PROJEKT ZBATIMI

OBJEKTI: **"RIKONSTRUKSIONI I SHKOLLES 9-VJEÇARE "5 DESHMORET" FSHATI SUK-1, AMBIENTEVE SPORTIVE DHE NDERTIMI I PALESTRES, BASHKIA ROSKOVEC"**

- RELACION TEKNIK

-SPECIFIKIMET TEKNIKE

DHJETOR 2019

PROJEKTIM - MBIKQYRJE - LAUDIM
G&L CONSTRUCTION
NUIS:L61901013N
Tirana - Albania

RELACIONI TEKNIK KONSTUKTIV

OBJEKTI: "RIKONSTRUKSIONI I SHKOLLES 9-VJEÇARE "5 DESHMORET" FSHATI SUK-1, AMBIENTEVE SPORTIVE DHE NDERTIMI I PALESTRES, BASHKIA ROSKOVEC"

TIRANE 2019

RELACION TEKNIK

OELLIMI I NDERTIMIT

"Rikonstruksioni i shkolles 9-vjeçare "5 Deshmoret" Fshati Suk-1, ambienteve sportive dhe ndertimi i palestres, Bashkia Roskovec" eshte nje domosdoshmeri per zonen e Fshatit SUK-1, per shkak se mbulon gjithe zonen fushore perreth ketij fshati

Krijimi i ambjenteve bashkohore, per nje arsimim sa me te mire te nxenesve. Permiresimin dhe persosjen e kushteve te punes se mesuesve, me qellim ritjen e cilesise se mesimdhenies ne shkolle me standarte bashkohore.

KARAKTERISTIKAT E OBJEKTIT

Ndertesa ekzistuese e shkolles perbehet nga 1 objekt me 2 kate me siperfaqe totale 844 m² me njolle te ndertimit 422 m² i vendosur mbi nje truall me siperfaqe totale 7113 m². Shkolla " **Rikonstruksioni i shkolles 9-vjeçare "5 Deshmoret"**" frekunentohet gjithmone e me shume per shkak te stafit te mire pedagogjik qe jep mesim, por ambientet jane totalisht te amortizuara nga vjetersia dhe lageshtia. Shkolla ekzistuese ka mungese te klasave per te kryer mesim vetem ne mengjes dhe per te perballuar fluksin kryhet mesim me dy turne. Ne shkolle mungojne laboratoret e mirefillte. Ka mungese te palestres te mbuluar dhe ambientet sportive ne natyre jane te shkateruara. Ndertesa ekzistuese eshte ndertese e amortizuar. Per kete arsye dhe per te plotesuar nevojat e shkolles me klasa dhe me parametra bashkohore eshte e domosdoshme shtesa e ambienteve dhe rikonstruksioni i shkolles. Siperfaqia e rikonstruksionit eshte 1342 m².

Objekti ekzistus eshte i amortizuar totalisht. Qe nga koha e ndertrimit tij i jane bere nderhyje te pjeseshme ne suvatime dhe lyerje me gelqere. Taraca eshte me tjegulla dhe amortizuar totalisht. Rrjedh uje dhe ka krijuar deformim ne mes, e cila nuk ka mundesi riparimi. Mungon hidroizolimi dhe termoizolimi. Muret ndarese te ambienteve dhe perimetral jane me tulla te plota. Suvatimi i brenshem eshte i vjeter, i amortizuar, me valezime dhe e nje cilesi te dobet. Pllakat e dyshemese jane granili te thyera. Shkallet jane te derdhura prej granili te cilat nuk jane bashkohore dhe estetike. Ngrohja nuk ekziston dhe me heret ajo behej me soba te cilat jane te amortizuara dhe disa oxhake jane bllokuar. Kangjellat metalike te dritareve jane hekura me profil drejtkendor te pa mirembajtura. Tualetet (WC) jane te amortizuara totalisht standart i domosdoshem per tu afruar me direktivat e Bashkimit Europian. Ora e fiskultures organizohet ne ambient jashte shkolles ne ambient te hapur dhe ne ditet me shi kjo ore nuk zhvillohet. Mungon ambienti i punes se stomatologut dhe psikologut te cilet jane pjese e stafit pedagogjik dhe te domosdoshem per

shendetin e nxenesve. Oborri nga pas shkolles eshte me balte dhe i pa organizuar. Mungon totalisht sistemi i ngrohjes, furnizimit me uje, kanalizimit te ujrave te bardha dhe te zeza.

Projektit i rikonstruksionit te shkolles eshte hartuar duke shfrytezuar te gjithe ambientet ekzistuese. Eshte bere e mundur te realizohen: mjediset e nevojshme, funksionale duke ndertuar klasa me parametra optimal.

Ne katin e perdhe jane parashikuar 11-klasa, laboratori informatike, tualete per djem dhe vajza, dhome per sanitaret.

Ne katin e pare jane parashikuar 10-klasa, laboratori biologji, salle per mesuesit, n/drejtori, sekretaria, tualete per djem, vajza.

Shkolla e rikonstruktuar do te kete dy hyrje. Ne shkolle eshte parashikuar ngrohja qendrore e cila eshte me kaldaje.. Gjithashtu jane parashikuar qe dritaret te jene dopio xham me duralumin termik. Tarca do te mbulohet me çati, me pas do te hidroizolohet me kartonkatrama.

Jane parashikuar te gjithe zerat e rifinitures duke bere suvatim me fino te gatshme nga brenda dhe suvatim grafiato nga jashte si dhe veshje me terracota (imitacion mur tulle). Shtresat e dyshemese jane rere per nivelim 5-7cm, lluster cimento 2- 3cm, pllake gres porcelanat mad me siperfaqe te ashper. Veshja e banjes do te jete me pllake majolike. Izolimi i banjes do te behet mbi shtresen e lluster cimentos me disa duar paste bituminoze 4mm e cila do te ngjitet ne mure ne nje lartesi 30-40cm. Paisjet e tualeteve do te jene porcelani cilesi e I importi. Banjat do te kene uje te ngrohte me bolier te cilat do ti bejne ato ambiente funksionale. Shkallet do te vishen me mermer dhe plintuset do te jene prej mermeri. Gjithashtu mermer ka ne dyert e jashteme. Davancialet e dritareve jane mermeri me zmuso dhe pikore nga te dy anet. Dyert e jashteme jane te blinduara gjithashtu sekretaria. Dyert e brenshme jane prej MDF cilesi e pare. Dritaret jane me dpioxhap termoplastik PVC e cila ruan temp e ambientit. Jane rikonstruktuar totalisht instalimet elektrike, ndricimi, rrjetin telefonik, interneti, furnizimin me uje, kanalizim i ujrave te ndotur dhe ngrohja qendrore. Ambientet e jashteme jane sistemuar me pllaka betoni dhe pllaka travetine per te krijuar nje mjedis rekreacional per zonen, ne te cilen aktualisht mungojne totalisht zona te tilla per aktivitete social kultutore. Ujrat siperfaqesore jane sistemuar me kunete betoni te cilat mblidhen ne puseta shiu dhe derdhen ne kolektorin me te afert. Cilesia e materialeve qe eshte parshikuar te perdoren duhet te jete e larte sipas niveleve bashkekohore.

Notifications Summary

Pre-analysis Checks

Interstorey Strength Irregularity (Weak Storey) does NOT exist in the building.

Post-analysis Checks

Dir 1: (A1) Irregularity does not Exist.

Dir 2: (A1) Irregularity does not Exist.

Dir 1: Stiffness Irregularity does not exist.

Dir 2: Stiffness Irregularity does not exist.

Interstorey Mass Irregularity does not exist.

Dir 1: Second Order Effects are considered using code based slenderness methods.

Dir 2: Second Order Effects are considered using code based slenderness methods.

Overturning Check: Dir 1 ... Mp1 / Ma1 = 47352.0 / 4594.7 = 10.3058 ≥ 2.0 OK

Overturning Check: Dir 2 ... Mp2 / Ma2 = 41096.6 / 4720.6 = 8.7058 ≥ 2.0 OK

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Pre-analysis Checks

Building Data

Number of Storeys = 2
Number of Effective Storeys = 2
Number of Rigid Basements = 0

Storey	Storey Height (mm)	Level (mm)	Live Load Simultaneous Presence Factor
2	3000.00	6400.00	1.00
1	3000.00	3400.00	0.50

Seismic Parameters

Analysis Type = Response Spectrum Analysis

Storey Degrees of Freedom = X, Y and Torsion
Rigid Zones at Joints = NONE

Seismic Code = Eurocode 8

Peak Reference Ground Acceleration, (Agr) = 0.25g
Design Ground Acceleration, (Ag), (Ag) = 0.30g
Load Bearing System = Frame System - Dual System - Coupled Wall System

Ductility Level = DCH
AlphaU/Alpha1 = 1.3
Basic Behavior Factor, (q0) = 4.5
Prevailing Failure Mode Coef., (kw) = 1
Behavior Factor, (q) = 4.68
Building Usage and Type = Ordinary Buildings
Lateral Load Eccentricity, (%) = 5.0
Quasi-permanent Live Load Coef., (Psi2) = 0.60
Number of Modes to be Used = 6.0
Damping Ratio = 0.05

Seismic Response Spectrum Properties:

Local Soil Class = C
Spectrum Characteristic Periods Tb = 0.20 s
Tc = 0.60 s
Td = 2.00 s
Soil Factor = 1.15
Earthquake Direction 0.00 (derece)
Dir-1
Dir-2 90.00 (derece)

EC8 Response Spectrum; Soil=C; q = 4.5; I = 1.2; Ag = 0.3

Building Importance Factor (I) = 1.20

Spectrum Type = 1

t (sec)	S(t)
0.000	0.2300
0.200	0.1843
0.600	0.1843
0.622	0.1778
0.649	0.1703
0.688	0.1608
0.737	0.1501
0.797	0.1388
0.868	0.1274
0.950	0.1164
1.043	0.1060
1.147	0.0964
1.262	0.0876
1.388	0.0797
1.524	0.0725
1.672	0.0661
1.830	0.0604
2.000	0.0600
2.000	0.0600
2.064	0.0600

2.125	0.0600
2.216	0.0600
2.343	0.0600
2.512	0.0600
2.729	0.0600
3.000	0.0600
3.331	0.0600
3.728	0.0600
4.197	0.0600
4.744	0.0600
5.375	0.0600
6.096	0.0600
6.913	0.0600
7.832	0.0600
8.859	0.0600
10.000	0.0600

Soil Subgrade Reaction Coefficient = 50000.000 kN/m3

Allowable Soil Pressure = 200.00 kN/m2

Load Combinations

No	Combination	G	Q	Sx+	Sx-	Sy+	Sy-	NGx	NQx	NGy	NQy	Wx	Wy
1	G*F	1.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	G+Q *F	1.25	1.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	G+Q *F1	1.25	1.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	G+Q+Sx+	1.00	0.30	1.00	.00	.00	0.30	.00	.00	.00	.00	.00	.00
5	G+Q-Sx+	1.00	0.30	- 1.00	.00	.00	- 0.30	.00	.00	.00	.00	.00	.00
6	G+Q+Sx-	1.00	0.30	.00	1.00	0.30	.00	.00	.00	.00	.00	.00	.00
7	G+Q-Sx-	1.00	0.30	.00	- 1.00	- 0.30	.00	.00	.00	.00	.00	.00	.00
8	G+Q+Sy+	1.00	0.30	.00	0.30	1.00	.00	.00	.00	.00	.00	.00	.00
9	G+Q-Sy+	1.00	0.30	.00	- 0.30	- 1.00	.00	.00	.00	.00	.00	.00	.00
10	G+Q+Sy-	1.00	0.30	0.30	.00	.00	1.00	.00	.00	.00	.00	.00	.00
11	G+Q-Sy-	1.00	0.30	- 0.30	.00	.00	- 1.00	.00	.00	.00	.00	.00	.00
12	G+Sx+	0.90	.00	1.00	.00	.00	0.30	.00	.00	.00	.00	.00	.00
13	G-Sx+	0.90	.00	- 1.00	.00	.00	- 0.30	.00	.00	.00	.00	.00	.00
14	G+Sx-	0.90	.00	.00	1.00	0.30	.00	.00	.00	.00	.00	.00	.00
15	G-Sx-	0.90	.00	.00	- 1.00	- 0.30	.00	.00	.00	.00	.00	.00	.00
16	G+Sy+	0.90	.00	.00	0.30	1.00	.00	.00	.00	.00	.00	.00	.00
17	G-Sy+	0.90	.00	.00	- 0.30	- 1.00	.00	.00	.00	.00	.00	.00	.00
18	G+Sy-	0.90	.00	0.30	.00	.00	1.00	.00	.00	.00	.00	.00	.00
19	G-Sy-	0.90	.00	- 0.30	.00	.00	- 1.00	.00	.00	.00	.00	.00	.00
20	G+Sx+	1.00	.00	1.00	.00	.00	0.30	.00	.00	.00	.00	.00	.00
21	G-Sx+	1.00	.00	- 1.00	.00	.00	- 0.30	.00	.00	.00	.00	.00	.00
22	G+Sx-	1.00	.00	.00	1.00	0.30	.00	.00	.00	.00	.00	.00	.00
23	G-Sx-	1.00	.00	.00	- 1.00	- 0.30	.00	.00	.00	.00	.00	.00	.00
24	G+Sy+	1.00	.00	.00	0.30	1.00	.00	.00	.00	.00	.00	.00	.00
25	G-Sy+	1.00	.00	.00	- 0.30	- 1.00	.00	.00	.00	.00	.00	.00	.00
26	G+Sy-	1.00	.00	0.30	.00	.00	1.00	.00	.00	.00	.00	.00	.00
27	G-Sy-	1.00	.00	- 0.30	.00	.00	- 1.00	.00	.00	.00	.00	.00	.00
28	G+Q+Wx+Nx	1.25	1.50	.00	.00	.00	.00	1.25	1.50	.00	.00	0.75	.00
29	G+Q-Wx-Nx	1.25	1.50	.00	.00	.00	.00	- 1.25	- 1.50	.00	.00	- 0.75	.00
30	G+Q+Wy+Ny	1.25	1.50	.00	.00	.00	.00	.00	.00	1.25	1.50	.00	0.75
31	G+Q-Wy-Ny	1.25	1.50	.00	.00	.00	.00	.00	.00	- 1.25	- 1.50	.00	- 0.75
32	G+Wx+Q+Nx	1.25	1.05	.00	.00	.00	.00	1.25	1.05	.00	.00	1.50	.00
33	G-Wx+Q-Nx	1.25	1.05	.00	.00	.00	.00	- 1.25	- 1.05	.00	.00	- 1.50	.00
34	G+Wy+Q+Ny	1.25	1.05	.00	.00	.00	.00	.00	.00	1.25	1.05	.00	1.50
35	G-Wy+Q-Ny	1.25	1.05	.00	.00	.00	.00	.00	.00	- 1.25	- 1.05	.00	- 1.50

Vertical Load Cases

G = Dead Loads
Q = Live Loads

Lateral Load Cases

Sx+ = MC Earthquake X (E+)
Sx- = MC Earthquake X (E-)
Sy+ = Eartquake Y (E+)
Sy- = Earthquake Y (E-)
NGx = Notional Load (G) X
NQx = Notional Load (Q) X
NGy = Notional Load (G) Y
NQy = Notional Load (Q) Y
Wx = Wind Load X
Wy = Wind Load Y

Materials:

Concrete Grades:

		F_{ck} (N/mm2)	F_{cd} (N/mm2)	F_{ctd} (N/mm2)	E (N/mm2)
Columns	C25/30	25.00	16.67	1.17	31000.0
Walls	C25/30	25.00	16.67	1.17	31000.0
Beams	C25/30	25.00	16.67	1.17	31000.0
Slabs	C25/30	25.00	16.67	1.17	31000.0
Ribbed Slabs	C25/30	25.00	16.67	1.17	31000.0
Foundations	C25/30	25.00	16.67	1.17	31000.0

Steel Grades:

		F_{yk} (N/mm2)	F_{yd} (N/mm2)	E (N/mm2)
Columns	Grade 410 (Type 2)	410.00	356.52	200000.0
Walls	Grade 410 (Type 2)	410.00	356.52	200000.0
- Web Longitudinal	Grade 410 (Type 2)	410.00	356.52	200000.0
- Web Horizontal	Grade 410 (Type 2)	410.00	356.52	200000.0
Beams	Grade 410 (Type 2)	410.00	356.52	200000.0
Slabs	Grade 410 (Type 2)	410.00	356.52	200000.0
Ribbed Slabs	Grade 410 (Type 2)	410.00	356.52	200000.0
Foundations	Grade 410 (Type 2)	410.00	356.52	200000.0
Links	Grade 460 (Type 2)	460.00	400.00	200000.0

(B1) INTERSTOREY STRENGTH IRREGULARITY CHECK (Weak Storey)

Earthquake Direction: 1 (Angle From X 0.00 degrees)

Storey No	A-Column (m2)	A-Wall (m2)	A-Total (m2)	A-Part.Wall (m2)	η_c
Storey: 2	2.100	0.000	2.100	0.000	
Storey: 1	2.100	0.000	2.100	0.000	1.000 ≥ 0.80

Earthquake Direction: 2 (Angle From X 90.00 degrees)

Storey No	A-Column (m2)	A-Wall (m2)	A-Total (m2)	A-Part.Wall (m2)	η_c
Storey: 2	2.100	0.000	2.100	0.000	
Storey: 1	2.100	0.000	2.100	0.000	1.000 ≥ 0.80

Interstorey Strength Irregularity (Weak Storey) does NOT exist in the building.

Column and ShearWall Section Properties

Alan : Gross Section Area
A_s : Section Shear Area
I_{11} : Moment of Inertia About Member Local Axis-1
I_{22} : Moment of Inertia About Member Local Axis-2

Section	b1/b2 (mm)	Area (m^2)	A_s (m^2)	I_{11} (m^4)	I_{22} (m^4)
500x300-C	500/300	0.150	0.125	0.001125	0.003125

Beam Section Properties

Area : Gross Section Area
A_s : Section Shear Area
I : Moment of Inertia About Horizontal Axis

(Rectangular beam sections are used in analysis)

Section	b_w/h (mm)	Area (m^2)	A_s (m^2)	I (m^4)
250x500-B	250/500	0.125	0.104	0.002604
30x500-B	30/500	0.015	0.013	0.000313
300x500-B	300/500	0.150	0.125	0.003125
300x550-B	300/550	0.165	0.138	0.004159
300x11-B	300/11	0.003	0.003	3.328E-08
300x110-B	300/110	0.033	0.028	0.000033

300x1100-B	300/1100	0.330	0.275	0.033275

Column and Beam Inertia Center

Coordinates of Center of Rigidity (x-R and y-R) is based on the coordinates of lower left column on the plan.

I_{xx} : Moment of Inertia About Global X-Axis
I_{yy} : Moment of Inertia About Global Y-Axis
x_R, y_R : Rigidity Center Coordinates based on column and wall inertia

Storey	I_{yy}-Column (m^4)	I_{yy}-Wall (m^4)	I_{yy}-Total (m^4)	I_{xx}-Column (m^4)	I_{xx}-Wall (m^4)	I_{xx}-Total (m^4)	x_R (m)	y_R (m)
Storey: 2	0.043750	0.000000	0.043750	0.015750	0.000000	0.015750	8.330	7.485
Storey: 1	0.043750	0.000000	0.043750	0.015750	0.000000	0.015750	8.330	7.485

Beam Loads

1B1 (300.0/550.0 mm L= 7120.00 mm)
Murr i jashtem: g= 5.08 kN/m
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-1.42	-5.71	-2.92	7.69	17.83	30.98
	q=	-0.33	-0.62	0.78	3.06	4.88	6.65
	q=	-0.33	-0.62	0.78	3.06	4.88	6.65
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	38.68	45.53	53.49	45.96	40.89	31.42
	q=	8.00	9.15	9.38	9.17	8.06	6.59
	q=	8.00	9.15	9.38	9.17	8.06	6.59
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	18.92	7.82	-4.32	-6.80	-1.49	
	q=	4.98	3.14	0.50	-0.89	-0.45	

Reactions: GI= 114.8 kN QI= 19.1 kN GJ= 115.6 kN QJ= 19.0 kN

1B2 (300.0/550.0 mm L= 5290.00 mm)
Murr i jashtem: g= 8.15 kN/m
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-1.50	-1.54	3.07	8.97	12.72	16.19
	q=	-0.46	-0.65	1.28	3.75	5.32	6.77
	q=	-0.46	-0.65	1.28	3.75	5.32	6.77
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	17.43	16.03	12.62	9.28	2.84	-1.47
	q=	7.29	6.70	5.28	3.88	1.19	-0.61
	q=	7.29	6.70	5.28	3.88	1.19	-0.61
...	x=	5.29					
	g=	-1.54					
	q=	-0.64					

Reactions: GI= 52.1 kN QI= 10.5 kN GJ= 52.1 kN QJ= 10.4 kN

1B3 (300.0/550.0 mm L= 5020.00 mm)
Murr i jashtem: g= 8.15 kN/m
Adjustment Loads: g= -0.57 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.33	0.67	1.00	1.38	1.87
	g=	-1.62	-0.01	2.96	8.33	11.85	15.26
	q=	-0.68	-0.01	1.24	3.48	4.96	6.38
	q=	-0.68	-0.01	1.24	3.48	4.96	6.38
...	x=	2.51	3.15	3.64	4.02	4.35	4.69
	g=	16.67	15.25	11.84	8.09	3.20	0.41
	q=	6.97	6.38	4.95	3.38	1.34	0.17
	q=	6.97	6.38	4.95	3.38	1.34	0.17
...	x=	5.02					
	g=	-1.62					
	q=	-0.68					

Reactions: GI= 48.7 kN QI= 9.5 kN GJ= 48.9 kN QJ= 9.6 kN

1B4 (300.0/550.0 mm L= 7120.00 mm)
Mur ndares: g= 12.25 kN/m
Adjustment Loads: g= -1.40 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-2.05	-0.05	4.02	12.47	20.64	27.27
	q=	-0.69	0.58	3.36	5.84	8.26	10.08
	q=	-0.69	0.58	3.36	5.84	8.26	10.08
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	33.76	40.62	47.43	41.94	34.52	27.84
	q=	11.46	12.57	12.75	12.60	11.45	10.11
	q=	11.46	12.57	12.75	12.60	11.45	10.11
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	20.86	12.52	3.99	-0.28	-2.67	
	q=	8.24	5.82	3.39	0.55	-0.97	

Reactions: GI= 133.0 kN QI= 29.3 kN GJ= 134.7 kN QJ= 29.2 kN

1B5 (300.0/550.0 mm L= 5290.00 mm)
Mur ndares: g= 12.25 kN/m
Adjustment Loads: g= -1.39 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-2.69	1.26	9.26	15.36	20.99	24.48
	q=	-0.98	0.53	3.87	6.42	8.78	10.24
	q=	-0.98	0.53	3.87	6.42	8.78	10.24
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	25.60	24.53	21.06	15.82	8.89	1.38
	q=	10.70	10.26	8.80	6.62	3.72	0.58
	q=	10.70	10.26	8.80	6.62	3.72	0.58
...	x=	5.29					
	g=	-1.91					
	q=	-0.80					

Reactions: GI= 77.0 kN QI= 17.5 kN GJ= 77.2 kN QJ= 17.6 kN

1B6 (300.0/550.0 mm L= 5020.00 mm)

Mur ndares: g= 12.25 kN/m

Adjustment Loads: g= -1.11 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.32	0.65	0.97	1.30	1.62
	g=	-2.08	1.70	8.94	12.61	12.69	9.20
	q=	-0.87	0.71	3.74	5.27	5.31	3.85
	q=	-0.87	0.71	3.74	5.27	5.31	3.85
...	x=	1.96	2.30	2.71	3.32	3.93	4.34
	g=	14.96	17.12	16.77	13.89	9.38	3.40
	q=	6.25	7.16	7.01	5.81	3.92	1.42
	q=	6.25	7.16	7.01	5.81	3.92	1.42
...	x=	4.68	5.02				
	g=	0.97	-1.64				
	q=	0.41	-0.69				

Reactions: GI= 59.8 kN QI= 10.8 kN GJ= 57.0 kN QJ= 9.7 kN

1B7 (300.0/550.0 mm L= 7120.00 mm)

Mur ndares: g= 12.25 kN/m

Adjustment Loads: g= -1.40 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-0.94	1.50	9.43	15.71	20.26	23.22
	q=	-0.39	0.63	3.94	6.57	8.47	9.71
	q=	-0.39	0.63	3.94	6.57	8.47	9.71
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	25.36	26.64	26.97	26.68	25.31	23.21
	q=	10.60	11.14	11.28	11.16	10.58	9.71
	q=	10.60	11.14	11.28	11.16	10.58	9.71
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	20.11	15.83	9.71	1.22	-1.69	
	q=	8.41	6.62	4.06	0.51	-0.70	

Reactions: GI= 113.9 kN QI= 27.9 kN GJ= 114.9 kN QJ= 27.8 kN

1B9 (300.0/550.0 mm L= 7120.00 mm)

Murr i jashtem: g= 5.08 kN/m

Adjustment Loads: g= -0.70 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-0.81	-0.45	3.19	8.83	12.26	15.06
	q=	-0.34	-0.19	1.33	3.69	5.13	6.30
	q=	-0.34	-0.19	1.33	3.69	5.13	6.30
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	17.11	18.41	18.86	18.37	17.18	15.08
	q=	7.16	7.70	7.89	7.68	7.18	6.30
	q=	7.16	7.70	7.89	7.68	7.18	6.30
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	12.19	8.72	3.65	-0.64	-1.51	
	q=	5.10	3.65	1.52	-0.27	-0.63	

Reactions: GI= 69.1 kN QI= 17.7 kN GJ= 69.5 kN QJ= 17.7 kN

1B10 (300.0/550.0 mm L= 6910.00 mm)

Murr i jashtem: g= 5.03 kN/m

Adjustment Loads: g= -0.60 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.69	1.04	1.38	1.75
	g=	-1.56	-0.61	3.01	8.47	11.51	14.78
	q=	-0.65	-0.26	1.26	3.54	4.81	6.18
	q=	-0.65	-0.26	1.26	3.54	4.81	6.18
...	x=	2.21	2.77	3.46	4.14	4.70	5.16

	g=	16.95	18.25	18.60	18.31	17.29	14.98
	q=	7.09	7.63	7.78	7.66	7.23	6.26
	q=	7.09	7.63	7.78	7.66	7.23	6.26
...	x=	5.53	5.87	6.22	6.56	6.91	
	g=	11.02	7.95	3.19	-1.41	-0.77	
	q=	4.61	3.33	1.33	-0.59	-0.32	

Reactions: GI= 66.9 kN QI= 16.8 kN GJ= 66.6 kN QJ= 16.7 kN

1B11 (300.0/550.0 mm L= 6910.00 mm)

Mur ndares: g= 12.25 kN/m

Adjustment Loads: g= -1.84 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-1.70	0.83	9.02	16.13	20.94	24.23
	q=	-0.71	0.35	3.77	6.74	8.75	10.13
	q=	-0.71	0.35	3.77	6.74	8.75	10.13
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	25.95	27.23	27.16	25.10	23.16	17.41
	q=	10.85	11.39	11.36	10.49	9.68	7.28
	q=	10.85	11.39	11.36	10.49	9.68	7.28
...	x=	5.29	5.61	5.94	6.26	6.59	6.91
	g=	8.64	12.32	12.96	8.15	1.30	-1.16
	q=	3.61	5.15	5.42	3.41	0.54	-0.49

Reactions: GI= 107.6 kN QI= 25.9 kN GJ= 100.6 kN QJ= 23.0 kN

1B12 (300.0/550.0 mm L= 5250.00 mm)

Murr i jashtem: g= 8.15 kN/m

Adjustment Loads: g= -0.60 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.70	1.05	1.44	1.95
	g=	-0.76	-0.71	3.81	8.61	12.66	16.01
	q=	-0.32	-0.30	1.59	3.60	5.29	6.70
	q=	-0.32	-0.30	1.59	3.60	5.29	6.70
...	x=	2.63	3.30	3.81	4.20	4.55	4.90
	g=	17.24	15.94	12.64	8.35	4.11	-0.70
	q=	7.21	6.66	5.29	3.49	1.72	-0.29
	q=	7.21	6.66	5.29	3.49	1.72	-0.29
...	x=	5.25					
	g=	-1.08					
	q=	-0.45					

Reactions: GI= 53.5 kN QI= 10.5 kN GJ= 53.5 kN QJ= 10.5 kN

1B13 (300.0/550.0 mm L= 5250.00 mm)

Mur ndares: g= 12.25 kN/m

Adjustment Loads: g= -1.31 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.70	1.05	1.44	1.95
	g=	-1.54	-1.93	6.15	17.31	25.28	32.11
	q=	-0.64	-0.81	2.57	7.24	10.57	13.43
	q=	-0.64	-0.81	2.57	7.24	10.57	13.43
...	x=	2.63	3.30	3.81	4.20	4.55	4.90
	g=	34.52	32.18	25.33	17.32	6.11	-1.27
	q=	14.43	13.46	10.59	7.24	2.56	-0.53
	q=	14.43	13.46	10.59	7.24	2.56	-0.53
...	x=	5.25					
	g=	-1.71					
	q=	-0.72					

Reactions: GI= 86.4 kN QI= 20.8 kN GJ= 86.6 kN QJ= 20.9 kN

1B14 (300.0/550.0 mm L= 2250.00 mm)

Adjustment Loads: g= -1.39 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	-1.60	5.15	12.40	14.47	12.49	5.18
	q=	-0.67	2.15	5.19	6.05	5.22	2.16
	q=	-0.67	2.15	5.19	6.05	5.22	2.16
...	x=	2.25					
	g=	-2.53					
	q=	-0.93					

Reactions: GI= 11.3 kN QI= 3.8 kN GJ= 11.2 kN QJ= 3.7 kN

1B15 (300.0/550.0 mm L= 7260.00 mm)

Mur ndares: g= 12.25 kN/m

Adjustment Loads: g= -1.41 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-2.62	-5.22	1.66	14.93	26.65	35.37
	q=	-0.96	-1.00	2.31	6.82	10.39	13.15
	q=	-0.96	-1.00	2.31	6.82	10.39	13.15
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	44.12	52.69	56.27	54.89	49.00	39.95
	q=	15.38	17.01	17.44	16.95	15.46	13.08
	q=	15.38	17.01	17.44	16.95	15.46	13.08
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	29.19	17.53	1.09	-6.02	-1.46	
	q=	10.16	6.96	2.25	-0.76	-0.44	

Reactions: GI= 160.3 kN QI= 38.0 kN GJ= 164.7 kN QJ= 38.2 kN

1B16 (300.0/550.0 mm L= 7260.00 mm)
Murr i jashtem: g= 5.28 kN/m
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-2.01	-4.40	-1.92	6.07	13.48	19.59
	q=	-0.68	-0.74	0.75	3.11	5.13	6.79
	q=	-0.68	-0.74	0.75	3.11	5.13	6.79
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	26.07	32.65	36.45	37.22	32.73	25.41
	q=	8.16	9.22	9.41	9.22	8.20	6.74
	q=	8.16	9.22	9.41	9.22	8.20	6.74
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	17.11	9.36	-3.28	-7.06	-1.39	
	q=	5.00	3.29	0.63	-0.90	-0.33	

Reactions: GI= 93.7 kN QI= 19.7 kN GJ= 98.9 kN QJ= 19.7 kN

1B17 (300.0/550.0 mm L= 2250.00 mm)
Murr i jashtem: g= 8.15 kN/m
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	-0.90	2.55	6.19	7.30	6.24	2.57
	q=	-0.37	1.07	2.59	3.05	2.61	1.08
	q=	-0.37	1.07	2.59	3.05	2.61	1.08
...	x=	2.25					
	g=	-1.94					
	q=	-0.66					

Reactions: GI= 15.5 kN QI= 1.9 kN GJ= 15.3 kN QJ= 1.8 kN

1B18 (300.0/550.0 mm L= 5250.00 mm)
Murr i jashtem: g= 8.15 kN/m
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.70	1.05	1.44	1.95
	g=	-0.83	-1.45	2.80	9.23	12.57	15.90
	q=	-0.35	-0.61	1.17	3.86	5.26	6.65
	q=	-0.35	-0.61	1.17	3.86	5.26	6.65
...	x=	2.63	3.30	3.81	4.20	4.55	4.90
	g=	17.30	16.14	12.53	8.87	3.00	-1.41
	q=	7.23	6.75	5.24	3.71	1.25	-0.59
	q=	7.23	6.75	5.24	3.71	1.25	-0.59
...	x=	5.25					
	g=	-0.96					
	q=	-0.40					

Reactions: GI= 52.8 kN QI= 10.3 kN GJ= 52.8 kN QJ= 10.3 kN

1B19 (300.0/550.0 mm L= 2250.00 mm)
Adjustment Loads: g= -0.54 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	-1.01	2.90	5.32	5.81	5.36	2.91
	q=	-0.42	1.21	2.23	2.43	2.24	1.22
	q=	-0.42	1.21	2.23	2.43	2.24	1.22
...	x=	2.25					
	g=	8.15					
	q=	3.41					

Reactions: GI= 7.3 kN QI= 1.7 kN GJ= 8.9 kN QJ= 2.4 kN

1B20 (300.0/550.0 mm L= 7260.00 mm)
Murr i jashtem: g= 8.15 kN/m
Adjustment Loads: g= -0.57 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-1.54	-1.19	4.84	8.55	11.77	14.66
	q=	-0.64	-0.50	2.03	3.58	4.92	6.13
	q=	-0.64	-0.50	2.03	3.58	4.92	6.13
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	16.81	18.10	18.30	18.02	16.88	15.02
	q=	7.03	7.57	7.65	7.53	7.06	6.28
	q=	7.03	7.57	7.65	7.53	7.06	6.28
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	12.18	8.20	4.35	-0.91	-1.49	
	q=	5.09	3.43	1.82	-0.38	-0.62	

Reactions: GI= 82.5 kN QI= 17.7 kN GJ= 82.5 kN QJ= 17.7 kN

1B21 (300.0/550.0 mm L= 7260.00 mm)
Mur ndares: g= 12.25 kN/m
Adjustment Loads: g= -1.27 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-1.86	-1.23	8.02	17.48	24.24	29.92
	q=	-0.78	-0.51	3.35	7.31	10.14	12.51
	q=	-0.78	-0.51	3.35	7.31	10.14	12.51
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	34.29	36.64	37.44	36.52	34.37	30.27
	q=	14.34	15.32	15.66	15.27	14.37	12.66
	q=	14.34	15.32	15.66	15.27	14.37	12.66
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	24.69	17.26	6.96	-0.51	-1.50	
	q=	10.32	7.22	2.91	-0.21	-0.63	

Reactions: GI= 138.2 kN QI= 36.1 kN GJ= 138.3 kN QJ= 36.2 kN

1B22 (300.0/550.0 mm L= 2250.00 mm)
Adjustment Loads: g= -1.23 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	7.79	5.54	11.56	13.00	11.54	5.51
	q=	3.26	2.31	4.83	5.44	4.82	2.31
	q=	3.26	2.31	4.83	5.44	4.82	2.31
...	x=	2.25					
	g=	-1.80					
	q=	-0.75					

Reactions: GI= 12.8 kN QI= 4.3 kN GJ= 11.0 kN QJ= 3.6 kN

2B1 (300.0/500.0 mm L= 7120.00 mm)
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-0.79	-1.48	1.87	7.33	11.67	15.90
	q=	-0.33	-0.62	0.78	3.06	4.88	6.65
	q=	-0.33	-0.62	0.78	3.06	4.88	6.65
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	19.14	21.87	22.43	21.92	19.28	15.76
	q=	8.00	9.15	9.38	9.17	8.06	6.59
	q=	8.00	9.15	9.38	9.17	8.06	6.59
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	11.91	7.50	1.20	-2.13	-1.08	
	q=	4.98	3.14	0.50	-0.89	-0.45	

Reactions: GI= 54.9 kN QI= 19.1 kN GJ= 54.6 kN QJ= 19.0 kN

2B2 (300.0/500.0 mm L= 5290.00 mm)
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-1.09	-1.54	3.07	8.97	12.72	16.19
	q=	-0.46	-0.65	1.28	3.75	5.32	6.77
	q=	-0.46	-0.65	1.28	3.75	5.32	6.77
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	17.43	16.03	12.62	9.28	2.84	-1.47
	q=	7.29	6.70	5.28	3.88	1.19	-0.61

	q=	7.29	6.70	5.28	3.88	1.19	-0.61
...	x=	5.29					
	g=	-1.54					
	q=	-0.64					

Reactions: GI= 31.8 kN QI= 10.5 kN GJ= 31.7 kN QJ= 10.4 kN

2B3 (300.0/500.0 mm L= 5020.00 mm)

Adjustment Loads: g= -0.57 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.33	0.67	1.00	1.38	1.87
	g=	-1.62	-0.01	2.96	8.33	11.85	15.26
	q=	-0.68	-0.01	1.24	3.48	4.96	6.38
	q=	-0.68	-0.01	1.24	3.48	4.96	6.38
...	x=	2.51	3.15	3.64	4.02	4.35	4.69
	g=	16.67	15.25	11.84	8.09	3.20	0.41
	q=	6.97	6.38	4.95	3.38	1.34	0.17
	q=	6.97	6.38	4.95	3.38	1.34	0.17
...	x=	5.02					
	g=	-1.62					
	q=	-0.68					

Reactions: GI= 29.5 kN QI= 9.5 kN GJ= 29.6 kN QJ= 9.6 kN

2B4 (300.0/500.0 mm L= 7120.00 mm)

Adjustment Loads: g= -1.40 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-1.66	1.38	8.04	13.96	19.76	24.10
	q=	-0.69	0.58	3.36	5.84	8.26	10.08
	q=	-0.69	0.58	3.36	5.84	8.26	10.08
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	27.40	30.06	30.48	30.14	27.38	24.17
	q=	11.46	12.57	12.75	12.60	11.45	10.11
	q=	11.46	12.57	12.75	12.60	11.45	10.11
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	19.72	13.92	8.12	1.32	-2.33	
	q=	8.24	5.82	3.39	0.55	-0.97	

Reactions: GI= 76.8 kN QI= 29.3 kN GJ= 76.7 kN QJ= 29.2 kN

2B5 (300.0/500.0 mm L= 5290.00 mm)

Adjustment Loads: g= -1.39 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-2.35	1.26	9.26	15.36	20.99	24.48
	q=	-0.98	0.53	3.87	6.42	8.78	10.24
	q=	-0.98	0.53	3.87	6.42	8.78	10.24
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	25.60	24.53	21.06	15.82	8.89	1.38
	q=	10.70	10.26	8.80	6.62	3.72	0.58
	q=	10.70	10.26	8.80	6.62	3.72	0.58
...	x=	5.29					
	g=	-1.91					
	q=	-0.80					

Reactions: GI= 46.8 kN QI= 17.5 kN GJ= 47.0 kN QJ= 17.6 kN

2B6 (300.0/500.0 mm L= 5020.00 mm)

Adjustment Loads: g= -1.11 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.32	0.65	0.97	1.30	1.62
	g=	-2.08	1.70	8.94	12.61	12.69	9.20
	q=	-0.87	0.71	3.74	5.27	5.31	3.85
	q=	-0.87	0.71	3.74	5.27	5.31	3.85
...	x=	1.96	2.30	2.71	3.32	3.93	4.34
	g=	14.96	17.12	16.77	13.89	9.38	3.40
	q=	6.25	7.16	7.01	5.81	3.92	1.42
	q=	6.25	7.16	7.01	5.81	3.92	1.42
...	x=	4.68	5.02				
	g=	0.97	-1.64				
	q=	0.41	-0.69				

Reactions: GI= 31.3 kN QI= 10.8 kN GJ= 28.5 kN QJ= 9.7 kN

2B7 (300.0/500.0 mm L= 7120.00 mm)

Adjustment Loads: g= -1.40 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-0.94	1.50	9.43	15.71	20.26	23.22
	q=	-0.39	0.63	3.94	6.57	8.47	9.71
	q=	-0.39	0.63	3.94	6.57	8.47	9.71
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	25.36	26.64	26.97	26.68	25.31	23.21
	q=	10.60	11.14	11.28	11.16	10.58	9.71
	q=	10.60	11.14	11.28	11.16	10.58	9.71
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	20.11	15.83	9.71	1.22	-1.69	
	q=	8.41	6.62	4.06	0.51	-0.70	

Reactions: GI= 73.4 kN QI= 27.9 kN GJ= 73.2 kN QJ= 27.8 kN

2B9 (300.0/500.0 mm L= 7120.00 mm)

Adjustment Loads: g= -0.70 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.71	1.07	1.42	1.81
	g=	-0.81	-0.45	3.19	8.83	12.26	15.06
	q=	-0.34	-0.19	1.33	3.69	5.13	6.30
	q=	-0.34	-0.19	1.33	3.69	5.13	6.30
...	x=	2.27	2.85	3.56	4.27	4.85	5.31
	g=	17.11	18.41	18.86	18.37	17.18	15.08
	q=	7.16	7.70	7.89	7.68	7.18	6.30
	q=	7.16	7.70	7.89	7.68	7.18	6.30
...	x=	5.70	6.05	6.41	6.76	7.12	
	g=	12.19	8.72	3.65	-0.64	-1.51	
	q=	5.10	3.65	1.52	-0.27	-0.63	

Reactions: GI= 51.6 kN QI= 17.7 kN GJ= 51.5 kN QJ= 17.7 kN

2B10 (300.0/500.0 mm L= 6910.00 mm)

Adjustment Loads: g= -0.60 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.69	1.04	1.38	1.75
	g=	-1.56	-0.61	3.01	8.47	11.51	14.78
	q=	-0.65	-0.26	1.26	3.54	4.81	6.18
	q=	-0.65	-0.26	1.26	3.54	4.81	6.18
...	x=	2.21	2.77	3.46	4.14	4.70	5.16
	g=	16.95	18.25	18.60	18.31	17.29	14.98
	q=	7.09	7.63	7.78	7.66	7.23	6.26
	q=	7.09	7.63	7.78	7.66	7.23	6.26
...	x=	5.53	5.87	6.22	6.56	6.91	
	g=	11.02	7.95	3.19	-1.41	-0.77	
	q=	4.61	3.33	1.33	-0.59	-0.32	

Reactions: GI= 49.6 kN QI= 16.8 kN GJ= 49.4 kN QJ= 16.7 kN

2B11 (300.0/500.0 mm L= 6910.00 mm)

Adjustment Loads: g= -1.84 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.71	1.06	1.45	1.97
	g=	-1.70	0.83	9.02	16.13	20.94	24.23
	q=	-0.71	0.35	3.77	6.74	8.75	10.13
	q=	-0.71	0.35	3.77	6.74	8.75	10.13
...	x=	2.65	3.32	3.84	4.23	4.58	4.94
	g=	25.95	27.23	27.16	25.10	23.16	17.41
	q=	10.85	11.39	11.36	10.49	9.68	7.28
	q=	10.85	11.39	11.36	10.49	9.68	7.28
...	x=	5.29	5.61	5.94	6.26	6.59	6.91
	g=	8.64	12.32	12.96	8.15	1.30	-1.16
	q=	3.61	5.15	5.42	3.41	0.54	-0.49

Reactions: GI= 67.2 kN QI= 25.9 kN GJ= 60.2 kN QJ= 23.0 kN

2B12 (300.0/500.0 mm L= 5250.00 mm)

Adjustment Loads: g= -0.60 kN/m

Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.70	1.05	1.44	1.95
	g=	-0.76	-0.71	3.81	8.61	12.66	16.01
	q=	-0.32	-0.30	1.59	3.60	5.29	6.70
	q=	-0.32	-0.30	1.59	3.60	5.29	6.70
...	x=	2.63	3.30	3.81	4.20	4.55	4.90
	g=	17.24	15.94	12.64	8.35	4.11	-0.70
	q=	7.21	6.66	5.29	3.49	1.72	-0.29
	q=	7.21	6.66	5.29	3.49	1.72	-0.29
...	x=	5.25					
	g=	-1.08					

		q=	-0.45				

Reactions: GI= 32.4 kN QI= 10.5 kN GJ= 32.4 kN QJ= 10.5 kN

2B13 (300.0/500.0 mm L= 5250.00 mm)

Adjustment Loads: g= -1.31 kN/m

Partial Distributed Loads (m, kN/m):

		x=	0.00	0.35	0.70	1.05	1.44	1.95
		g=	-1.54	-1.93	6.15	17.31	25.28	32.11
		q=	-0.64	-0.81	2.57	7.24	10.57	13.43
		q=	-0.64	-0.81	2.57	7.24	10.57	13.43
	...	x=	2.63	3.30	3.81	4.20	4.55	4.90
		g=	34.52	32.18	25.33	17.32	6.11	-1.27
		q=	14.43	13.46	10.59	7.24	2.56	-0.53
		q=	14.43	13.46	10.59	7.24	2.56	-0.53
	...	x=	5.25					
		g=	-1.71					
		q=	-0.72					

Reactions: GI= 55.2 kN QI= 20.8 kN GJ= 55.4 kN QJ= 20.9 kN

2B14 (300.0/500.0 mm L= 2250.00 mm)

Adjustment Loads: g= -1.39 kN/m

Partial Distributed Loads (m, kN/m):

		x=	0.00	0.38	0.75	1.13	1.50	1.88
		g=	-1.60	5.15	12.40	14.47	12.49	5.18
		q=	-0.67	2.15	5.19	6.05	5.22	2.16
		q=	-0.67	2.15	5.19	6.05	5.22	2.16
	...	x=	2.25					
		g=	-2.21					
		q=	-0.93					

Reactions: GI= 11.0 kN QI= 3.8 kN GJ= 10.9 kN QJ= 3.7 kN

2B15 (300.0/500.0 mm L= 7260.00 mm)

Adjustment Loads: g= -1.41 kN/m

Partial Distributed Loads (m, kN/m):

		x=	0.00	0.36	0.73	1.09	1.45	1.84
		g=	-2.29	-2.38	5.53	16.30	24.85	31.45
		q=	-0.96	-1.00	2.31	6.82	10.39	13.15
		q=	-0.96	-1.00	2.31	6.82	10.39	13.15
	...	x=	2.32	2.91	3.63	4.35	4.94	5.42
		g=	36.78	40.69	41.72	40.55	36.98	31.28
		q=	15.38	17.01	17.44	16.95	15.46	13.08
		q=	15.38	17.01	17.44	16.95	15.46	13.08
	...	x=	5.81	6.17	6.53	6.90	7.26	
		g=	24.31	16.64	5.39	-1.82	-1.06	
		q=	10.16	6.96	2.25	-0.76	-0.44	

Reactions: GI= 98.4 kN QI= 38.0 kN GJ= 98.7 kN QJ= 38.2 kN

2B16 (300.0/500.0 mm L= 7260.00 mm)

Adjustment Loads: g= -0.70 kN/m

Partial Distributed Loads (m, kN/m):

		x=	0.00	0.36	0.73	1.09	1.45	1.84
		g=	-1.62	-1.77	1.80	7.43	12.28	16.23
		q=	-0.68	-0.74	0.75	3.11	5.13	6.79
		q=	-0.68	-0.74	0.75	3.11	5.13	6.79
	...	x=	2.32	2.91	3.63	4.35	4.94	5.42
		g=	19.51	22.05	22.52	22.04	19.62	16.11
		q=	8.16	9.22	9.41	9.22	8.20	6.74
		q=	8.16	9.22	9.41	9.22	8.20	6.74
	...	x=	5.81	6.17	6.53	6.90	7.26	
		g=	11.95	7.86	1.51	-2.16	-0.78	
		q=	5.00	3.29	0.63	-0.90	-0.33	

Reactions: GI= 57.0 kN QI= 19.7 kN GJ= 57.0 kN QJ= 19.7 kN

2B17 (300.0/500.0 mm L= 2250.00 mm)

Adjustment Loads: g= -0.70 kN/m

Partial Distributed Loads (m, kN/m):

		x=	0.00	0.38	0.75	1.13	1.50	1.88
		g=	-0.90	2.55	6.19	7.30	6.24	2.57
		q=	-0.37	1.07	2.59	3.05	2.61	1.08
		q=	-0.37	1.07	2.59	3.05	2.61	1.08
	...	x=	2.25					
		g=	-1.57					
		q=	-0.66					

Reactions: GI= 7.2 kN QI= 1.9 kN GJ= 7.1 kN QJ= 1.8 kN

2B18 (300.0/500.0 mm L= 5250.00 mm)
Adjustment Loads: g= -0.70 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.35	0.70	1.05	1.44	1.95
	g=	-0.83	-1.45	2.80	9.23	12.57	15.90
	q=	-0.35	-0.61	1.17	3.86	5.26	6.65
	q=	-0.35	-0.61	1.17	3.86	5.26	6.65
...	x=	2.63	3.30	3.81	4.20	4.55	4.90
	g=	17.30	16.14	12.53	8.87	3.00	-1.41
	q=	7.23	6.75	5.24	3.71	1.25	-0.59
	q=	7.23	6.75	5.24	3.71	1.25	-0.59
...	x=	5.25					
	g=	-0.96					
	q=	-0.40					

Reactions: GI= 31.8 kN QI= 10.3 kN GJ= 31.8 kN QJ= 10.3 kN

2B19 (300.0/500.0 mm L= 2250.00 mm)
Adjustment Loads: g= -0.54 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	-1.01	2.90	5.32	5.81	5.36	2.91
	q=	-0.42	1.21	2.23	2.43	2.24	1.22
	q=	-0.42	1.21	2.23	2.43	2.24	1.22
...	x=	2.25					
	g=	8.15					
	q=	3.41					

Reactions: GI= 6.9 kN QI= 1.7 kN GJ= 8.6 kN QJ= 2.4 kN

2B20 (300.0/500.0 mm L= 7260.00 mm)
Adjustment Loads: g= -0.57 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-1.54	-1.19	4.84	8.55	11.77	14.66
	q=	-0.64	-0.50	2.03	3.58	4.92	6.13
	q=	-0.64	-0.50	2.03	3.58	4.92	6.13
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	16.81	18.10	18.30	18.02	16.88	15.02
	q=	7.03	7.57	7.65	7.53	7.06	6.28
	q=	7.03	7.57	7.65	7.53	7.06	6.28
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	12.18	8.20	4.35	-0.91	-1.49	
	q=	5.09	3.43	1.82	-0.38	-0.62	

Reactions: GI= 52.9 kN QI= 17.7 kN GJ= 52.9 kN QJ= 17.7 kN

2B21 (300.0/500.0 mm L= 7260.00 mm)
Adjustment Loads: g= -1.27 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.36	0.73	1.09	1.45	1.84
	g=	-1.86	-1.23	8.02	17.48	24.24	29.92
	q=	-0.78	-0.51	3.35	7.31	10.14	12.51
	q=	-0.78	-0.51	3.35	7.31	10.14	12.51
...	x=	2.32	2.91	3.63	4.35	4.94	5.42
	g=	34.29	36.64	37.44	36.52	34.37	30.27
	q=	14.34	15.32	15.66	15.27	14.37	12.66
	q=	14.34	15.32	15.66	15.27	14.37	12.66
...	x=	5.81	6.17	6.53	6.90	7.26	
	g=	24.69	17.26	6.96	-0.51	-1.50	
	q=	10.32	7.22	2.91	-0.21	-0.63	

Reactions: GI= 94.3 kN QI= 36.1 kN GJ= 94.4 kN QJ= 36.2 kN

2B22 (300.0/500.0 mm L= 2250.00 mm)
Adjustment Loads: g= -1.23 kN/m
Partial Distributed Loads (m, kN/m):

	x=	0.00	0.38	0.75	1.13	1.50	1.88
	g=	7.79	5.54	11.56	13.00	11.54	5.51
	q=	3.26	2.31	4.83	5.44	4.82	2.31
	q=	3.26	2.31	4.83	5.44	4.82	2.31
...	x=	2.25					
	g=	-1.80					
	q=	-0.75					

Reactions: GI= 12.4 kN QI= 4.3 kN GJ= 10.6 kN QJ= 3.6 kN

FB1 (300.0/1100.0 mm L= 7120.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 55.1 kN QI= 0.0 kN GJ= 56.0 kN QJ= 0.0 kN

FB2 (300.0/1100.0 mm L= 5290.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 40.8 kN QI= 0.0 kN GJ= 40.8 kN QJ= 0.0 kN

FB3 (300.0/1100.0 mm L= 5020.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 38.5 kN QI= 0.0 kN GJ= 38.5 kN QJ= 0.0 kN

FB4 (300.0/1100.0 mm L= 7260.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 59.3 kN QI= 0.0 kN GJ= 59.3 kN QJ= 0.0 kN

FB5 (300.0/1100.0 mm L= 5020.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 38.5 kN QI= 0.0 kN GJ= 38.5 kN QJ= 0.0 kN

FB6 (300.0/1100.0 mm L= 5290.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 40.8 kN QI= 0.0 kN GJ= 40.8 kN QJ= 0.0 kN

FB7 (300.0/1100.0 mm L= 7120.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 55.1 kN QI= 0.0 kN GJ= 56.0 kN QJ= 0.0 kN

FB8 (300.0/1100.0 mm L= 7260.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 59.3 kN QI= 0.0 kN GJ= 59.3 kN QJ= 0.0 kN

FB9 (300.0/1100.0 mm L= 2250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 16.6 kN QI= 0.0 kN GJ= 16.6 kN QJ= 0.0 kN

FB10 (300.0/1100.0 mm L= 5250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 42.2 kN QI= 0.0 kN GJ= 42.2 kN QJ= 0.0 kN

FB11 (300.0/1100.0 mm L= 7120.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 55.1 kN QI= 0.0 kN GJ= 56.0 kN QJ= 0.0 kN

FB12 (300.0/1100.0 mm L= 6910.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 54.6 kN QI= 0.0 kN GJ= 54.6 kN QJ= 0.0 kN

FB13 (300.0/1100.0 mm L= 5250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 42.2 kN QI= 0.0 kN GJ= 42.2 kN QJ= 0.0 kN

FB14 (300.0/1100.0 mm L= 2250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 16.6 kN QI= 0.0 kN GJ= 16.6 kN QJ= 0.0 kN

FB15 (300.0/1100.0 mm L= 7260.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 59.3 kN QI= 0.0 kN GJ= 59.3 kN QJ= 0.0 kN

FB16 (300.0/1100.0 mm L= 6910.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 54.6 kN QI= 0.0 kN GJ= 54.6 kN QJ= 0.0 kN

FB17 (300.0/1100.0 mm L= 7120.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 55.1 kN QI= 0.0 kN GJ= 56.0 kN QJ= 0.0 kN

FB18 (300.0/1100.0 mm L= 7260.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 59.3 kN QI= 0.0 kN GJ= 59.3 kN QJ= 0.0 kN

FB19 (300.0/1100.0 mm L= 2250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 16.6 kN QI= 0.0 kN GJ= 16.6 kN QJ= 0.0 kN

FB20 (300.0/1100.0 mm L= 5250.00 mm)
Murr i jashtem: g= 9.13 kN/m
Reactions: GI= 42.2 kN QI= 0.0 kN GJ= 42.2 kN QJ= 0.0 kN

Note:
Whole structure is considered as a single integrated 3D model for the analysis.
Therefore, reactions transferred by the secondary beams are considered naturally to the main beams.

Slab Additional Dead Loads

Room	Unit Weight (kN/m3)	Thickness (mm)	Load (kN/m2)
Cement Grout (>= 2.5 MPa)	21.000	25.0	0.525
Ceiling Grout	21.000	20.0	0.420
Finishing Concrete	22.000	50.0	1.100
Mosaic Tiles	22.000	15.0	0.330
Total Load:			2.375

Terrace/Balcony	Unit Weight (kN/m3)	Thickness (mm)	Load (kN/m2)
Cement/Gypsum Floor Screed	20.000	40.0	0.800
Cement Grout (>= 2.5 MPa)	21.000	25.0	0.525
Ceiling Grout	21.000	20.0	0.420
Finishing Concrete	22.000	50.0	1.100
Mosaic Tiles	22.000	15.0	0.330
Total Load:			3.175

Lowered Slab	Unit Weight (kN/m3)	Thickness (mm)	Load (kN/m2)
Cement/Gypsum Floor Screed	20.000	40.0	0.800
Cement Grout (>= 2.5 MPa)	21.000	25.0	0.525
Ceiling Grout	21.000	20.0	0.420
Finishing Concrete	22.000	50.0	1.100
Mosaic Tiles	22.000	18.0	0.396
Lightweight Concrete with Perlite	8.000	200.0	1.600
Total Load:			4.841

Beam Wall Loads

Mur ndares	Unit Weight (kN/m3)	Thickness (mm)	Load (kN/m2)
Brick	20.000	200.0	4.000
Plaster	18.000	50.0	0.900
Total Load:			4.900

Murr i jashtem	Unit Weight (kN/m3)	Thickness (mm)	Load (kN/m2)
Polisterol	0.800	50.0	0.040
Light Blocks	10.000	250.0	2.500
Plaster	18.000	40.0	0.720
Total Load:			3.260

Post-analysis Checks

(A1) TORSION IRREGULARITY CHECK:

(SS EN 1998-1 - Cl. 4.2.3.2)

δ_{min} : Min. Absolute Storey Drift
δ_{max} : Max. Absolute Storey Drift
Δ : Relative Storey Drift ($\delta_{column,top} - \delta_{column,bot}$)
η_c : $\Delta_{max} / \Delta_{ave}$

EARTHQUAKE DIRECTION: 1 (Angle From X 0.00 Deg)

Storey	δ_{min} (m)	δ_{max} (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	η_c	Status
Storey: 2	0.006	0.007	0.003	0.003	0.003	1.071 ≤ 1.2	---
Storey: 1	0.003	0.003	0.003	0.003	0.003	1.124 ≤ 1.2	---

EARTHQUAKE DIRECTION: 1 (Angle From X 180.00 Deg)

Storey	δ_{min} (m)	δ_{max} (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	η_c	Status
Storey: 2	0.005	0.007	0.003	0.004	0.003	1.136 ≤ 1.2	---
Storey: 1	0.003	0.003	0.003	0.003	0.003	1.103 ≤ 1.2	---

Dir 1: (A1) Irregularity does not Exist. √

EARTHQUAKE DIRECTION: 2 (Angle From X 90.00 Deg)

Storey	δ_{min} (m)	δ_{max} (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	η_c	Status
Storey: 2	0.010	0.012	0.004	0.005	0.005	1.089 ≤ 1.2	---
Storey: 1	0.006	0.007	0.006	0.007	0.006	1.052 ≤ 1.2	---

EARTHQUAKE DIRECTION: 2 (Angle From X 270.00 Deg)

Storey	δ_{min} (m)	δ_{max} (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	η_c	Status
Storey: 2	0.010	0.012	0.004	0.005	0.005	1.098 ≤ 1.2	---
Storey: 1	0.006	0.007	0.006	0.007	0.006	1.106 ≤ 1.2	---

Dir 2: (A1) Irregularity does not Exist. √

EFFECTIVE MASS PARTICIPATION RATIO CHECK:

(SS EN 1998-1 - Cl. 4.3.3.3.1(3))

Mode	Dir	Sx+		Sx-		Sy+		Sy-	
1	X	0.009		0.009		0.009		0.009	
	Y	92.133		92.133		92.133		92.133	
	Rot	0.045		0.045		0.045		0.045	
2	X	0.069		0.069		0.069		0.069	
	Y	92.159		92.159		92.159		92.159	
	Rot	89.639		89.639		89.639		89.639	
3	X	88.483		88.483		88.483		88.483	
	Y	92.168		92.168		92.168		92.168	
	Rot	89.660		89.660		89.660		89.660	
4	X	88.484		88.484		88.484		88.484	
	Y	99.953		99.953		99.953		99.953	
	Rot	89.663		89.663		89.663		89.663	
5	X	88.634		88.634		88.634		88.634	
	Y	100.000		100.000		100.000		100.000	
	Rot	99.577		99.577		99.577		99.577	
6	X	100.000	>90 √	100.000	>90 √	100.000	>90 √	100.000	>90 √
	Y	100.000	>90 √	100.000	>90 √	100.000	>90 √	100.000	>90 √
	Rot	100.000		100.000		100.000		100.000	

INTERSTOREY STIFFNESS IRREGULARITY CHECK (Soft Storey):

(SS EN 1998-1 - Cl 4.2.3.3(3)

h_i : Storey Height
Δ : Relative Storey Drift ($\delta_{column,top} - \delta_{column,bot}$)

Ratio 1 : Δ_{i+1} / Δ_i
Δ_{ave-2} : Ave $(\Delta_{i-1, i, i+1}) / \Delta_i$
Ratio 2 : $\Delta_{ave-2} / \Delta_i$

EARTHQUAKE DIRECTION: 1 (Angle From X 0.000 Degrees)

Load Case: Sx+

Storey	h_i (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	Ratio 1	Δ_{ave-2} (m)	Ratio 2
Storey: 2	3.000	0.003	0.003	0.003	---	0.003	0.98 ≥ 0.80 √
Storey: 1	3.000	0.003	0.003	0.003	1.05 ≥ 0.70 √	0.003	1.03 ≥ 0.80 √

Load Case: Sx-

Storey	h_i (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	Ratio 1	Δ_{ave-2} (m)	Ratio 2
Storey: 2	3.000	0.003	0.004	0.003	---	0.003	0.98 ≥ 0.80 √
Storey: 1	3.000	0.003	0.003	0.003	1.06 ≥ 0.70 √	0.003	1.03 ≥ 0.80 √

Dir 1: Stiffness Irregularity does not exist. √

EARTHQUAKE DIRECTION: 2 (Angle From X 90.000 Degrees)

Load Case: Sy+

Storey	h_i (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	Ratio 1	Δ_{ave-2} (m)	Ratio 2
Storey: 2	3.000	0.004	0.005	0.005	---	0.006	1.14 ≥ 0.80 √
Storey: 1	3.000	0.006	0.007	0.006	0.79 ≥ 0.70 √	0.006	0.90 ≥ 0.80 √

Load Case: Sy-

Storey	h_i (m)	Δ_{min} (m)	Δ_{max} (m)	Δ_{ave} (m)	Ratio 1	Δ_{ave-2} (m)	Ratio 2
Storey: 2	3.000	0.004	0.005	0.005	---	0.005	1.15 ≥ 0.80 √
Storey: 1	3.000	0.006	0.007	0.006	0.78 ≥ 0.70 √	0.005	0.89 ≥ 0.80 √

Dir 2: Stiffness Irregularity does not exist. √

INTERSTOREY MASS IRREGULARITY CHECK:

(SS EN 1998-1 - Cl 4.2.3.3(3)

Storey	m_i (t)	m_i / m_{i+1}	Ave $(m_{i-1, i, i+1})$ (t)	m_i / Ave $(m_{i-1, i, i+1})$
Storey: 1	354.493	1.39 ≥ 0.70 √	304.805	1.17 ≥ 0.80 √
Storey: 2	255.117	---	304.805	0.84 ≥ 0.80 √

Interstorey Mass Irregularity does not exist. √

RELATIVE STOREY DRIFT CHECK:

(SS EN 1998-1 - Cl. 4.3.4 ve 4.4.3.2(1)a)
h : Storey Height
d_e : Maximum Absolute Storey Drift (reduced by q)
d_s : Maximum Absolute Storey Drift ($d_s = d_e * q$)
d_r : Relative Storey Drift ($d_{s(i)} - d_{s(i-1)}$)
v : EC8 Reduction Factor

EARTHQUAKE DIRECTION 1 (Angle From X 0.000 Degrees)

Load Case: Sx+

Storey	h (m)	d_e (m)	d_s (m)	d_r (m)	d_r* v / h
Storey: 2	3.000	0.007	0.025	0.013	0.002 ≤ 0.005 √
Storey: 1	3.000	0.003	0.013	0.013	0.002 ≤ 0.005 √

Load Case: Sx-

Storey	h (m)	d_e (m)	d_s (m)	d_r (m)	d_r* v / h
Storey: 2	3.000	0.007	0.026	0.013	0.002 ≤ 0.005 √
Storey: 1	3.000	0.003	0.012	0.012	0.002 ≤ 0.005 √

EARTHQUAKE DIRECTION 2 (Angle From X 90.000 Degrees)

Load Case: Sy+

Storey	h (m)	d_e (m)	d_s (m)	d_r (m)	d_r* v / h
Storey: 2	3.000	0.012	0.045	0.020	0.003 ≤ 0.005 √
Storey: 1	3.000	0.007	0.025	0.025	0.003 ≤ 0.005 √

Load Case: Sy-

Storey	h (m)	d_e (m)	d_s (m)	d_r (m)	d_r* v / h
Storey: 2	3.000	0.012	0.045	0.020	0.003 ≤ 0.005 √
Storey: 1	3.000	0.007	0.026	0.026	0.003 ≤ 0.005 √

SECOND ORDER EFFECTS REQUIREMENT CHECK:

h_i : Storey Height
Δ_{ave} : Average Relative Storey Drfit ($\delta_{column,top} - \delta_{column,bot}$)
W_i : Seismic Weight (W = G + nQ)
ΣW_{i-n} : Total Seismic Weight
V_i : Storey Base Shear

EARTHQUAKE DIRECTION: 1 (Angle From X 0.000 Degrees)

Load Case: **Sx+** (MC Earthquake X (E+))

Storey	h (m)	Δ_{ave} (m)	W_i (kN)	ΣW_{i-n} (kN)	V_i (kN)	$\Theta_i = (W_i * \Delta_i) / (V_i * h_i)$
Storey: 2	3.000	0.003	2502.7	2502.7	545.9	0.0048 ≤ 0.12 √
Storey: 1	3.000	0.003	3477.6	5980.3	985.5	0.0060 ≤ 0.12 √

Load Case: **Sx-** (MC Earthquake X (E-))

Storey	h (m)	Δ_{ave} (m)	W_i (kN)	ΣW_{i-n} (kN)	V_i (kN)	$\Theta_i = (W_i * \Delta_i) / (V_i * h_i)$
Storey: 2	3.000	0.003	2502.7	2502.7	545.9	0.0048 ≤ 0.12 √
Storey: 1	3.000	0.003	3477.6	5980.3	985.5	0.0061 ≤ 0.12 √

Dir 1: Second Order Effects are considered using code based slenderness methods. √

EARTHQUAKE DIRECTION: 2 (Angle From X 90.000 Degrees)

Load Case: **Sy+** (Eartquake Y (E+))

Storey	h (m)	Δ_{ave} (m)	W_i (kN)	ΣW_{i-n} (kN)	V_i (kN)	$\Theta_i = (W_i * \Delta_i) / (V_i * h_i)$
Storey: 2	3.000	0.005	2502.7	2502.7	553.2	0.0074 ≤ 0.12 √
Storey: 1	3.000	0.006	3477.6	5980.3	1020.2	0.0122 ≤ 0.12 √

Load Case: **Sy-** (Earthquake Y (E-))

Storey	h (m)	Δ_{ave} (m)	W_i (kN)	ΣW_{i-n} (kN)	V_i (kN)	$\Theta_i = (W_i * \Delta_i) / (V_i * h_i)$
Storey: 2	3.000	0.005	2502.7	2502.7	553.2	0.0072 ≤ 0.12 √
Storey: 1	3.000	0.006	3477.6	5980.3	1020.2	0.0120 ≤ 0.12 √

Dir 2: Second Order Effects are considered using code based slenderness methods. √

STOREY MASSES AND WEIGHTS

h : Storey Height
m, mr^2 : Storey Mass and Mass Moment of Inertia
G, Q : Sum of Dead and Live Loads in Storey

W : Storey Seismic Weight (W = G + nQ)

Storey	h (m)	m (t)	mr^2 (t.m)	G (kN)	Q (kN)	W (kN)
2	3.000	255.117	17026.828	2085.5	695.3	2502.7
1	3.000	354.493	22058.632	3269.0	695.3	3477.6
Total				5354.5	1390.6	5980.3

STOREY CENTER OF GRAVITY TABLE

B_x, B_y : Plan Width of Storeys
X_g, Y_g : Storey Center of Gravity Coordinates
e_x, e_y : Eccentricities (Percent of Plan Width)

Storey	B_x (m)	X_g (m)	e_x (%)	B_y (m)	Y_g (m)	e_y (%)
2	17.430	7.994	5.00	14.760	7.747	5.00
1	17.430	7.863	5.00	14.760	7.989	5.00

WIND LOADS

F_x, F_y : Wind Load Components
X_g, Y_g : Storey Load Application Coordinates

Load Case: Wx

Storey	F_x (kN)	F_y (kN)	X (m)	Y (m)
Storey: 2	39.5	0.0	18.765	19.380
Storey: 1	39.5	0.0	18.765	19.380

Load Case: Wy

Storey	F_x (kN)	F_y (kN)	X (m)	Y (m)
Storey: 2	0.0	46.2	18.765	19.380
Storey: 1	0.0	46.2	18.765	19.380

EARTHQUAKE DYNAMIC INERTIA FORCES:

Earthquake forces are calculated using R = 5.85.

EARTHQUAKE DIRECTION: 1 (Angle From X 0.00 Degrees, Sx+)

Storey	Fx (kN)	Fy (kN)	Fz (kN)	Mz (kN.m)
2	545.9	-6.7	0.0	253.0
1	439.6	-6.6	0.0	456.6
Total	985.5	-13.3	0.0	709.5

EARTHQUAKE DIRECTION: 1 (Angle From X 0.00 Degrees, Sx-)

Storey	Fx (kN)	Fy (kN)	Fz (kN)	Mz (kN.m)
2	545.9	-6.7	0.0	304.4
1	439.6	-6.6	0.0	549.4
Total	985.5	-13.3	0.0	853.9

EARTHQUAKE DIRECTION: 2 (Angle From X 90.00 Degrees, Sy+)

Storey	Fx (kN)	Fy (kN)	Fz (kN)	Mz (kN.m)
2	7.6	553.2	0.0	-332.5
1	5.7	467.0	0.0	-426.4
Total	13.3	1020.2	0.0	-758.9

EARTHQUAKE DIRECTION: 2 (Angle From X 90.00 Degrees, Sy-)

Storey	Fx (kN)	Fy (kN)	Fz (kN)	Mz (kN.m)
2	7.6	553.2	0.0	-457.1
1	5.7	467.0	0.0	-586.3
Total	13.3	1020.2	0.0	-1043.4

SEISMIC OVERTURNING CHECK:

h_i	: Total Building Height measured from foundation level.
F_1, F_2	: Earthquake forces
M_{a1}, M_{a2}	: Overturning Moments
M_{p1}, M_{p2}	: Resisting Moments at storey level
d_1, d_2	: Moment arm of resisting forces to overturning
X_g, Y_g	: Story Center of Gravity Coordinates
W	: Storey Seismic Weight (W = G + nQ)

OVERTURNING EFFECTS:

Storey	h (m)	F_1 (kN)	M_{a1} (kN.m)	F_2 (kN)	M_{a2} (kN.m)
2	6.000	545.9	3275.6	553.3	3319.5
1	3.000	439.7	1319.1	467.0	1401.0
Total			4594.7		4720.6

RESISTING EFFECTS (Negative Earthquake Direction):

Storey	W (kN)	d_1 (m)	M_{p1} (kN.m)	d_2 (m)	M_{p2} (kN.m)
Storey: 2	2502.7	7.994	20006.3	7.747	19389.2
Storey: 1	3477.6	7.863	27345.7	7.989	27783.1
Total			47352.0		47172.3

RESISTING EFFECTS (Positive Earthquake Direction):

Storey	W (kN)	d_1 (m)	M_{p1} (kN.m)	d_2 (m)	M_{p2} (kN.m)
Storey: 2	2502.7	9.436	23615.8	7.013	17550.7
Storey: 1	3477.6	9.567	33268.4	6.771	23545.9
Total			56884.2		41096.6

Overturning Check: Dir 1 ... M_{p1} / M_{a1} = 47352.0 / 4594.7 = 10.3058 ≥ 2.0 OK √

Overturning Check: Dir 2 ... M_{p2} / M_{a2} = 41096.6 / 4720.6 = 8.7058 ≥ 2.0 OK √

STRUCTURAL IRREGULARITIES:

Plan Irregularities

Non-Symmetrical Distribution of Stiffness	: -NONE-
Non-Symmetrical Distribution of Mass	: -NONE-
Building With SetBacks (Non-Compact Plan Shape)	: -NONE-
Plan Slenderness (Dimension Ratio > 4)	: -NONE-
Torsionally Flexible System	: -NONE-

Elevation Irregularities

Discontinuous Vertical Load Resisting Elements	: -NONE-
Interstorey Stiffness Irregularity (Soft Storey)	: -NONE-
Interstorey Strength Irregularity (Weak Storey)	: -NONE-
Non-uniform Inter-storey Mass Distribution	: -NONE-
Existance of Re-entrant Storeys	: -NONE-

SEISMIC CHECKS SUMMARY REPORT:

Effective Mass Ratio exceeds 90% in all loadings.
Number of Participating Modes are sufficient. √

Effective Mass Ratio exceeds 90% in all loadings.
Number of Participating Modes are sufficient. √

Eigenvalue/EQ Analysis Results

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P B - S O L V E R
Three-Dimensional Finite Element Program
for ProtaStructure

Version 6.1 (April 2018)

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E I G E N S Y S T E M P A R A M E T E R S

Number of Equations	:	102
Number of Masses	:	6
Number of Eigenvalues	:	6
Subspace Iterations	:	2

E I G E N V A L U E S A N D F R E Q U E N C I E S

Mode Number	Period (Sec)	Frequency (Cycles/Sec)	Circular Fre (Rad/Sec)	Eigenvalue (Rad/Sec)**2
1	0.441772	2.263611	14.222684	202.284749
2	0.374486	2.670329	16.778172	281.507044
3	0.325593	3.071322	19.297686	372.400669
4	0.165588	6.039100	37.944782	1439.806472
5	0.130242	7.678027	48.242464	2327.335368
6	0.109927	9.096951	57.157830	3267.017531

M O D A L P A R T I C I P A T I N G F A C T O R S

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.228810	23.699203	0.000000	0.000000	0.000000	-4.210568
2	0.374486	-0.607062	0.396296	0.000000	0.000000	0.000000	187.130755
3	0.325593	23.215925	-0.235111	0.000000	0.000000	0.000000	2.891181
4	0.165588	0.072372	6.888959	0.000000	0.000000	0.000000	-1.082526
5	0.130242	-0.955735	0.535244	0.000000	0.000000	0.000000	62.249083
6	0.109927	8.324138	0.034749	0.000000	0.000000	0.000000	12.855844

P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.060452	0.025762	0.000000	0.000000	0.000000	89.593350
3	0.325593	88.413771	0.009068	0.000000	0.000000	0.000000	0.021386
4	0.165588	0.859189E-03	7.784937	0.000000	0.000000	0.000000	0.002998
5	0.130242	0.149838	0.046995	0.000000	0.000000	0.000000	9.914056
6	0.109927	11.366491	0.198074E-03	0.000000	0.000000	0.000000	0.422850

C U M U L A T I V E P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-dir	Y-dir	Z-dir
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.069041	92.158802	0.000000	0.000000	0.000000	89.638710
3	0.325593	88.482811	92.167870	0.000000	0.000000	0.000000	89.660096
4	0.165588	88.483670	99.952807	0.000000	0.000000	0.000000	89.663094
5	0.130242	88.633509	99.999802	0.000000	0.000000	0.000000	99.577150
6	0.109927	100.000000	100.000000	0.000000	0.000000	0.000000	100.000000

D Y N A M I C S P E C T R A L F O R C E S

Load Case : 3 [SX+ / MC Earthquake X (E+)]

Load Case Type	=	EQDS
Eccentricity (x,y)	=	+0.00 , +1.00
Eccentricity Application Method	=	Update Modal Dynamic Forces
Modal Combination	=	CQC
Damping Ratio	=	0.05
Directional Combination	=	SRS
Directional factor	=	1.00

Excitation Direction = 1
Spectral Function = SPECT1
Excitation Angle = 0.00
Ground Motion Coefficient (A0) = 0.30
Building Importance Factor (I) = 1.20
Live Load Reduction Factor (n) = 0.00

E I G E N V A L U E S A N D F R E Q U E N C I E S

Mode Number	Period (Sec)	Frequency (Cycles/Sec)	Circular Fre (Rad/Sec)	Eigenvalue (Rad/Sec)**2
1	0.441772	2.263611	14.222684	202.284749
2	0.374486	2.670329	16.778172	281.507044
3	0.325593	3.071322	19.297686	372.400669
4	0.165588	6.039100	37.944782	1439.806472
5	0.130242	7.678027	48.242464	2327.335368
6	0.109927	9.096951	57.157830	3267.017531

P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.060452	0.025762	0.000000	0.000000	0.000000	89.593350
3	0.325593	88.413771	0.009068	0.000000	0.000000	0.000000	0.021386
4	0.165588	0.859189E-03	7.784937	0.000000	0.000000	0.000000	0.002998
5	0.130242	0.149838	0.046995	0.000000	0.000000	0.000000	9.914056
6	0.109927	11.366491	0.198074E-03	0.000000	0.000000	0.000000	0.422850

C U M U L A T I V E P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-dir	Y-dir	Z-dir
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.069041	92.158802	0.000000	0.000000	0.000000	89.638710
3	0.325593	88.482811	92.167870	0.000000	0.000000	0.000000	89.660096
4	0.165588	88.483670	99.952807	0.000000	0.000000	0.000000	89.663094
5	0.130242	88.633509	99.999802	0.000000	0.000000	0.000000	99.577150
6	0.109927	100.000000	100.000000	0.000000	0.000000	0.000000	100.000000

M O D A L C O R R E L A T I O N S

Mode	Periyod	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)	Mode (6)
1	0.441772	1.000000	0.266708	0.095192	0.008460	0.004943	0.003508
2	0.374486	0.266708	1.000000	0.336947	0.012920	0.007097	0.004898
3	0.325593	0.095192	0.336947	1.000000	0.019500	0.009930	0.006634
4	0.165588	0.008460	0.012920	0.019500	1.000000	0.146158	0.054349
5	0.130242	0.004943	0.007097	0.009930	0.146158	1.000000	0.256641
6	0.109927	0.003508	0.004898	0.006634	0.054349	0.256641	1.000000

S P E C T R U M M O D A L A C C E L E R A T I O N S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	1.807885	1.807885	0.000000
2	0.374486	1.807885	1.807885	0.000000
3	0.325593	1.807885	1.807885	0.000000
4	0.165588	1.885040	1.885040	0.000000
5	0.130242	1.964288	1.964288	0.000000
6	0.109927	2.009836	2.009836	0.000000

S P E C T R U M M O D A L A M P L I T U D E S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	0.002045	0.211808	0.000000
2	0.374486	-.389865E-02	0.002545	0.000000
3	0.325593	0.112706	-.114139E-02	0.000000
4	0.165588	0.947517E-04	0.009019	0.000000
5	0.130242	-.806647E-03	0.451750E-03	0.000000
6	0.109927	0.005121	0.213771E-04	0.000000

Load Case : 4 [SX- / MC Earthquake X (E-)]
Load Case Type = EQDS
Eccentricity (x,y) = +0.00 , -1.00
Eccentricity Application Method = Update Modal Dynamic Forces

Modal Combination		= CQC
Damping Ratio		= 0.05
Directional Combination		= SRS
Directional factor		= 1.00
Excitation Direction		= 1
Spectral Function		= SPECT1
Excitation Angle		= 0.00
Ground Motion Coefficient	(A0)	= 0.30
Building Importance Factor	(I)	= 1.20
Live Load Reduction Factor	(n)	= 0.00

E I G E N V A L U E S A N D F R E Q U E N C I E S

Mode Number	Period (Sec)	Frequency (Cycles/Sec)	Circular Fre (Rad/Sec)	Eigenvalue (Rad/Sec)**2
1	0.441772	2.263611	14.222684	202.284749
2	0.374486	2.670329	16.778172	281.507044
3	0.325593	3.071322	19.297686	372.400669
4	0.165588	6.039100	37.944782	1439.806472
5	0.130242	7.678027	48.242464	2327.335368
6	0.109927	9.096951	57.157830	3267.017531

P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.060452	0.025762	0.000000	0.000000	0.000000	89.593350
3	0.325593	88.413771	0.009068	0.000000	0.000000	0.000000	0.021386
4	0.165588	0.859189E-03	7.784937	0.000000	0.000000	0.000000	0.002998
5	0.130242	0.149838	0.046995	0.000000	0.000000	0.000000	9.914056
6	0.109927	11.366491	0.198074E-03	0.000000	0.000000	0.000000	0.422850

C U M U L A T I V E P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-dir	Y-dir	Z-dir
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.069041	92.158802	0.000000	0.000000	0.000000	89.638710
3	0.325593	88.482811	92.167870	0.000000	0.000000	0.000000	89.660096
4	0.165588	88.483670	99.952807	0.000000	0.000000	0.000000	89.663094
5	0.130242	88.633509	99.999802	0.000000	0.000000	0.000000	99.577150
6	0.109927	100.000000	100.000000	0.000000	0.000000	0.000000	100.000000

M O D A L C O R R E L A T I O N S

Mode	Periyod	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)	Mode (6)
1	0.441772	1.000000	0.266708	0.095192	0.008460	0.004943	0.003508
2	0.374486	0.266708	1.000000	0.336947	0.012920	0.007097	0.004898
3	0.325593	0.095192	0.336947	1.000000	0.019500	0.009930	0.006634
4	0.165588	0.008460	0.012920	0.019500	1.000000	0.146158	0.054349
5	0.130242	0.004943	0.007097	0.009930	0.146158	1.000000	0.256641
6	0.109927	0.003508	0.004898	0.006634	0.054349	0.256641	1.000000

S P E C T R U M M O D A L A C C E L E R A T I O N S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	1.807885	1.807885	0.000000
2	0.374486	1.807885	1.807885	0.000000
3	0.325593	1.807885	1.807885	0.000000
4	0.165588	1.885040	1.885040	0.000000
5	0.130242	1.964288	1.964288	0.000000
6	0.109927	2.009836	2.009836	0.000000

S P E C T R U M M O D A L A M P L I T U D E S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	0.002045	0.211808	0.000000
2	0.374486	-.389865E-02	0.002545	0.000000
3	0.325593	0.112706	-.114139E-02	0.000000
4	0.165588	0.947517E-04	0.009019	0.000000
5	0.130242	-.806647E-03	0.451750E-03	0.000000
6	0.109927	0.005121	0.213771E-04	0.000000

Load Case : 5 [SY+ / Eartquake Y (E+)]

Load Case Type		= EQDS
Eccentricity (x,y)		= +1.00 , +0.00
Eccentricity Application Method		= Update Modal Dynamic Forces
Modal Combination		= CQC
Damping Ratio		= 0.05
Directional Combination		= SRS
Directional factor		= 1.00
Excitation Direction		= 2
Spectral Function		= SPECT1
Excitation Angle		= 90.00
Ground Motion Coefficient	(A0)	= 0.30
Building Importance Factor	(I)	= 1.20
Live Load Reduction Factor	(n)	= 0.00

E I G E N V A L U E S A N D F R E Q U E N C I E S

Mode Number	Period (Sec)	Frequency (Cycles/Sec)	Circular Fre (Rad/Sec)	Eigenvalue (Rad/Sec)**2
1	0.441772	2.263611	14.222684	202.284749
2	0.374486	2.670329	16.778172	281.507044
3	0.325593	3.071322	19.297686	372.400669
4	0.165588	6.039100	37.944782	1439.806472
5	0.130242	7.678027	48.242464	2327.335368
6	0.109927	9.096951	57.157830	3267.017531

P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.060452	0.025762	0.000000	0.000000	0.000000	89.593350
3	0.325593	88.413771	0.009068	0.000000	0.000000	0.000000	0.021386
4	0.165588	0.859189E-03	7.784937	0.000000	0.000000	0.000000	0.002998
5	0.130242	0.149838	0.046995	0.000000	0.000000	0.000000	9.914056
6	0.109927	11.366491	0.198074E-03	0.000000	0.000000	0.000000	0.422850

C U M U L A T I V E P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-dir	Y-dir	Z-dir
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.069041	92.158802	0.000000	0.000000	0.000000	89.638710
3	0.325593	88.482811	92.167870	0.000000	0.000000	0.000000	89.660096
4	0.165588	88.483670	99.952807	0.000000	0.000000	0.000000	89.663094
5	0.130242	88.633509	99.999802	0.000000	0.000000	0.000000	99.577150
6	0.109927	100.000000	100.000000	0.000000	0.000000	0.000000	100.000000

M O D A L C O R R E L A T I O N S

Mode	Periyod	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)	Mode (6)
1	0.441772	1.000000	0.266708	0.095192	0.008460	0.004943	0.003508
2	0.374486	0.266708	1.000000	0.336947	0.012920	0.007097	0.004898
3	0.325593	0.095192	0.336947	1.000000	0.019500	0.009930	0.006634
4	0.165588	0.008460	0.012920	0.019500	1.000000	0.146158	0.054349
5	0.130242	0.004943	0.007097	0.009930	0.146158	1.000000	0.256641
6	0.109927	0.003508	0.004898	0.006634	0.054349	0.256641	1.000000

S P E C T R U M M O D A L A C C E L E R A T I O N S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	1.807885	1.807885	0.000000
2	0.374486	1.807885	1.807885	0.000000
3	0.325593	1.807885	1.807885	0.000000
4	0.165588	1.885040	1.885040	0.000000
5	0.130242	1.964288	1.964288	0.000000
6	0.109927	2.009836	2.009836	0.000000

S P E C T R U M M O D A L A M P L I T U D E S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	0.002045	0.211808	0.000000
2	0.374486	-.389865E-02	0.002545	0.000000
3	0.325593	0.112706	-.114139E-02	0.000000
4	0.165588	0.947517E-04	0.009019	0.000000

5	0.130242	-.806647E-03	0.451750E-03	0.000000
6	0.109927	0.005121	0.213771E-04	0.000000

Load Case : 6 [SY- / Earthquake Y (E-)]

Load Case Type		= EQDS
Eccentricity (x,y)		= -1.00 , +0.00
Eccentricity Application Method		= Update Modal Dynamic Forces
Modal Combination		= CQC
Damping Ratio		= 0.05
Directional Combination		= SRS
Directional factor		= 1.00
Excitation Direction		= 2
Spectral Function		= SPECT1
Excitation Angle		= 90.00
Ground Motion Coefficient	(A0)	= 0.30
Building Importance Factor	(I)	= 1.20
Live Load Reduction Factor	(n)	= 0.00

E I G E N V A L U E S A N D F R E Q U E N C I E S

Mode Number	Period (Sec)	Frequency (Cycles/Sec)	Circular Fre (Rad/Sec)	Eigenvalue (Rad/Sec)**2
1	0.441772	2.263611	14.222684	202.284749
2	0.374486	2.670329	16.778172	281.507044
3	0.325593	3.071322	19.297686	372.400669
4	0.165588	6.039100	37.944782	1439.806472
5	0.130242	7.678027	48.242464	2327.335368
6	0.109927	9.096951	57.157830	3267.017531

P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-rot	Y-rot	Z-rot
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.060452	0.025762	0.000000	0.000000	0.000000	89.593350
3	0.325593	88.413771	0.009068	0.000000	0.000000	0.000000	0.021386
4	0.165588	0.859189E-03	7.784937	0.000000	0.000000	0.000000	0.002998
5	0.130242	0.149838	0.046995	0.000000	0.000000	0.000000	9.914056
6	0.109927	11.366491	0.198074E-03	0.000000	0.000000	0.000000	0.422850

C U M U L A T I V E P A R T I C I P A T I N G M A S S - (%)

Mode	Period	X-dir	Y-dir	Z-dir	X-dir	Y-dir	Z-dir
1	0.441772	0.008588	92.133040	0.000000	0.000000	0.000000	0.045359
2	0.374486	0.069041	92.158802	0.000000	0.000000	0.000000	89.638710
3	0.325593	88.482811	92.167870	0.000000	0.000000	0.000000	89.660096
4	0.165588	88.483670	99.952807	0.000000	0.000000	0.000000	89.663094
5	0.130242	88.633509	99.999802	0.000000	0.000000	0.000000	99.577150
6	0.109927	100.000000	100.000000	0.000000	0.000000	0.000000	100.000000

M O D A L C O R R E L A T I O N S

Mode	Periyod	Mode (1)	Mode (2)	Mode (3)	Mode (4)	Mode (5)	Mode (6)
1	0.441772	1.000000	0.266708	0.095192	0.008460	0.004943	0.003508
2	0.374486	0.266708	1.000000	0.336947	0.012920	0.007097	0.004898
3	0.325593	0.095192	0.336947	1.000000	0.019500	0.009930	0.006634
4	0.165588	0.008460	0.012920	0.019500	1.000000	0.146158	0.054349
5	0.130242	0.004943	0.007097	0.009930	0.146158	1.000000	0.256641
6	0.109927	0.003508	0.004898	0.006634	0.054349	0.256641	1.000000

S P E C T R U M M O D A L A C C E L E R A T I O N S

Mode	Period	X-dir	Y-dir	Z-dir
1	0.441772	1.807885	1.807885	0.000000
2	0.374486	1.807885	1.807885	0.000000
3	0.325593	1.807885	1.807885	0.000000
4	0.165588	1.885040	1.885040	0.000000
5	0.130242	1.964288	1.964288	0.000000
6	0.109927	2.009836	2.009836	0.000000

S P E C T R U M M O D A L A M P L I T U D E S

Mode	Period	X-dir	Y-dir	Z-dir

1	0.441772	0.002045	0.211808	0.000000
2	0.374486	-.389865E-02	0.002545	0.000000
3	0.325593	0.112706	-.114139E-02	0.000000
4	0.165588	0.947517E-04	0.009019	0.000000
5	0.130242	-.806647E-03	0.451750E-03	0.000000
6	0.109927	0.005121	0.213771E-04	0.000000

Analysis Model Echo Report

```
==========================================================================
                        P B - S O L V E R
                Three-Dimensional Finite Element Program
                          for ProtaStructure

                       Version 6.1 (April 2018)
==========================================================================



S Y S T E M   D A T A

    Project Title              : C:\Users\userone\Google Drive\Projekte\Shkolla
ROSKOVEC\Roskovec\Roskovec\FEM3D\Roskovec.fed
    Analysis Type              : Dynamic Analysis
    Number of Joints           :       46
    Number of Rigid Diaphragms :        2
    Number of Load Cases       :       12
    Number of Combinations     :       35
    Analysis Started at        : 26/02/2020 14:16:16

JOINT COORDINATES DATA

RIGID DIAPHRAMS DATA

JOINT RESTRAINTS DATA

JOINT CONSTRAINTS DATA

JOINT MASSES DATA



S E I S M I C   C O D E   D A T A

Number of Seismic Codes =   1

    Seismic Code No.                      =    1
    Seismic Code Type                     = EUROCODE8
    Building Height                  (h) =   6.00
    Ground Floor                          =   0.40
    No. of Sublevels                      =    0
    Building Top Floor Level              =    2
    Structural Behavior Factor       (q) =   4.68
    Ground Motion Coefficient       (Ag) =   0.3000
    Spectum Damping Ratio                 =   0.05
    Lower Bound for D. Spectrum   (Beta) =   0.20
    BaseshearCorrection Factor  (Lambda) =   1.00;  1.00
    ö?
    Building Importance Factor       (I) =   1.20



S P E C T R U M   D A T A

Number of Spectrum Functions =       1



SPECTRUM DATA

Number of Spectrum Functions =       1



L O A D   C A S E S   D A T A
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```
Case No. =       01
    Case Type               = STATIC
    Case Label              = G
    Case Description        = Dead Loads

Case No. =       02
    Case Type               = STATIC
    Case Label              = Q
    Case Description        = Live Loads

Case No. =       03
    Case Type               = EQDS
    Case Label              = SX+
    Case Description        = MC Earthquake X (E+)
    Eccentricity (x,y)      =  +0.00 ,  +1.00
    Modal Combination       = CQC
    Damping Ratio           =   0.05
    Directional Combination = SRS
    Directional factor      =   1.00
    Excitation Direction    = 1
    Spectral Func.          = SPECT1
    Excitation Angle        =   0.00

Case No. =       04
    Case Type               = EQDS
    Case Label              = SX-
    Case Description        = MC Earthquake X (E-)
    Eccentricity (x,y)      =  +0.00 ,  -1.00
    Modal Combination       = CQC
    Damping Ratio           =   0.05
    Directional Combination = SRS
    Directional factor      =   1.00
    Excitation Direction    = 1
    Spectral Func.          = SPECT1
    Excitation Angle        =   0.00

Case No. =       05
    Case Type               = EQDS
    Case Label              = SY+
    Case Description        = Eartquake Y (E+)
    Eccentricity (x,y)      =  +1.00 ,  +0.00
    Modal Combination       = CQC
    Damping Ratio           =   0.05
    Directional Combination = SRS
    Directional factor      =   1.00
    Excitation Direction    = 2
    Spectral Func.          = SPECT1
    Excitation Angle        =  90.00

Case No. =       06
    Case Type               = EQDS
    Case Label              = SY-
    Case Description        = Earthquake Y (E-)
    Eccentricity (x,y)      =  -1.00 ,  +0.00
    Modal Combination       = CQC
    Damping Ratio           =   0.05
    Directional Combination = SRS
    Directional factor      =   1.00
    Excitation Direction    = 2
    Spectral Func.          = SPECT1
    Excitation Angle        =  90.00

Case No. =       07
    Case Type               = STATIC
    Case Label              = NGX
    Case Description        = Notional Load (G) X

Case No. =       08
    Case Type               = STATIC
    Case Label              = NQX
    Case Description        = Notional Load (Q) X
```

Case No. = 09
Case Type = STATIC
Case Label = NGY
Case Description = Notional Load (G) Y

Case No. = 10
Case Type = STATIC
Case Label = NQY
Case Description = Notional Load (Q) Y

Case No. = 11
Case Type = STATIC
Case Label = WX
Case Description = Wind Load X

Case No. = 12
Case Type = STATIC
Case Label = WY
Case Description = Wind Load Y

C O M B I N A T I O N D A T A

Number of Combinations = 35

Combination	Type	Case	Factor
GxF	SGN	G	1.2500
G+QxF	SGN	G	1.2500
		Q	1.5000
G+QxF1	SGN	G	1.2500
		Q	1.0500
G+Q+Sx+	SGN	G	1.0000
		Q	0.3000
		SX+	1.0000
		SY-	0.3000
G+Q-Sx+	SGN	G	1.0000
		Q	0.3000
		SX+	-1.0000
		SY-	-0.3000
G+Q+Sx-	SGN	G	1.0000
		Q	0.3000
		SX-	1.0000
		SY+	0.3000
G+Q-Sx-	SGN	G	1.0000
		Q	0.3000
		SX-	-1.0000
		SY+	-0.3000
G+Q+Sy+	SGN	G	1.0000
		Q	0.3000
		SX-	0.3000
		SY+	1.0000
G+Q-Sy+	SGN	G	1.0000
		Q	0.3000
		SX-	-0.3000
		SY+	-1.0000
G+Q+Sy-	SGN	G	1.0000
		Q	0.3000
		SX+	0.3000
		SY-	1.0000
G+Q-Sy-	SGN	G	1.0000
		Q	0.3000
		SX+	-0.3000
		SY-	-1.0000
G+Sx+	SGN	G	0.9000
		SX+	1.0000
		SY-	0.3000
G-Sx+	SGN	G	0.9000
		SX+	-1.0000
		SY-	-0.3000
G+Sx-	SGN	G	0.9000

		SX-	1.0000
		SY+	0.3000
G-Sx-	SGN	G	0.9000
		SX-	-1.0000
		SY+	-0.3000
G+Sy+	SGN	G	0.9000
		SX-	0.3000
		SY+	1.0000
G-Sy+	SGN	G	0.9000
		SX-	-0.3000
		SY+	-1.0000
G+Sy-	SGN	G	0.9000
		SX+	0.3000
		SY-	1.0000
G-Sy-	SGN	G	0.9000
		SX+	-0.3000
		SY-	-1.0000
G+Sx+	SGN	G	1.0000
		SX+	1.0000
		SY-	0.3000
G-Sx+	SGN	G	1.0000
		SX+	-1.0000
		SY-	-0.3000
G+Sx-	SGN	G	1.0000
		SX-	1.0000
		SY+	0.3000
G-Sx-	SGN	G	1.0000
		SX-	-1.0000
		SY+	-0.3000
G+Sy+	SGN	G	1.0000
		SX-	0.3000
		SY+	1.0000
G-Sy+	SGN	G	1.0000
		SX-	-0.3000
		SY+	-1.0000
G+Sy-	SGN	G	1.0000
		SX+	0.3000
		SY-	1.0000
G-Sy-	SGN	G	1.0000
		SX+	-0.3000
		SY-	-1.0000
G+Q+Wx+Nx	SGN	G	1.2500
		Q	1.5000
		NGX	1.2500
		NQX	1.5000
		WX	0.7500
G+Q-Wx-Nx	SGN	G	1.2500
		Q	1.5000
		NGX	-1.2500
		NQX	-1.5000
		WX	-0.7500
G+Q+Wy+Ny	SGN	G	1.2500
		Q	1.5000
		NGY	1.2500
		NQY	1.5000
		WY	0.7500
G+Q-Wy-Ny	SGN	G	1.2500
		Q	1.5000
		NGY	-1.2500
		NQY	-1.5000
		WY	-0.7500
G+Wx+Q+Nx	SGN	G	1.2500
		Q	1.0500
		NGX	1.2500
		NQX	1.0500
		WX	1.5000
G-Wx+Q-Nx	SGN	G	1.2500
		Q	1.0500
		NGX	-1.2500
		NQX	-1.0500
		WX	-1.5000
G+Wy+Q+Ny	SGN	G	1.2500
		Q	1.0500
		NGY	1.2500
		NQY	1.0500
		WY	1.5000
G-Wy+Q-Ny	SGN	G	1.2500

Q	1.0500
NGY	-1.2500
NQY	-1.0500
WY	-1.5000

JOINT LOADS DATA

M A T E R I A L S D A T A

Number of Materials = 2

Mat	Elasticity Modulus, E E1	E2	E3	Unit Mass	Unit Weight	Coeff. of Thermal Exp.
C25/30_M0	0.310000E+08	0.310000E+08	0.310000E+08	0.000000	24.000000	0.500000E-04
C25/30_W0_M0	0.310000E+08	0.310000E+08	0.310000E+08	0.000000	0.000000	0.500000E-04

Mat	Poissons Ratio, Nu U12	U13	U23	Shear Modulus, G G12	G13	G23
C25/30_M0	0.200000	0.200000	0.200000	0.129167E+08	0.129167E+08	0.129167E+08
C25/30_W0_M0	0.200000	0.200000	0.200000	0.129167E+08	0.129167E+08	0.129167E+08

FRAME SECTIONS DATA

Number of Cross Section Types = 3

FRAME ELEMENT DATA
Number of Elements = 74

FRAME SPAN LOADINGS

D I A P H R A M S M O D I F I C A T I O N D A T A

Diaph	X	Y	Z
D1-1	17.8634	19.9892	3.4000
D2-1	17.9939	19.7473	6.4000

Diaph	Mx	My	Mz	Mrx	Mry	Mrz
D1-1	354.493000	354.493000	353.729000	0.000000	0.000000	0.220586E+05
D2-1	255.117000	255.117000	215.237000	0.000000	0.000000	0.170268E+05

E Q U A T I O N N U M B E R S

Number of DOF = 102

==========

Analysis Finished at : 26/02/2020 14:16:17
ANALYSIS PROCESS TIME : 1.4160 sec

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SYSTEM RUN TIME DETAILS

Total Run Time	:	1.42 sec
Reading System & Nodal Data	:	0.34 sec
Reading Frame Data	:	0.07 sec
Optimization Process	:	0.18 sec
System Matrices Factorization	:	0.19 sec
Solving Static Load Cases	:	0.07 sec
Solving Dynamic Load Cases	:	0.27 sec
Modeling Process	:	0.01 sec
Allocate Dynamic Library	:	0.00 sec
Computing Analyses Results	:	0.02 sec
Printing Analyses Results	:	0.08 sec

Storey Displacements

Load Case	Storey	Diaphragm	Displacement-X (mm)	Displacement-Y (mm)	Rotation-Z (Rad)
1 G	1	D1-1	0.031566	-0.212830	0.000001
2 Q	1	D1-1	0.007080	-0.049068	0.000000
3 Sx+	1	D1-1	3.003560	0.064083	0.000052
4 Sx-	1	D1-1	2.976600	0.074080	0.000044
5 Sy+	1	D1-1	0.047740	6.203430	0.000038
6 Sy-	1	D1-1	0.075827	6.229460	0.000075
7 NGx	1	D1-1	0.062881	0.000457	0.000000
8 NQx	1	D1-1	0.016880	0.000124	0.000000
9 NGy	1	D1-1	0.000462	0.130030	0.000000
10 NQy	1	D1-1	0.000125	0.034332	0.000000
11 Wx	1	D1-1	0.234300	0.001127	0.000002
12 Wy	1	D1-1	0.000578	0.557900	0.000004
1 G	2	D2-1	0.096129	-0.628000	0.000002
2 Q	2	D2-1	0.032818	-0.184330	0.000000
3 Sx+	2	D2-1	6.116590	0.112860	0.000084
4 Sx-	2	D2-1	6.125200	0.113040	0.000103
5 Sy+	2	D2-1	0.126860	11.062930	0.000089
6 Sy-	2	D2-1	0.118320	11.063880	0.000130
7 NGx	2	D2-1	0.115490	0.000948	0.000000
8 NQx	2	D2-1	0.033010	0.000274	0.000000
9 NGy	2	D2-1	0.000940	0.208590	0.000000
10 NQy	2	D2-1	0.000272	0.059077	0.000000
11 Wx	2	D2-1	0.459780	0.003751	0.000004
12 Wy	2	D2-1	0.004778	0.961930	0.000008

Axial Load Comparison Report

TOTAL LOADS (Based On Slabs Loads):

G - Dead Loads:

Storey	Column	Wall	Beam	Slab	Ribbed Slab	Total
2 (+6.40m)	151.2	0.0	271.4	1662.9	0.0	2085.5
1 (+3.40m)	151.2	0.0	1258.2	1860.0	0.0	3269.4
Total						**5354.9**

Q - Live Loads:

Storey	Column	Wall	Beam	Slab	Ribbed Slab	Total
2 (+6.40m)	0.0	0.0	0.0	695.3	0.0	695.3
1 (+3.40m)	0.0	0.0	0.0	695.3	0.0	695.3
Total						**1390.6**

TOTAL LOADS (Decomposed to Beams):

G - Dead Loads:

Storey	Column	Wall	Beam	Slab	Ribbed Slab	Total
2 (+6.40m)	151.2	0.0	1934.3	0.0	0.0	2085.5
1 (+3.40m)	151.2	0.0	3117.8	0.0	0.0	3269.0
Total						**5354.5**

Q - Live Loads:

Storey	Column	Wall	Beam	Slab	Ribbed Slab	Total
2 (+6.40m)	0.0	0.0	695.3	0.0	0.0	695.3
1 (+3.40m)	0.0	0.0	695.3	0.0	0.0	695.3
Total						**1390.6**

BUILDING ANALYSIS COLUMN AND WALL AXIAL LOADS:

Storey	G	Delta G	Q	Delta Q
2 (+6.40m)	2085.5	2085.5	695.3	695.3
1 (+3.40m)	5354.5	3269.0	1390.6	695.3
Total		**5354.5**		**1390.6**

Total Base Reactions: G = 5354.5 kN Q = 1390.6 kN

FINITE ELEMENT ANALYSIS COLUMN/WALL AXIAL LOADS:

Storey	G	Delta G	Q	Delta Q
2 (+6.40m)	2085.5	2085.5	695.3	695.3
1 (+3.40m)	5354.5	3269.0	1390.6	695.3
Total		**5354.5**		**1390.6**

Sway Classification Report

L_c : Storey Height
Δd : Average Relative Storey Drift ($\Delta d = d_i - d_{i-1}$)
ΣV_{Ed} : Total Design Axial Loads at Critical Combination
Cmb : Maximum Q value at Critical Combination
ΣH_{Ed} : Total Design Shear Forces at Critical Combination
β_s : Magnification Factor for Storey
Q_{Ed} : Stability Coefficient $Q=(\Sigma V_{Ed} * \Delta d)(\Sigma H_{Ed} * L_c)$

Dir: 1 - STOREY SWAY CHECK

Storey	L_c (mm)	Δd (mm)	ΣV_{Ed} (kN)	ΣH_{Ed} (kN)	Comb	β_s	Q	Status
1	3000	3.07	8779.0	95.1	28	1.009	0.008616≤ 0.10	Non-Sway
2	3000	3.24	3649.9	44.5	28	1.007	0.007090≤ 0.10	Non-Sway

Dir: 2 - STOREY SWAY CHECK

Storey	L_c (mm)	Δd (mm)	ΣV_{Ed} (kN)	ΣH_{Ed} (kN)	Comb	β_s	Q	Status
1	3000	6.31	8779.0	105.2	30	1.018	0.017655≤ 0.10	Non-Sway
2	3000	4.98	3649.9	49.6	30	1.011	0.010812≤ 0.10	Non-Sway

Slab Reinforcement Design

```
LEGEND:
    d/h    = Slab Effective/Total Depths (d=h-cover)
    g/q    = Dead/Live Loads (not factored)
    L1     = Width of the Slab Along the Strip Direction
    L2     = Width of the Slab Perpendicular to the Strip Direction
    C      = Moment Coefficient M=C p / L^2
    M-span = Ultimate Span Moment
    M-sup  = Ultimate Support Moment
    Mc     = Balanced Support Moment
    As     = Steel Area (Required/Supplied)
```

Slab Strip: X1 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 5.2		Support As = 376.99/452.39		SupTop: Y12-250(T1)
1S1	4	10.987	7120.00	0.0488	0.0372	680.99/753.98	
	149/200	3.000	7260.00	45.1	34.4		StrBot: Y12-150(B1)
			Support Mc = 38.1		Support As = 759.21/904.78		SupTop: Y12-125(T1)
1S2	3	7.175	5290.00	0.0542	0.0404	302.09/452.39	
	149/200	3.000	7260.00	20.4	15.2		StrBot: Y12-250(B1)
			Support Mc = 26.0		Support As = 514.22/565.49		SupTop: Y12-200(T1)
1S3	6	7.175	5120.00	0.0815	0.0605	423.55/502.65	
	149/200	3.000	7260.00	28.8	21.4		StrBot: Y12-225(B1)
			Support Mc = 3.2		Support As = 252.70/452.39		SupTop: Y12-250(T1)

Slab Strip: X2 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 0.0		Support As = 232.35/452.39		SupTop: Y12-250(T1)
1S4	3	7.175	7120.00	0.0000	0.0000	232.35/452.39	
	137/200	3.000	2250.00	0.0	0.0		StrBot: Y12-250(B2)
			Support Mc = 0.0		Support As = 232.35/452.39		SupTop: Y12-250(T1)
1S5	1	7.175	5290.00	0.0000	0.0000	232.35/452.39	
	137/200	3.000	2250.00	0.0	0.0		StrBot: Y12-250(B2)
			Support Mc = 2.5		Support As = 252.70/452.39		SupTop: Y12-250(T1)
1S6	2	7.175	1720.00	0.0625	0.0473	252.7/452.39	
	149/200	3.000	2250.00	2.5	1.9		StrBot: Y12-250(B1)
			Support Mc = 0.3		Support As = 252.70/452.39		SupTop: Y12-250(T1)

Slab Strip: X3 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 1.9		Support As = 232.35/452.39		SupTop: Y12-250(T1)
1S7	4	7.175	7120.00	0.0450	0.0340	272.02/452.39	
	137/200	3.000	5250.00	16.7	12.6		StrBot: Y12-250(B2)
			Support Mc = 16.7		Support As = 360.02/452.39		SupTop: Y12-250(T1)
1S8	4	7.175	7010.00	0.0450	0.0340	272.02/452.39	
	137/200	3.000	5250.00	16.7	12.6		StrBot: Y12-250(B2)
			Support Mc = 1.9		Support As = 232.35/452.39		SupTop: Y12-250(T1)

Slab Strip: Y3 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 3.0		Support As = 252.70/452.39		SupTop: Y12-250(T1)
1S7	4	7.175	5250.00	0.0718	0.0532	391.7/502.65	
	149/200	3.000	7120.00	26.7	19.8		StrBot: Y12-225(B1)
			Support Mc = 22.4		Support As = 444.75/452.39		SupTop: Y12-250(T1)
1S4	3	7.175	2250.00	0.0630	0.0630	252.7/452.39	
	149/200	3.000	7120.00	4.3	4.3		StrBot: Y12-250(B1)
			Support Mc = 36.2		Support As = 788.75/904.78		SupTop: Y12-125(T1)
1S1	4	10.987	7260.00	0.0450	0.0340	679.47/753.98	
	137/200	3.000	7120.00	41.6	31.4		StrBot: Y12-150(B2)
			Support Mc = 4.7		Support As = 376.99/452.39		SupTop: Y12-250(T1)

Slab Strip: Y4 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 2.9		Support As = 252.70/452.39		SupTop: Y12-250(T1)
1S8	4	7.175	5250.00	0.0708	0.0524	385.53/502.65	
	149/200	3.000	7010.00	26.3	19.5		StrBot: Y12-225(B1)
			Support Mc = 22.1		Support As = 438.50/452.39		SupTop: Y12-250(T1)
1S5	1	7.175	2250.00	0.0630	0.0630	252.7/452.39	
	149/200	3.000	5290.00	4.3	4.3		StrBot: Y12-250(B1)
			Support Mc = 12.5		Support As = 270.20/452.39		SupTop: Y12-250(T1)

1S2	3	7.175	7260.00	0.0370	0.0280	232.35/452.39
	137/200	3.000	5290.00	13.9	10.6	StrBot: Y12-250(B2)
			Support Mc = 1.6	Support As = 232.35/452.39		SupTop: Y12-250(T1)

Slab Strip: Y5 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 2.3	Support As = 232.35/452.39			SupTop: Y12-250(T1)
1S3	6	7.175	7260.00	0.0000	0.0440	334.8/452.39	
	137/200	3.000	5120.00	2.3	15.5		StrBot: Y12-250(B2)
			Support Mc = 2.3	Support As = 232.35/452.39			SupTop: Y12-250(T1)

Slab Strip: Y10 -- Storey: 1

Materials: C25/30 / Grade 410 (Type 2)

Slab	Type d/h (mm)	g q (kN/m2)	L1 L2 (mm)	C-sup M-sup (kN.m)	C-span M-span (kN.m)	As Req/Sup (mm2)	S T E E L B A R S
			Support Mc = 2.9	Support As = 252.70/452.39			SupTop: Y12-250(T1)
1S8	4	7.175	5250.00	0.0708	0.0524	385.53/502.65	
	149/200	3.000	7010.00	26.3	19.5		StrBot: Y12-225(B1)
			Support Mc = 21.6	Support As = 465.45/565.49			SupTop: Y12-200(T1)
1S6	2	7.175	2250.00	0.0370	0.0280	232.35/452.39	
	137/200	3.000	1720.00	1.5	1.1		StrBot: Y12-250(B2)
			Support Mc = 3.5	Support As = 232.35/452.39			SupTop: Y12-250(T1)
1S3	6	7.175	7260.00	0.0000	0.0440	334.8/452.39	
	137/200	3.000	5120.00	3.9	15.5		StrBot: Y12-250(B2)
			Support Mc = 2.3	Support As = 232.35/452.39			SupTop: Y12-250(T1)

Pad Footing Design

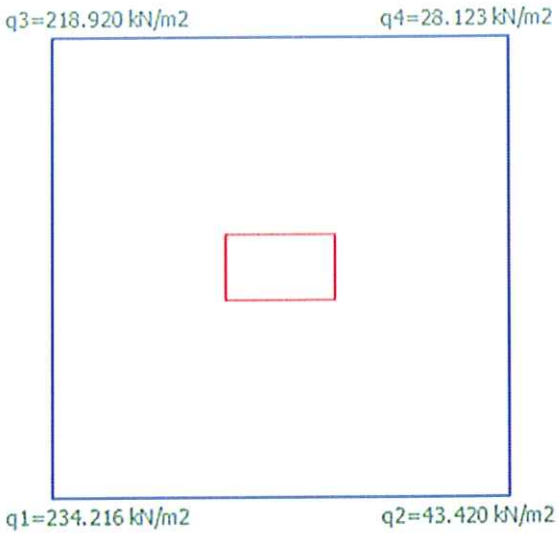
F8

Columns: FC8 (500.0 / 300.0 mm)

Critical Loading: (3: G+Q *F1) N = -428.4 kN
M_x / M_y = -147.2 / -11.8 kN.m

Footing Dimensions: L_x / L_y = 2100.0 / 2100.0 mm
h = 600 mm

Soil Stresses: σ_{max} = 234.216 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 28.123 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 26.5 kN.m/m	K/K' = 0.02≤1.0 √
	A_s(Req) = 1072.00 mm²/m	A_s(Sup) = 1231.50 mm²/m **Y14-125**
	Chear Check:	
	(At Column Face)	v = 0.35 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.11 N/mm²≤ v-Rdc = 0.36 N/mm² √
Y Dir:	**Bending:** M = 32.3 kN.m/m	K/K' = 0.02≤1.0 √
	A_s(Req) = 1072.00 mm²/m	A_s(Sup) = 1231.50 mm²/m **Y14-125**
	Chear Check:	
	(At Column Face)	v = 0.40 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.16 N/mm²≤ v-Rdc = 0.36 N/mm² √
Punching Check:		
	(At Column Face):	Vt = 558.8 kN V-eff = 786.0 kN
		v = 0.92 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column):	Vt = 352.9 kN V-eff = 580.2 kN
		v = 0.23 N/mm²≤ v-Rdc = 0.36 N/mm² √

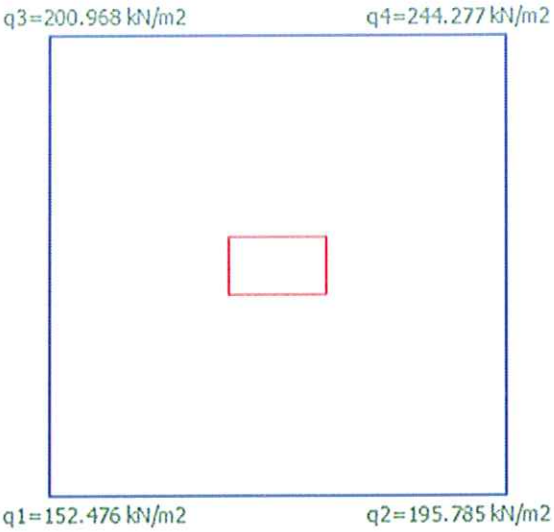
F9

Columns: FC9 (500.0 / 300.0 mm)

Critical Loading: (18: G+Sy-) N = -932.3 kN
M_x / M_y = 49.9 / 55.9 kN.m

Footing Dimensions: L_x / L_y = 2400.0 / 2400.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 244.277 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 152.476 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 106.4 kN.m/m	K/K' = 0.05≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.36 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.12 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 128.7 kN.m/m	K/K' = 0.07≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.41 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.16 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 1112.9 kN V-eff = 1224.9 kN
	v = 1.20 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 702.1 kN V-eff = 814.1 kN
	v = 0.24 N/mm²≤ v-Rdc = 0.34 N/mm² √

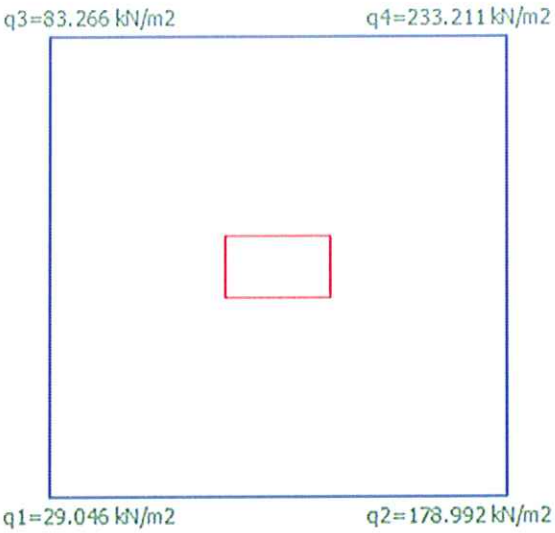
F10

Columns: FC10 (500.0 / 300.0 mm)

Critical Loading: (2: G+Q *F) N = -458 kN
M_x / M_y = 133.1 / 48.1 kN.m

Footing Dimensions: L_x / L_y = 2200.0 / 2200.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 233.211 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 29.046 ≥ 0 kN/m² √



Design:

X Dir:
Bending: M = 74.4 kN.m/m — K/K' = 0.04≤1.0 √
A_s(Req) = 1272.00 mm²/m — A_s(Sup) = 1539.38 mm²/m **Y14-100**
Chear Check:
(At Column Face) — v = 0.31 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column) — v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √

Y Dir:
Bending: M = 88.8 kN.m/m — K/K' = 0.05≤1.0 √
A_s(Req) = 1272.00 mm²/m — A_s(Sup) = 1539.38 mm²/m **Y14-100**
Chear Check:
(At Column Face) — v = 0.35 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column) — v = 0.12 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face): — Vt = 615.0 kN V-eff = 827.1 kN
v = 0.81 N/mm²≤ v-Rdmax = 4.05 N/mm² √

(At 'd' from Column): — Vt = 343.5 kN V-eff = 555.6 kN
v = 0.16 N/mm²≤ v-Rdc = 0.34 N/mm² √

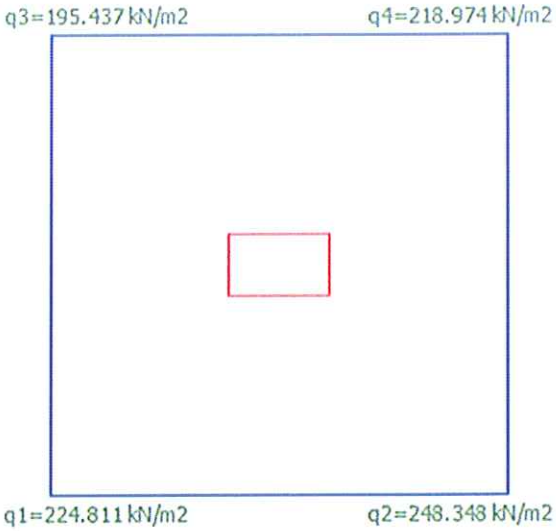
F3

Columns: FC3 (500.0 / 300.0 mm)

Critical Loading: (18: G+Sy-) N = -980.6 kN
M_x / M_y = 23.9 / -29.8 kN.m

Footing Dimensions: L_x / L_y = 2300.0 / 2300.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 248.348 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 195.437 ≥ 0 kN/m² √



Design:

X Dir:
Bending: M = 98.8 kN.m/m — K/K' = 0.05≤1.0 √
A_s(Req) = 1272.00 mm²/m — A_s(Sup) = 1539.38 mm²/m **Y14-100**
Chear Check:
(At Column Face) — v = 0.35 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column) — v = 0.10 N/mm²≤ v-Rdc = 0.34 N/mm² √

Y Dir:
Bending: M = 121.3 kN.m/m — K/K' = 0.06≤1.0 √
A_s(Req) = 1272.00 mm²/m — A_s(Sup) = 1539.38 mm²/m **Y14-100**
Chear Check:
(At Column Face) — v = 0.39 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column) — v = 0.15 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face): Vt = 1140.5 kN V-eff = 1196.7 kN
v = 1.18 N/mm²≤ v-Rdmax = 4.05 N/mm² √

(At 'd' from Column): Vt = 681.0 kN V-eff = 737.2 kN
v = 0.22 N/mm²≤ v-Rdc = 0.34 N/mm² √

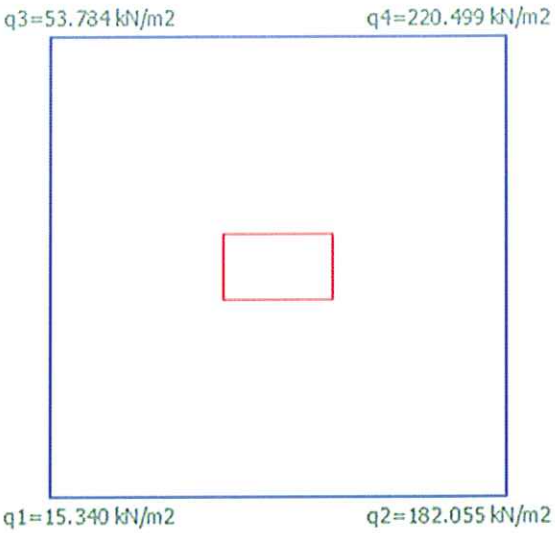
F12

Columns: FC12 (500.0 / 300.0 mm)

Critical Loading: (2: G+Q *F) N = -359.1 kN
M_x / M_y = 128.7 / 29.7 kN.m

Footing Dimensions: L_x / L_y = 2100.0 / 2100.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 220.499 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 15.340 ≥ 0 kN/m² √



Design:

X Dir:
Bending: M = 61.2 kN.m/m
A_s(Req) = 1272.00 mm²/m
Chear Check:
(At Column Face)
(At 'd' from Column)

K/K' = 0.03≤1.0 √
A_s(Sup) = 1539.38 mm²/m **Y14-100**

v = 0.27 N/mm²≤ v-Rdmax = 4.05 N/mm² √
v = 0.05 N/mm²≤ v-Rdc = 0.34 N/mm² √

Y Dir:
Bending: M = 73.2 kN.m/m
A_s(Req) = 1272.00 mm²/m
Chear Check:
(At Column Face)
(At 'd' from Column)

K/K' = 0.04≤1.0 √
A_s(Sup) = 1539.38 mm²/m **Y14-100**

v = 0.32 N/mm²≤ v-Rdmax = 4.05 N/mm² √
v = 0.10 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):

Vt = 502.3 kN V-eff = 693.0 kN
v = 0.68 N/mm²≤ v-Rdmax = 4.05 N/mm² √

(At 'd' from Column):

Vt = 258.2 kN V-eff = 448.8 kN
v = 0.13 N/mm²≤ v-Rdc = 0.34 N/mm² √

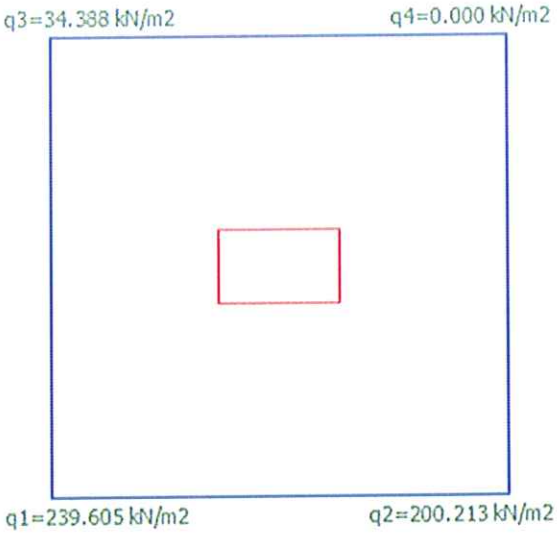
F19

Columns: FC19 (500.0 / 300.0 mm)

Critical Loading: (7: G+Q-Sx-) N = -291.8 kN
M_x / M_y = -22.5 / -117.3 kN.m

Footing Dimensions: L_x / L_y = 1900.0 / 1900.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 239.605 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 0.000 ≥ 0 kN/m² √



Design:

X Dir:
Bending: M = 51.1 kN.m/m
A_s(Req) = 1272.00 mm²/m
Chear Check:
(At Column Face)
(At 'd' from Column)

K/K' = 0.03≤1.0 √
A_s(Sup) = 1539.38 mm²/m **Y14-100**

v = 0.26 N/mm²≤ v-Rdmax = 4.05 N/mm² √
v = 0.02 N/mm²≤ v-Rdc = 0.34 N/mm² √

Y Dir:
Bending: M = 66.5 kN.m/m
A_s(Req) = 1272.00 mm²/m
Chear Check:
(At Column Face)
(At 'd' from Column)

K/K' = 0.03≤1.0 √
A_s(Sup) = 1539.38 mm²/m **Y14-100**

v = 0.30 N/mm²≤ v-Rdmax = 4.05 N/mm² √
v = 0.07 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):

Vt = 405.7 kN V-eff = 535.2 kN
v = 0.53 N/mm²≤ v-Rdmax = 4.05 N/mm² √

(At 'd' from Column):

Vt = 160.2 kN V-eff = 289.7 kN
v = 0.09 N/mm²≤ v-Rdc = 0.34 N/mm² √

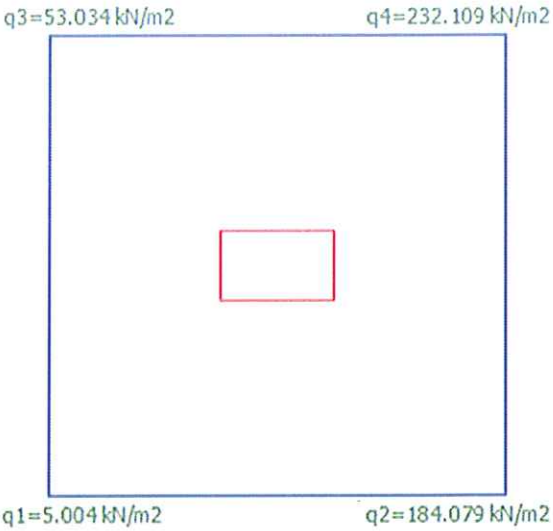
F6

Columns: FC6 (500.0 / 300.0 mm)

Critical Loading: (4: G+Q+Sx+) N = -328.3 kN
M_x / M_y = 119.4 / 32.0 kN.m

Footing Dimensions: L_x / L_y = 2000.0 / 2000.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 232.109 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 5.004 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 56.9 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.27 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.04 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 68.8 kN.m/m	K/K' = 0.04≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.31 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 456.4 kN V-eff = 637.2 kN
	v = 0.63 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 210.9 kN V-eff = 391.7 kN
	v = 0.12 N/mm²≤ v-Rdc = 0.34 N/mm² √

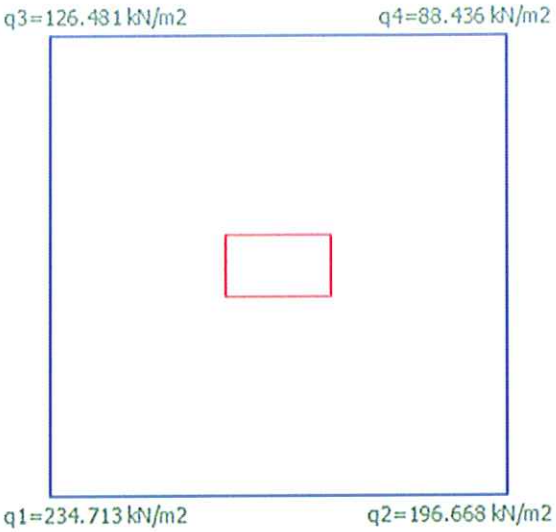
F2

Columns: FC2 (500.0 / 300.0 mm)

Critical Loading: (7: G+Q-Sx-) N = -605.3 kN
M_x / M_y = -33.8 / -96.0 kN.m

Footing Dimensions: L_x / L_y = 2200.0 / 2200.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 234.713 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 88.436 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 73.9 kN.m/m	K/K' = 0.04≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.31 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 92.0 kN.m/m	K/K' = 0.05≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.35 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.12 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 757.8 kN V-eff = 883.5 kN
	v = 0.87 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 423.2 kN V-eff = 548.9 kN
	v = 0.16 N/mm²≤ v-Rdc = 0.34 N/mm² √

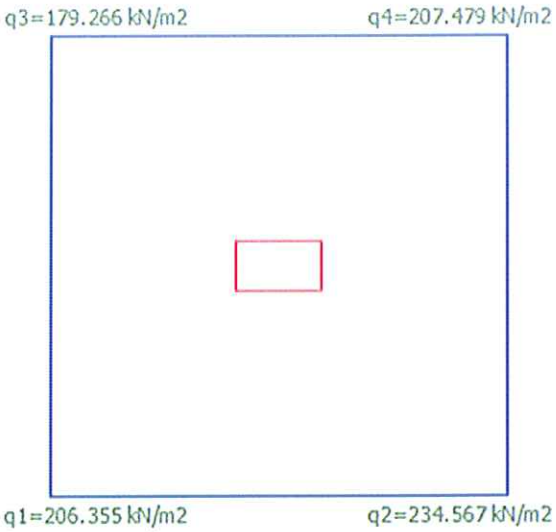
F1

Columns: FC1 (500.0 / 300.0 mm)

Critical Loading: (18: G+Sy-) N = -1242.1 kN
M_x / M_y = 46.3 / -44.4 kN.m

Footing Dimensions: L_x / L_y = 2700.0 / 2700.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 234.567 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 179.266 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 138.3 kN.m/m	K/K' = 0.07≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.40 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.17 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 163.6 kN.m/m	K/K' = 0.08≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.45 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.21 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 1477.4 kN V-eff = 1574.9 kN
	v = 1.55 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 1048.9 kN V-eff = 1146.5 kN
	v = 0.34 N/mm²≤ v-Rdc = 0.34 N/mm² √

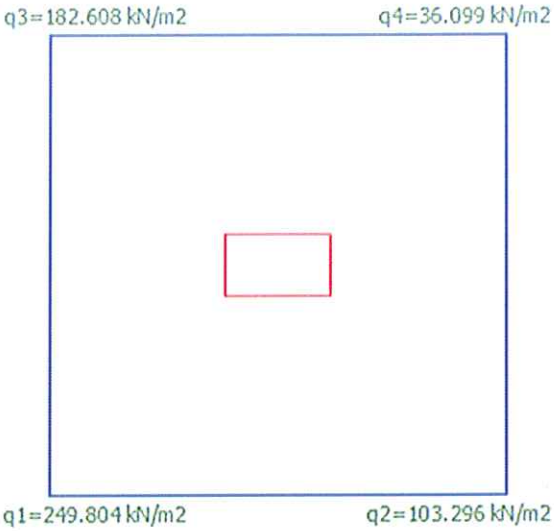
F13

Columns: FC13 (500.0 / 300.0 mm)

Critical Loading: (3: G+Q *F1) N = -515.2 kN
M_x / M_y = -130.0 / -59.6 kN.m

Footing Dimensions: L_x / L_y = 2200.0 / 2200.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 249.804 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 36.099 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 48.1 kN.m/m	K/K' = 0.02≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.33 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 59.1 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.38 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.13 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 670.4 kN V-eff = 888.2 kN
	v = 0.87 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 374.4 kN V-eff = 592.2 kN
	v = 0.17 N/mm²≤ v-Rdc = 0.34 N/mm² √

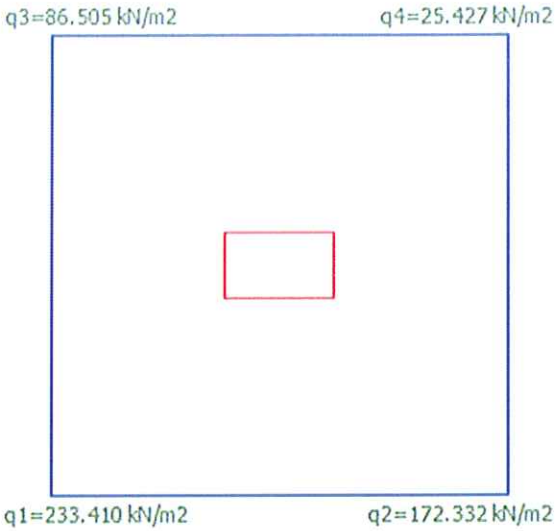
F14

Columns: FC14 (500.0 / 300.0 mm)

Critical Loading: (9: G+Q-Sy+) N = -409.8 kN
M_x / M_y = -47.1 / -113.4 kN.m

Footing Dimensions: L_x / L_y = 2100.0 / 2100.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 233.410 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 25.427 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 59.2 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.29 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.06 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 74.5 kN.m/m	K/K' = 0.04≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.33 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.10 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 551.3 kN V-eff = 708.5 kN
	v = 0.70 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 283.3 kN V-eff = 440.5 kN
	v = 0.13 N/mm²≤ v-Rdc = 0.34 N/mm² √

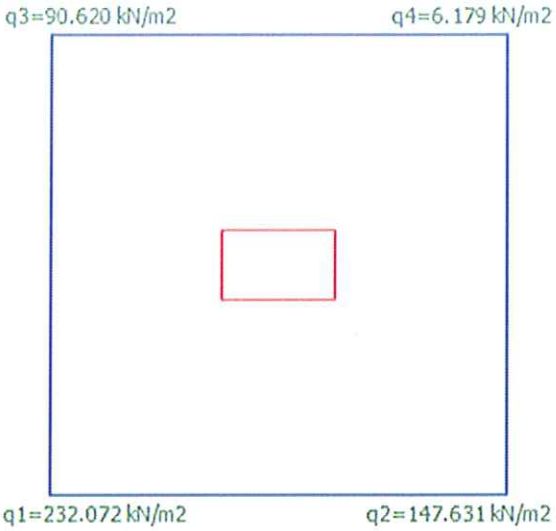
F15

Columns: FC15 (500.0 / 300.0 mm)

Critical Loading: (7: G+Q-Sx-) N = -330.6 kN
M_x / M_y = -56.3 / -94.3 kN.m

Footing Dimensions: L_x / L_y = 2000.0 / 2000.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 232.072 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 6.179 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 46.5 kN.m/m	K/K' = 0.02≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.27 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.04 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 59.2 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.31 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 458.6 kN V-eff = 611.3 kN
	v = 0.60 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 212.0 kN V-eff = 364.6 kN
	v = 0.11 N/mm²≤ v-Rdc = 0.34 N/mm² √

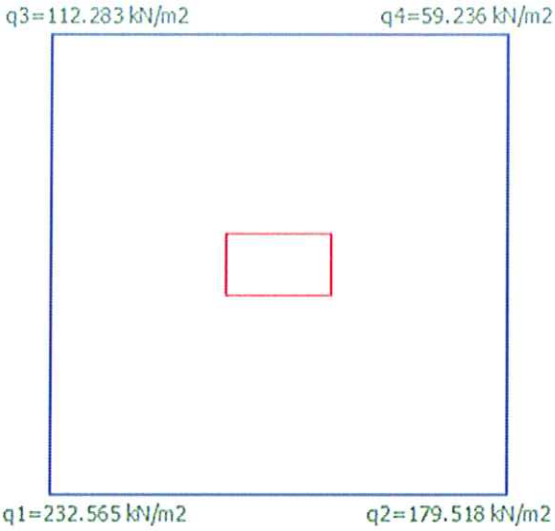
F16

Columns: FC16 (500.0 / 300.0 mm)

Critical Loading: (7: G+Q-Sx-) N = -529.5 kN
M_x / M_y = -47.1 / -106.7 kN.m

Footing Dimensions: L_x / L_y = 2200.0 / 2200.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 232.565 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 59.236 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 68.8 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.31 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.07 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 85.5 kN.m/m	K/K' = 0.04≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.35 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.12 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 684.3 kN V-eff = 836.3 kN
	v = 0.82 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 382.1 kN V-eff = 534.2 kN
	v = 0.16 N/mm²≤ v-Rdc = 0.34 N/mm² √

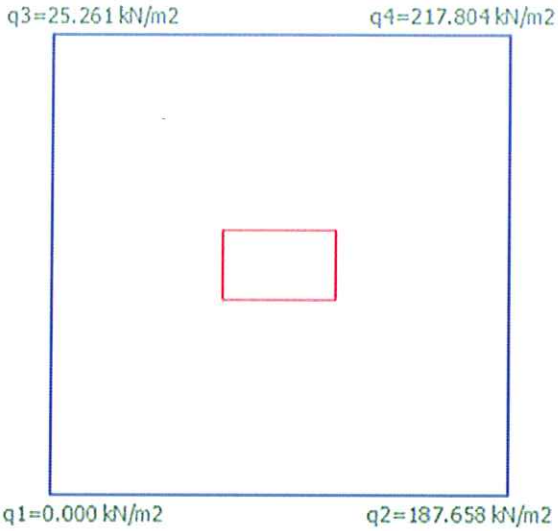
F18

Columns: FC18 (500.0 / 300.0 mm)

Critical Loading: (4: G+Q+Sx+) N = -279.9 kN
M_x / M_y = 128.4 / 20.1 kN.m

Footing Dimensions: L_x / L_y = 2000.0 / 2000.0 mm
h = 700 mm

Soil Stresses: σ_{max} = 217.804 ≤ 250 kN/m² (1.25x200 kN/m²) √
σ_{min} = 0.000 ≥ 0 kN/m² √



Design:

X Dir:	**Bending:** M = 52.2 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.25 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.04 N/mm²≤ v-Rdc = 0.34 N/mm² √
Y Dir:	**Bending:** M = 62.5 kN.m/m	K/K' = 0.03≤1.0 √
	A_s(Req) = 1272.00 mm²/m	A_s(Sup) = 1539.38 mm²/m **Y14-100**
	Chear Check:	
	(At Column Face)	v = 0.29 N/mm²≤ v-Rdmax = 4.05 N/mm² √
	(At 'd' from Column)	v = 0.08 N/mm²≤ v-Rdc = 0.34 N/mm² √

Punching Check:

(At Column Face):	Vt = 409.7 kN V-eff = 591.8 kN
	v = 0.58 N/mm²≤ v-Rdmax = 4.05 N/mm² √
(At 'd' from Column):	Vt = 186.7 kN V-eff = 368.8 kN
	v = 0.11 N/mm²≤ v-Rdc = 0.34 N/mm² √

Concrete Quantity Take-off

Storey: 0 - FOUNDATION

Columns:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
1C1	500.0	300.0	0.150	1100.0	0.165
1C2	500.0	300.0	0.150	1100.0	0.165
1C3	500.0	300.0	0.150	1100.0	0.165
1C8	500.0	300.0	0.150	1200.0	0.180
1C9	500.0	300.0	0.150	1100.0	0.165
1C10	500.0	300.0	0.150	1100.0	0.165
1C12	500.0	300.0	0.150	1100.0	0.165
1C13	500.0	300.0	0.150	1100.0	0.165
1C14	500.0	300.0	0.150	1100.0	0.165
1C15	500.0	300.0	0.150	1100.0	0.165
1C16	500.0	300.0	0.150	1100.0	0.165
1C19	500.0	300.0	0.150	1100.0	0.165
1C6	500.0	300.0	0.150	1100.0	0.165
1C18	500.0	300.0	0.150	1100.0	0.165
Column Totals					2.325

Beams:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
FB1	300.0	1100.0	0.330	6520.0	2.152
FB2	300.0	1100.0	0.330	4790.0	1.581
FB3	300.0	1100.0	0.330	4520.0	1.492
FB4	300.0	1100.0	0.330	6960.0	2.297
FB5	300.0	1100.0	0.330	4520.0	1.492
FB6	300.0	1100.0	0.330	4790.0	1.581
FB7	300.0	1100.0	0.330	6520.0	2.152
FB8	300.0	1100.0	0.330	6960.0	2.297
FB9	300.0	1100.0	0.330	1950.0	0.644
FB10	300.0	1100.0	0.330	4950.0	1.634
FB11	300.0	1100.0	0.330	6520.0	2.152
FB12	300.0	1100.0	0.330	6410.0	2.115
FB13	300.0	1100.0	0.330	4950.0	1.634
FB14	300.0	1100.0	0.330	1950.0	0.644
FB15	300.0	1100.0	0.330	6960.0	2.297
FB16	300.0	1100.0	0.330	6410.0	2.115
FB17	300.0	1100.0	0.330	6520.0	2.152
FB18	300.0	1100.0	0.330	6960.0	2.297
FB19	300.0	1100.0	0.330	1950.0	0.644
FB20	300.0	1100.0	0.330	4950.0	1.634
Beam Totals					35.000

Pad Footings:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
F8 /FC8	2100.0	2100.0	4.410	600.0	2.646
F9 /FC9	2400.0	2400.0	5.760	700.0	4.032
F10 /FC10	2200.0	2200.0	4.840	700.0	3.388
F3 /FC3	2300.0	2300.0	5.290	700.0	3.703
F12 /FC12	2100.0	2100.0	4.410	700.0	3.087
F19 /FC19	1900.0	1900.0	3.610	700.0	2.527
F6 /FC6	2000.0	2000.0	4.000	700.0	2.800
F2 /FC2	2200.0	2200.0	4.840	700.0	3.388
F1 /FC1	2700.0	2700.0	7.290	700.0	5.103
F13 /FC13	2200.0	2200.0	4.840	700.0	3.388
F14 /FC14	2100.0	2100.0	4.410	700.0	3.087
F15 /FC15	2000.0	2000.0	4.000	700.0	2.800
F16 /FC16	2200.0	2200.0	4.840	700.0	3.388

F18 /FC18	2000.0	2000.0	4.000	700.0	2.800
Pad Footing Totals					46.137
Total (Storey: 0)					83.462

Storey: 1

Columns:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
1C1	500.0	300.0	0.150	3000.0	0.450
1C2	500.0	300.0	0.150	3000.0	0.450
1C3	500.0	300.0	0.150	3000.0	0.450
1C8	500.0	300.0	0.150	3000.0	0.450
1C9	500.0	300.0	0.150	3000.0	0.450
1C10	500.0	300.0	0.150	3000.0	0.450
1C12	500.0	300.0	0.150	3000.0	0.450
1C13	500.0	300.0	0.150	3000.0	0.450
1C14	500.0	300.0	0.150	3000.0	0.450
1C15	500.0	300.0	0.150	3000.0	0.450
1C16	500.0	300.0	0.150	3000.0	0.450
1C19	500.0	300.0	0.150	3000.0	0.450
1C6	500.0	300.0	0.150	3000.0	0.450
1C18	500.0	300.0	0.150	3000.0	0.450
Column Totals					6.300

Beams:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
1B1	300.0	550.0	0.165	6520.0	1.076
1B2	300.0	550.0	0.165	4790.0	0.790
1B3	300.0	550.0	0.165	4520.0	0.746
1B4	300.0	550.0	0.165	6520.0	1.076
1B5	300.0	550.0	0.165	4790.0	0.790
1B6	300.0	550.0	0.165	4520.0	0.746
1B7	300.0	550.0	0.165	6520.0	1.076
1B9	300.0	550.0	0.165	6520.0	1.076
1B10	300.0	550.0	0.165	6410.0	1.058
1B11	300.0	550.0	0.165	6410.0	1.058
1B12	300.0	550.0	0.165	4950.0	0.817
1B13	300.0	550.0	0.165	4950.0	0.817
1B14	300.0	550.0	0.165	1950.0	0.322
1B15	300.0	550.0	0.165	6960.0	1.148
1B16	300.0	550.0	0.165	6960.0	1.148
1B17	300.0	550.0	0.165	1950.0	0.322
1B18	300.0	550.0	0.165	4950.0	0.817
1B19	300.0	550.0	0.165	1950.0	0.322
1B20	300.0	550.0	0.165	6960.0	1.148
1B21	300.0	550.0	0.165	6960.0	1.148
1B22	300.0	550.0	0.165	1950.0	0.322
Beam Totals					17.822

Slabs:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
1S1		47.467	200.0	9.493	
1S2		34.730	200.0	6.946	
1S3		33.547	200.0	6.709	
1S4		13.299	200.0	2.660	
1S5		9.731	200.0	1.946	
1S6		2.769	200.0	0.554	

1S7		33.759	200.0	6.752	
1S8		33.215	200.0	6.643	
Slab Totals					41.703
Total (Storey: 1)					65.825

Storey: 2

Columns:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
2C1	500.0	300.0	0.150	3000.0	0.450
2C2	500.0	300.0	0.150	3000.0	0.450
2C3	500.0	300.0	0.150	3000.0	0.450
2C8	500.0	300.0	0.150	3000.0	0.450
2C9	500.0	300.0	0.150	3000.0	0.450
2C10	500.0	300.0	0.150	3000.0	0.450
2C12	500.0	300.0	0.150	3000.0	0.450
2C13	500.0	300.0	0.150	3000.0	0.450
2C14	500.0	300.0	0.150	3000.0	0.450
2C15	500.0	300.0	0.150	3000.0	0.450
2C16	500.0	300.0	0.150	3000.0	0.450
2C19	500.0	300.0	0.150	3000.0	0.450
2C6	500.0	300.0	0.150	3000.0	0.450
2C18	500.0	300.0	0.150	3000.0	0.450
Column Totals					6.300

Beams:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
2B1	300.0	500.0	0.150	6520.0	0.978
2B2	300.0	500.0	0.150	4790.0	0.719
2B3	300.0	500.0	0.150	4520.0	0.678
2B4	300.0	500.0	0.150	6520.0	0.978
2B5	300.0	500.0	0.150	4790.0	0.719
2B6	300.0	500.0	0.150	4520.0	0.678
2B7	300.0	500.0	0.150	6520.0	0.978
2B9	300.0	500.0	0.150	6520.0	0.978
2B10	300.0	500.0	0.150	6410.0	0.962
2B11	300.0	500.0	0.150	6410.0	0.962
2B12	300.0	500.0	0.150	4950.0	0.743
2B13	300.0	500.0	0.150	4950.0	0.743
2B14	300.0	500.0	0.150	1950.0	0.293
2B15	300.0	500.0	0.150	6960.0	1.044
2B16	300.0	500.0	0.150	6960.0	1.044
2B17	300.0	500.0	0.150	1950.0	0.293
2B18	300.0	500.0	0.150	4950.0	0.743
2B19	300.0	500.0	0.150	1950.0	0.293
2B20	300.0	500.0	0.150	6960.0	1.044
2B21	300.0	500.0	0.150	6960.0	1.044
2B22	300.0	500.0	0.150	1950.0	0.293
Beam Totals					16.202

Slabs:

	b1 (mm)	b2 (mm)	Area (m2)	Length (mm)	Volume (m3)
2S1		47.467	200.0	9.493	
2S2		34.730	200.0	6.946	
2S3		33.547	200.0	6.709	
2S4		13.299	200.0	2.660	
2S5		9.731	200.0	1.946	

2S6		2.769	200.0	0.554	
2S7		33.759	200.0	6.752	
2S8		33.215	200.0	6.643	
Slab Totals					41.703
Total (Storey: 2)					64.205

CONCRETE QUANTITY EXTRACTION SUMMARY

Storey	COLUMN (m3)	BEAM (m3)	SLAB (m3)	RIB SLAB (m3)	FIL'R BLOCK (m3)	FOUNDATION (m3)	TOTAL (m3)
Footings	2.325	35.000	0.000	0.000	0.000	46.137	83.462
1	6.300	17.822	41.703	0.000	0.000	0.000	65.825
2	6.300	16.202	41.703	0.000	0.000	0.000	64.205
TOTAL	14.925	69.023	83.407	0.000	0.000	46.137	213.492

PERFORCIMI I SOLETAVE TE DEMTUARA ME POLIMER FIBRE KARBONI.

Soleta ne godinen ekzistuese ka nevoje per perforcim per shkak te oksidimit te armatures se soletes. U konsiderua qe varianti me i pershtatshem per perforcimit, dhe me rezistent ne kohe eshte aplikimi i fibres se karbonit me nje drejtim 240 MPa.

Parametrat e Plehures se fibres se karbonit do te jene si meposhte.

	MasterBrace FIB 230/50 CFS	MasterBrace FIB 300/50 CFS	MasterBrace FIB 400/50 CFS	MasterBrace FIB 600/50 CFS	MasterBrace FIB 300/50 CFH
Tipo di fibra	Carbonio ad alta resistenza	Carbonio ad alta resistenza	Carbonio ad alta resistenza	Carbonio ad alta resistenza	Carbonio ad alto modulo elastico
Orditura delle fibre	unidirezionale	unidirezionale	unidirezionale	unidirezionale	unidirezionale
CLASSE SECONDO CERTIFICATO DI VALUTAZIONE TECNICA	**210 C**	**210 C**	**210 C**	**210 C**	**350/1750 C**
Grammatura del tessuto, gr/mq	230 ± 10	300 ± 10	400 ± 10	600 ± 10	310 ± 10
spessore equivalente di filo secco, mm	0,126	0,165	0,220	0,330	0,165
Modulo elastico equivalente medio a trazione, ASTM D3039, MPa	240.000	240.000	240.000	240.000	380.000
Rigidezza media a trazione, kN/mm	37,9	37,9	37,9	37,9	64,3
Deformazione ultima media a trazione, ASTM D3039, %	1,3	1,3	1,3	1,3	0,5
Resistenza a trazione caratteristica f_k, ASTM D3039, MPa (*)	3.200	3.200	3.200	3.200	1.800
Resistenza a trazione del singolo filamento, MPa	> 4.900	> 4.900	> 4.900	> 4.900	> 4.500
Conduttività termica, $J \cdot m^{-1} \cdot s^{-1} \cdot K^{-1}$	17	17	17	17	17
Densità delle fibre, pfib[g/cm3]	1,82	1,82	1,82	1,82	1,82
Massa del tessuto per unità di area, px[g/m2]	300	300	300	300	300
Densità della resina, pm [g/cm3]	1,04	1,04	1,04	1,04	1,04
Area equivalente, Art[mm2/m]	165	165	165	165	165
Spessore equivalente, teq[mm]	0,165	0,165	0,165	0,165	0,165
Frazione in peso delle fibre nel composito	-	-	-	-	-
Frazione in volume delle fibre nel composito	-	-	-	-	-
Reazione al fuoco	NPD	NPD	NPD	NPD	NPD

APLIKIMI I FIBRES SE KARBONIT

Riparimi i siperfaqes se demtuar do te kryhet sipas radhes se meposhtme

1. Rregullimi/nivelimi i siperfaqes me Materiale eposidike
2. Lyerje me Primer perpara vendosjes se ngjitesit te fibres material eposidik
3. Aplikimi i Ngjitesit te Fibres se Karbonit material eposidik
4. Aplikimi i Fibrave te Karbonit
5. Aplikimi i shtreses se dyte te Ngjitesit se Fibres se Karbonit material eposidik