium de ruptura.
S-a aflat ca o solutie acceptabila a problemi se poate obtine luand in calcul urmatoarelr distributii de forte *Xi*:

$$\Delta X_i = \lambda \cdot \Delta Q_i = \lambda \cdot (Q_{i+1} - Q_i)$$

Unde *Qi* este o functie cunoscuta, in care se iau in considerare parametrii geotehnici medii pe fata nr.*i* a fasiei *i*, si λ reprezinta o necunoiscuta.
Solutia completa a problemi se obtine cu ajutorul valorilo *Kc*, λ e *F*, care permit si obtinerea distributiei de forte in interiorul fasiei.

Analizarea activitatii seismice
Stabilitatela taluzurilor in relative cu actiunea sismica este verificata cu metoda pseudo-statica. Pentru terenurile sub actiunea sarcinii ciclice pot dezvolta presiuni interstiziale ridicate este considerata o marire in procente a presiunilor neutre care tin cont de acest factor de perdere de rezistenta.
La finalul analizarii actiunii seismice sunt considerate urmatoarele forte:

$$F_H = K_x W$$
$$F_V = K_y W$$

In care:
- F_H si F_V respectiv componenta orizzontala si verticala a fortei de inertie applicata in baricentrul fasiei;
- W: greutatea fasiei
- K_X: Coeficient seismic orizontal
- K_Y: Coeficient seismic vertical

Cercetarea suprafetelor de foraj critic

In prezenta mijloacelor omogene nu sunt la dispozitie metode pentru individualizarea suprafetelor de foraj critic si trebuie examinat un număr ridicat de suprafete potentiale.
In cazul in care sunt ipotizate suprafetele de formă circulară, cercetarea devine mai simplă, asadar după pozitionarea retelei de centri de m rânduri si n coloane vor fi examinate toate suprafetele care au ca si centru nodul generic al retelei centrilor mxn si raza variabilă intr-o raza de valori determinata asfel incat sa examineze suprafetele admisibile.

Analiza de stabilitate a taluzurilor cuBISHOP

Număr de strate	5.0
Numărul fâsiilor	10.0

Suprafată circulară

Retea de centri

Abscisă nod stâng inferior xi	3.18 m
Ordontă nod stâng inferior yi	8.86 m
Abscisă nod drept superior xs	7.42 m
Ordonată nod drept superior ys	13.11 m
Interval de prelevare	10.0
Număr de celule pe axa x	10.0
Număr de celule pe axa y	10.0

Coeficient seismic orizontal	0.075
Coeficient seismic vertical	0.0375

Profil noduri

N	X m	y m
1	1.0	5.0
2	5.0	6.0
3	5.3	6.0
4	5.85	8.5
5	5.85	8.55
6	10.85	8.55

7	15.85	8.55

Stratigrafie

c: coeziune; Fi: Unghi de frecare internã; G: Greutate specificã; Gs: Greutate specificã saturatã; K: Modulul lui Winkler

Strat	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologie	
1	0	35	2447.319	2447.319	4.00		imbracaminte rutiera
2	0	38	1949.697	1949.697	0.00		Nisip
3	0	36	1999.663	1999.663	0.00		balast fundatie
4	0	36	1949.697	1949.697	0.00		balast existent
5	0	36.73	1970.092	1970.092	0.00		Pietris cu nisip sau pietris nisipos

Sarcini concentrate

N°	x m	y m	Fx (kN)	Fy (kN)	M (kN m)
1	5.7	8.5	0	0.6500103	0

Sarcini distribuite

N°	xi m	yi m	xf m	yf m	Sarcinã externã (kN/m²)
1	7.35	8.55	9.05	8.55	75.0012

Rezultate analizã taluz

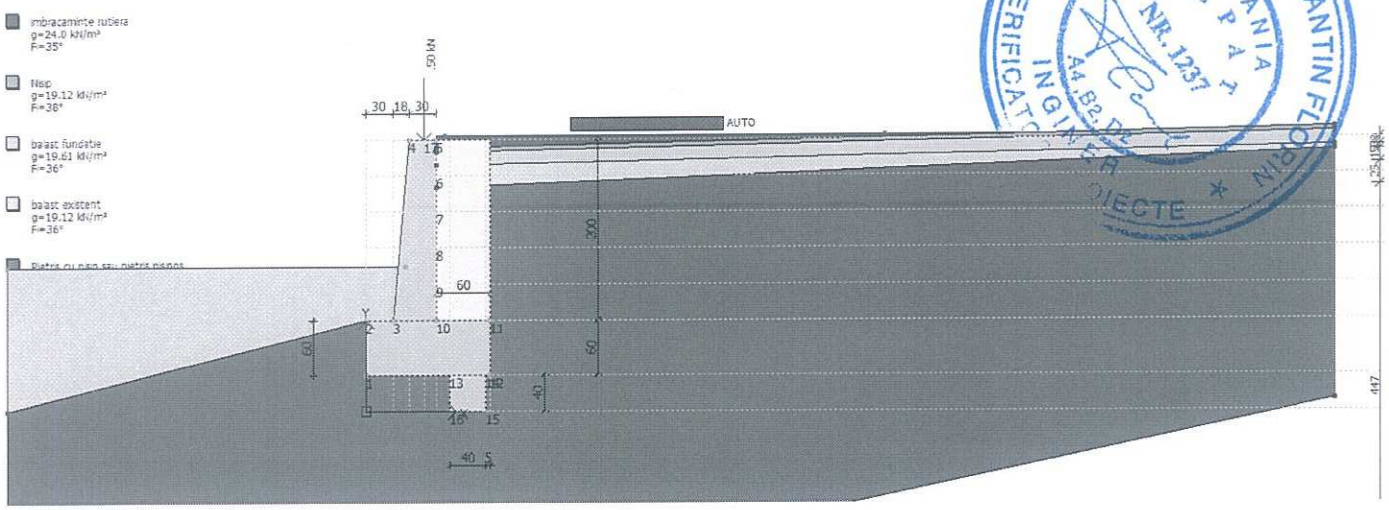
Fs minim identificat	1.01
Abscisã centru suprafatã	4.03 m
Ordonatã centru suprafatã	9.29 m
Razã suprafatã	5.19 m

B: Lãtime fâsie; Alfa: Unghiul de înclinatie a bazei fâsiei; Li: Lungimea bazei fâsiei; Wi:Greutatea fâsiei; Ut:Forte rezultante din presiunile neutre; Ni:Forte normale pe directia de alunecare; Ti:Forte paralele cu suprafata de alunecare; Fi: Unghi de frecare internã; c: coeziune.

Analizã fâsii. Suprafatã...xc = 4.027 yc = 9.287 Rc = 5.194 Fs=1.01

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	0.81	-29.6	0.93	5.56	0.42	0.21	0.0	30.8	0.0	9.6	5.7
2	0.81	-19.7	0.86	14.52	1.09	0.54	0.0	30.8	0.0	19.6	11.6
3	0.81	-10.4	0.82	21.08	1.58	0.79	0.0	30.8	0.0	24.0	14.2
4	0.81	-1.4	0.81	25.55	1.92	0.96	0.0	30.8	0.0	25.9	15.3
5	0.69	6.9	0.7	23.86	1.79	0.89	0.0	30.8	0.0	22.4	13.3
6	0.85	15.7	0.88	38.23	2.87	1.43	0.0	30.8	0.0	34.0	20.1
7	0.05	20.8	0.05	3.98	0.3	0.15	0.0	30.8	0.0	3.5	2.1
8	1.65	31.9	1.94	133.62	10.02	5.01	0.0	30.8	0.0	115.0	68.1
9	0.81	49.6	1.25	102.8	7.71	3.85	0.0	30.8	0.0	93.6	55.4
10	0.81	69.2	2.28	73.97	5.55	2.77	0.0	30.8	0.0	81.4	48.2

3.1.3. Calcul zid de debleu He = 2.0m tip 2R



Calcul de rezistentã — Stãri limitã ultime

Date generale zid

Inãltime zid	200.0 cm
Grosime capãt zid	30.0 cm
Gorsime zid aval capãt	18.0 cm
Gorsime zid amonte capãt	0.0 cm
Lungime talpã aval	30.0 cm
Lungime talpã amonte	60.0 cm
Svaso mensola a valle	0.0 cm
Inãltime obelisc aval	0.0 cm
Inãltime exteremitate fundatie aval	60.0 cm
Inãltime extremitate fundatie amonte	60.0 cm
Distanta pinten-zona amonte	5.0 cm
Inãltime pinten	40.0 cm
Grosime pinten	40.0 cm
Greutate volumicã rambleu	24.0 KN/m³
Inãltime rambleu	5.0 cm

Rezistentã materiale utilizate

Clasã conglomerat Rck 37

Coeficient partial de sigurantã beton	1.35
Rezistentã la compresiune de calcul fcd	22.75 N/mm²
Rezistentã la tractiunea de calcul fctd	1.54 N/mm²

Tip otel PC 52

Modul elastic	210000 N/mm²
Factor partial de sigurantã otel	1.15
fyk (Tensiune de curgere caracteristicã)	345 N/mm²
fyd (Rezistentã ultimã de calcul)	300.0 N/mm²
Deformatie ultimã de calcul	0.01
Strat de acoperire	4.0 cm

A1+M1+R1 (Alunecare)

Solicitãri pe zid

Cotã	Origine ordonata minimã a zidului (cm)
Fx	Fortã în directia x (kN);

Fy Fortã în directia y (kN);
M Moment (kNm);
H Inãltime sectiune de calcul (cm);

Cotã	Fx	Fy	M	H
292.0	1.13	0.87	0.0	30.7
287.0	1.87	1.45	0.05	31.2
272.0	4.23	3.19	0.4	32.5
260.0	6.31	4.69	0.93	33.6
247.0	8.74	6.4	1.78	34.8
220.0	15.16	10.38	4.64	37.2
180.0	26.31	16.98	12.15	40.8
140.0	39.42	24.42	24.29	44.4
100.0	54.5	32.72	41.81	48.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afv Arie arãturã aval.
Afm Arie armãturã amonte.
Nu Efort normal ultim (kN);
Mu Moment încovoietor ultim (kNm);
Vcd Rezistentã la tãiere conglomerat Vcd (kN);
Vwd Rezistentã la tãiere cutã (kN);
Sic. VT Mãsurã Sigurantã Tãiere (Vcd+Vwd)/Vsdu (Verificat dacã >=1).
Vsdu Tãierea de calcul (kN);

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
3Ø12 (3.39)	6Ø12 (6.79)	0.85	54.89	S	138.94	0.0	123.32
3Ø12 (3.39)	6Ø12 (6.79)	1.4	55.96	S	141.34	0.0	75.79
3Ø12 (3.39)	6Ø12 (6.79)	3.26	58.82	S	147.6	0.0	34.93
3Ø12 (3.39)	6Ø12 (6.79)	4.77	61.25	S	152.9	0.0	24.23
4Ø12 (4.52)	7Ø12 (7.92)	6.35	74.11	S	160.44	0.0	18.37
4Ø12 (4.52)	7Ø12 (7.92)	10.39	80.44	S	172.12	0.0	11.36
4Ø12 (4.52)	8Ø12 (9.05)	16.99	102.38	S	191.47	0.0	7.28
4Ø12 (4.52)	8Ø12 (9.05)	24.44	113.8	S	209.21	0.0	5.31
5Ø12 (5.65)	9Ø12 (10.18)	32.81	140.15	S	228.82	0.0	4.2

Solicitãri totale

Fx Fortã în directia x (kN);
Fy Fortã în directia y (kN);
M Moment (kNm);

	Fx	Fy	M
Impingere teren	45.56	31.7	4.69
Greutate zid	1.46	19.5	-9.12
Greutate fundatie	1.55	20.7	-13.82
Greutate pinten	0.3	4.0	-4.58
Suprasarcinã	1.35	18.0	-15.93
Impingere rambleu	0.05	0.72	-0.64
Teren fundatie	1.65	22.06	-21.05
Impingeri fundatie	-5.94	-2.9	0.37
	45.99	**113.77**	**-60.07**

Moment stabilizare	-117.11	kNm
Moment rãsturnare	57.04	kNm

Verificare la deplasare

Sumã forte orizontale	51.93 kN
Sumã forte verticale	116.67 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-16.74 °
Forte normale la planul de alunecare	126.68 kN
Forte paralele la planul de alunecare	16.13 kN
Rezistentã teren	100.47 kN

Coef. de siguranță deplasare Csd	**6.23**

Deplasare verificată Csd>1.3

Verificare la răsturnare

Moment stabilizare	-117.11 kNm
Moment răsturnare	57.04 kNm
Coef. de siguranță răsturnare Csv	**2.05**

Zid verificat la răsturnare Csv>1.5

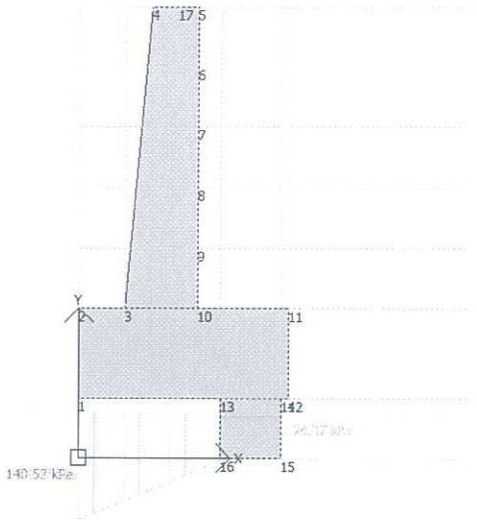
Sarcină limită - Metoda lui Vesic (1973)

Sumă forte în directie x	45.99 kN
Sumă forte în directie y (Fy)	113.77 kN
Sumă momente	-60.07 kNm
Lătime fundatie	138.0 cm
Lungime 10000.0	cm
Exentricitate la B	16.2 cm
Greutate volumică	19.32 KN/m³
Unghi de rezistentă la tăiere	36.73 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.01
sc	1.0
sg	1.0
iq	0.36
ic	0.34
ig	0.21
Sarcină limită verticală (Qlim)	484.41 kN
Factor de siguranță (Csq=Qlim/Fy)	**4.26**

Sarcină limită verificată Csq>1.5

Tensiuni pe teren

Absicisă centru tensiune	52.8 cm
Lătime fundatie	138.0 cm
x = 0.0 cm Tensiune...	140.52 kPa
x = 138.0 cm Tensiune...	24.37 kPa



A1+M1+R1 (Sarcină limită)

Solicitări pe zid

Cotã	Fx	Fy	M	H
292.0	1.15	1.05	0.0	30.7
287.0	1.91	1.75	0.05	31.2
272.0	4.35	3.86	0.41	32.5
260.0	6.52	5.68	0.95	33.6
247.0	9.06	7.74	1.83	34.8
220.0	15.81	12.52	4.78	37.2
180.0	27.66	20.45	12.6	40.8
140.0	41.73	29.38	25.35	44.4
100.0	58.02	39.34	43.88	48.0

Armături - Verificări sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
3Ø12 (3.39)	6Ø12 (6.79)	1.01	54.91	S	138.97	0.0	120.74
3Ø12 (3.39)	6Ø12 (6.79)	1.73	56.01	S	141.38	0.0	74.05
3Ø12 (3.39)	6Ø12 (6.79)	3.81	58.9	S	147.69	0.0	33.95
3Ø12 (3.39)	6Ø12 (6.79)	5.69	61.39	S	153.03	0.0	23.47
4Ø12 (4.52)	7Ø12 (7.92)	7.78	74.33	S	160.63	0.0	17.73
4Ø12 (4.52)	7Ø12 (7.92)	12.46	80.79	S	172.41	0.0	10.91
4Ø12 (4.52)	8Ø12 (9.05)	20.53	103.03	S	191.95	0.0	6.94
4Ø12 (4.52)	8Ø12 (9.05)	29.36	114.79	S	209.9	0.0	5.03
5Ø12 (5.65)	9Ø12 (10.18)	39.42	141.58	S	229.75	0.0	3.96

Solicitări totale

Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);

	Fx	Fy	M
Impingere teren	48.52	33.83	4.35
Greutate zid	1.9	25.35	-11.86
Greutate fundatie	2.02	26.91	-17.96
Greutate pinten	0.39	5.2	-5.95
Suprasarcinã	1.35	18.0	-15.93
Impingere rambleu	0.05	0.72	-0.64
Teren fundatie	1.65	28.68	-28.18
Impingeri fundatie	-5.94	-2.9	0.37
	49.95	**135.78**	**-75.79**

Moment stabilizare	-136.24	kNm
Moment rãsturnare	60.45	kNm

Verificare la deplasare

Sumã forte orizontale	55.89 kN
Sumã forte verticale	138.68 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-16.74 °
Forte normale la planul de alunecare	148.9 kN
Forte paralele la planul de alunecare	13.58 kN
Rezistentã teren	117.04 kN
Coef. de sigurantã deplasare Csd	**8.62**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-136.24 kNm
Moment răsturnare	60.45 kNm
Coef. de siguranță răsturnare Csv	**2.25**
Zid verificat la răsturnare Csv>1.5	

Sarcină limită - Metoda lui Vesic (1973)

Sumă forte în directie x	49.95 kN
Sumă forte în directie y (Fy)	135.78 kN
Sumă momente	-75.79 kNm
Lătime fundatie	138.0 cm
Lungime 10000.0	cm
Exentricitate la B	13.18 cm
Greutate volumică	19.32 KN/m³
Unghi de rezistentă la tăiere	36.73 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.01
sc	1.0
sg	1.0
iq	0.4
ic	0.39
ig	0.25
Sarcină limită verticală (Qlim)	597.56 kN
Factor de siguranță (Csq=Qlim/Fy)	**2.93**
Sarcină limită verificată Csq>1.5	

Tensiuni pe teren

Absicisă centru tensiune	55.82 cm
Lătime fundatie	138.0 cm
x = 0.0 cm Tensiune...	154.76 kPa
x = 138.0 cm Tensiune...	42.02 kPa

A2+M2+R2 (Alunecare)

Armături - Verificări sectiuni (S.L.U.)

Afv	Arie arătură aval.
Afm	Arie armătură amonte.
Nu	Efort normal ultim (kN);
Mu	Moment încovoietor ultim (kNm);
Vcd	Rezistentă la tăiere conglomerat Vcd (kN);
Vwd	Rezistentă la tăiere cută (kN);
Sic. VT	Măsură Sigurantă Tăiere (Vcd+Vwd)/Vsdu (Verificat dacă >=1).
Vsdu	Tăierea de calcul (kN);

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
3Ø12 (3.39)	6Ø12 (6.79)	0.85	54.89	S	138.94	0.0	114.76
3Ø12 (3.39)	6Ø12 (6.79)	1.4	55.96	S	141.33	0.0	70.53
3Ø12 (3.39)	6Ø12 (6.79)	3.07	58.79	S	147.58	0.0	32.5
3Ø12 (3.39)	6Ø12 (6.79)	4.58	61.22	S	152.88	0.0	22.54
4Ø12 (4.52)	7Ø12 (7.92)	6.14	74.07	S	160.42	0.0	17.08
4Ø12 (4.52)	7Ø12 (7.92)	9.98	80.37	S	172.07	0.0	10.49
4Ø12 (4.52)	8Ø12 (9.05)	16.28	102.25	S	191.39	0.0	6.69
4Ø12 (4.52)	8Ø12 (9.05)	23.49	113.61	S	209.08	0.0	4.87
5Ø12 (5.65)	9Ø12 (10.18)	31.43	139.85	S	228.64	0.0	3.84

Solicitări totale

Fx Fortă în directia x (kN);
Fy Fortă în directia y (kN);
M Moment (kNm);

	Fx	Fy	M
Impingere teren	51.46	26.55	18.08
Greutate zid	1.46	19.5	-9.12
Greutate fundatie	1.55	20.7	-13.82
Greutate pinten	0.3	4.0	-4.58
Suprasarcinã	1.35	18.0	-15.93
Impingere rambleu	0.05	0.72	-0.64
Teren fundatie	1.65	22.06	-21.05
Impingeri fundatie	-5.42	-2.59	0.34
	52.42	**108.93**	**-46.71**

Moment stabilizare	-110.07	kNm
Moment rãsturnare	63.36	kNm

Verificare la deplasare

Sumã forte orizontale	57.83 kN
Sumã forte verticale	111.52 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-16.74 °
Forte normale la planul de alunecare	123.45 kN
Forte paralele la planul de alunecare	23.26 kN
Rezistentã teren	89.16 kN
Coef. de sigurantã deplasare Csd	**3.83**

Deplasare verificatã Csd>1.3

Verificare la rãsturnare

Moment stabilizare	-110.07 kNm
Moment rãsturnare	63.36 kNm
Coef. de sigurantã rãsturnare Csv	**1.74**

Zid verificat la rãsturnare Csv>1.5

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	52.42 kN
Sumã forte în directie y (Fy)	108.93 kN
Sumã momente	-46.71 kNm
Lãtime fundatie	138.0 cm
Lungime 10000.0	cm
Exentricitate la B	26.12 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.01
sc	1.0
sg	1.0
iq	0.27
ic	0.25

ig	0.2
Sarcinã limitã verticalã (Qlim)	210.77 kN
Factor de sigurantã (Csq=Qlim/Fy)	**1.94**
Sarcinã limitã verificatã Csq>1.5	

Tensiuni pe teren

Absicisã centru tensiune	42.88 cm
Lãtime fundatie	138.0 cm
x = 0.0 cm Tensiune...	169.34 kPa
x = 128.65 cm	Tensiune... 0.0 kPa

A2+M2+R2 (Sarcinã limitã)

Solicitãri totale

Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);

	Fx	Fy	M
Impingere teren	51.46	26.55	18.08
Greutate zid	1.46	19.5	-9.12
Greutate fundatie	1.55	20.7	-13.82
Greutate pinten	0.3	4.0	-4.58
Suprasarcinã	1.35	18.0	-15.93
Impingere rambleu	0.05	0.72	-0.64
Teren fundatie	1.65	22.06	-21.05
Impingeri fundatie	-5.42	-2.59	0.34
	52.42	**108.93**	**-46.71**

Moment stabilizare	-110.07	kNm
Moment rãsturnare	63.36	kNm

Verificare la deplasare

Sumã forte orizontale	57.83 kN
Sumã forte verticale	111.52 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-16.74 °
Forte normale la planul de alunecare	123.45 kN
Forte paralele la planul de alunecare	23.26 kN
Rezistentã teren	89.16 kN
Coef. de sigurantã deplasare Csd	**3.83**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-110.07 kNm
Moment rãsturnare	63.36 kNm
Coef. de sigurantã rãsturnare Csv	**1.74**
Zid verificat la rãsturnare Csv>1.5	

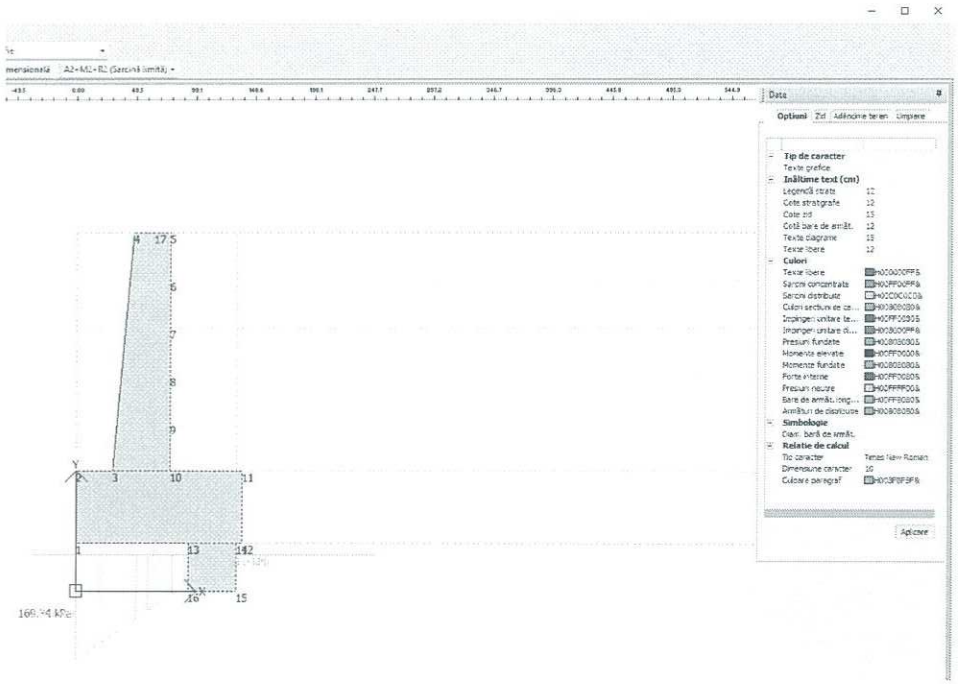
Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	52.42 kN
Sumã forte în directie y (Fy)	108.93 kN
Sumã momente	-46.71 kNm
Lãtime fundatie	138.0 cm

Lungime	10000.0	cm
Exentricitate la B		26.12 cm
Greutate volumicã		19.32 KN/m³
Unghi de rezistentã la tãiere		34.15 °
Coeziune		0.0 kPa
Teren pe fundatie		120.0 cm
Greutate teren pe teren fundare		18.0 KN/m³
Nq		29.99
Nc		42.73
Ng		42.04
sq		1.01
sc		1.0
sg		1.0
iq		0.27
ic		0.25
ig		0.2
Sarcinã limitã verticalã (Qlim)		210.77 kN
Factor de sigurantã (Csq=Qlim/Fy)		**1.94**
Sarcinã limitã verificatã Csq>1.5		

Tensiuni pe teren

Absicisã centru tensiune	42.88 cm
Lãtime fundatie	138.0 cm
x = 0.0 cm Tensiune...	169.34 kPa
x = 128.65 cm	Tensiune... 0.0 kPa



EQU+M2 (Rãsturnare)

Moment stabilizare	-110.1	kNm
Moment rãsturnare	66.04	kNm

Verificare la deplasare

Sumã forte orizontale	60.86 kN
Sumã forte verticale	109.31 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-16.74 °
Forte normale la planul de alunecare	122.21 kN
Forte paralele la planul de alunecare	26.8 kN

Rezistentă teren	88.32 kN
Coef. de siguranță deplasare Csd	**3.3**
Deplasare verificată Csd>1.3	

Verificare la răsturnare

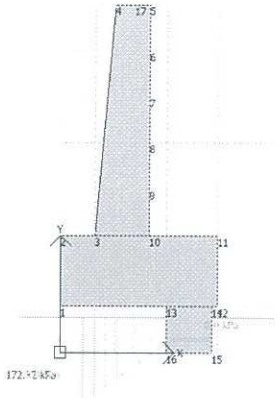
Moment stabilizare	-110.1 kNm
Moment răsturnare	66.04 kNm
Coef. de siguranță răsturnare Csv	**1.67**
Zid verificat la răsturnare Csv>1.5	

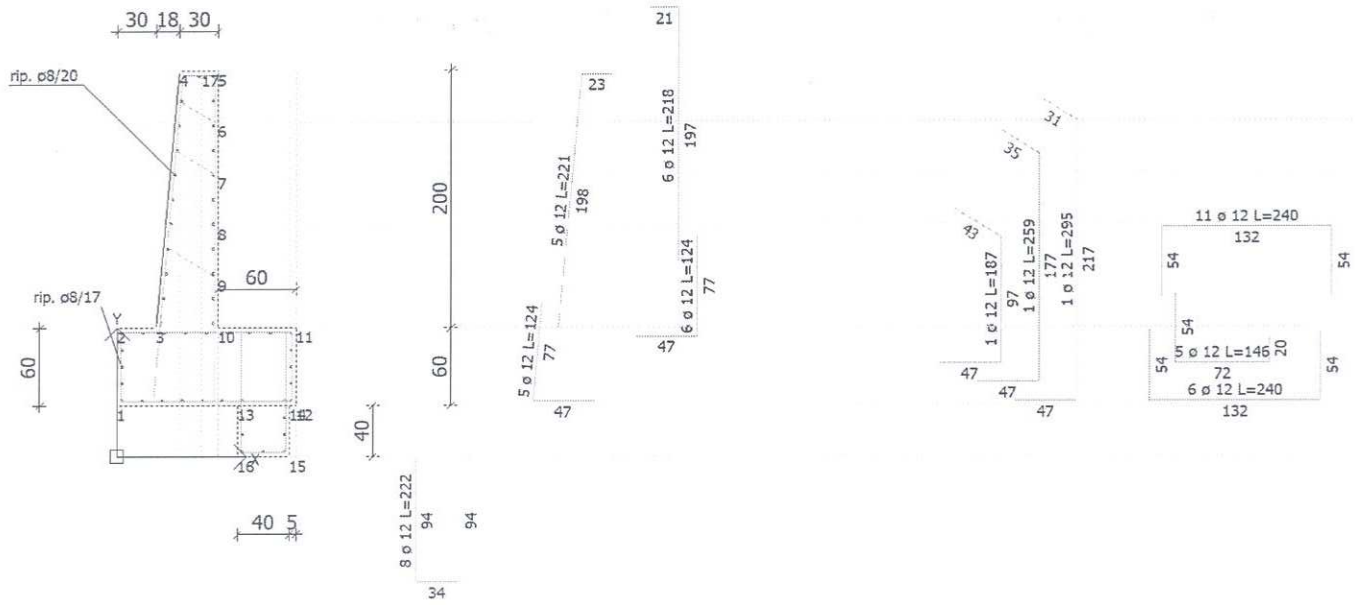
Sarcină limită - Metoda lui Vesic (1973)

Sumă forte în directie x	55.45 kN
Sumă forte în directie y (Fy)	106.72 kN
Sumă momente	-44.06 kNm
Lătime fundatie	138.0 cm
Lungime 10000.0	cm
Exentricitate la B	27.71 cm
Greutate volumică	19.32 KN/m³
Unghi de rezistentă la tăiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	120.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.01
sc	1.0
sg	1.0
iq	0.23
ic	0.21
ig	0.2
Sarcină limită verticală (Qlim)	180.11 kN
Factor de siguranță (Csq=Qlim/Fy)	**1.69**
Sarcină limită verificată Csq>1.5	

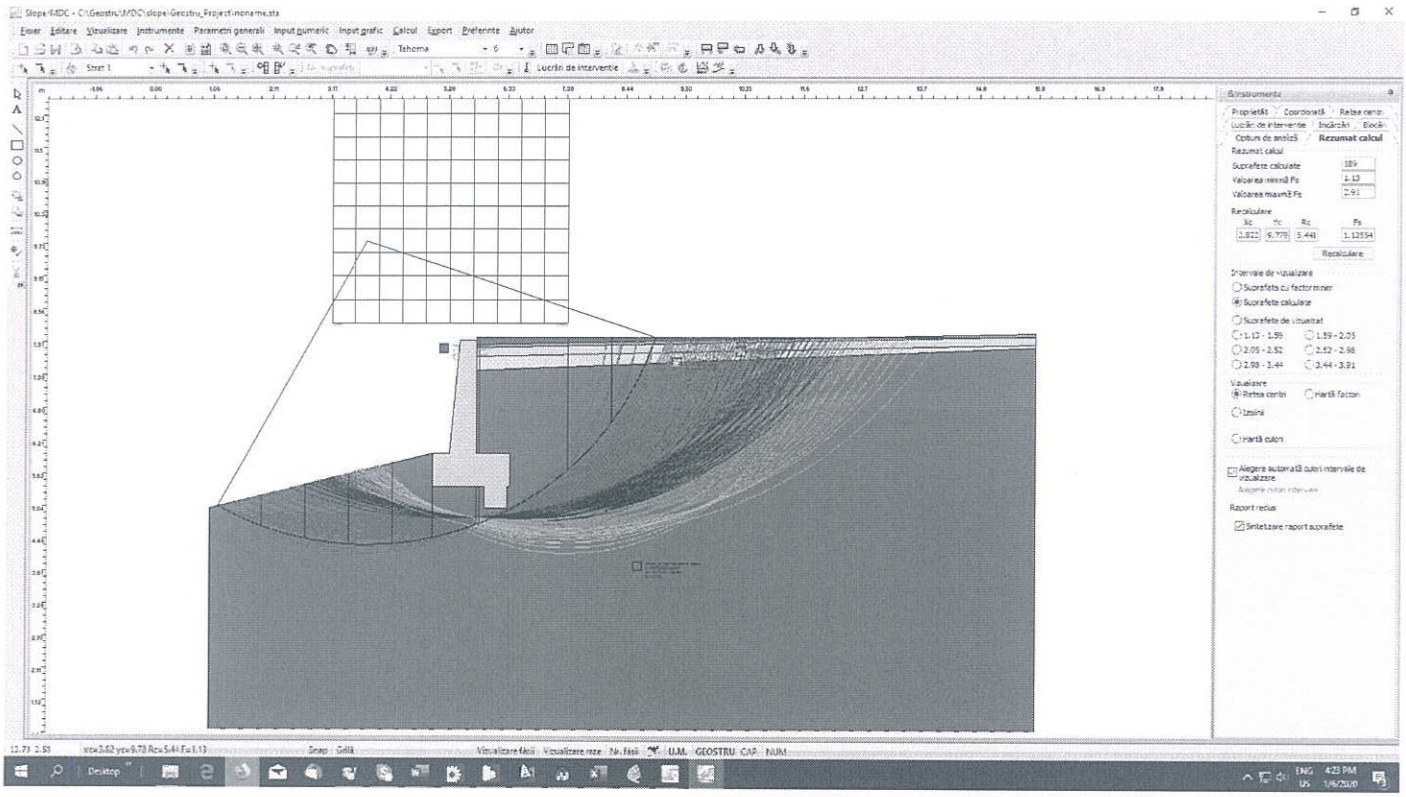
Tensiuni pe teren

Absicisă centru tensiune	41.29 cm
Lătime fundatie	138.0 cm
x = 0.0 cm Tensiune...	172.32 kPa
x = 123.86 cm	Tensiune... 0.0 kPa





Analiza de stabilitate a taluzurilor cu BISHOP



Numãr de strate	5.0
Numãrul fâsiilor	10.0

Suprafatã circularã

Retea de centri

Abscisã nod stâng inferior xi	3.19 m
Ordontã nod stâng inferior yi	8.3 m
Abscisã nod drept superior xs	7.41 m
Ordonatã nod drept superior ys	12.52 m
Interval de prelevare	10.0

Numãr de celule pe axa x	10.0
Numãr de celule pe axa y	10.0

Coeficient seismic orizontal	0.075
Coeficient seismic vertical	0.0375

Stratigrafie

c: coeziune; Fi: Unghi de frecare internã; G: Greutate specificã; Gs: Greutate specificã saturatã; K: Modulul lui Winkler

Strat	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologie	
1	0	35	2447.319	2447.319	4.00		imbracaminte rutiera
2	0	38	1949.697	1949.697	0.00		Nisip
3	0	36	1999.663	1999.663	0.00		balast fundatie
4	0	36	1949.697	1949.697	0.00		balast existent
5	0	36.73	1970.092	1970.092	0.00		Pietris cu nisip sau pietris nisipos

Rezultate analizã taluz

Fs minim identificat	1.13
Abscisã centru suprafatã	3.82 m
Ordonatã centru suprafatã	9.78 m
Razã suprafatã	5.44 m

3.1.4. Calcul zid de debleu He = 1.50m tip 1D

Pentru calculul solicitãrilor zidul este discretizat în n strate în functie de sectiunile semnificative iar pentru orice fâsie au fost calculate împingerile terenului (apreciate în functie de un plan de ruptură amonte), rezultantele fortelor orizontale si verticale si fortele inertiale.

Calculul împingerilor pentru verificãrile globale

Împingerile au fost apreciate în functie de planul de ruptură care trece prin spatele inferioră a consolei de fundatiei amonte, astfel de plan a fost discretizat în *n* fâsii.

Conventii semne

Forte verticali	positive dacã sunt directe din partea superioarã spre cea inferioarã;
Forte orizontale	positive dacã sunt directe dina monte în aval;
Cupluri	positive dacã sunt directionate în sens invers limbilor de ceasoric;
Unghiuri	positive dacã sunt directionate în sens invers limbilor de ceasoric.

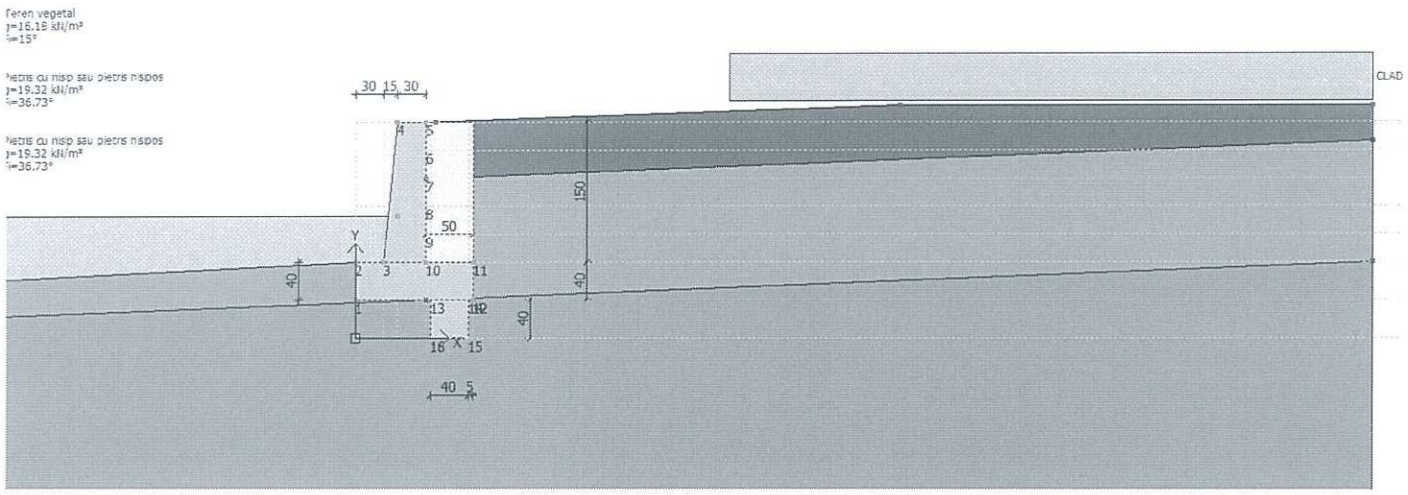
Date generale

ZID 1D DEBLEU

Calcul de rezistentã — Stări limitã ultime

Date generale zid

Inãltime zid	150.0 cm
Grosime capãt zid	30.0 cm
Gorsime zid aval capãt	15.0 cm
Gorsime zid amonte capãt	0.0 cm
Lungime talpã aval	30.0 cm
Lungime talpã amonte	50.0 cm
Svaso mensola a valle	0.0 cm
Inãltime obelisc aval	0.0 cm
Inãltime exteremitate fundatie aval	40.0 cm
Inãltime extremitate fundatie amonte	40.0 cm
Distanta pinten-zona amonte	5.0 cm
Inãltime pinten	40.0 cm
Grosime pinten	40.0 cm



Rezistentã materiale utilizate

Clasã conglomerat Rck 30	
Coeficient partial de sigurantã beton	1.35
Rezistentã la compresiune de calcul fcd	18.44 N/mm²
Rezistentã la tractiunea de calcul fctd	1.34 N/mm²
Tip otel PC 52	
Modul elastic	210000 N/mm²
Factor partial de sigurantã otel	1.15
fyk (Tensiune de curgere caracteristicã)	355 N/mm²
fyd (Rezistentã ultimã de calcul)	308.7 N/mm²
Deformatie ultimã de calcul	0.01

Strat de acoperire 4.0 cm

Stratigrafie

DH Pas minim
Eps Inclinatia stratului
Gamma Greutate volumicã
Fi Unghiul de rezistentã la tãiere
c Coeziune
Delta Unghiul de forfecare zid-teren
P.F. Prezentã pânzã freaticã (Da/Nu)

Ns	DH (cm)	Eps (°)	Gamma (KN/m³)	Fi (°)	c (kPa)	Delta (°)	P.F.	Litologie	Descriere
1	60	2	16.18	15	0.00	10	Nu		Teren vegetal
2	130	2	19.32	37	0.00	24	Nu		Pietris cu nisip sau pietris nisipos
3	290	0	19.32	37	0.00	24	Nu		Pietris cu nisip sau pietris nisipos

Sarcini distribuite

Descriere	Abscisa initialã (cm)	Abscisa finalã (cm)	Valoare initialã (kPa)	Valoare finalã (kPa)	Adâncime (cm)
CLADIRE	320.0	1000.0	100.0	100.0	1.5

FACTORI DE COMBINATIE

A1+M1+R1 (Alunecare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.00
6	Impingere seismicã în y	1.00
7	CLADIRE	0.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1
2	Coeziune eficace	1
3	Rezistentã nedrenatã	1
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A1+M1+R1 (Sarcinã limitã)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.30
2	Impingere teren	1.50
3	Greutate teren pe consolã	1.30
4	Impingere pânzã freaticã	1.50
5	Impingere seismicã în x	1.00
6	Impingere seismicã în y	1.00
7	CLADIRE	0.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1
2	Coeziune eficace	1
3	Rezistentã nedrenatã	1
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze

1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A2+M2+R2 (Alunecare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.00
6	Impingere seismicã în y	0.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A2+M2+R2 (Sarcinã limitã)

Nr.	Forte	Factor de combinatie
1	Greutate zid	1.00
2	Impingere teren	1.30
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.30
5	Impingere seismicã în x	1.00
6	Impingere seismicã în y	0.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

EQU+M2 (Rãsturnare)

Nr.	Forte	Factor de combinatie
1	Greutate zid	0.90
2	Impingere teren	1.50
3	Greutate teren pe consolã	1.00
4	Impingere pânzã freaticã	1.50
5	Impingere seismicã în x	1.00
6	Impingere seismicã în y	0.00

Nr.	Parametru	Coeficienti partiali
1	Tangentã unghi de rez. la tãiere	1.1
2	Coeziune eficace	1.2
3	Rezistentã nedrenatã	1.3
4	Greutate unitate volum	1

Nr.	Verificare	Coefficienti resistenze
1	Sarcinã limitã	1
2	Alunecare	1
3	Contributie împingere pasivã	1

A1+M1+R1 (Alunecare)

Coeficient seismic orizontal Kh 0.075
Coeficient seismic vertical Kv 0.0375

CALCUL ÎMPINGERi

Coeficienti de împingere si înclinatii

μ	Unghi de directie a împingerii.
Ka	Coeficient de împingere activã.
Kd	Coeficient de împingere dinamicã.
Dk	Coeficient de crestere dinamicã.
Kax, Kay	Componente în functie de x si y ale coeficientului de împingere activã.
Dkx, Dky	Componente în functie de x si y ale coeficientului de crestere dinamicã.

μ	Ka	Kd	Dk	Kax	Kay	Dkx	Dky
11.0	0.4	0.46	0.08	0.39	0.08	0.08	0.02
11.0	0.4	0.46	0.08	0.39	0.08	0.08	0.02
11.0	0.4	0.46	0.08	0.39	0.08	0.08	0.02
11.0	0.4	0.46	0.08	0.39	0.08	0.08	0.02
11.0	0.4	0.46	0.08	0.39	0.08	0.08	0.02

Impingeri rezultante si punct de aplicare

Qi	Cotã început strat.
Qf	Cotã început strat.
Rpx, Rpy	Componente ale împingerii în zona j (kN);
Z(Rpx)	Ordonatã punct de aplicare a împingerii rezultante (cm);
Z(Rpy)	Ordonatã punct de aplicare a împingerii rezultante (cm);

	Qi	Qf	Rpx	Rpy	z(Rpx)	z(Rpy)
1	230.0	200.0	0.98	0.19	213.23	213.23
2	200.0	170.0	1.67	0.32	183.96	183.96
3	170.0	140.0	2.36	0.46	154.27	154.27
4	140.0	110.0	3.05	0.59	124.43	124.43
5	110.0	80.0	3.75	0.73	94.54	94.54

CARCTERISTICI ZID (Greutate, Centru de greutate, Inertie)

Py	Greutate zid (kN);
Px	Fortã de inertie (kN);
Xp, Yp	Coordonate centru de greutate sarcini (cm);

Cotã	Px	Py	Xp	Yp
200.0	0.18	2.35	59.2	214.8
170.0	0.37	4.95	58.5	199.1
140.0	0.58	7.77	57.7	183.0
110.0	0.81	10.8	56.8	166.7
80.0	1.05	14.05	56.0	150.0

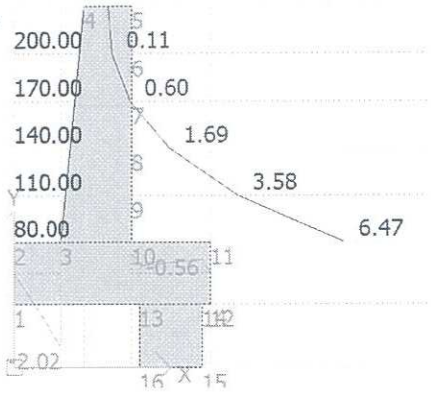
Solicitări pe zid

Cotã	Origine ordonata minimã a zidului (cm)
Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);
H	Inãltime sectiune de calcul (cm);

Cotã	Fx	Fy	M	H
200.0	1.15	2.54	0.11	33.0
170.0	3.02	5.46	0.6	36.0

140.0	5.59	8.75	1.69	39.0
110.0	8.87	12.37	3.58	42.0
80.0	12.86	16.34	6.47	45.0

DIAGRAMÃ MOMENTE kNm



Armãturi - Verificări sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
3Ø12 (3.39)	6Ø12 (6.79)	2.51	59.51	S	126.28	0.0	109.63
4Ø12 (4.52)	7Ø12 (7.92)	5.47	76.56	S	140.28	0.0	46.53
4Ø12 (4.52)	7Ø12 (7.92)	8.66	84.3	S	152.82	0.0	27.35
4Ø12 (4.52)	8Ø12 (9.05)	12.32	104.65	S	166.92	0.0	18.82
4Ø12 (4.52)	8Ø12 (9.05)	16.29	113.82	S	179.56	0.0	13.97

VERIFICĂRI GLOBALE

Plan de ruptură trecând prin (xr1,yr1) = (125.0/40.0)
Plan de ruptură trecând prin (xr2,yr2) = (125.0/231.7)
Centru de rotatie (xro,yro) = (0.0/40.0)

Solicitări totale

	Fx	Fy	M
Impingere teren	16.8	7.0	4.34
Greutate zid	1.05	14.05	-6.71
Greutate fundatie	0.94	12.5	-7.62
Greutate pinten	0.3	4.0	-4.06
Suprasarcinã	0.0	0.0	0.0
Teren fundatie	1.02	13.57	-12.41
Impingeri fundatie	-5.61	-2.88	0.72
	14.49	**48.24**	**-25.74**

Moment stabilizare	-41.15	kNm
Moment rãsturnare	15.42	kNm

Verificare la deplasare

Sumã forte orizontale	20.1 kN
Sumã forte verticale	51.12 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-18.43 °
Forte normale la planul de alunecare	54.85 kN
Forte paralele la planul de alunecare	2.91 kN
Rezistentã teren	46.55 kN
Coef. de sigurantã deplasare Csd	**16.01**

Deplasare verificatã Csd>1.3

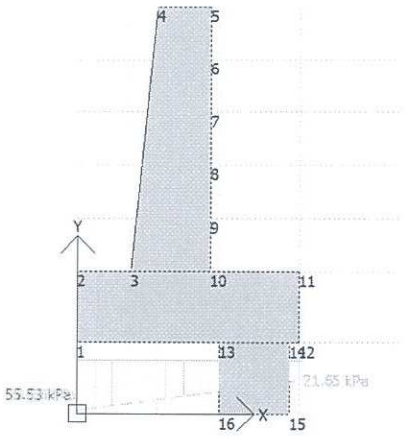
Verificare la rãsturnare

Moment stabilizare	-41.15 kNm
Moment rãsturnare	15.42 kNm
Coef. de siguranta rãsturnare Csv	**2.67**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	14.49 kN
Sumã forte în directie y (Fy)	48.24 kN
Sumã momente	-25.74 kNm
Lãtime fundatie	125.0 cm
Lungime 1000.0	cm
Exentricitate la B	9.15 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	36.73 °
Coeziune	0.0 kPa
Teren pe fundatie	90.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.08
sc	1.0
sg	0.96
iq	0.51
ic	0.49
ig	0.35
Sarcinã limitã verticalã (Qlim)	628.26 kN
Factor de siguranta (Csq=Qlim/Fy)	**13.02**
Sarcinã limitã verificatã Csq>1.3	
Tensiuni pe teren	

Absicisã centru tensiune	53.35 cm
Lãtime fundatie	125.0 cm
x = 0.0 cm Tensiune...	55.53 kPa
x = 125.0 cm Tensiune...	21.65 kPa



FUNDATIE AVAL

Xprogr.	Abscisa progresivã (cm);
Fx	Fortã în directia x (kN);
Fy	Fortã în directia y (kN);
M	Moment (kNm);
H	Inãltime sectiune (cm);

Xprogr.	Fx	Fy	M	H

30.0	-1.45	-13.08	-2.02	40.0

Armături - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	1.46	97.17	S	157.38	0.0	12.04

FUNDATIE AMONT

Xprogr.	Fx	Fy	M	H
75.0	-6.79	5.74	-0.56	40.0
80.0	-6.79	6.05	-0.2	40.0
120.0	0.13	7.31	-0.39	40.0

Armături - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
4Ø12 (4.52)	8Ø12 (9.05)	6.86	98.12	S	158.1	0.0	27.58
8Ø12 (9.05)	8Ø12 (9.05)	6.84	98.17	S	158.1	0.0	26.15
3Ø12 (3.39)	6Ø12 (6.79)	-0.14	73.32	S	154.13	0.0	21.09

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-6.92	-2.44	2.17	40.0

Armături - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	10.79	98.81	S	158.64	0.0	1662.61

A1+M1+R1 (Sarcinã limitã)

Solicitări pe zid

Cotã	Fx	Fy	M	H
200.0	1.27	3.26	0.11	33.0
170.0	3.38	7.0	0.65	36.0
140.0	6.33	11.19	1.86	39.0
110.0	10.12	15.8	3.99	42.0
80.0	14.75	20.86	7.27	45.0

Armături - Verificări sectiuni (S.L.U.)

Afv	Afm	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
3Ø12 (3.39)	6Ø12 (6.79)	3.33	59.63	S	126.38	0.0	99.7
4Ø12 (4.52)	7Ø12 (7.92)	6.92	76.78	S	140.48	0.0	41.59
4Ø12 (4.52)	7Ø12 (7.92)	11.22	84.74	S	153.14	0.0	24.2
4Ø12 (4.52)	8Ø12 (9.05)	15.84	105.3	S	167.39	0.0	16.54
4Ø12 (4.52)	8Ø12 (9.05)	20.87	114.73	S	180.18	0.0	12.22

VERIFICÃRI GLOBALE

Solicitări totale

	Fx	Fy	M
Impingere teren	19.07	7.91	4.82
Greutate zid	1.37	18.26	-8.72
Greutate fundatie	1.22	16.25	-9.91
Greutate pinten	0.39	5.2	-5.28
Suprasarcinã	0.0	0.0	0.0
Teren fundatie	1.02	17.64	-16.48
Impingeri fundatie	-5.61	-2.88	0.72

	17.46	**62.38**	**-34.85**

Moment stabilizare	-52.28	kNm
Moment răsturnare	17.43	kNm

Verificare la deplasare

Sumă forte orizontale	23.07 kN
Sumă forte verticale	65.26 kN
Coeficient de forfecare	0.75
Adeziune	0.0 kPa
Unghi plan de alunecare	-18.43 °
Forte normale la planul de alunecare	69.21 kN
Forte paralele la planul de alunecare	1.25 kN
Rezistentă teren	57.26 kN
Coef. de siguranță deplasare Csd	**45.84**
Deplasare verificată Csd>1.3	

Verificare la răsturnare

Moment stabilizare	-52.28 kNm
Moment răsturnare	17.43 kNm
Coef. de siguranță răsturnare Csv	**3.0**
Zid verificat la răsturnare Csv>1.5	

Sarcină limită - Metoda lui Vesic (1973)

Sumă forte în directie x	17.46 kN
Sumă forte în directie y (Fy)	62.38 kN
Sumă momente	-34.85 kNm
Lătime fundatie	125.0 cm
Lungime 1000.0	cm
Exentricitate la B	6.64 cm
Greutate volumică	19.32 KN/m³
Unghi de rezistentă la tăiere	36.73 °
Coeziune	0.0 kPa
Teren pe fundatie	90.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	41.45
Nc	54.21
Ng	63.35
sq	1.08
sc	1.0
sg	0.96
iq	0.54
ic	0.52
ig	0.39
Sarcină limită verticală (Qlim)	717.27 kN
Factor de siguranță (Csq=Qlim/Fy)	**11.5**
Sarcină limită verificată Csq>1.3	

IMPINGERI ÎN FUNDATIE

Discretizare teren

Qi	Qf	Gamma	Eps	Fi	Delta	c	ß	Note
80.0	40.0	19.32	180.0	34.15	24.0	0.0	180.0	
40.0	0.0	19.32	180.0	34.15	34.15	0.0	180.0	

Coeficienti de împingere si înclinatii

μ	Kp	Kpx	Kpy

204.0	0.92	-0.84	-0.37
214.15	0.92	-0.76	-0.52

Impingeri rezultante si punct de aplicare

	Qi	Qf	Rpx	Rpy	z(Rpx)	z(Rpy)
1	80.0	40.0	-1.3	-0.58	53.33	53.33
2	40.0	0.0	-3.78	-1.96	17.92	17.28

Solicitări totale

	Fx	Fy	M
Impingere teren	18.14	5.88	6.71
Greutate zid	1.05	14.05	-6.71
Greutate fundatie	0.94	12.5	-7.62
Greutate pinten	0.3	4.0	-4.06
Suprasarcinã	0.0	0.0	0.0
Teren fundatie	1.02	13.57	-12.41
Impingeri fundatie	-5.08	-2.53	0.66
	16.38	**47.47**	**-23.43**

Moment stabilizare	-39.84	kNm
Moment rãsturnare	16.41	kNm

Verificare la deplasare

Sumã forte orizontale	21.45 kN
Sumã forte verticale	50.0 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-18.43 °
Forte normale la planul de alunecare	54.22 kN
Forte paralele la planul de alunecare	4.54 kN
Rezistentã teren	41.86 kN
Coef. de sigurantã deplasare Csd	**9.22**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-39.84 kNm
Moment rãsturnare	16.41 kNm
Coef. de sigurantã rãsturnare Csv	**2.43**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	16.38 kN
Sumã forte în directie y (Fy)	47.47 kN
Sumã momente	-23.43 kNm
Lãtime fundatie	125.0 cm
Lungime 1000.0	cm
Exentricitate la B	13.14 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	90.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.07
sc	1.0
sg	0.96

iq	0.45
ic	0.43
ig	0.29
Sarcinã limitã verticalã (Qlim)	339.0 kN
Factor de sigurantã (Csq=Qlim/Fy)	**7.14**
Sarcinã limitã verificatã Csq>1.3	

Tensiuni pe teren

Absicisã centru tensiune	49.36 cm
Lãtime fundatie	125.0 cm
x = 0.0 cm Tensiune...	61.93 kPa
x = 125.0 cm Tensiune...	14.02 kPa

FUNDATIE AVAL

Xprogr.	Fx	Fy	M	H
30.0	-1.3	-14.44	-2.25	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	1.27	97.14	S	157.36	0.0	10.91

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
75.0	-7.94	7.83	-0.52	40.0
80.0	-7.94	8.02	-0.06	40.0
120.0	0.14	6.57	-0.34	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
4Ø12 (4.52)	8Ø12 (9.05)	8.01	98.32	S	158.26	0.0	20.23
8Ø12 (9.05)	8Ø12 (9.05)	7.93	98.36	S	158.26	0.0	19.73
3Ø12 (3.39)	6Ø12 (6.79)	-0.14	73.32	S	154.13	0.0	23.49

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-8.09	-1.26	2.25	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	10.79	98.81	S	158.64	0.0	1662.61

A2+M2+R2 (Sarcinã limitã)

Coeficient seismic orizontal Kh	0.075
Coeficient seismic vertical Kv	0.0375

Verificare la deplasare

Sumã forte orizontale	21.45 kN
Sumã forte verticale	50.0 kN

Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-18.43 °
Forte normale la planul de alunecare	54.22 kN
Forte paralele la planul de alunecare	4.54 kN
Rezistentã teren	41.86 kN
Coef. de sigurantã deplasare Csd	**9.22**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-39.84 kNm
Moment rãsturnare	16.41 kNm
Coef. de sigurantã rãsturnare Csv	**2.43**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	16.38 kN
Sumã forte în directie y (Fy)	47.47 kN
Sumã momente	-23.43 kNm
Lãtime fundatie	125.0 cm
Lungime 1000.0	cm
Exentricitate la B	13.14 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	90.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.07
sc	1.0
sg	0.96
iq	0.45
ic	0.43
ig	0.29
Sarcinã limitã verticalã (Qlim)	339.0 kN
Factor de sigurantã (Csq=Qlim/Fy)	**7.14**
Sarcinã limitã verificatã Csq>1.3	

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	1.27	97.14	S	157.36	0.0	10.91

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
75.0	-7.94	7.83	-0.52	40.0
80.0	-7.94	8.02	-0.06	40.0
120.0	0.14	6.57	-0.34	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
4Ø12 (4.52)	8Ø12 (9.05)	8.01	98.32	S	158.26	0.0	20.23
8Ø12 (9.05)	8Ø12 (9.05)	7.93	98.36	S	158.26	0.0	19.73
3Ø12 (3.39)	6Ø12 (6.79)	-0.14	73.32	S	154.13	0.0	23.49

PINTEN DE FUNDATIE

Cotã	Fx	Fy	M	H
40.0	-8.09	-1.26	2.25	40.0

Armãturi - Verificări sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	10.79	98.81	S	158.64	0.0	1662.61

EQU+M2 (Răsturnare
Impingeri rezultante si punct de aplicare

	Qi	Qf	Rpx	Rpy	z(Rpx)	z(Rpy)
1	80.0	40.0	-1.3	-0.58	53.33	53.33
2	40.0	0.0	-3.78	-1.96	17.92	17.28

Solicitări totale

	Fx	Fy	M
Impingere teren	20.61	6.79	7.31
Greutate zid	0.95	12.64	-6.04
Greutate fundatie	0.84	11.25	-6.86
Greutate pinten	0.27	3.6	-3.65
Suprasarcinã	0.0	0.0	0.0
Teren fundatie	1.02	13.57	-12.41
Impingeri fundatie	-5.08	-2.53	0.66
	18.61	**45.32**	**-20.99**

Moment stabilizare	-38.99	kNm
Moment rãsturnare	18.01	kNm

Verificare la deplasare

Sumã forte orizontale	23.69 kN
Sumã forte verticale	47.85 kN
Coeficient de forfecare	0.68
Adeziune	0.0 kPa
Unghi plan de alunecare	-18.43 °
Forte normale la planul de alunecare	52.89 kN
Forte paralele la planul de alunecare	7.34 kN
Rezistentã teren	40.95 kN
Coef. de sigurantã deplasare Csd	**5.58**
Deplasare verificatã Csd>1.3	

Verificare la rãsturnare

Moment stabilizare	-38.99 kNm
Moment rãsturnare	18.01 kNm
Coef. de sigurantã rãsturnare Csv	**2.17**
Zid verificat la rãsturnare Csv>1.5	

Sarcinã limitã - Metoda lui Vesic (1973)

Sumã forte în directie x	18.61 kN
Sumã forte în directie y (Fy)	45.32 kN
Sumã momente	-20.99 kNm
Lãtime fundatie	125.0 cm
Lungime 1000.0	cm

Exentricitate la B	16.19 cm
Greutate volumicã	19.32 KN/m³
Unghi de rezistentã la tãiere	34.15 °
Coeziune	0.0 kPa
Teren pe fundatie	90.0 cm
Greutate teren pe teren fundare	18.0 KN/m³
Nq	29.99
Nc	42.73
Ng	42.04
sq	1.06
sc	1.0
sg	0.96
iq	0.36
ic	0.34
ig	0.21
Sarcinã limitã verticalã (Qlim)	245.58 kN
Factor de siguranta (Csq=Qlim/Fy)	**5.42**
Sarcinã limitã verificatã Csq>1.3	

Tensiuni pe teren

Absicisã centru tensiune	46.31 cm
Lãtime fundatie	125.0 cm
x = 0.0 cm Tensiune...	64.42 kPa
x = 125.0 cm Tensiune...	8.09 kPa

FUNDATIE AVAL

Xprogr.	Fx	Fy	M	H
30.0	-1.3	-15.18	-2.38	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	1.27	97.14	S	157.36	0.0	10.37

FUNDATIE AMONTE

Xprogr.	Fx	Fy	M	H
75.0	-10.58	11.24	-0.61	40.0
80.0	-10.58	11.36	0.02	40.0
120.0	0.17	7.71	-0.4	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
4Ø12 (4.52)	8Ø12 (9.05)	10.59	98.77	S	158.61	0.0	14.11
8Ø12 (9.05)	8Ø12 (9.05)	10.57	98.81	S	158.61	0.0	13.98
3Ø12 (3.39)	6Ø12 (6.79)	-0.14	73.32	S	154.13	0.0	20.01

PINTEN DE FUNDATIE

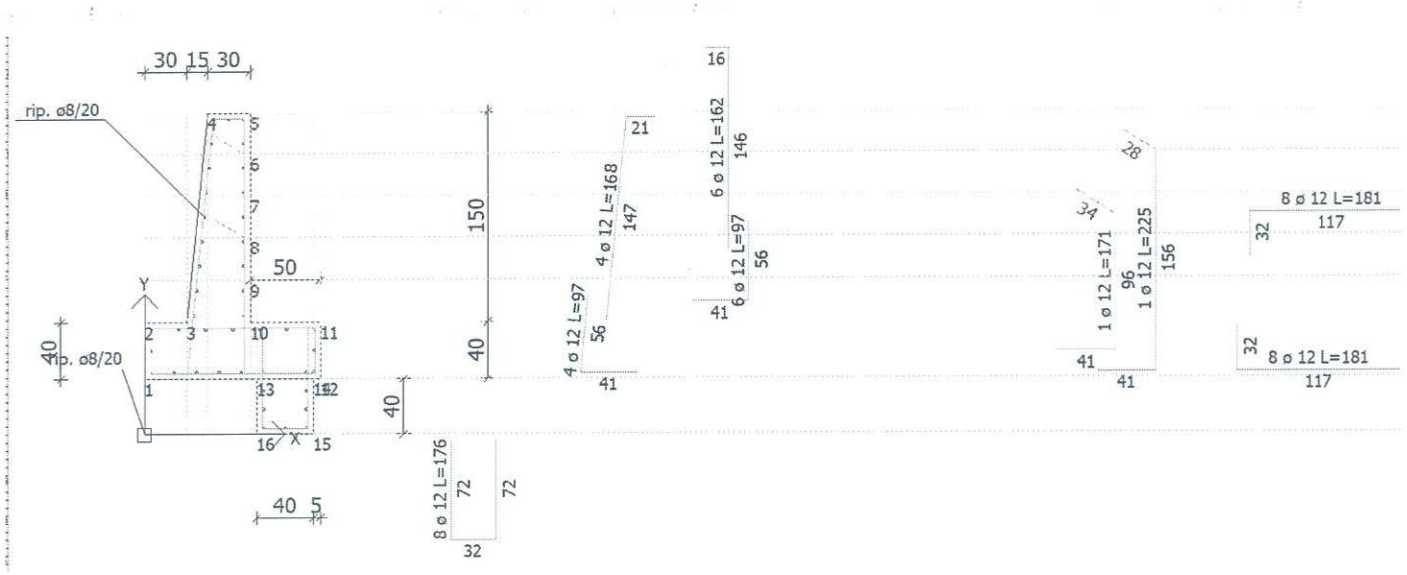
Cotã	Fx	Fy	M	H
40.0	-10.74	-0.1	2.72	40.0

Armãturi - Verificãri sectiuni (S.L.U.)

Afi	Afs	Nu	Mu	Ver.	Vcd	Vwd	Sic. VT
8Ø12 (9.05)	4Ø12 (4.52)	10.79	98.81	S	158.64	0.0	1662.61

Estimare materiale

Volum conglomerat	1.10 m³
Bare de otel =12	0.637 kN



Intocmit,
Sef de proiect ,
Specialitatea Drumuri si poduri
ing. Pascariu Marius-Adrian

.....

CERCEL C. CONSTANTIN FLORIN
ROMANIA
M L P A T
NR. 1237
A1, B2, D2
INGINER
VERIFICATOR PROIECTE

CHELARIU M. OVIDIU
ROMANIA
MDRAP
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A1, A2
INGINER
VERIFICATOR PROIECTE