

Architectural Project

Typical Kindergarten

Tskaltubo

9th April street

Structural Part of the Project

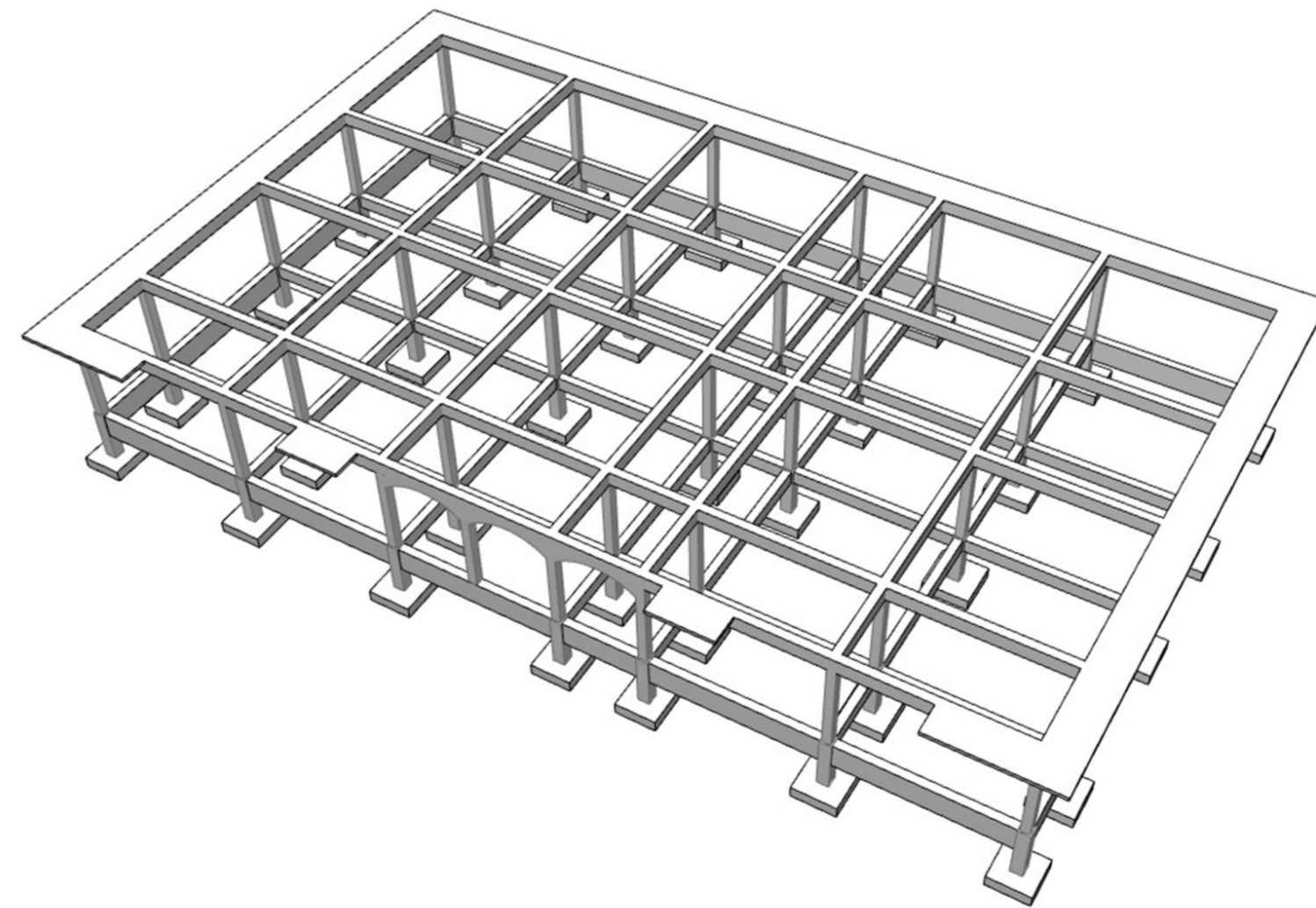


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Explanatory Letter

General Information

The construction site (cadastral code of the land plot 29.08.37.163) is located in the town of Tskaltubo. According to the norms of "construction climatology" the climatic characteristics of the construction site are the following:

- The average annual temperature is + 14.6 C
- Absolute maximum temperature + 42 ° C
- Absolute minimal temperature - 19 ° C
- Annual precipitation -1818mm
- Snow cover weight - 0.5 kPa
- Standard height of seasonal ground frost - 0 m
- Standard wind pressure 0.38 kPa
- The prevailing wind direction - East
- According to the map of the seismic regions, Tskaltubo belongs to the 8-point seismic zone.
- Based on the data of the geological findings, the estimated seismicity of the construction site is 9 points.

The area allocated for construction in terms of engineering geology is in satisfactory physical condition; the geological phenomena (landslides, falls, etc.) are not observed.

-According to the geological survey (attached to the project)the first engineering-geological element is considered as the basis of the foundation - with the following technical specifications:

Engineering-geologic element I (layer #3) greyish-white limestone (K2t2-cn)				
E-G Element II	Characteristics of physical-mechanical properties	Index	UoM	Numeric value
1	Density	ρ	g/cm3	2.39
2	Solid particle density	ρs	""	2.74
3	Humidity	W	%	4.9
4	Reporting impedance	R0	kPa	12

The report of the building design calculation scheme is executed in the program "LIRA".The building presented in the project is a one-storey stone building with an average floor height of 1.0 meters from the floor level. The first-floor mark 0.00 corresponds to the absolute mark 23.30The height of the floor of the building from the floor to the ceiling is 3.4 meters.

A natural sand-gravel mixture (fraction 0.5-70 mm) should be used for backfilling and arranging the embankment on the construction site. It is necessary to compact it layer by layer every 20 cm in height with a vibrating machine.

There are pad foundations designed, with a gravel pad under them.

The bearing structure of the building is a complex reinforced concrete frame, in particular, a space structure composed of monolithic reinforced concrete columns, rafters, and girders.

The filling of the external walls is done with a reinforced embankment of small pumice blocks 30 cm thick. Partitions are made of reinforced small wall pumice block with a thickness of 10 cm.

The size of small pumice blocks is no less than M70 (volume weight 800 kg / m 3), therefore the mark of the mortar used for the embankment should be no less than M70.

Floors in bathrooms are finished with tile, and in rooms with wooden planks (deck). The thermal insulation of the floor is done with XPS tiles, and ceiling heating is done with glass.

Suspended ceilings in the kitchens are made of plastic, while in the rooms are made of gypsum boards.

The bearing structure of the roof is made of wood, while the roofing is made of painted metal sheets. Roof and ceiling wood structures are made from second-class dried coniferous wood material.

The windows are made of double-glazed metal profiles.

The entrance doors are made of steel and iso-aluminum, PVC in the joints, and wood in the rooms (so-called MDF).

External stairs and entryways are covered with basalt tiles.

A concrete walkway is arranged around the building.

Concrete of grade B25 is used in the monolithic constructions of the frame.

Before backfilling, the outer surfaces of the foundation walls, columns, and foundation slab should be treated with bitumen mastic to a mark of 0.00, and waterproofing linoleum should be applied in two layers.

The dimensions on the drawings are given in millimeters and meters, the markings in meters. All sheets of the structural part are considered as one whole and the data of other sheets as well as architectural drawings should be taken into account when considering any sheet.

The elements of the structural reinforcement must be bent in a cold mechanical manner.

After removing the ground, the condition of the ground should be additionally assessed. It is, therefore, possible to adjust the foundation structure.

All changes made to the project during construction must be agreed with the project authors.

References:

პროექტის დროს გამოყენებული ლიტერატურა:
 - *CHHT. 2.03.01-84** - "ბეტონის და რკინაბეტონის კონსტრუქციები"
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 - *CHHT. 2.01.07-85** - "დატვირთვები და შემოქმედება"
 - *CHHT 2.02.01-83** - "შენიშვნების და ნაგებობების ფუნდამენტების შესახებ"
 - *ГОСТ 14098-91* - "არმატურის და ლითონის ჩასატანებელი ელემენტების შედუღება რკინაბეტონის კონსტრუქციებში"
 უსაფრთხოება: მშენებლობის პროცესში საჭიროა ვიხელმძღვანელოთ სამშენებლო ნორმების: *CHHT. III-4-80**-ის მოთხოვნების შესაბამისად და შეატყობინოთ დაუყოვნებლივ უსაფრთხოების წესები.

Note:

The project has been adjusted taking into account the remarks presented in the conclusion of the Levan Samkharauli Bureau of Expertise.

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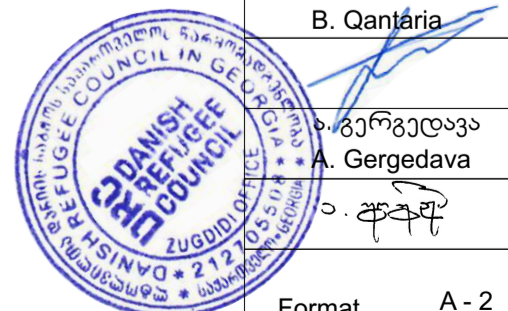
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Content
Explanatory note

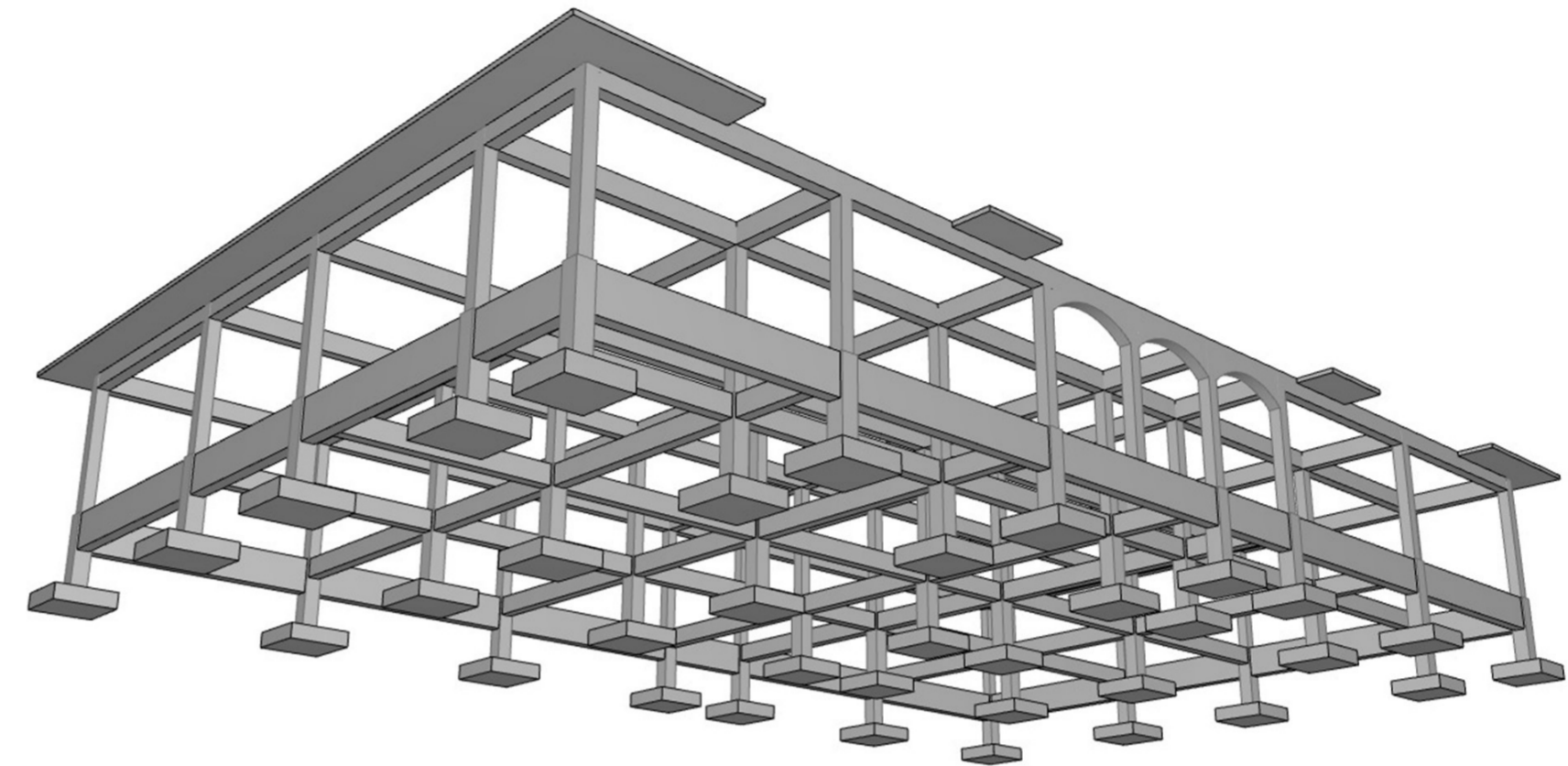
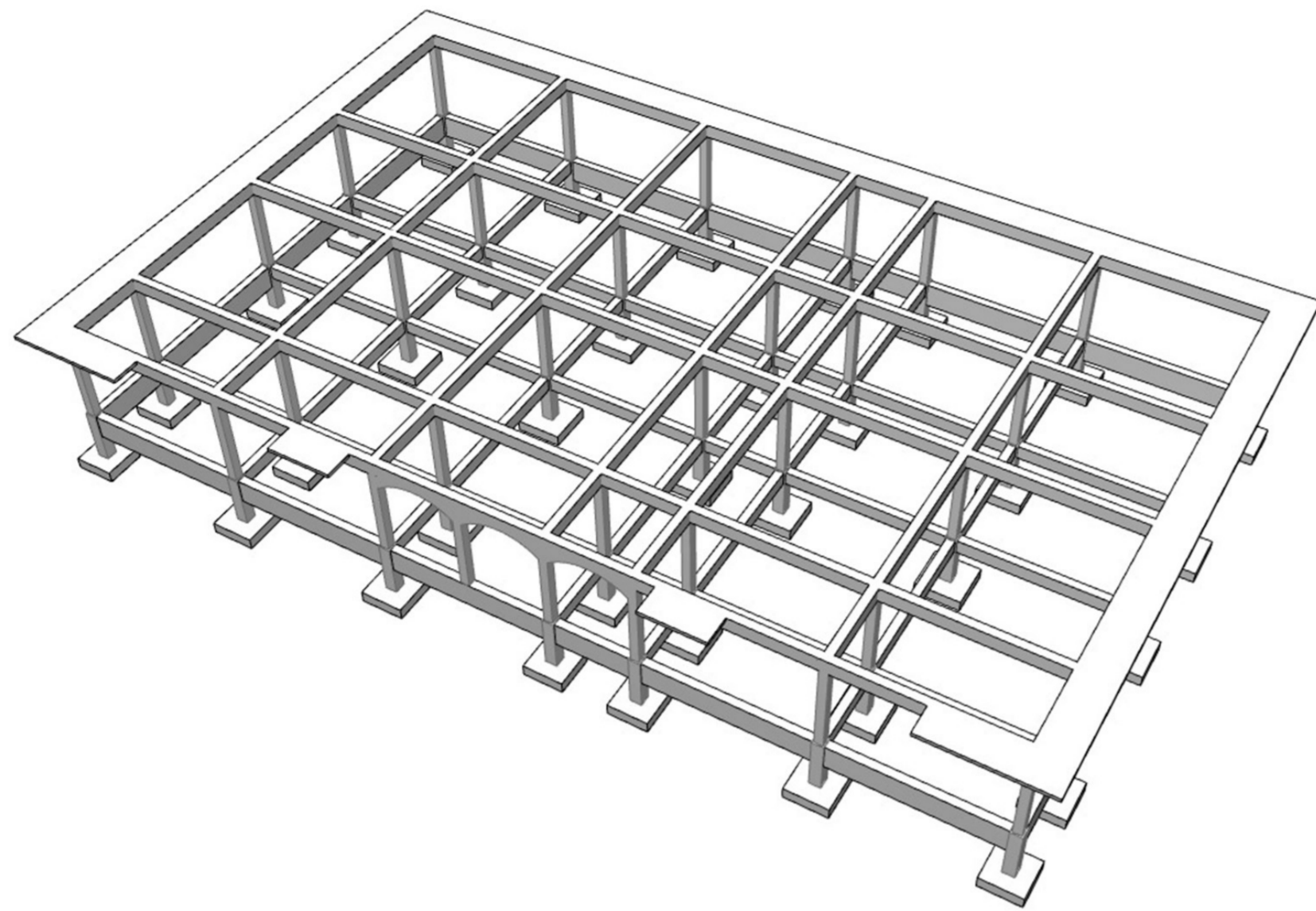
ბ. ქანთარია
B. Qantaria

ა. გერგდავა
A. Gergedava



Format A - 2

Render of the Mass Concrete



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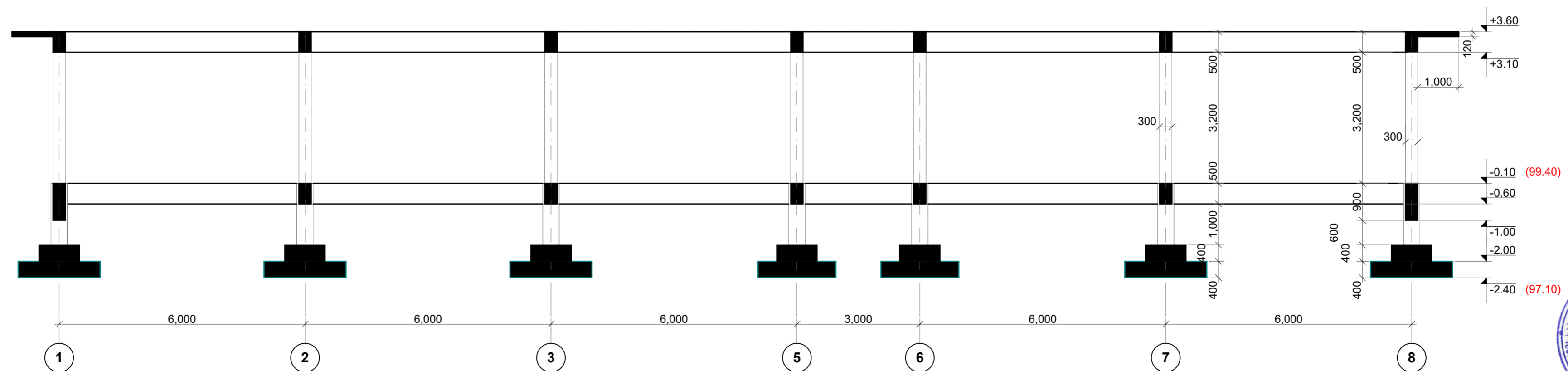
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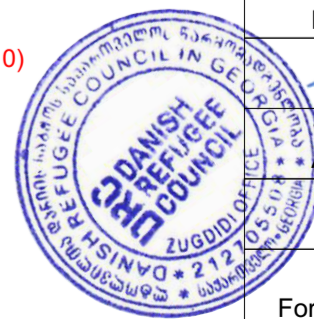
Rendering
Section on
the structure

Section on the Structure



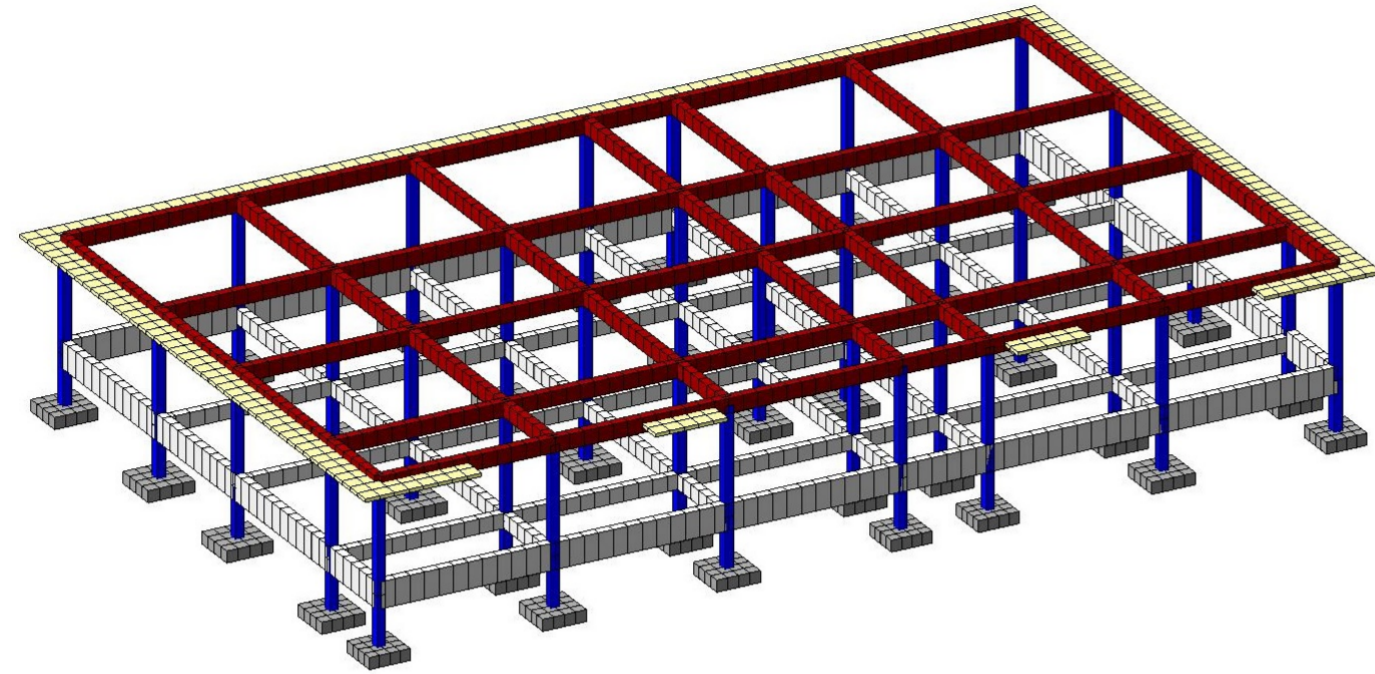
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B. Qantaria

ა. გერგდავა
A. Gergedava

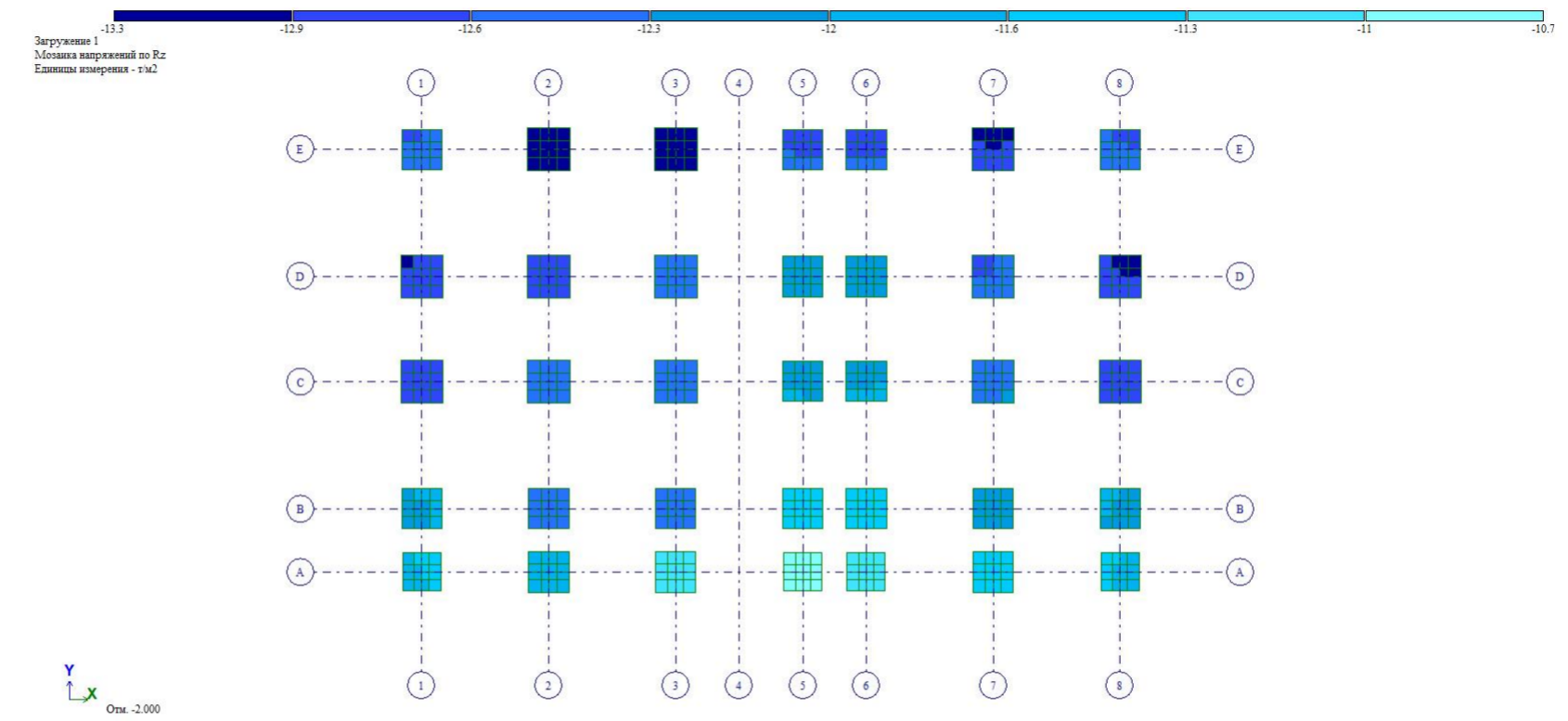


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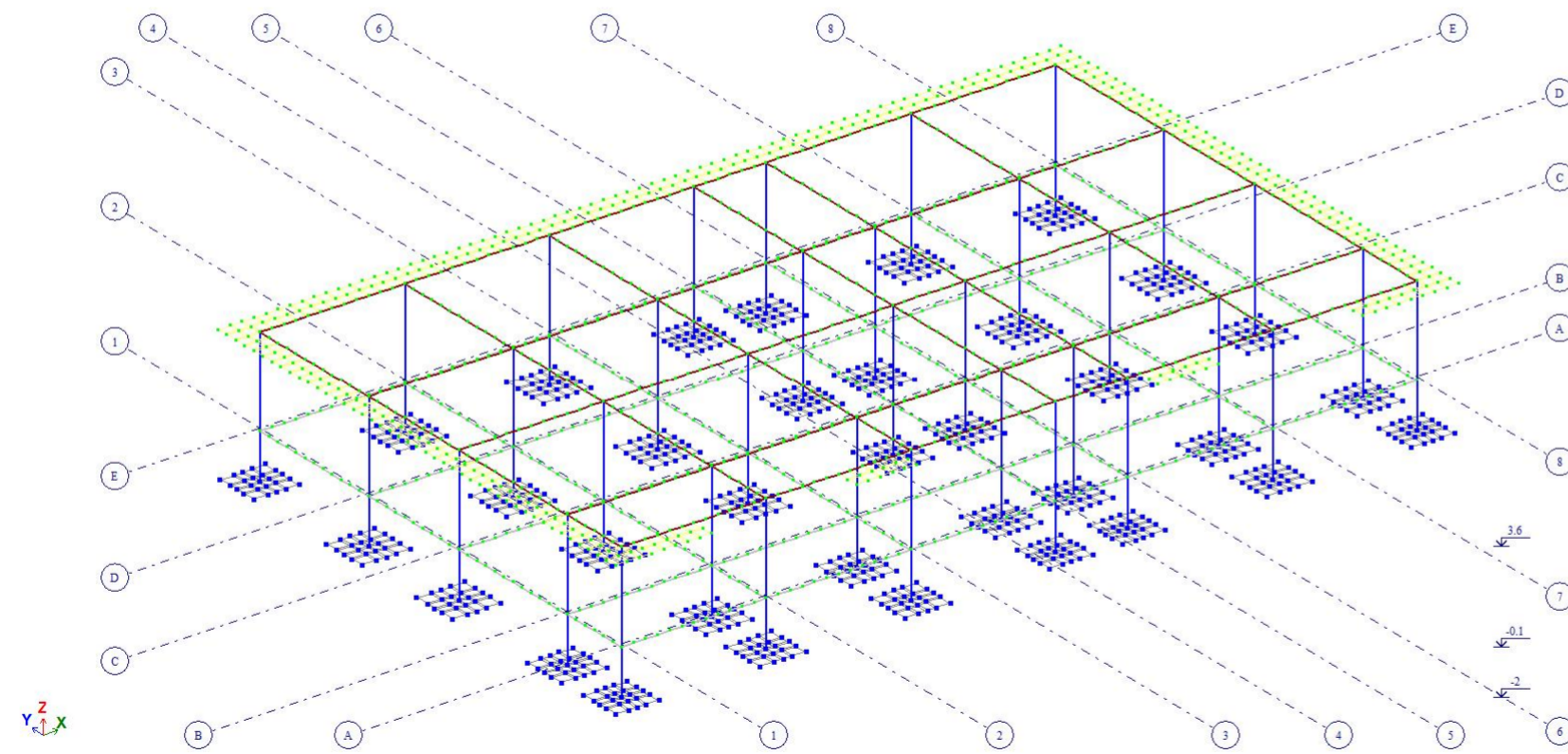
3D Model of Structure



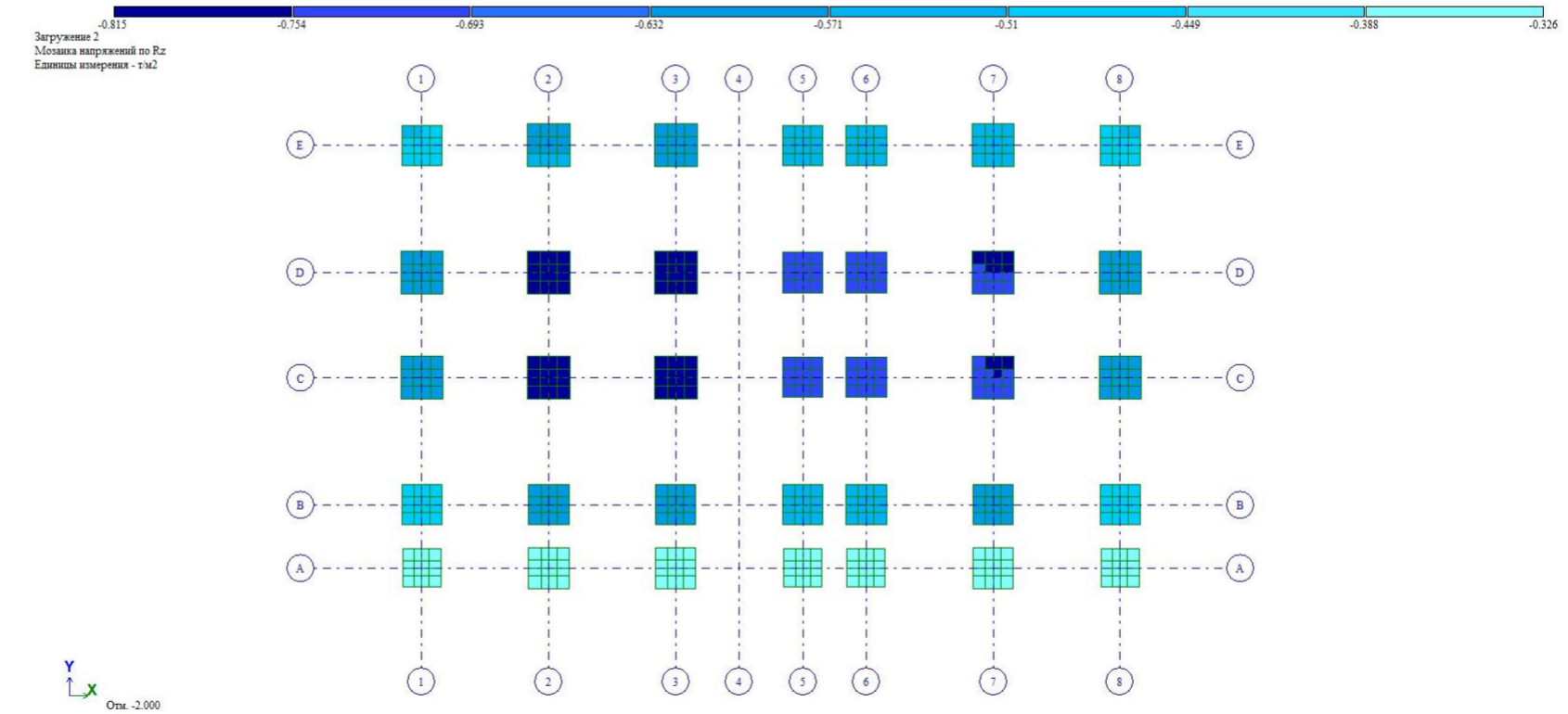
Voltages at the base from constant loads



Design Model of the Bearing Structure



Voltages at the base from temporary loads



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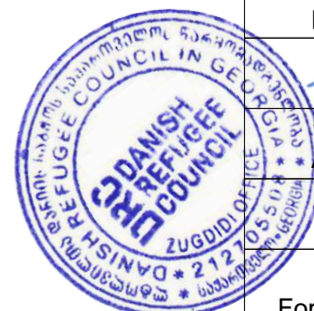
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Results of the
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report in the
'LIRA' program

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B. Qantaria

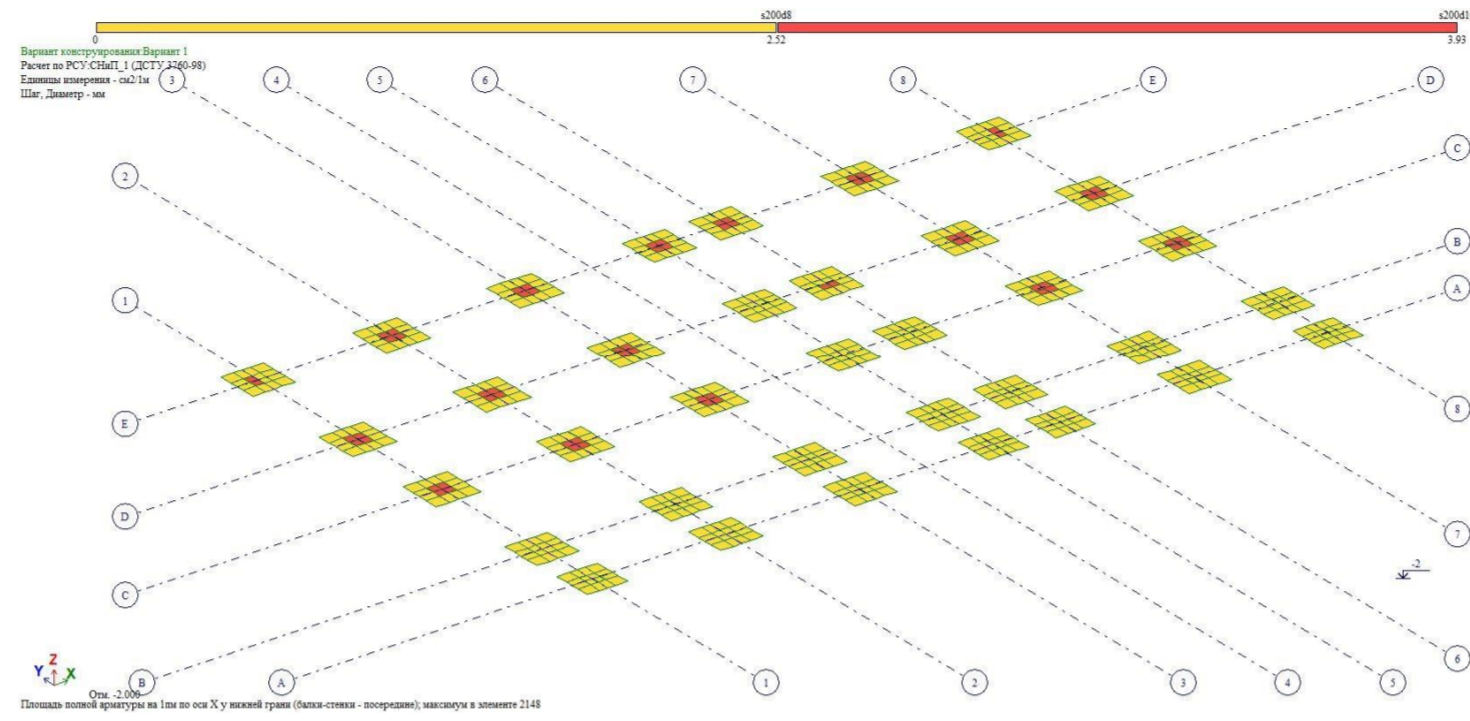
ა. გერგდავა
A. Gergedava



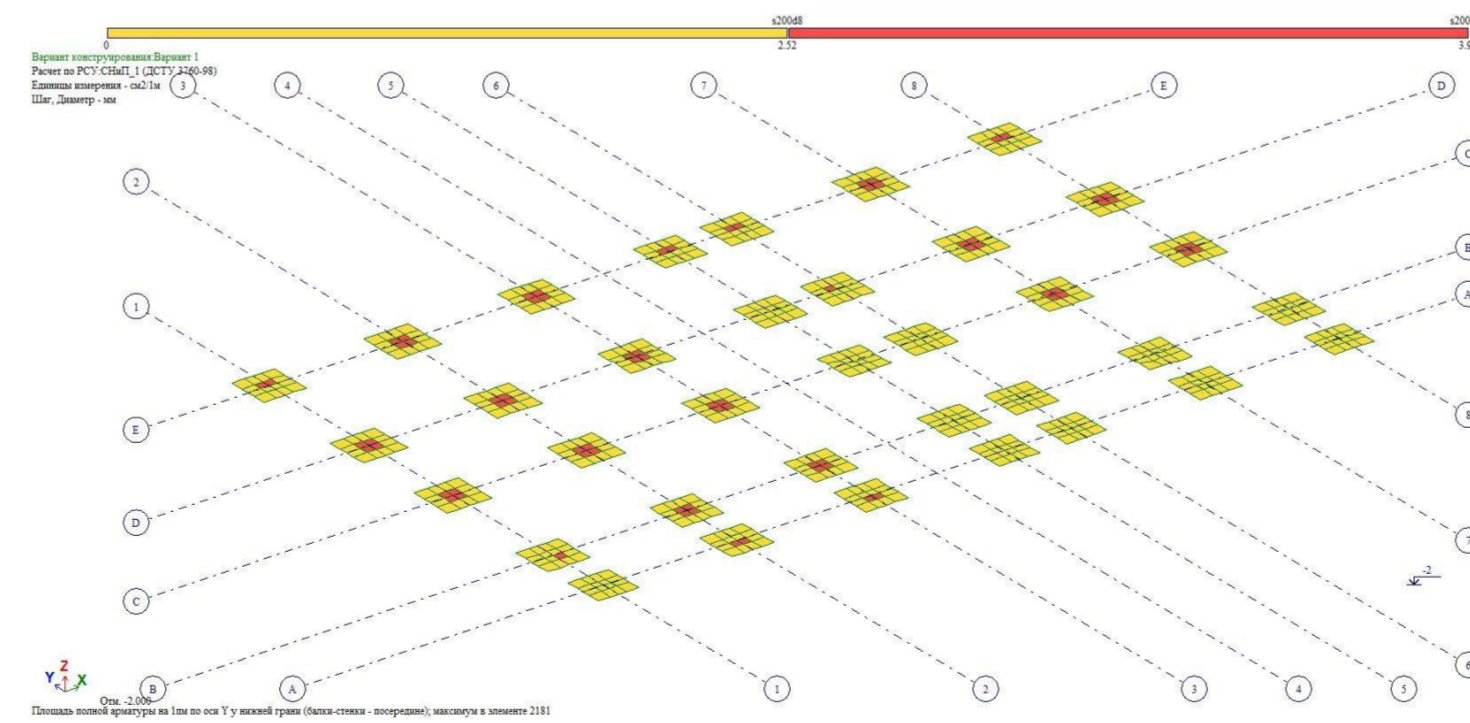
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Area of reinforcement of lower zones of the pad foundation in the X-direction



Area of reinforcement of lower zones of the pad foundation in the Y-direction



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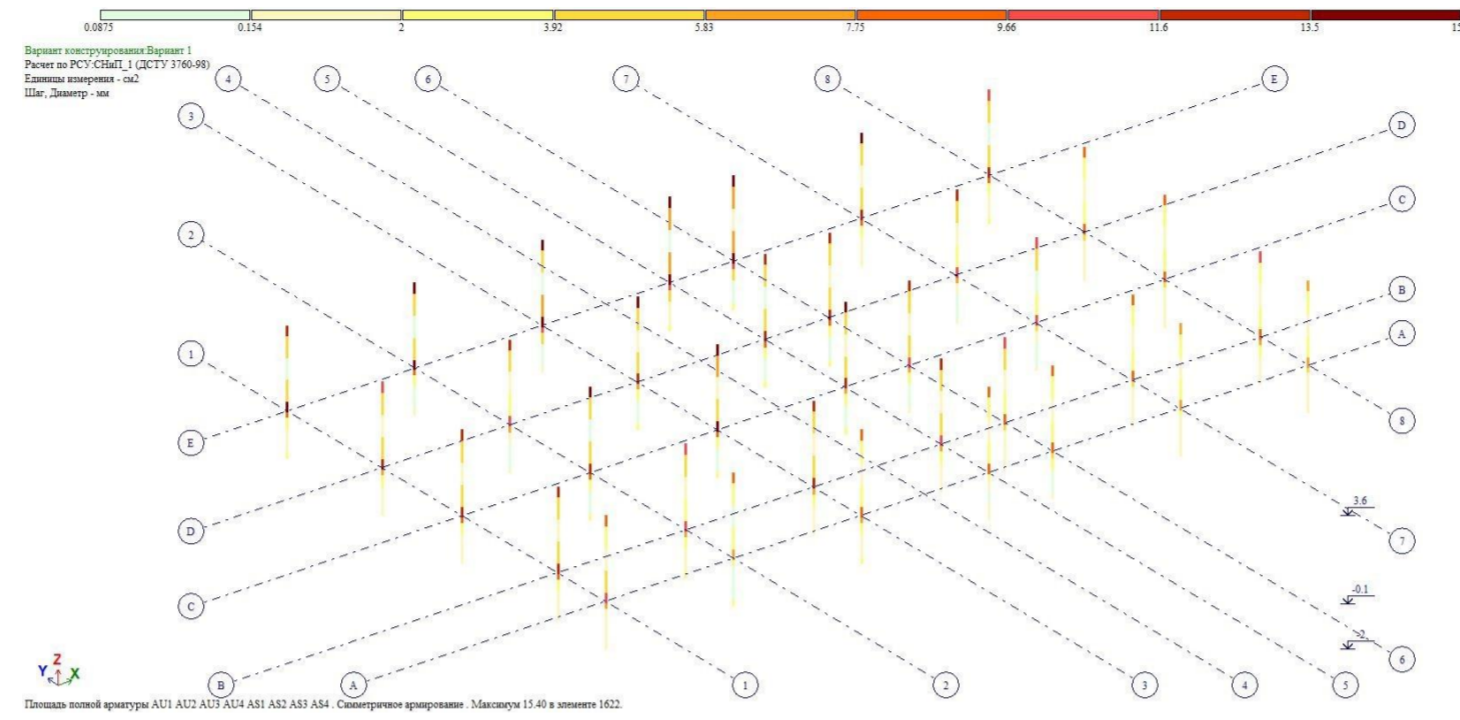
ბ. კანტარია
B. Kantaria

ა. გერგდავა
A. Gergedava

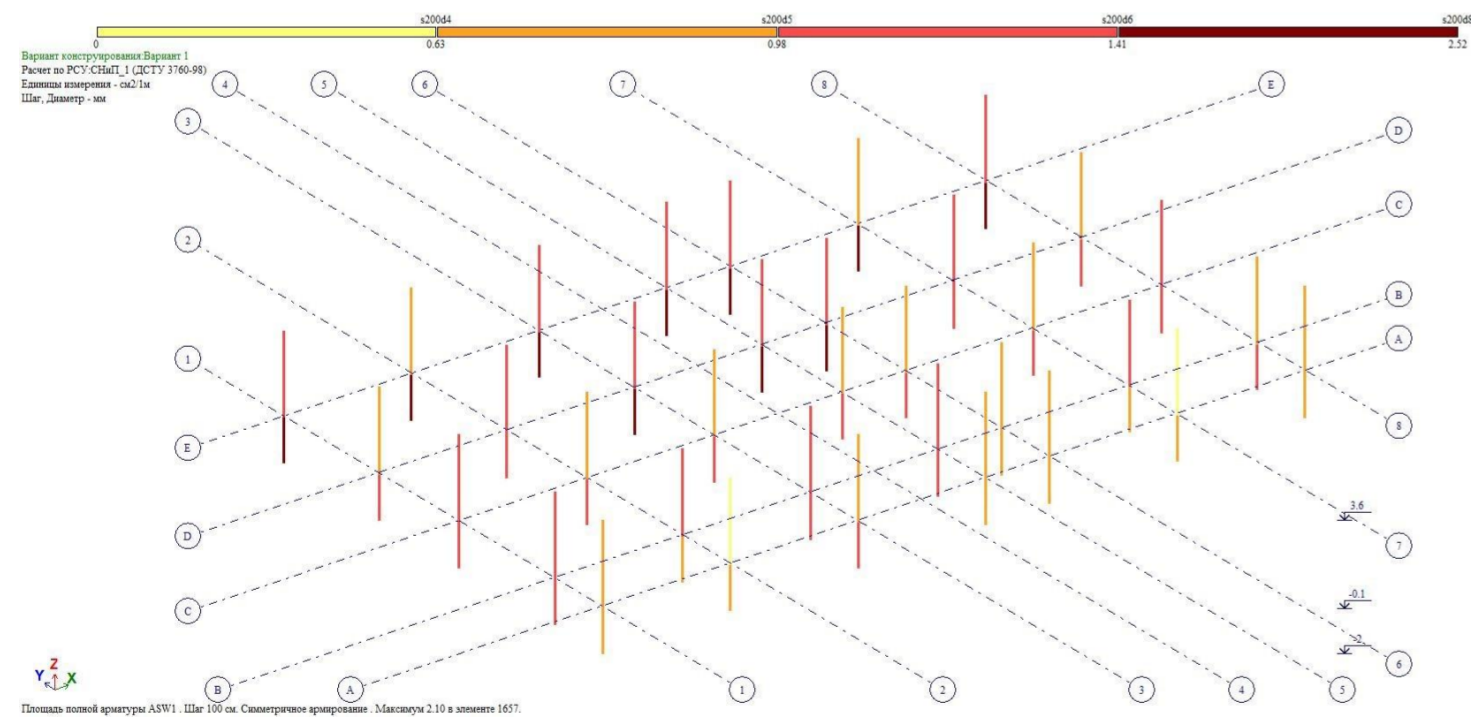


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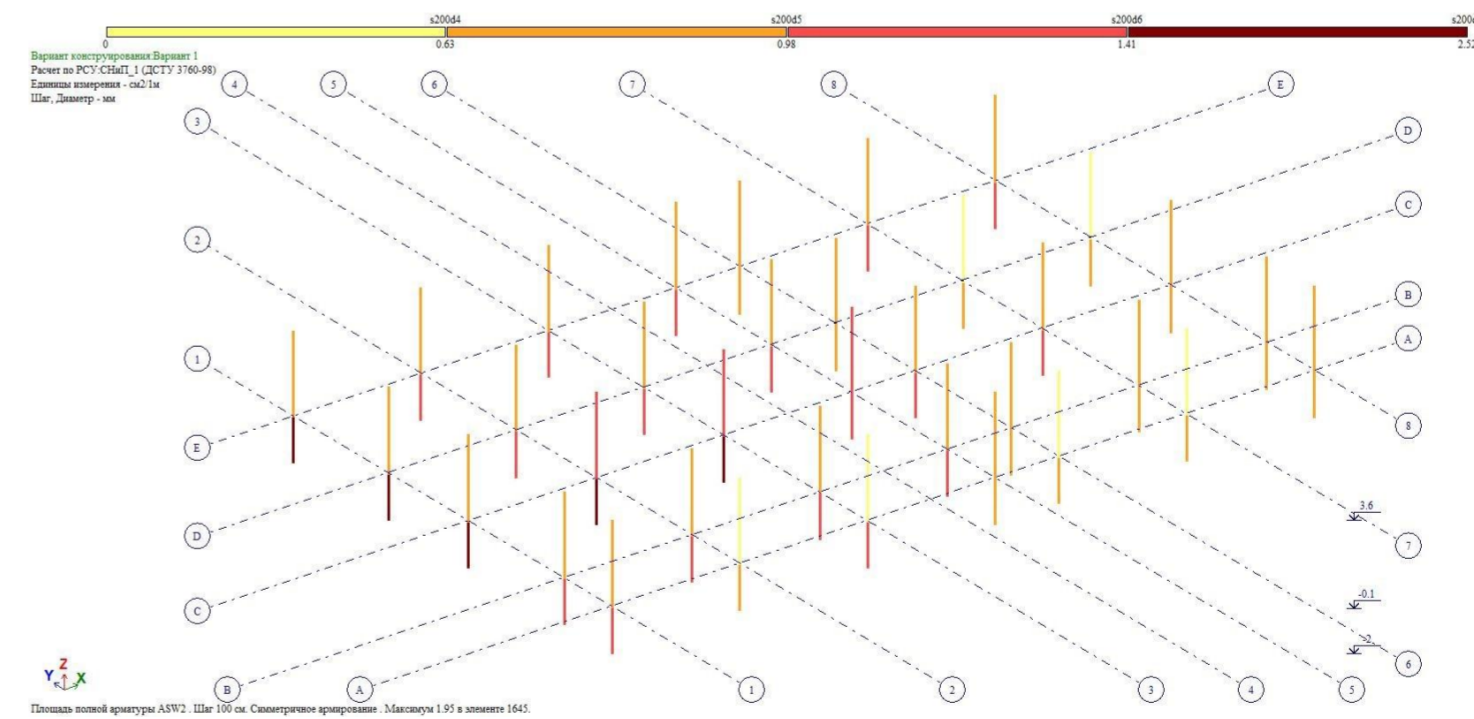
Column longitudinal reinforcement space



Column longitudinal reinforcement space in the X-direction



Column longitudinal reinforcement space in the Y-direction



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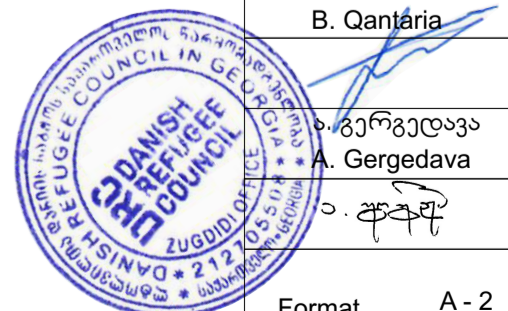
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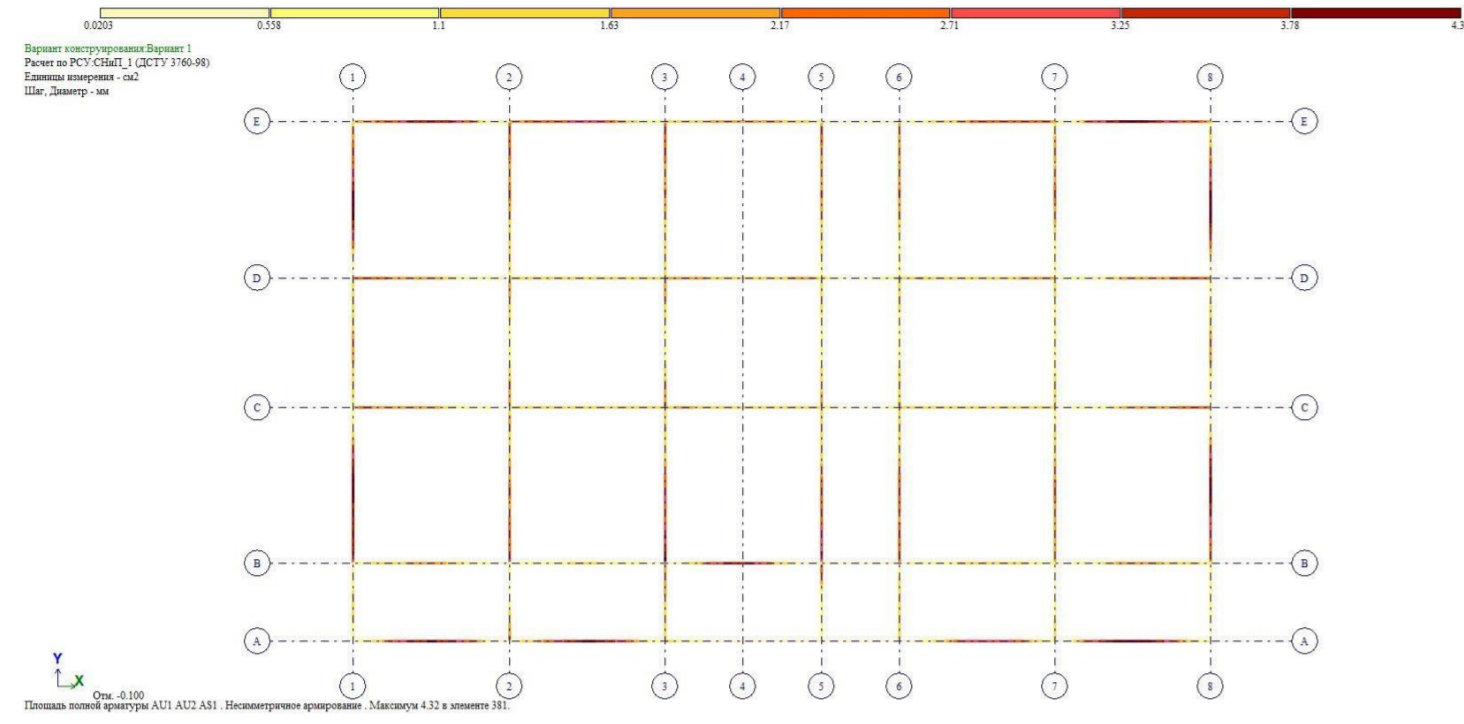
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B. Qantaria

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A. Gergedava

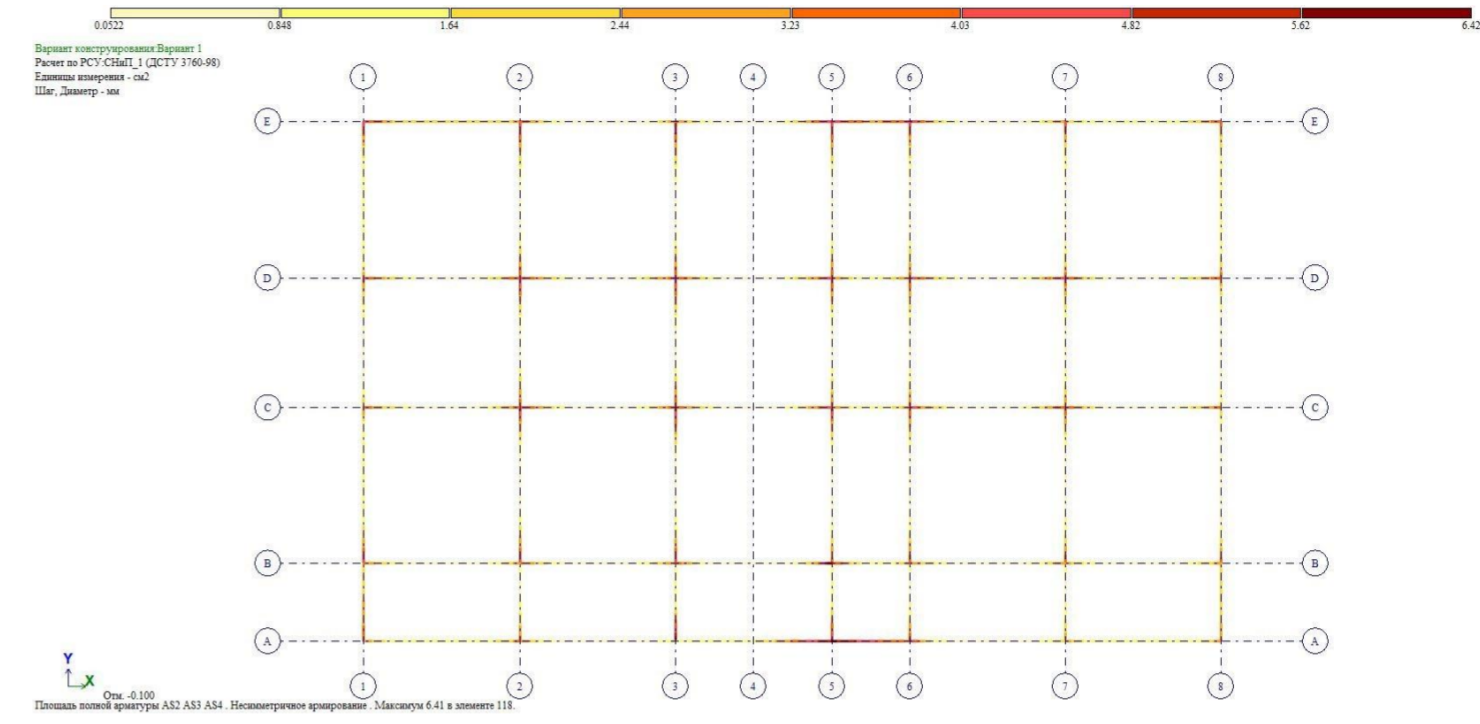


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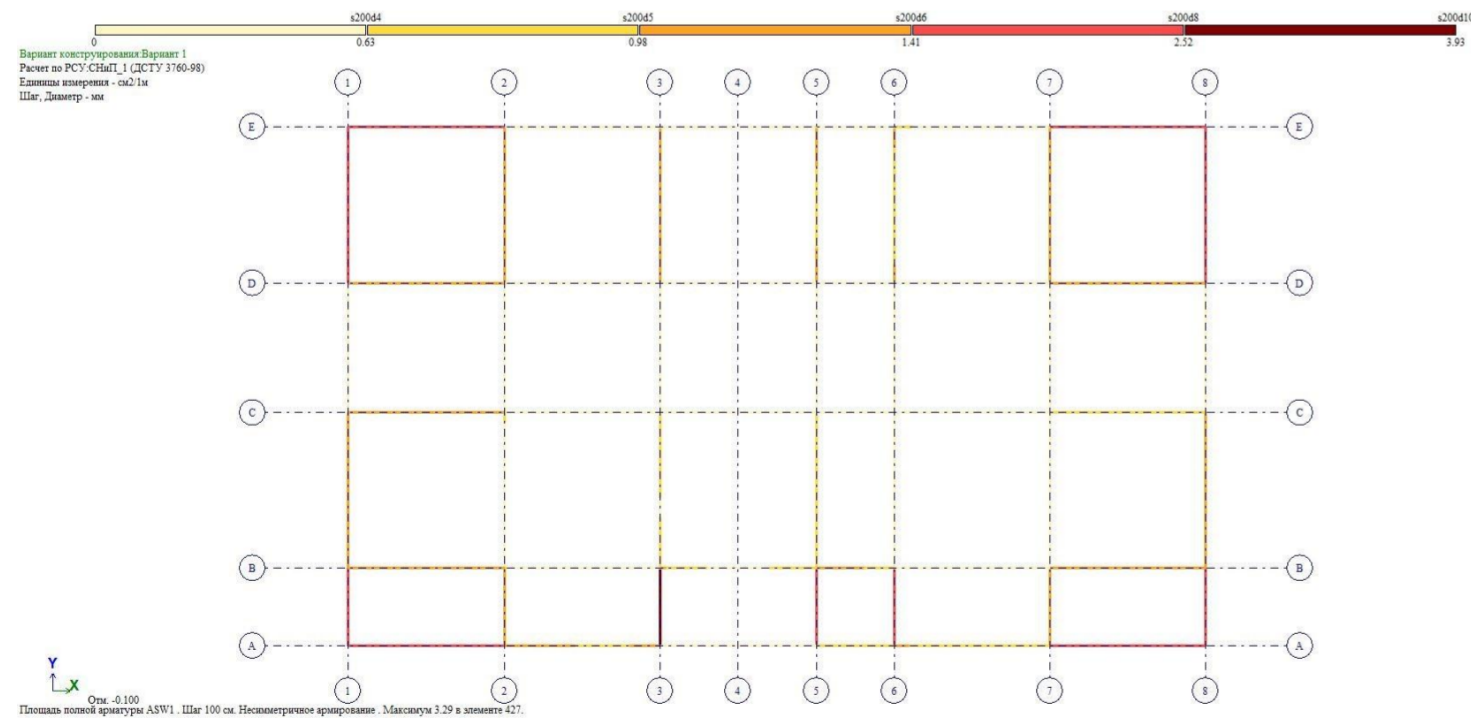
Area of reinforcement of lower zone of end-girder



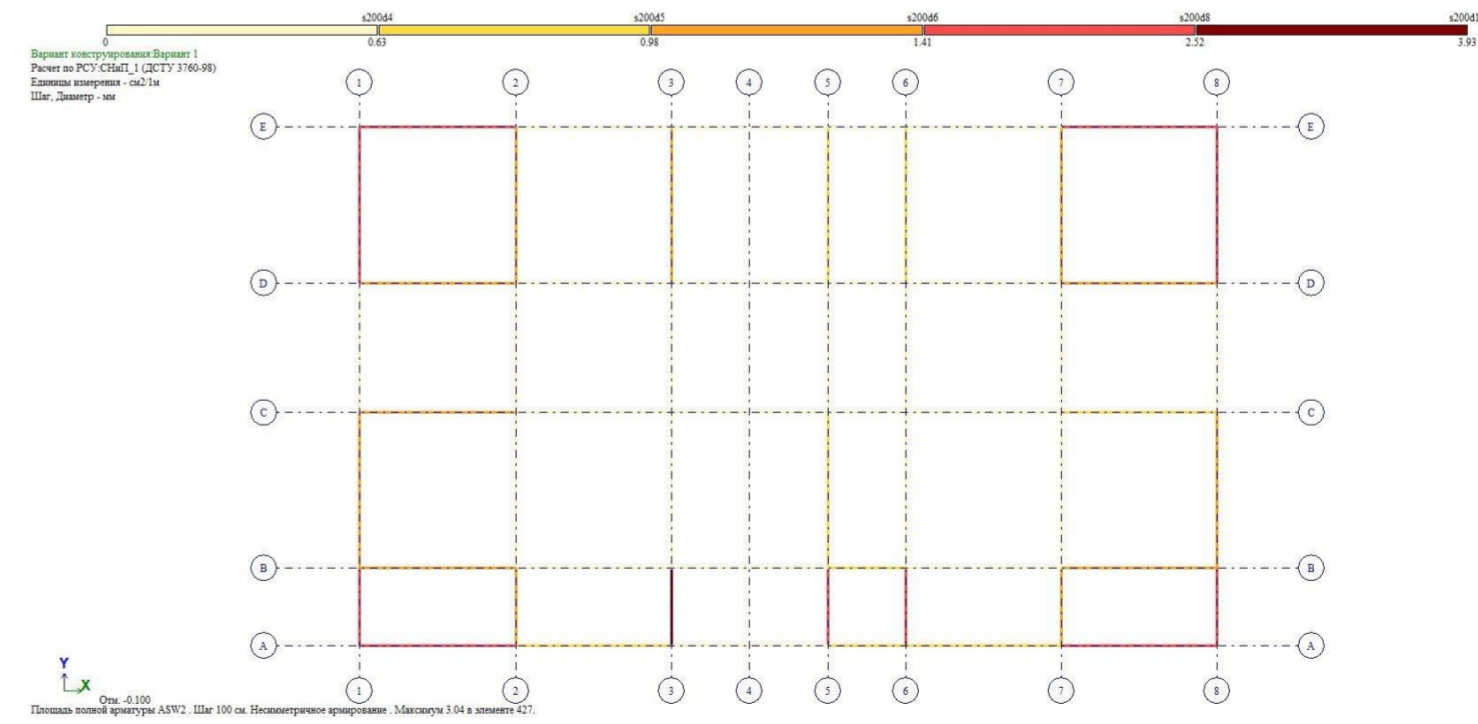
Area of reinforcement of upper zone of end-girder



The area of the transverse vertical reinforcement (hanger)



The area of the transverse horizontal reinforcement (hanger)



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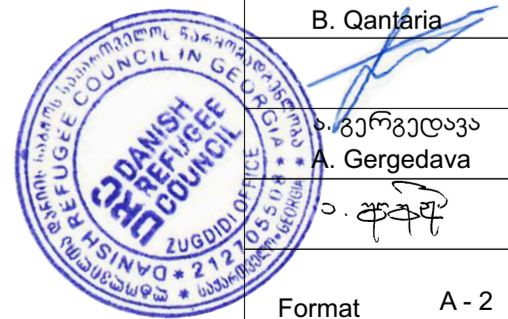
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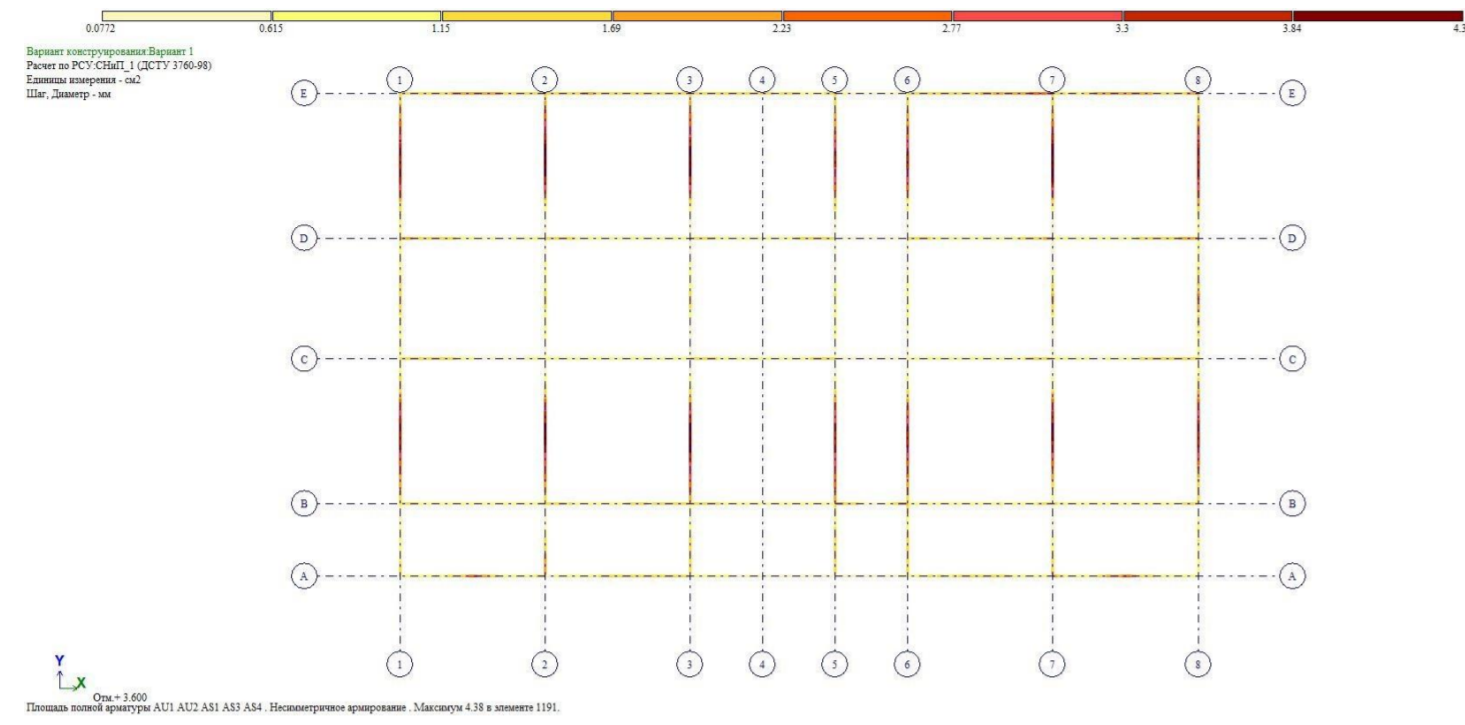
ა. გერგდავა
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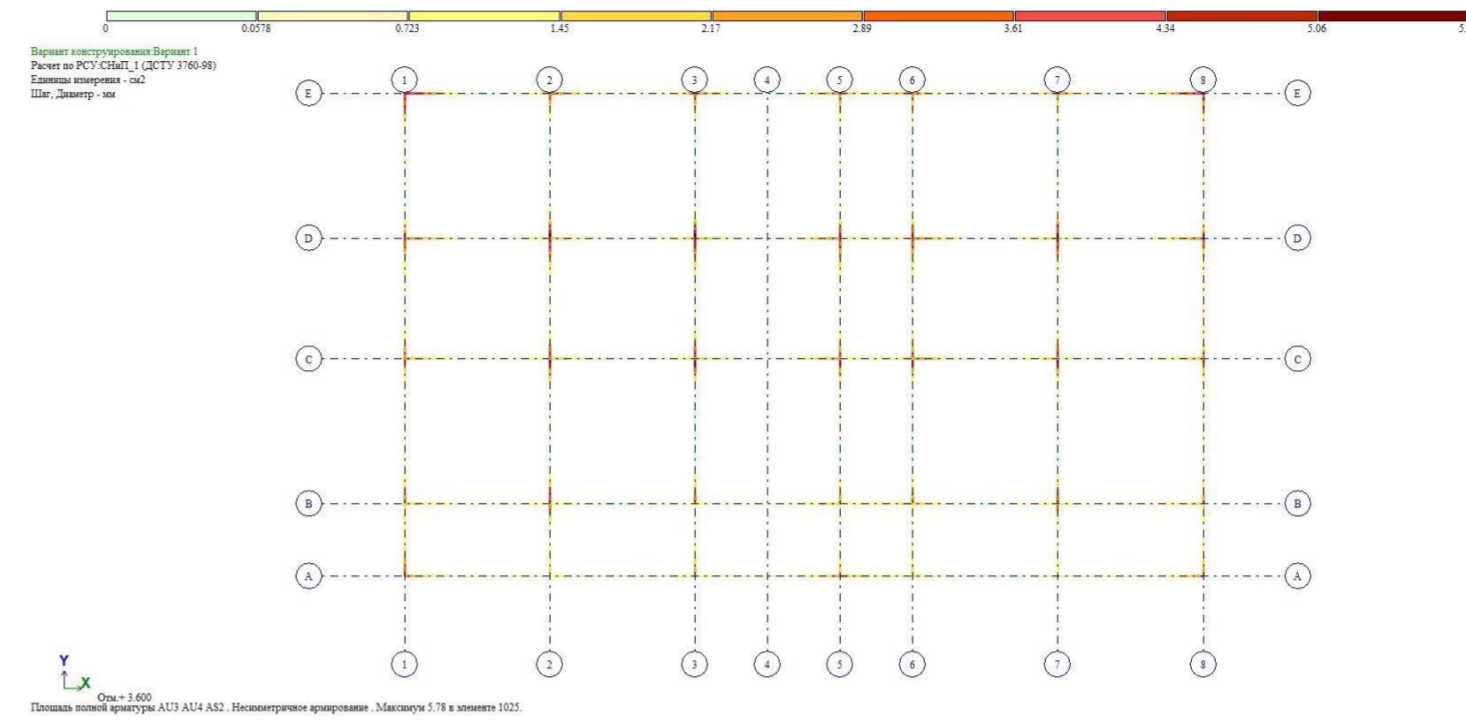
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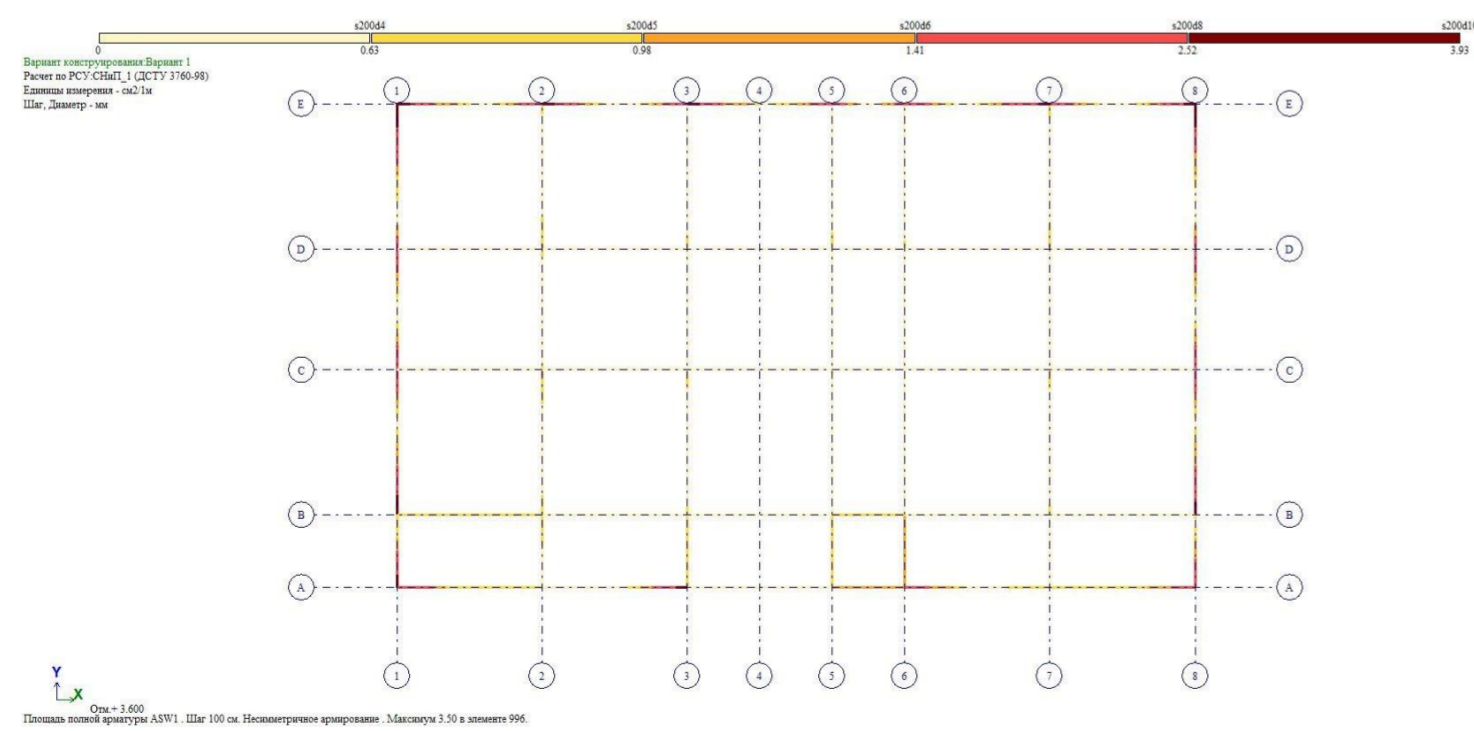
The lower reinforcement area of the girders (+3.60)



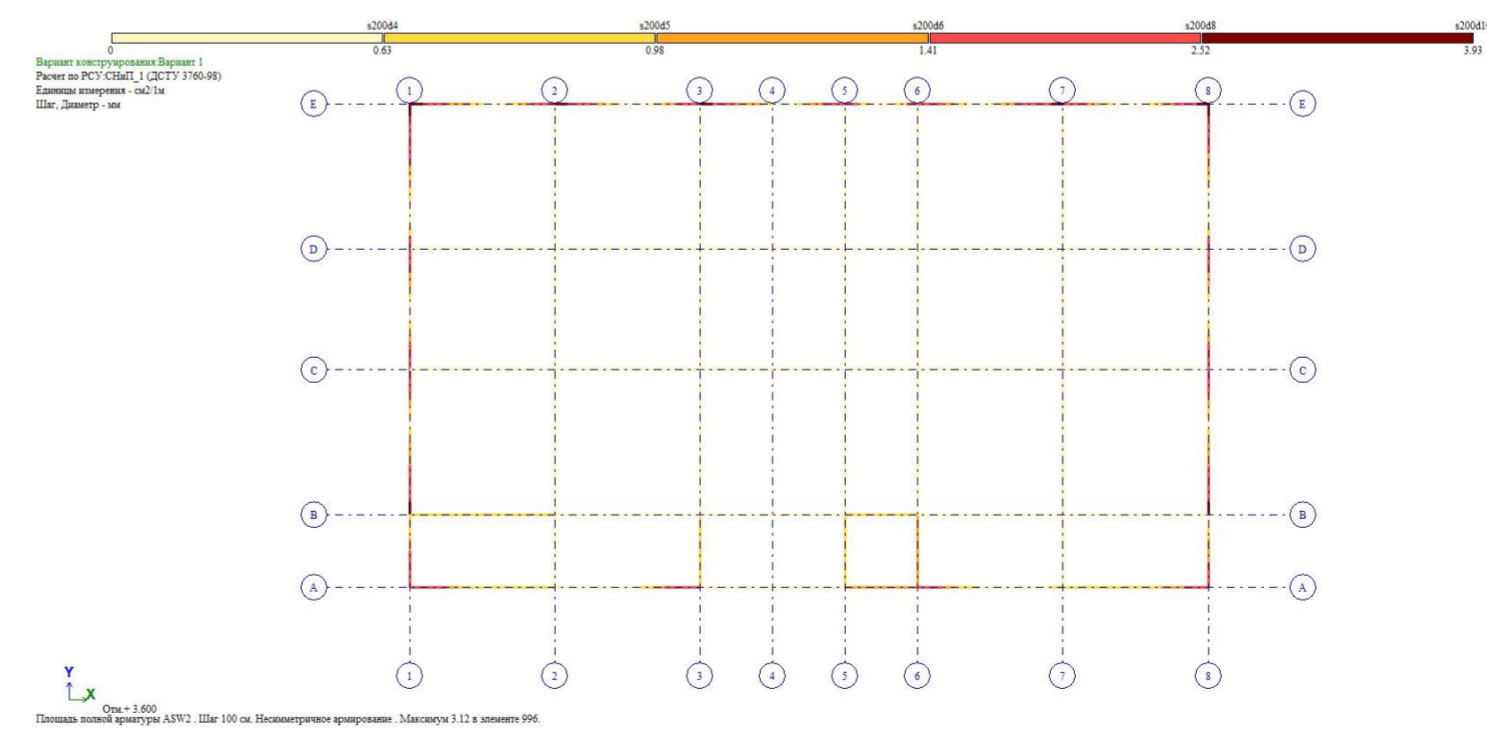
The upper reinforcement area of the girders (+3.60)



Transverse vertical reinforcement (hanger) space of girders (+3.60)



Transverse horizontal reinforcement (hanger) space of girders (+3.60)



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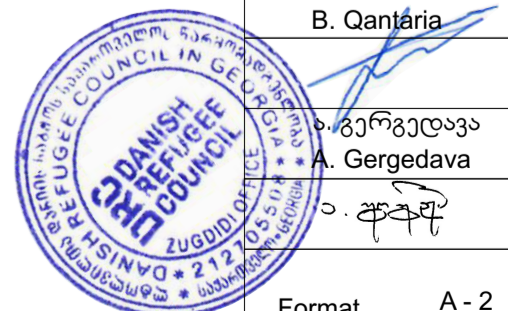
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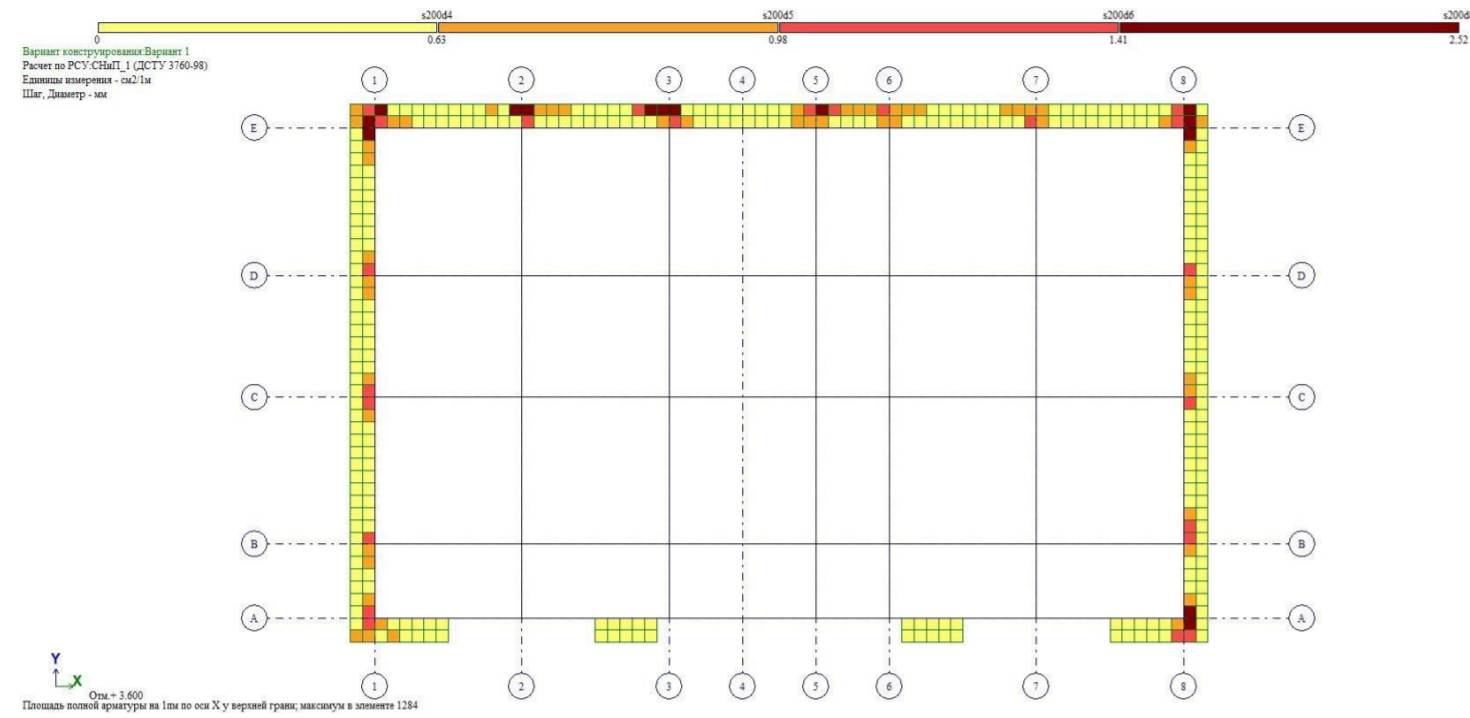
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A. Gergedava



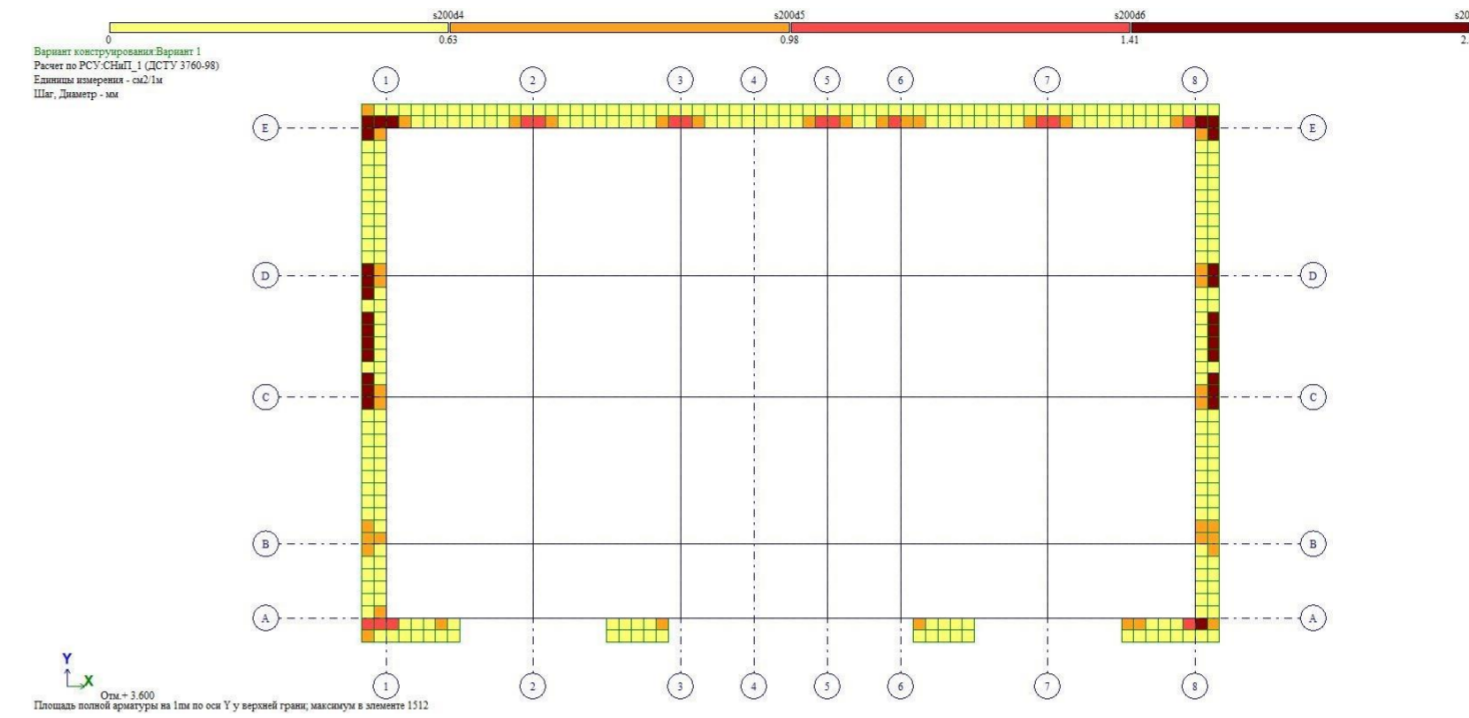
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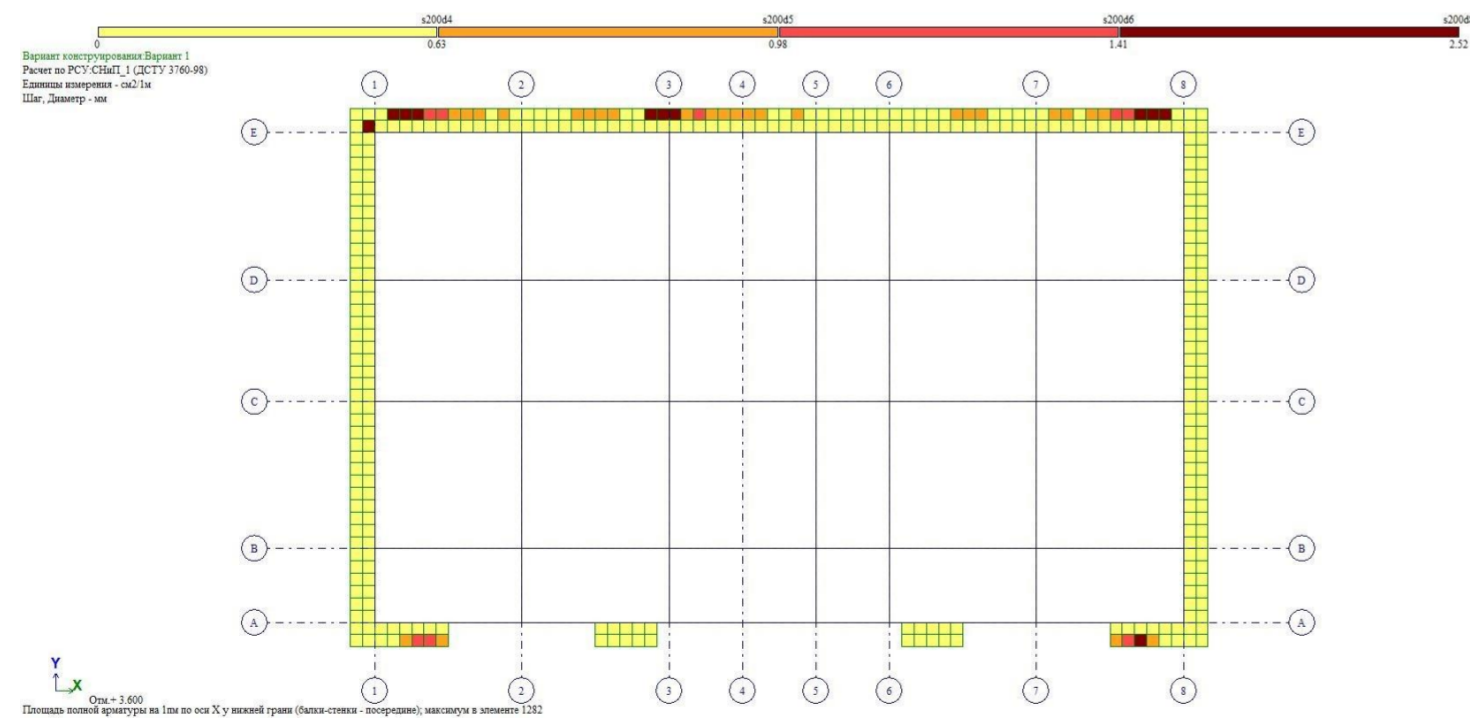
Reinforcement area of the upper zone of the cornice in the X direction



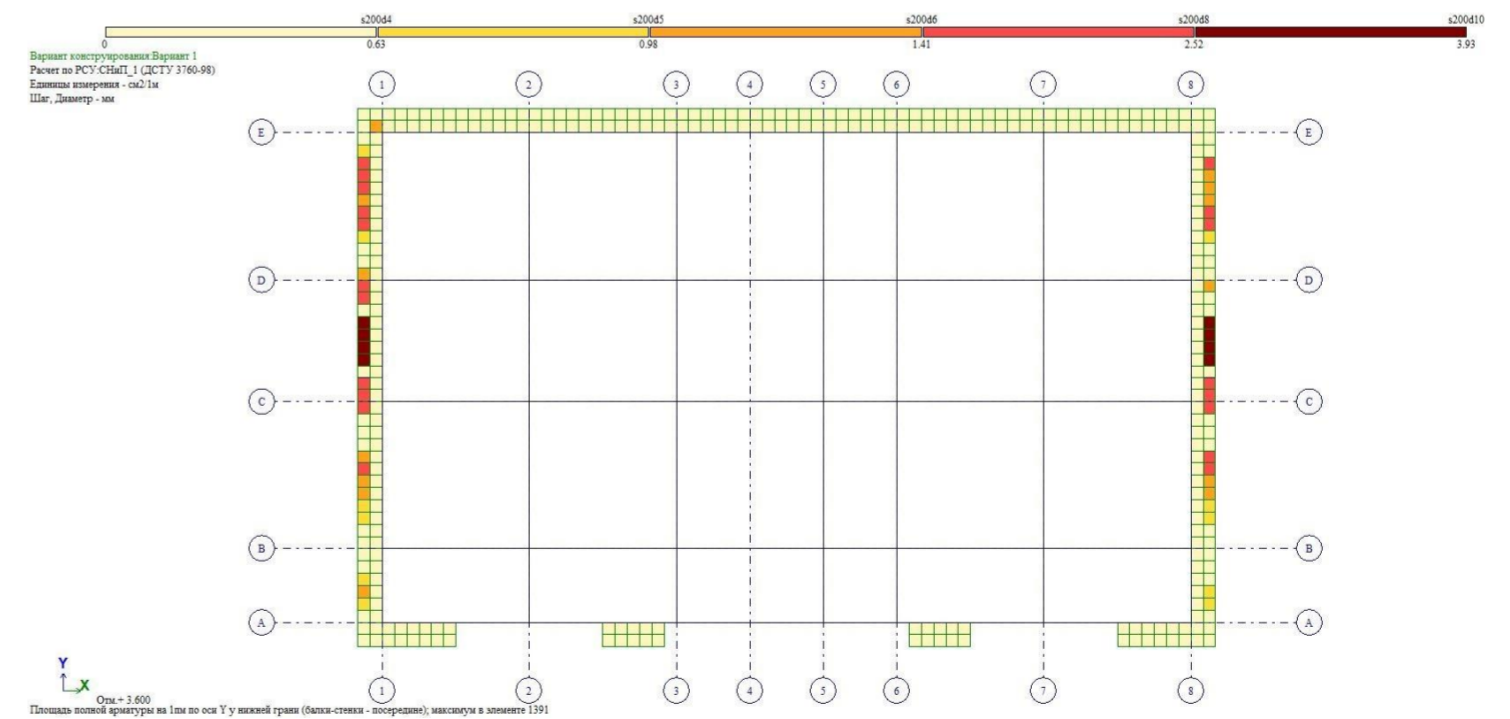
Reinforcement area of the upper zone of the cornice in the Y direction



Reinforcement area of the lower zone of the cornice in the X direction



Reinforcement area of the lower zone of the cornice in the Y direction



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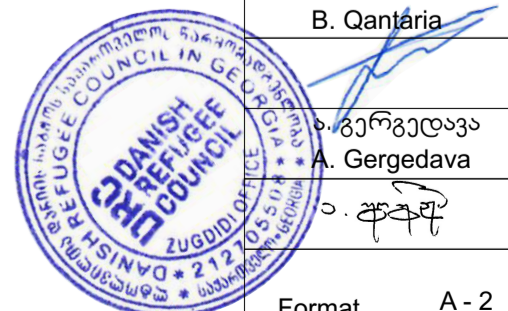
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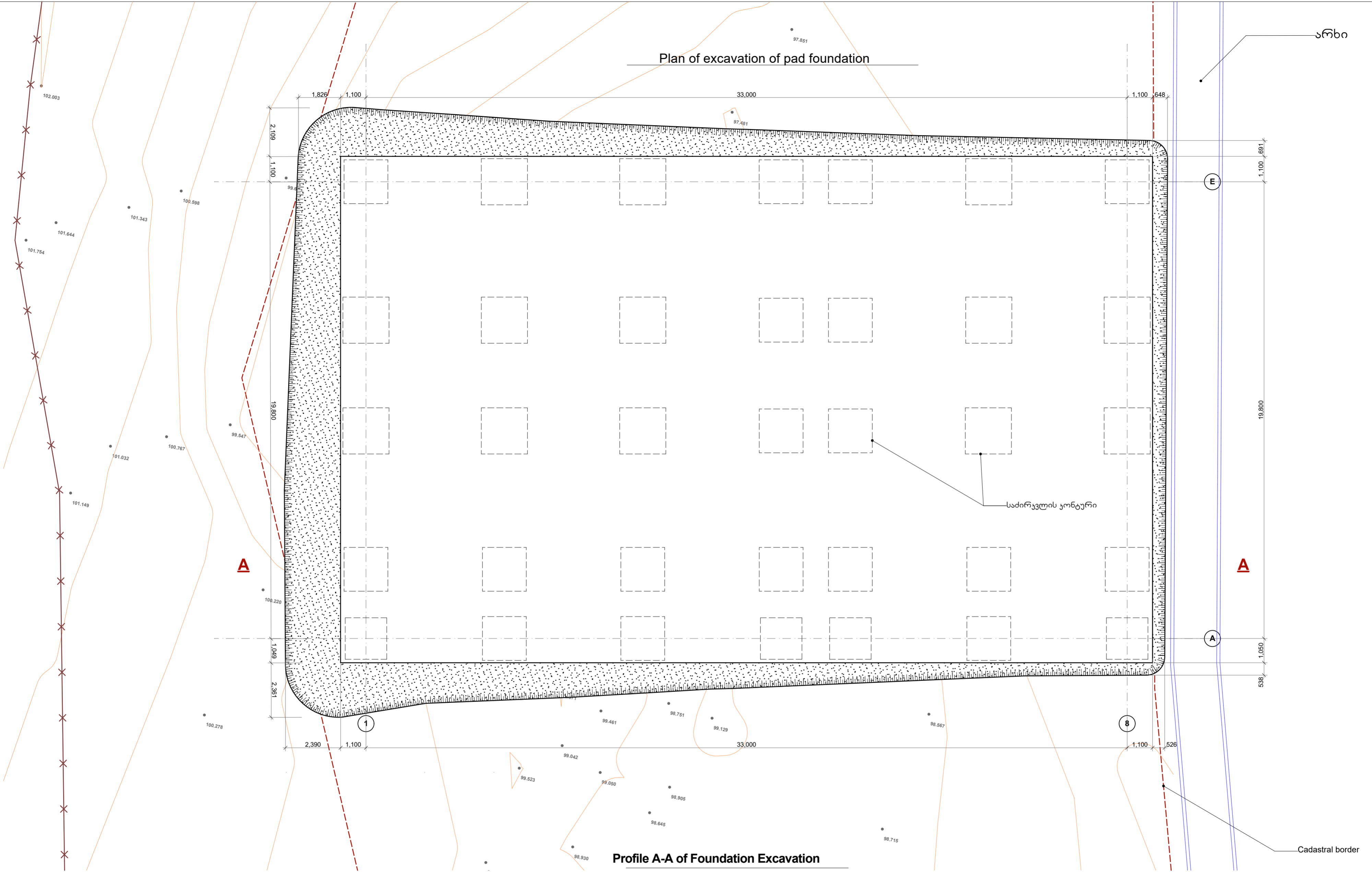
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A. Gergedava



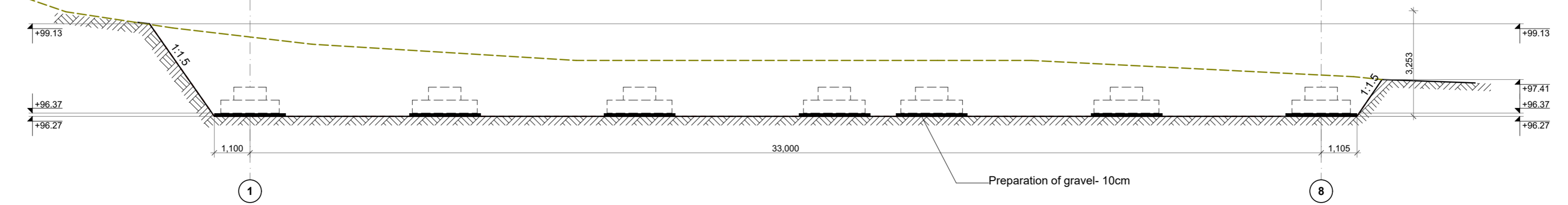
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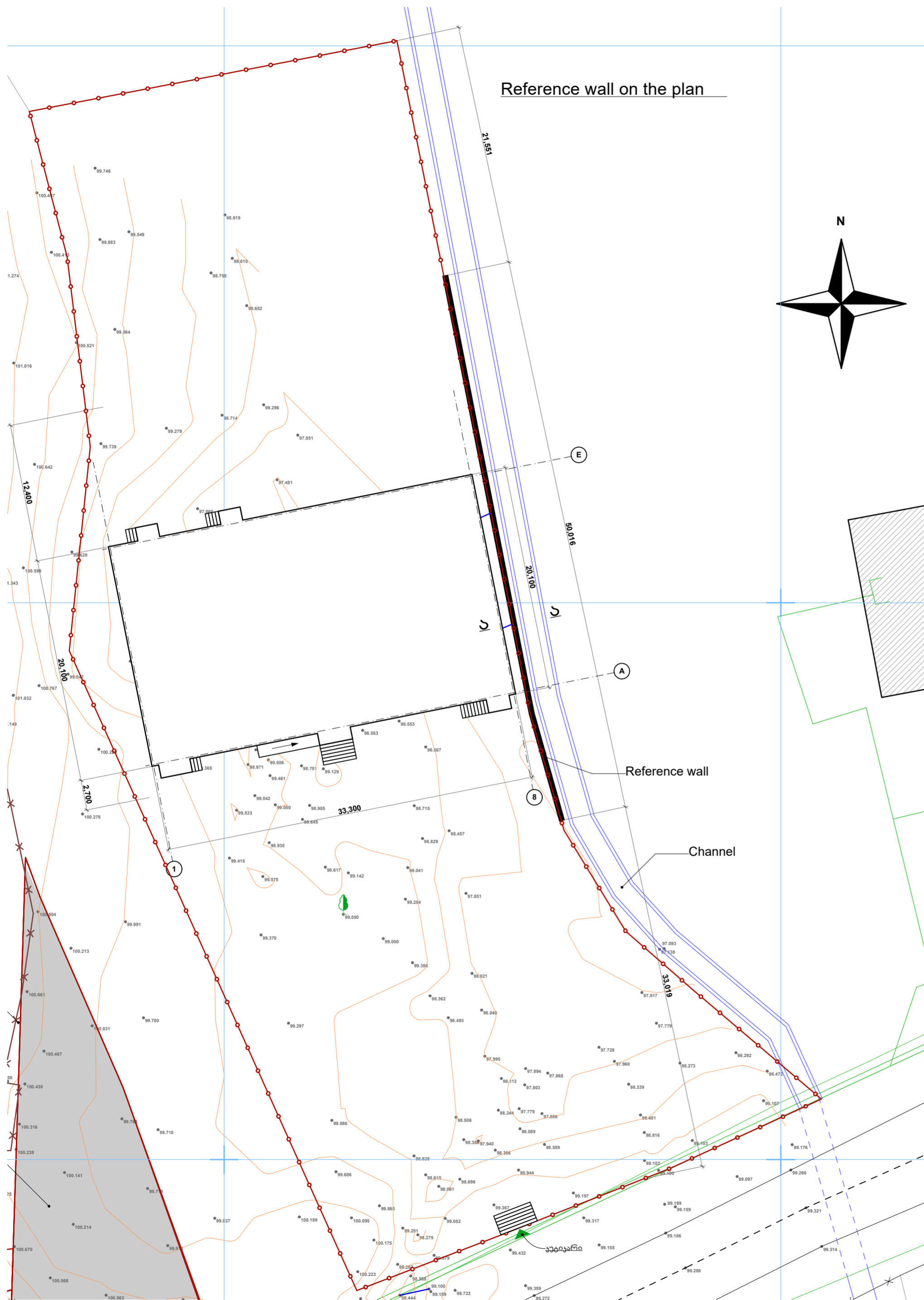
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Plan of excavation of pad foundation

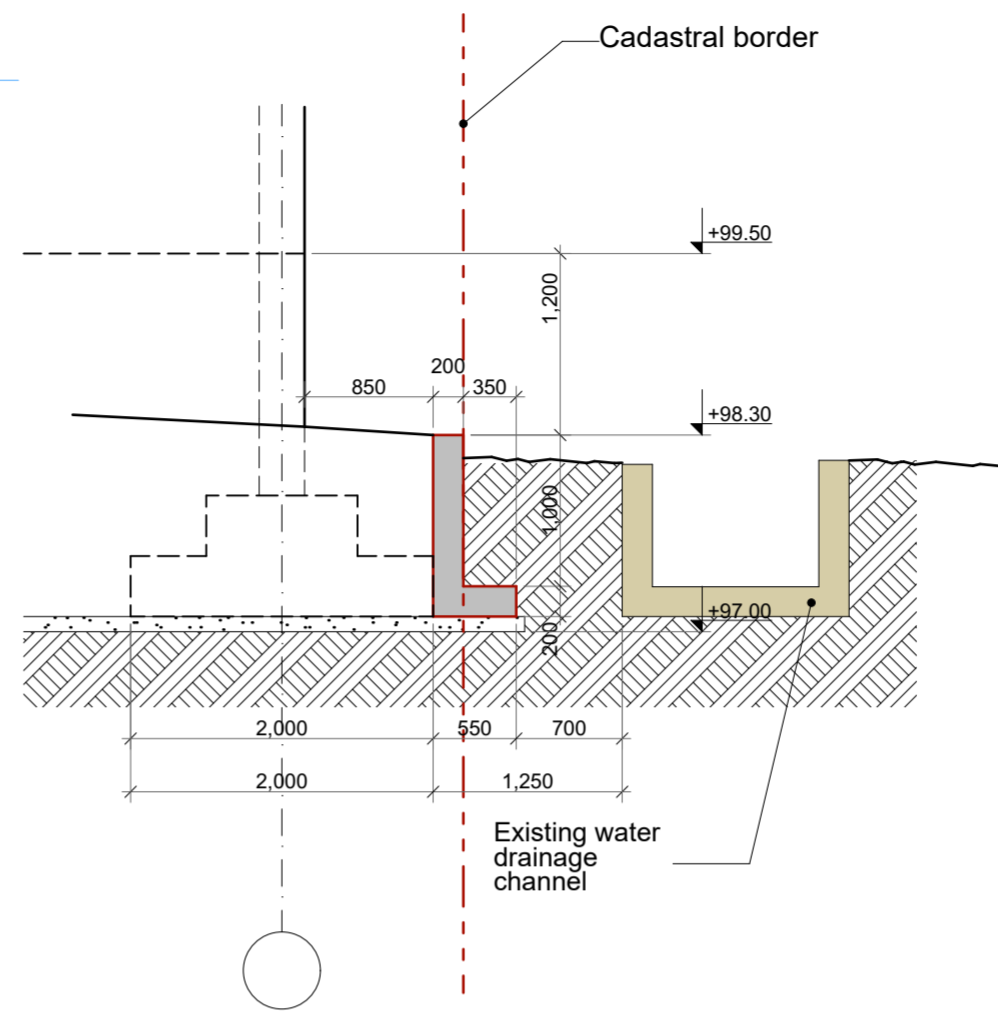


Profile A-A of Foundation Excavation

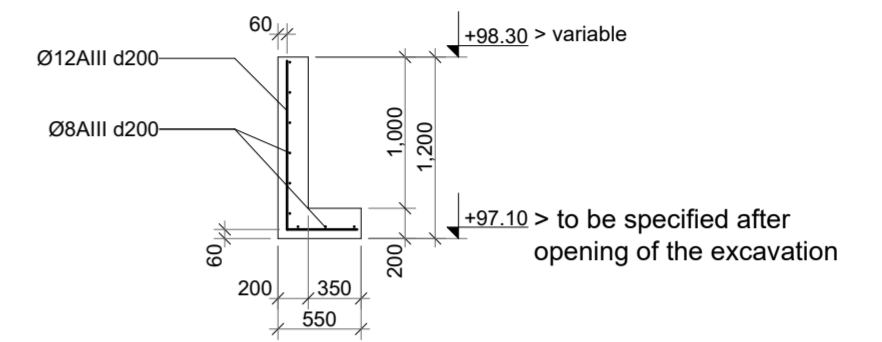




Secton A-A



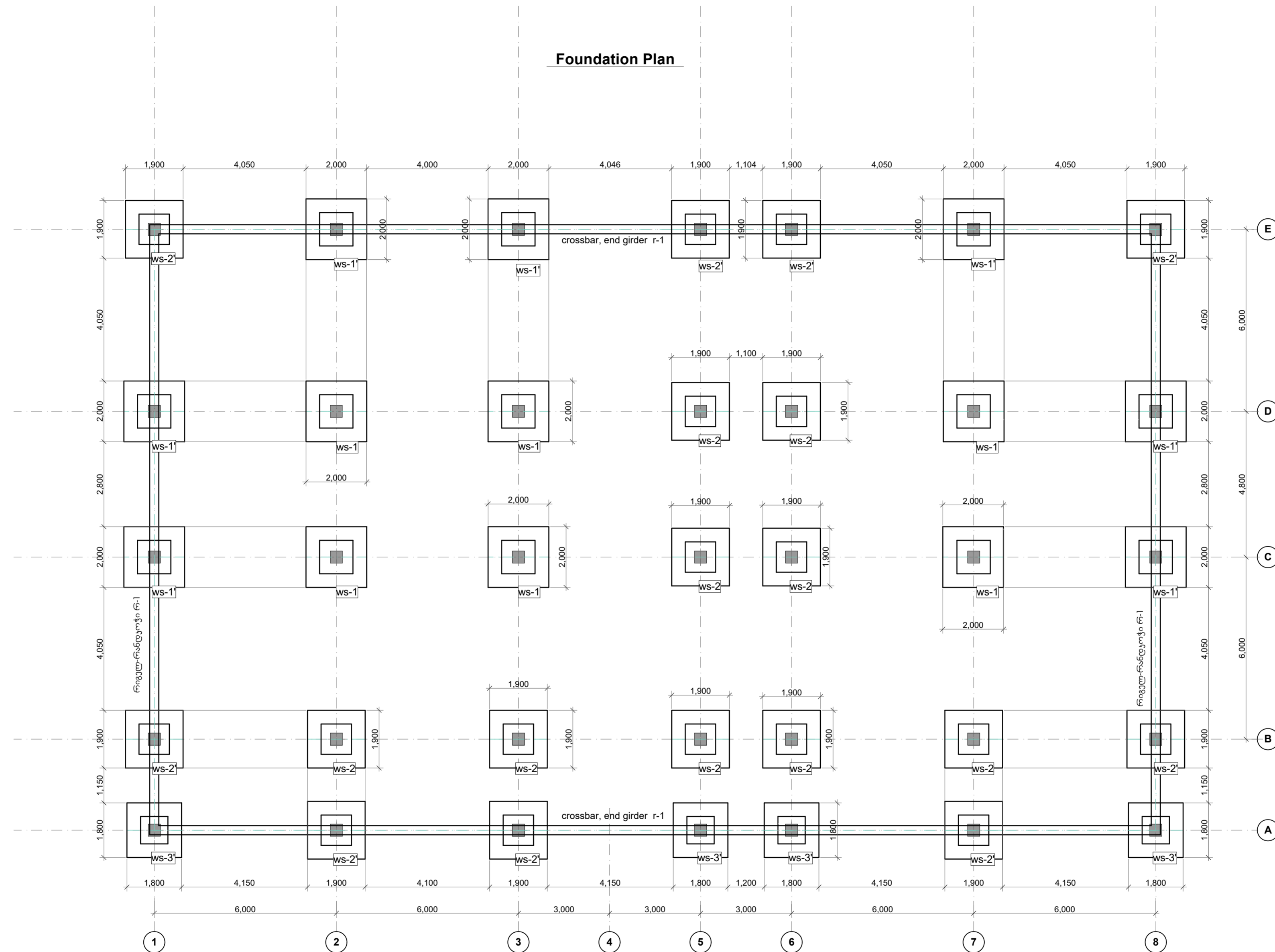
Reinforcement of Reference Wall



კლემენტი Element	№	არმატურის პროფილი Reinforcement profile	სიგრძე მმ Length mm	რაოდენობა Qty	საერთო სიგრძე მ total length m	ბეტონი მ3 Concrete m3	Specification of Reinforcement არმატურის ამოკრეფა			
							საერთო სიგრძე მ Total length m	საერთო სიგრძე მ Total length with loss	გამამზ. წონა Weight of R/m	საერთო წონა Total weight , tons
საურდები კედელი Reference wall										
საურდები კედელი Reference wall		12 A500c	1620	251	406.62					
		8 A500c	50000	9	450					
		ბეტონი B25 Concrete B25				15.5				
		cross-section								
	A240c	6 A240c			0.0	0.222	0.00			0.0
	A240c	8 A240c			0.0	0.394	0.00			0.0
	A500c	6 A500c			0.0	0.222	0.00			0.6
		8 A500c	450.0	472.5	0.394	0.19				
		10 A500c		0.0	0.616	0.00				
		12 A500c	407.0	427.4	0.887	0.38				
		14 A500c		0.0	1.208	0.00				
		16 A500c		0.0	1.578	0.00				
		18 A500c		0.0	1.997	0.00				
	20 A500c		0.0	2.465	0.00					
	22 A500c		0.0	2.983	0.00					
	25 A500c		0.0	3.851	0.00					
		სულ Total					0.57			

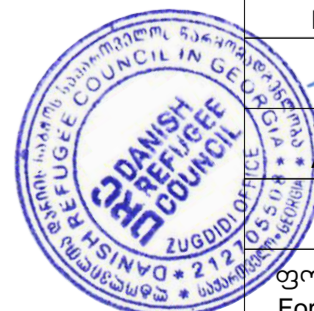


Foundation Plan

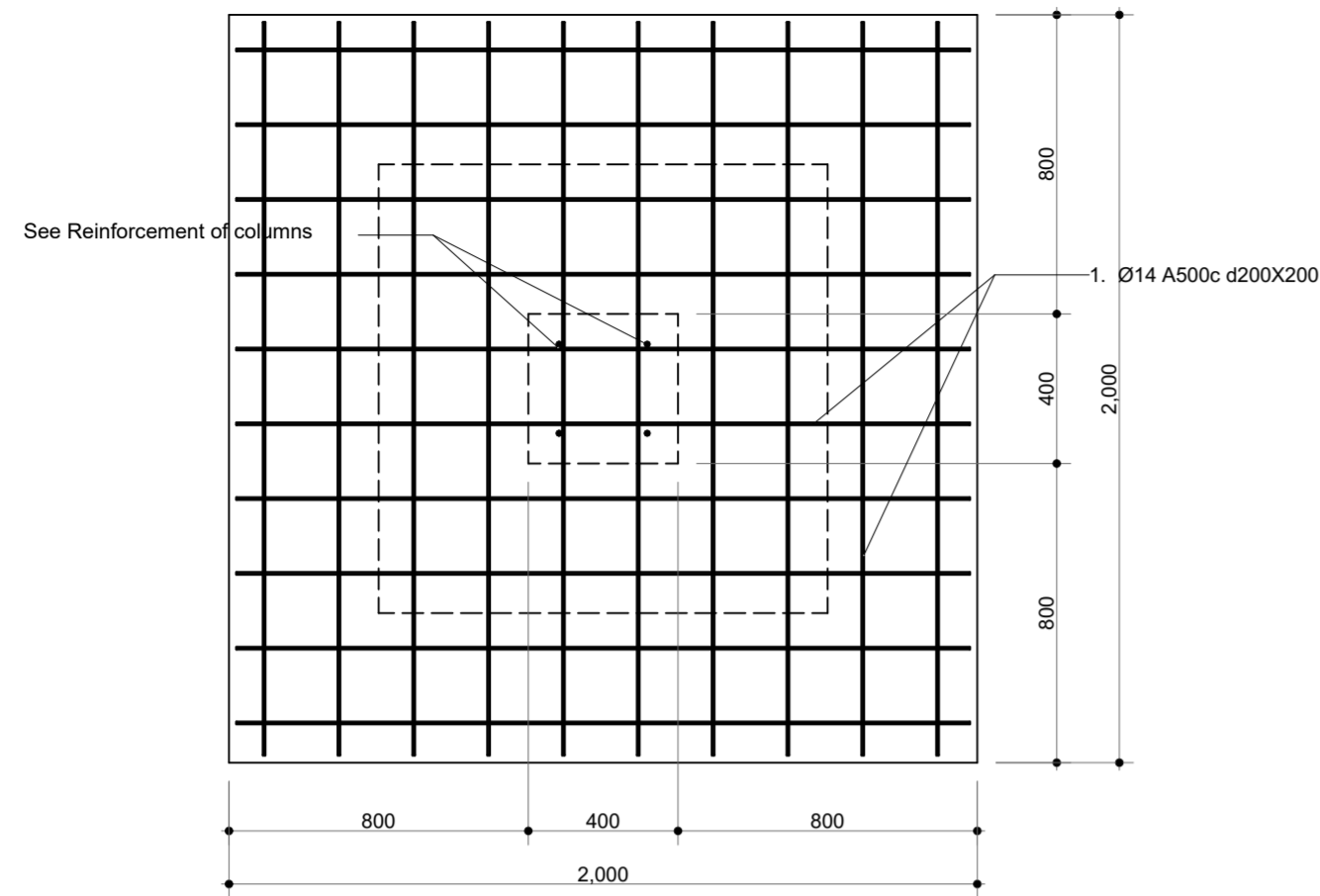


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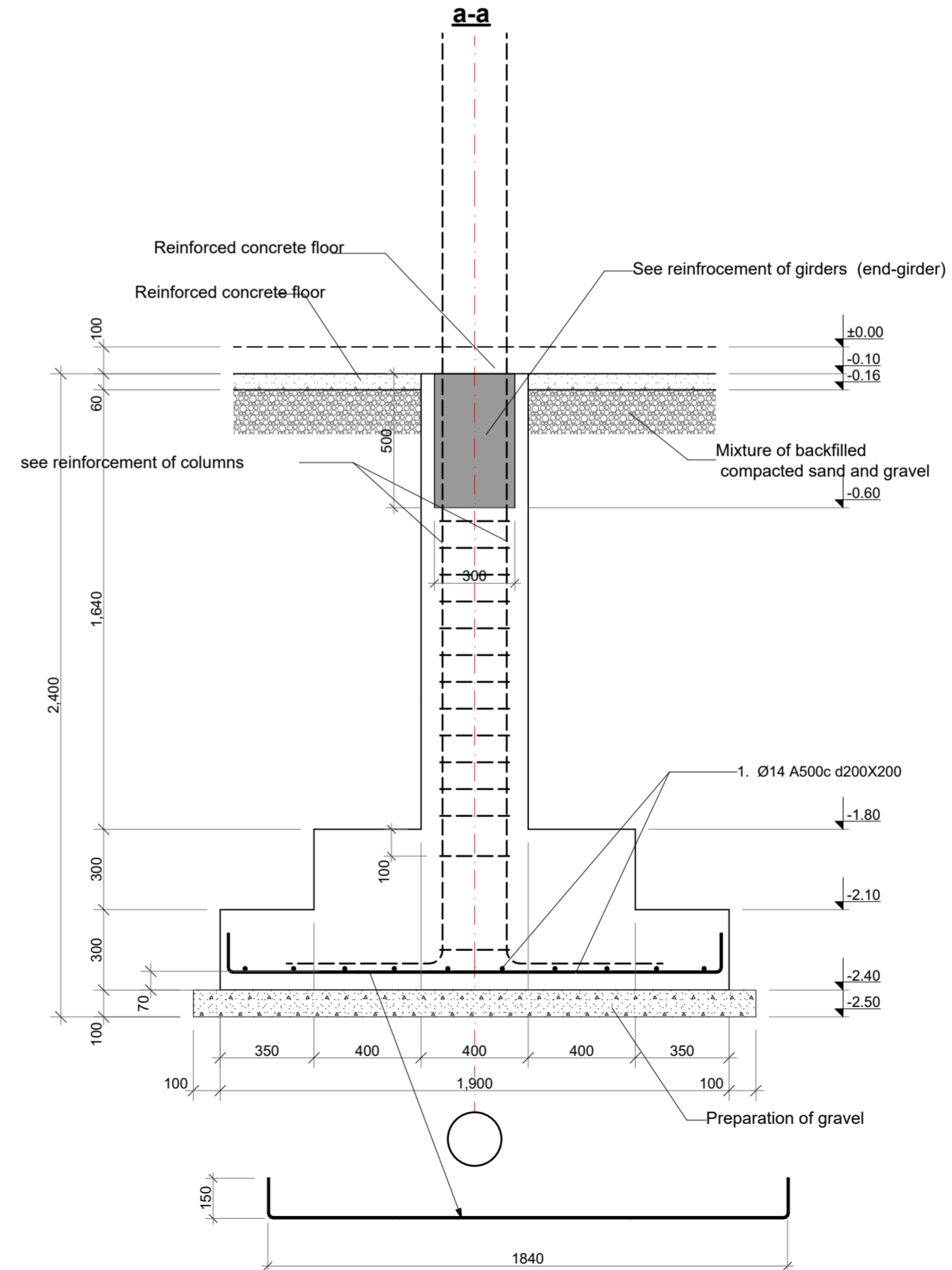
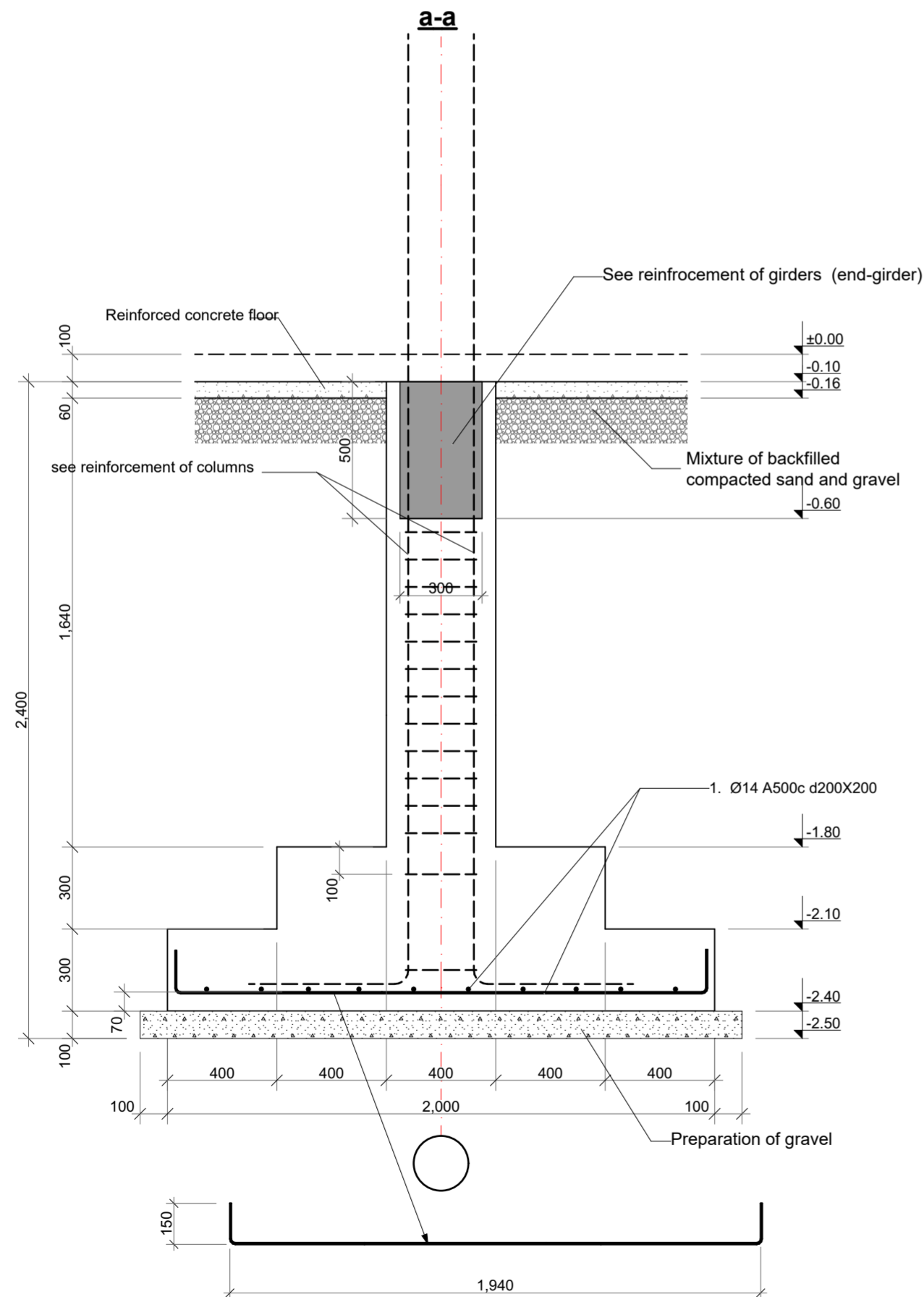
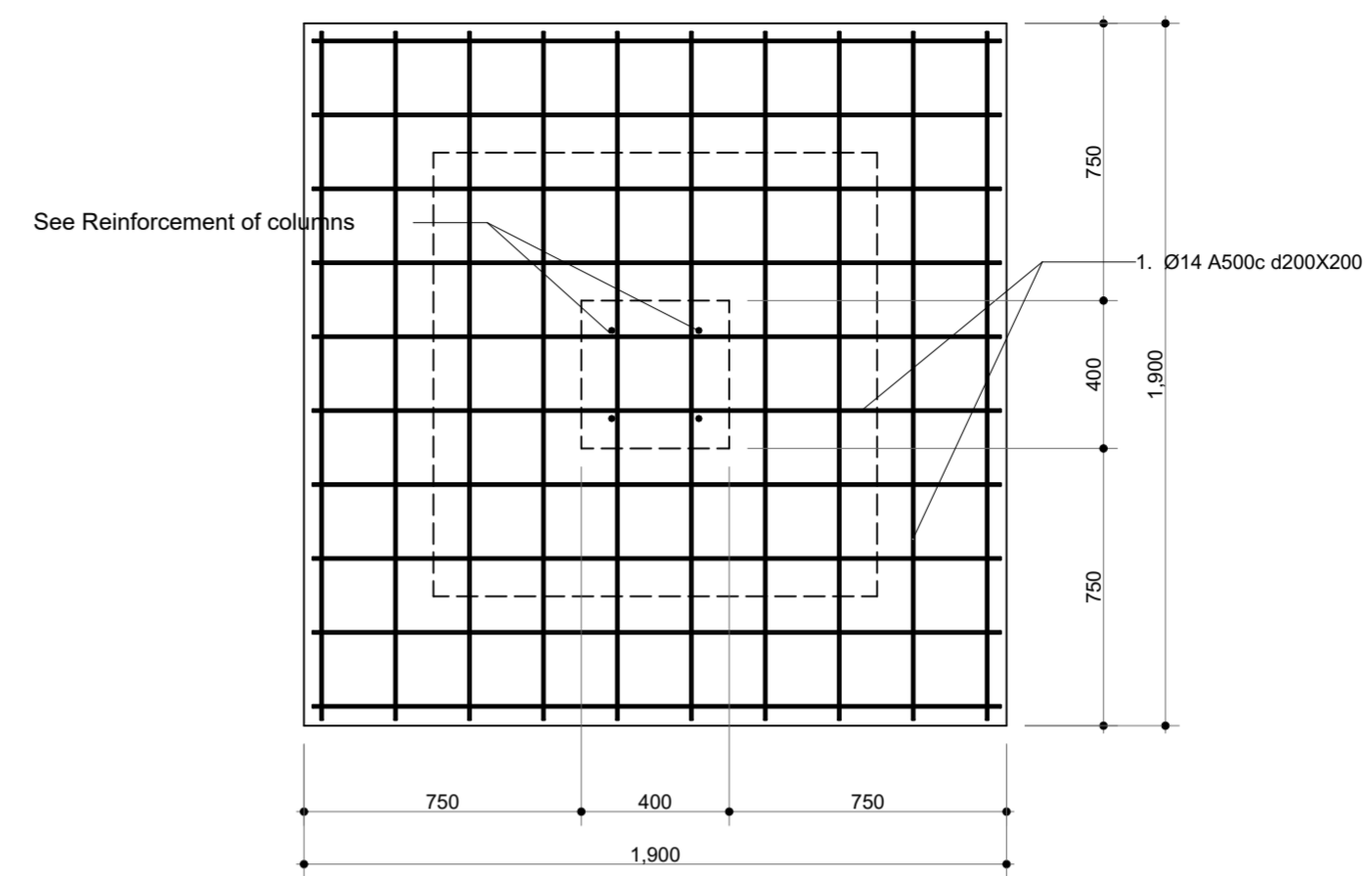
Anchor - forks in foundations should be installed in accordance with column drawings



Pad foudation ws-1



Pad foudation ws-2



Note:
Anchor - forks of columns in foundations should be installed in accordance with column drawings

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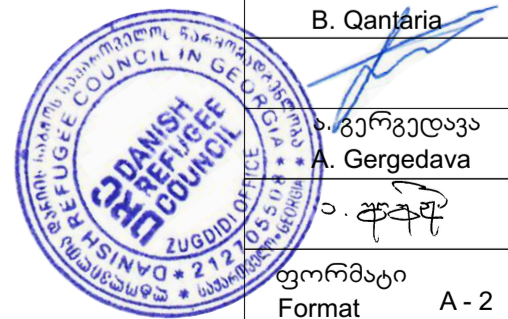
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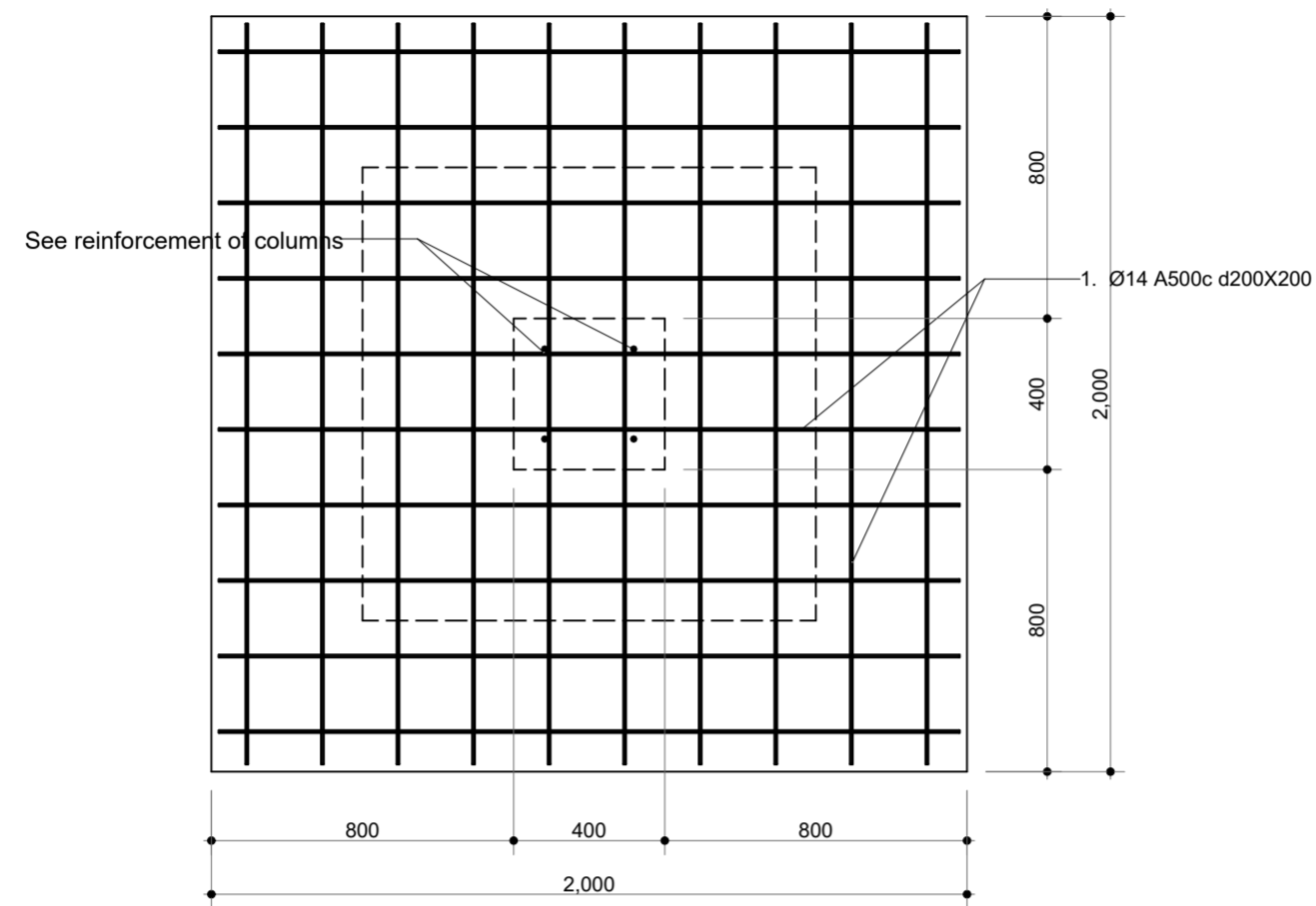
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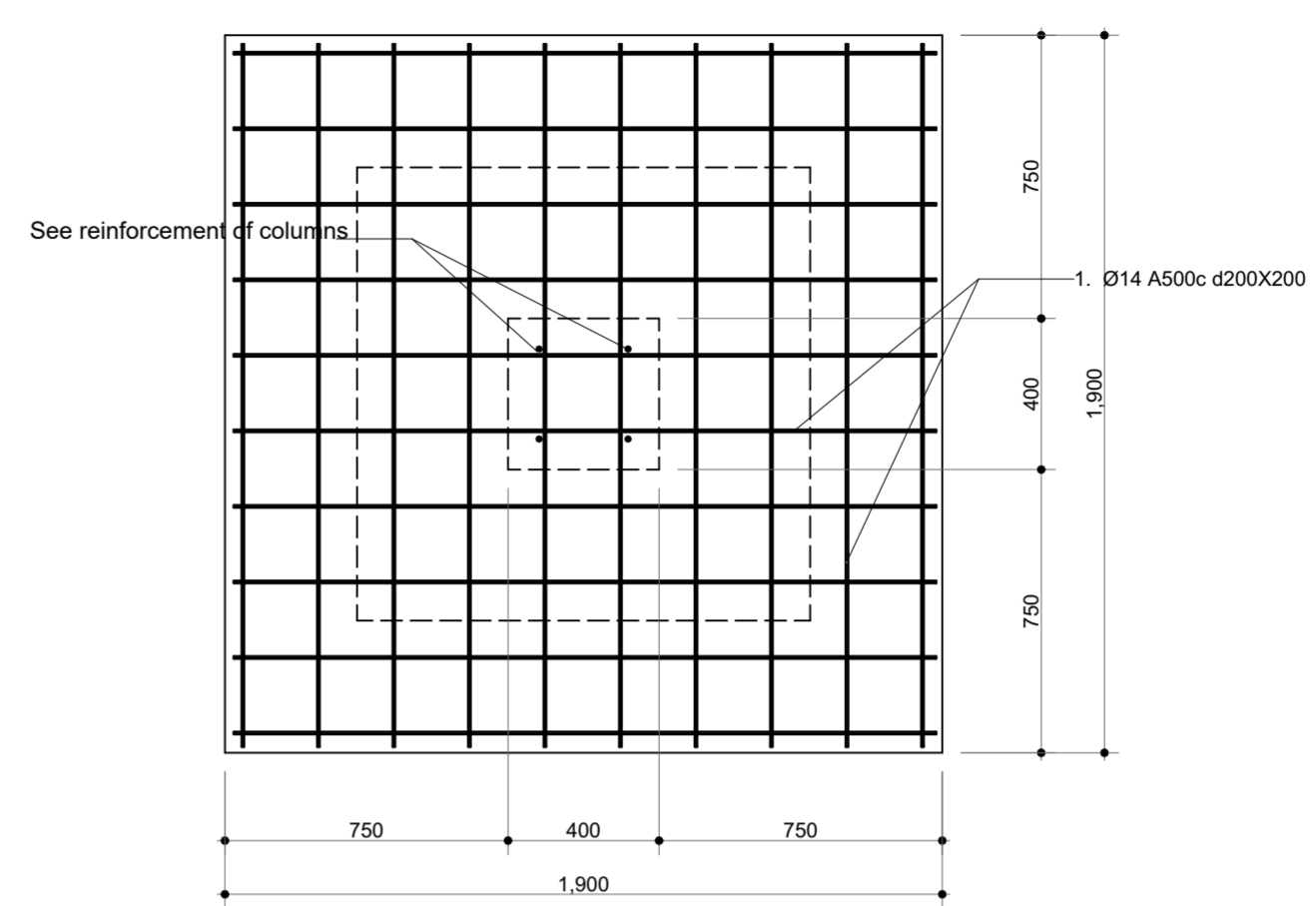
ფურცლები
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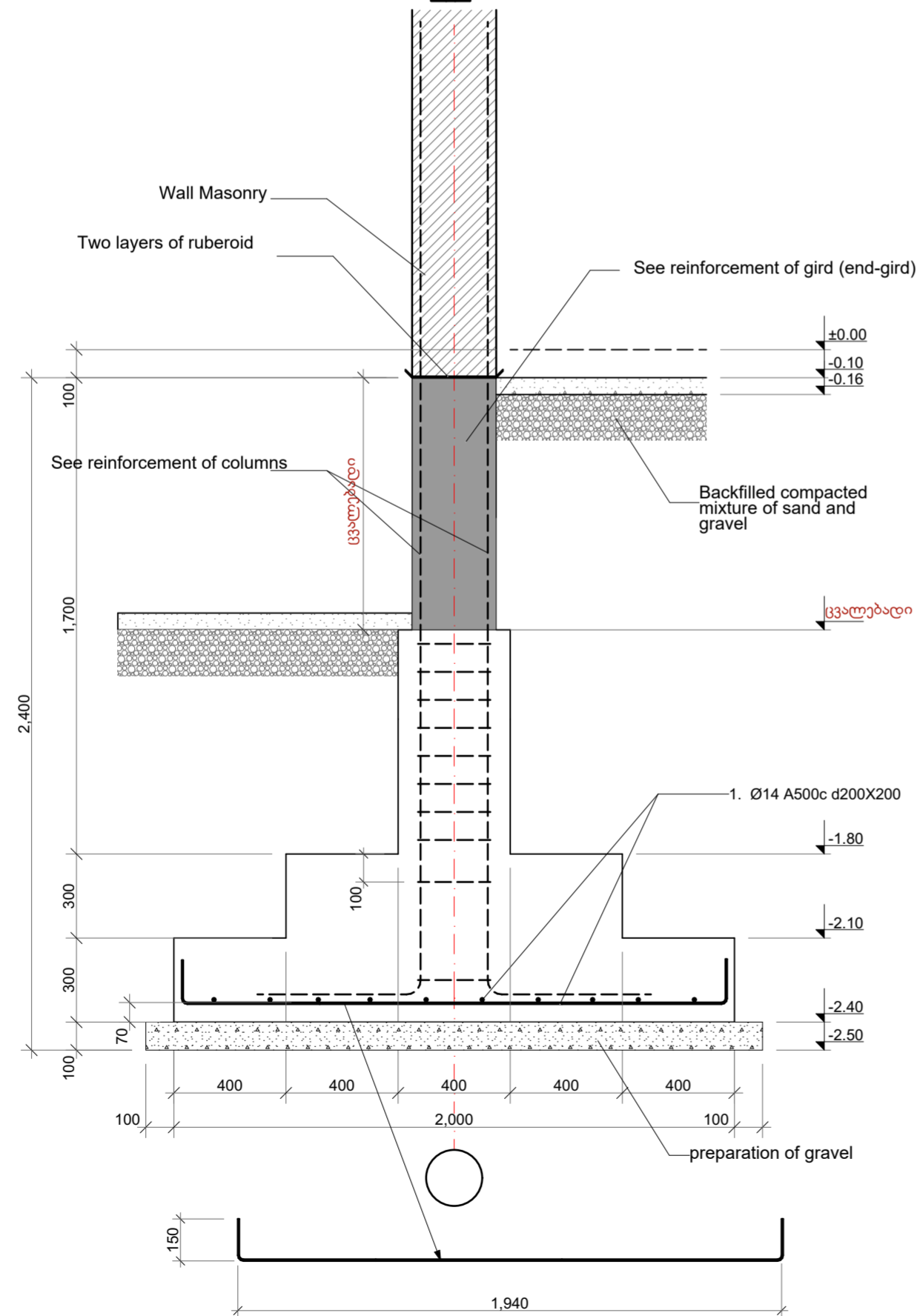
Pad foudation ws-1'



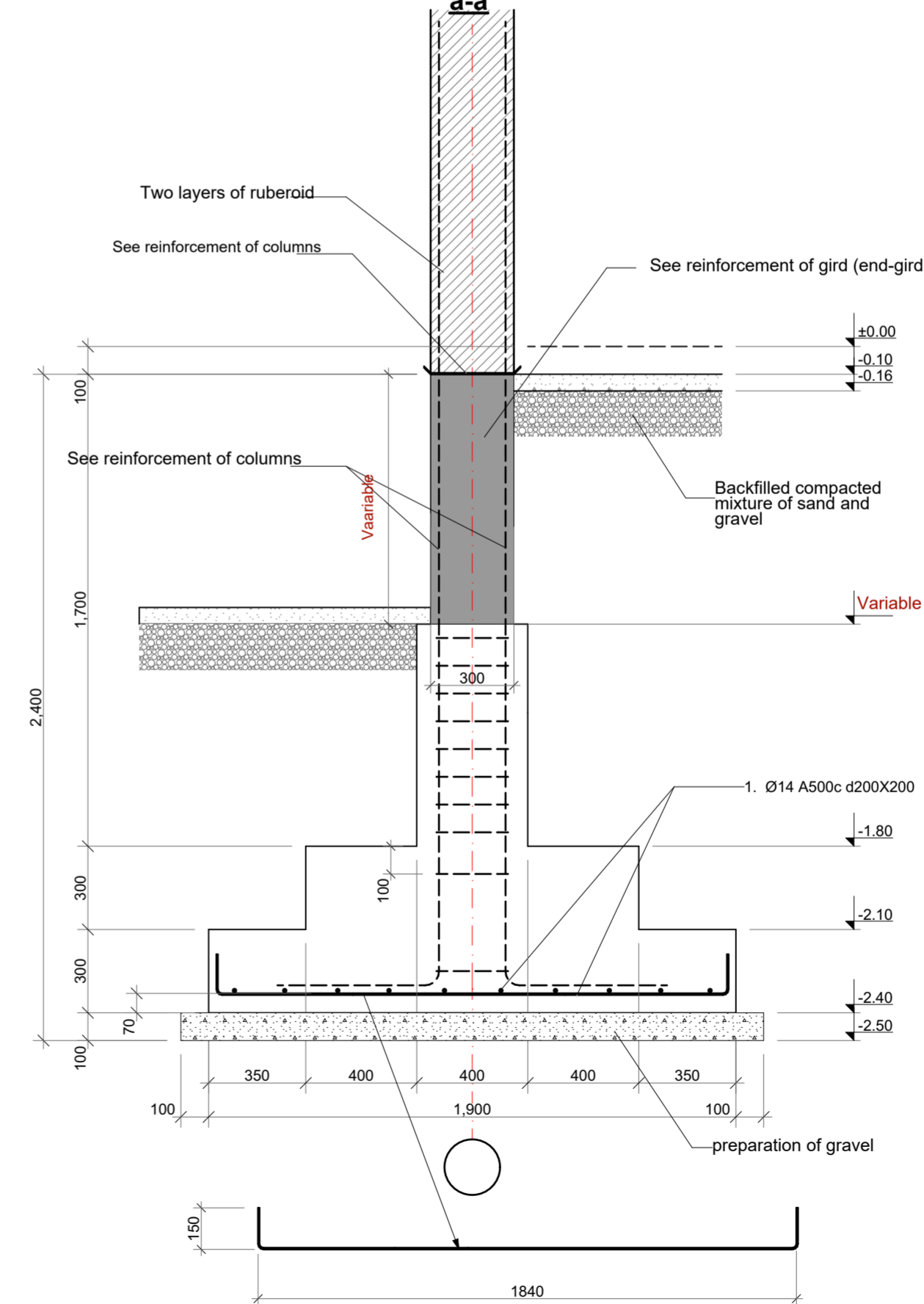
Pad foudation ws-2



a-a

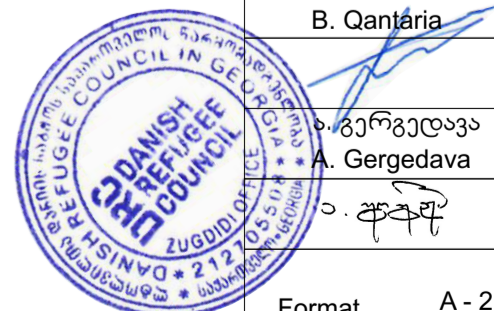


a-a

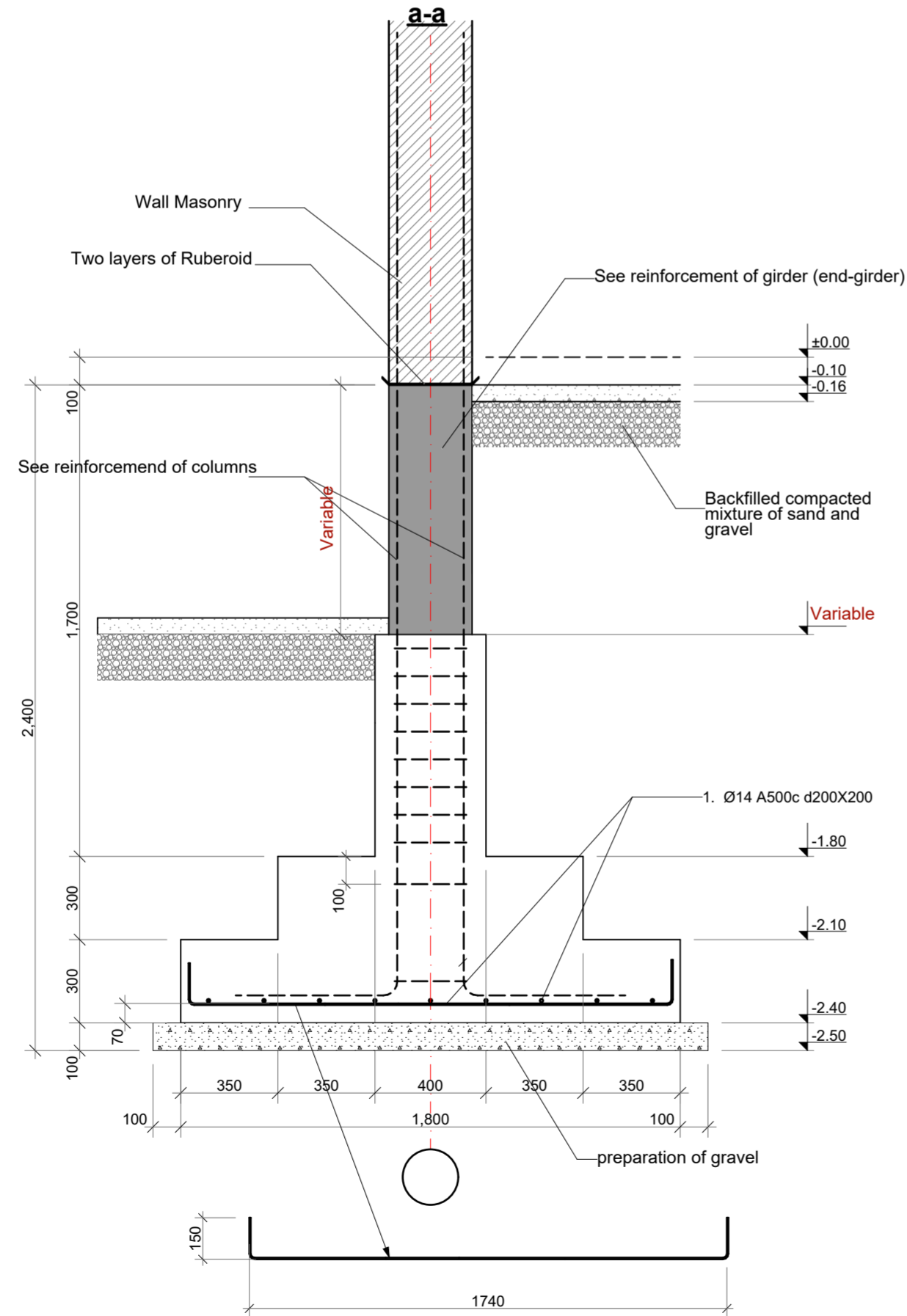
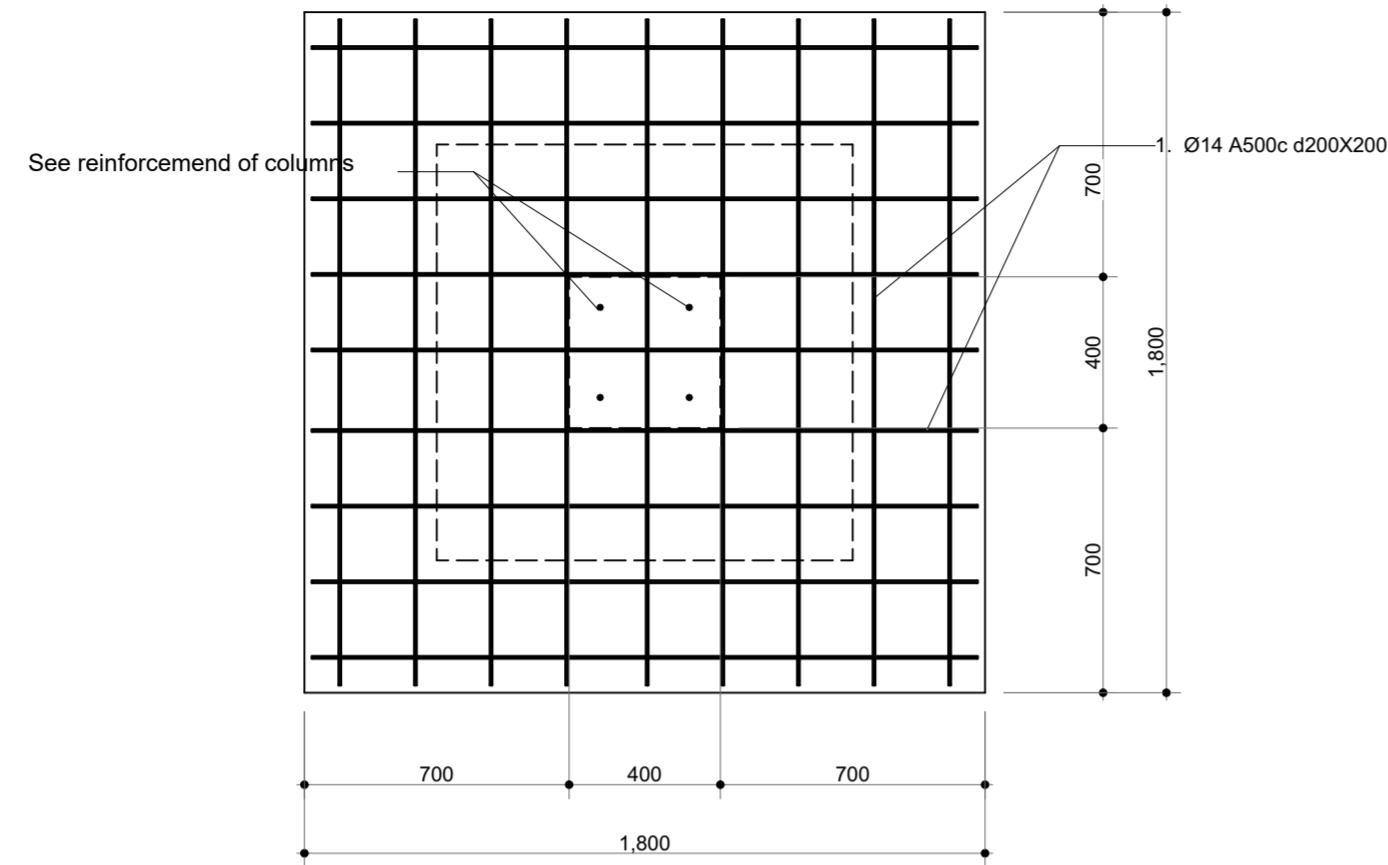


Note:

Anchor - forks of columns in foundations should be installed in accordance with column drawings



Pad foudation ws-1



ელემენტი Element	№	Profile of reinforcement არმატურის პროფილი	Length mm სიგრძე მმ	Q-ty რაოდენობა	Total length m საერთო სიგრძე მ	Concrete m3 ბეტონი მ3	
წერტილოვანი საძირკველი Pad foundation							
ws-1 (6 ცალი) 6 pcs		14 A500c	2240	120	268.80		
ws-2 (9 ცალი) 6 pcs		14 A500c	2140	180	385.20		
ws-1' (7 ცალი) 6 pcs		14 A500c	2240	140	313.60		
ws-2' (9 ცალი) 6 pcs		14 A500c	2140	180	385.20		
ws-3' (4 ცალი) 6 pcs		14 A500c	2040	72	146.88		
					ბეტონი B25 m3	Concrete B25	53.6

Specification of Reinforcement
არმატურის ასოკრეფა

Cross-section „კვეთი“	Total length m საერთო სიგრძე მ	Total length with loss m საერთო სიგრძე მ დაზარალებული	Weight of r/m გრამების წონა	Total weight საერთო წონა გრამების (კვალის მიხედვით) ტონა	Total weight Per class	
A240c	6 A240c	0.0	0.222	0.00	0.0	
	8 A240c	0.0	0.394	0.00		
A500c	6 A500c	0.0	0.222	0.00	1.9	
	8 A500c	0.0	0.394	0.00		
	10 A500c	0.0	0.616	0.00		
	12 A500c	0.0	0.887	0.00		
	14 A500c	1499.7	1574.7	1.208		1.90
	16 A500c	0.0	1.578	0.00		
	18 A500c	0.0	1.997	0.00		
	20 A500c	0.0	2.465	0.00		
22 A500c	0.0	2.983	0.00			
25 A500c	0.0	3.851	0.00			
სულ Total				1.90		

Architectural Project
Typical Kindergarten
Tskaltubo
9th April street

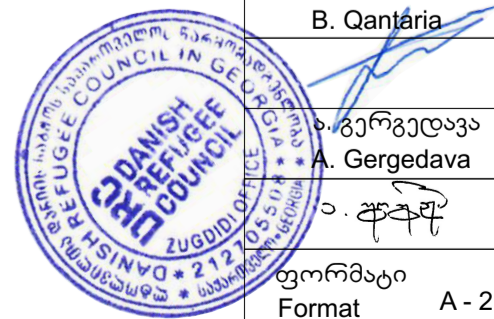
Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

სადირეკლეები

ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava

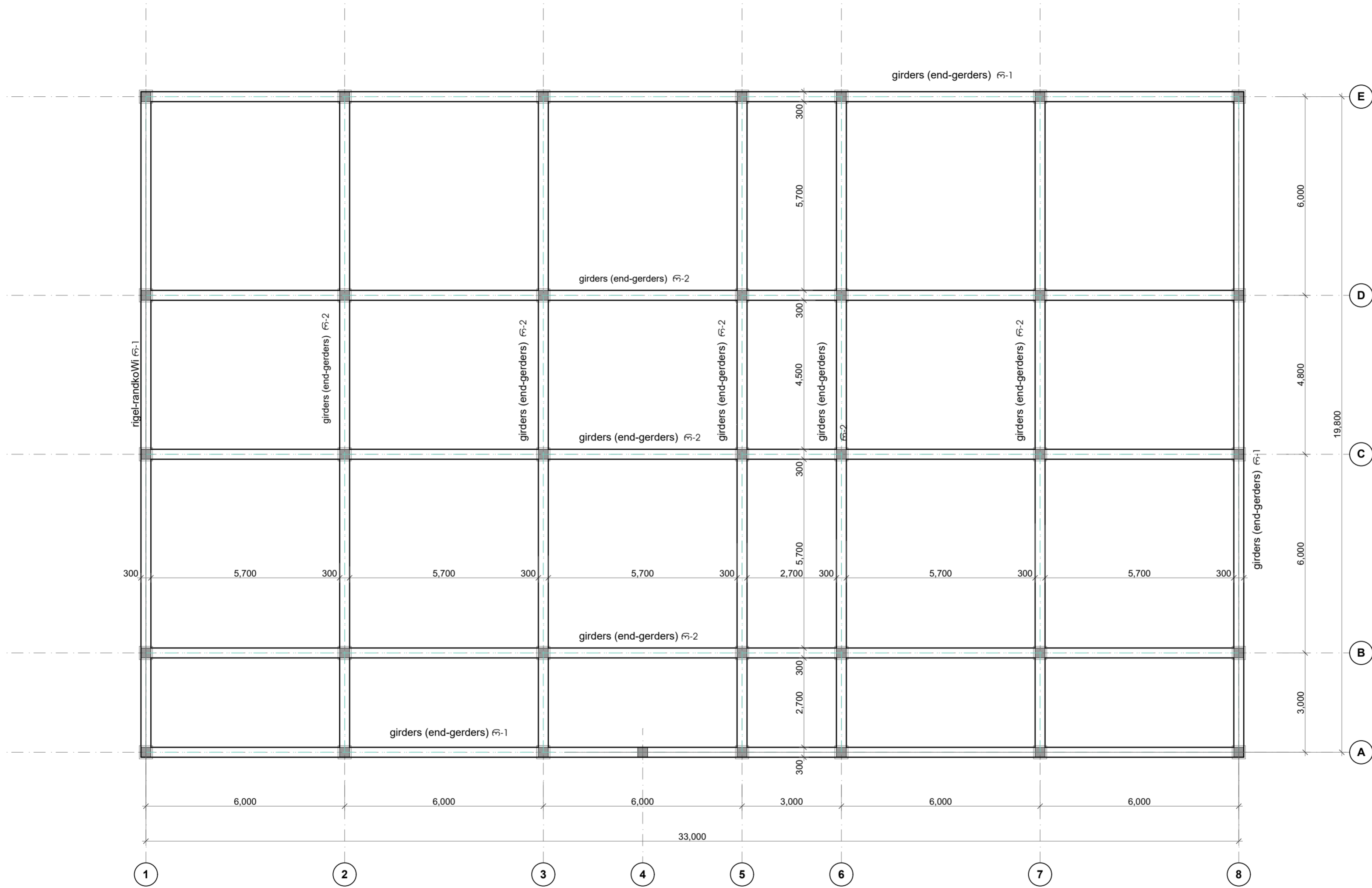


ფორმატი
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ფურცელი
Page 15

ფურცლები
Pages 33

Plan of monolithic girders (end-girders) at -0.100 level



Architectural Project

Typical Kindergarten

**Tskaltubo
9th April street**

Project address:
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Tskaltubo

Stage:
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**Plan of
monolithic
girders (end-
girders) at
-0.100 level**

ბ. ჯანთარია
B. Qantaria

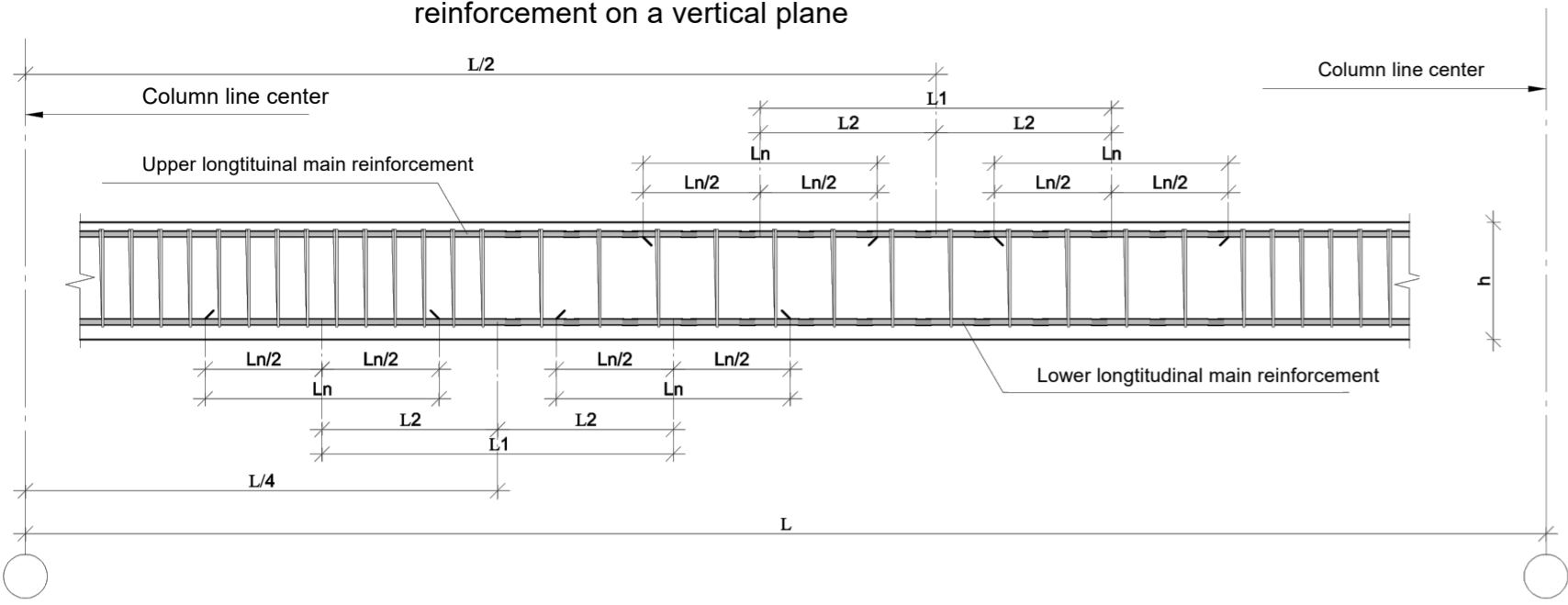
ა. გერგედავა
A. Gergedava



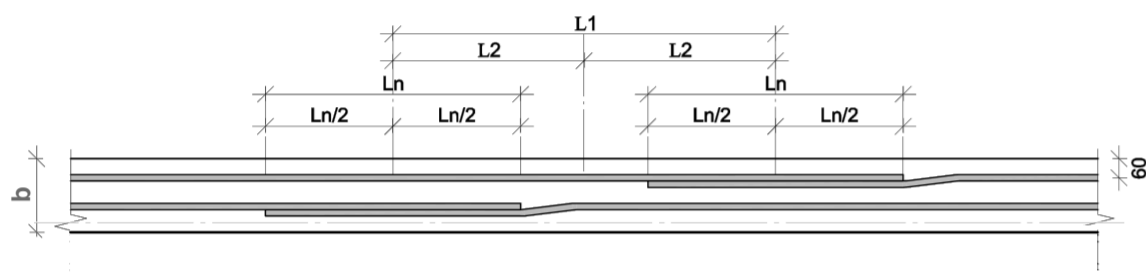
ფორმატი
Format A - 2

ფურცელი Page	ფურცლები Pages
16	33

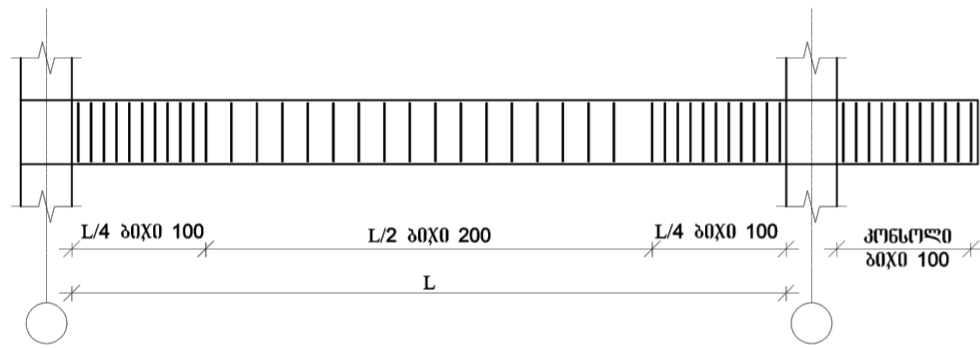
Locations of monolithic girder bonding by crossbar in the upper and lower span of the reinforcement on a vertical plane



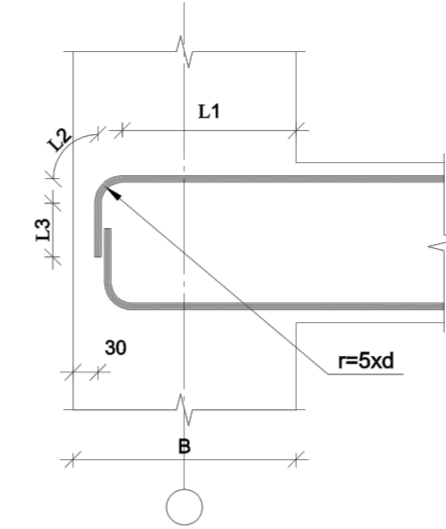
Plan of monolithic girder bonding of crossbar in the upper and lower span of the reinforcement



Allocation plan of girder hanger



Fixing (bending) Node of Grid in the upper and lower reinforcement column



Parameters of fixing node of grid in the upper and lower reinforcement column

რეზანი (B=400)

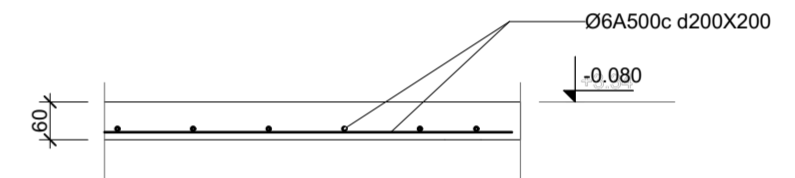
$$L_{სადასაბრუნებელი} = 400d = L_1 + L_2 + L_3 = 2 \times L_1 \quad (88)$$

არბანების დიამეტრი (88)	$L_{სადასაბრუნებელი}$	$r=5d$ 88.	$L_1=L_{სადასაბრუნებელი} \times 0.5$ (88)	$L_2=(5d \times 2) \times 1/4$ (88)	$L_3=L_{სადასაბრუნებელი} - (L_1 + L_2)$ (88)
Ø16 A500C	640	80	320	126	194
Ø18 A500C	720	90	360	141	219
Ø20 A500C	800	100	400	157	243

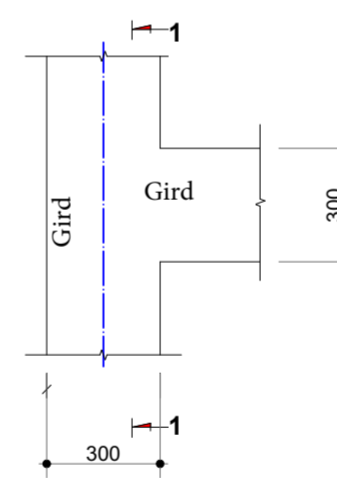
Parameters of girder bond crossbar in the upper and lower reinforcement

არბანების დიამეტრი (88)	არბანების დასაწყისი $L_1=400D$	დასაწყისის სიგრძე $L_2=1.5 \times L_{სადასაბრუნებელი}$	მონტაჟის სიგრძე $L_3=L_{სადასაბრუნებელი} - (L_1 + L_2)$	საბოლოო დასაწყისის სიგრძე $L_4=L_1 + L_2$
Ø16 A500C	640	960	480	1600
Ø18 A500C	720	1080	540	1800
Ø20 A500C	800	1200	600	2000
Ø22 A500C	880	1320	660	2200
Ø25 A500C	1000	1500	750	2500

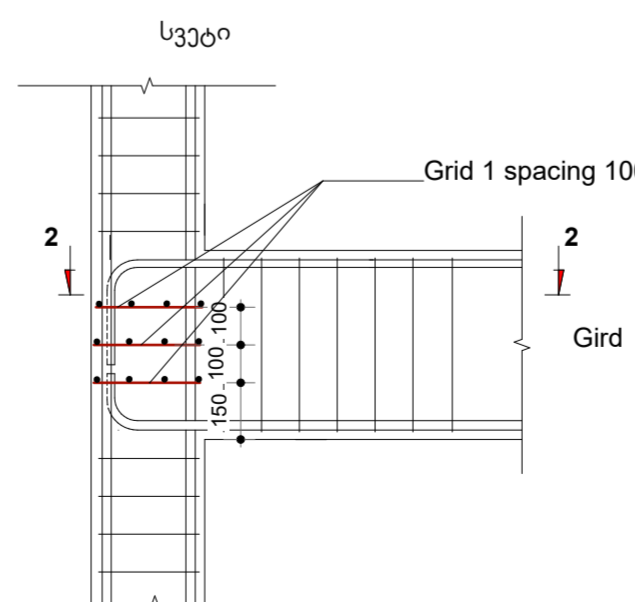
Reinforcement of floor slabs



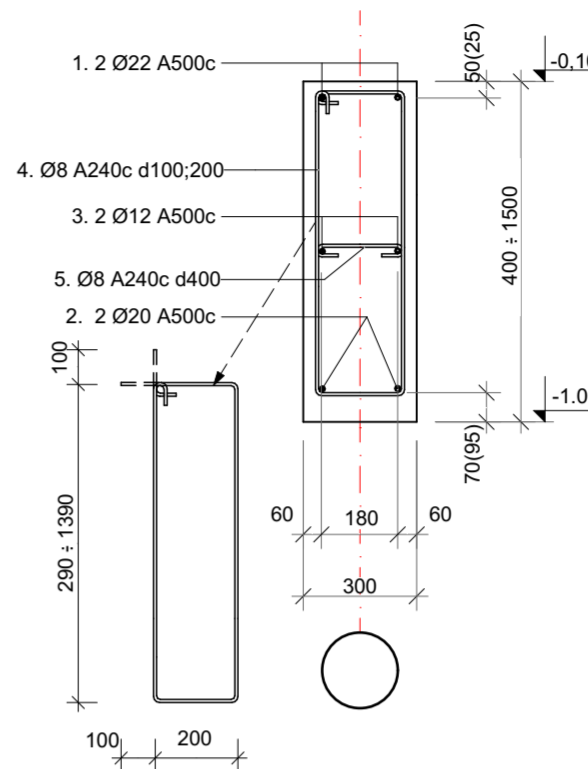
Strengthening of the Girder to Girder Connection Node



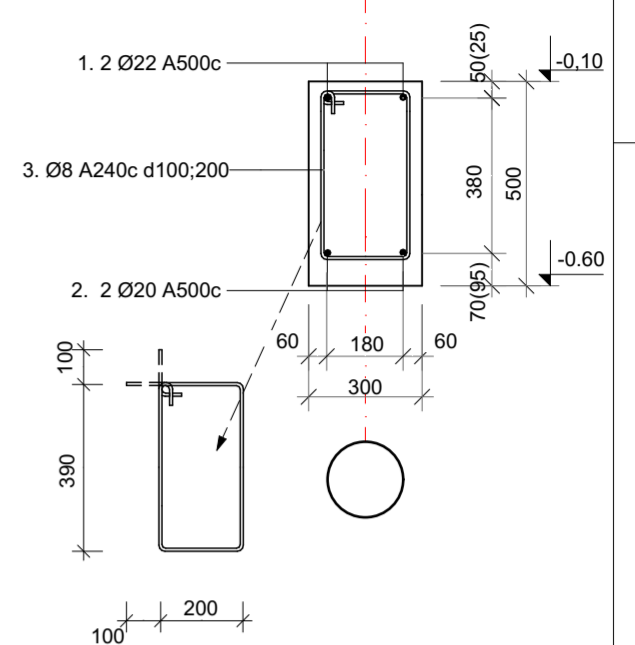
Strengthening of the intersection of grid and columns



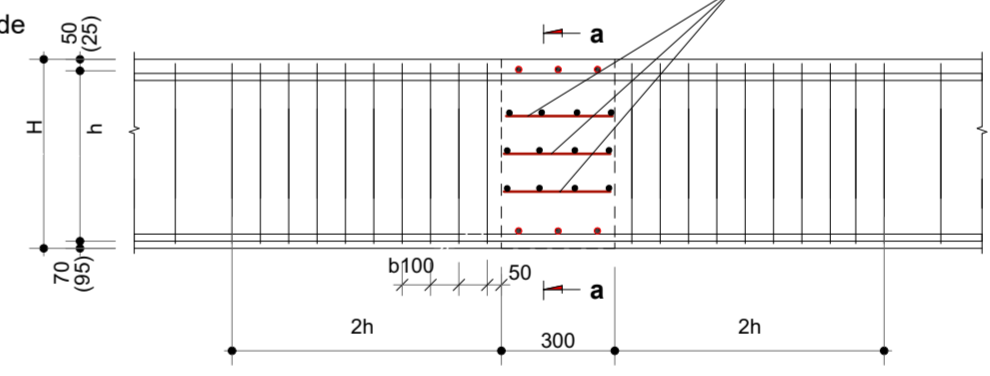
Section on girder -end girder 1



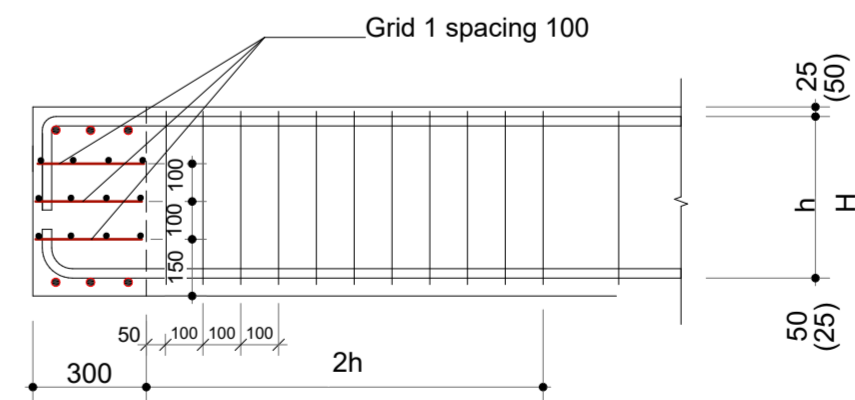
Section on girder -end girder 2



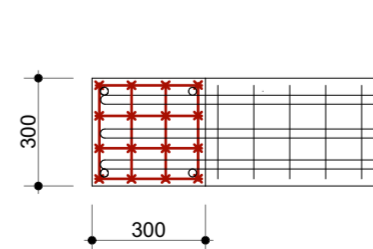
section 1-1
Grid 1 spacing 100



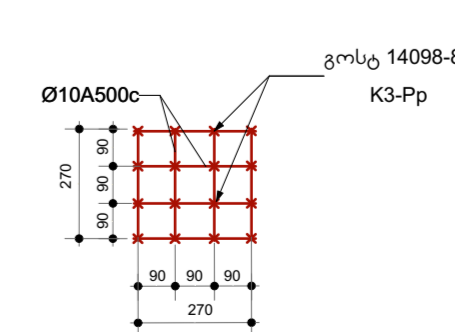
Section a-a
Grid 1 spacing 100



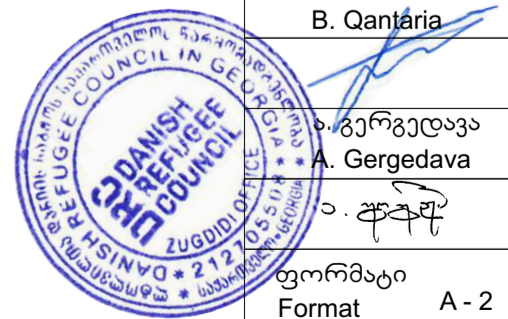
Section 2-2



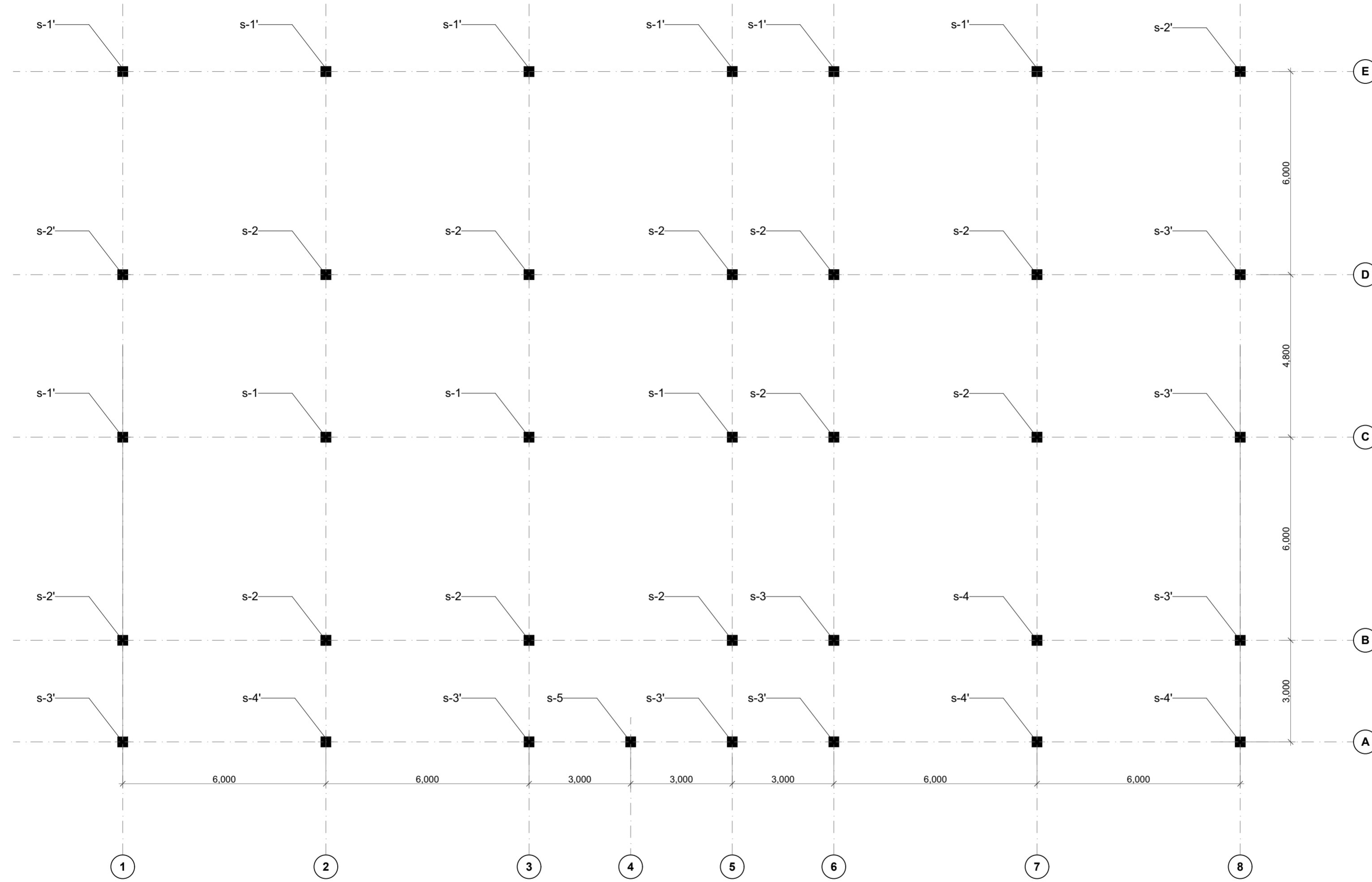
Grid 1



ელემენტი Elements	№	არბანების პროფილი Reinforcement of profiles				საერთო სიგრძე მ სოცრბე მ Total length m	ბეტონი მ3 Concrete m3	Specification of reinforcement					
		სიგრძე მ Length mmm	რაოდენობა Q-ty	საერთო სიგრძე მ Total length m	საერთო სიგრძე მ total length with less m			გრძობის წონა Weight of /m	საერთო წონა total weight tons	საერთო წონა (კვადრატ) ტონა Total weight, tons			
რკინაბეტონის რკინაბეტონი (რკინაბეტონი) ფილა Reinforced concrete end-girders, floor tiles													
რკინაბეტონი 1 End-girder - 1	1	22 A500c	116600	2	233.2	A240c	1.4	6 A240c	0.0	0.222	0.00	5.4	
	2	20 A500c	114480	2	229.0			8 A240c	3472.0	3645.6	0.394		1.44
	3	12 A500c	114480	2	229.0			6 A500c	6120.0	6120.0	0.222		1.36
	4	8 A240c	2180	707	1540.5			8 A500c		0.0	0.394		0.00
	5	8 A240c	380	265	100.7			10 A500c		0.0	0.616		0.00
რკინაბეტონი 2 End-girder 2	1	22 A500c	218900	2	437.8	A500c	5.4	12 A500c	229.0	240.5	0.887	0.21	
	2	20 A500c	218900	2	437.8			14 A500c		0.0	1.208	0.00	
	3	8 A240c	1380	1327	1830.8			16 A500c		0.0	1.578	0.00	
								18 A500c		0.0	1.997	0.00	
					20 A500c	667.0	700.4	2.465	1.73				
					22 A500c	671.0	704.6	2.983	2.10				
					25 A500c		0.0	3.851	0.00				
					სულ							6.84	
					ბეტონი B15 m3 Concrete B15 m3							57.2	
					6 A500c							6120.00	
					ბეტონი B15 m3 Concrete B15 m3							37.2	



Plan of Column Marking



**Architectural
Project**
**Typical
Kindergarten**
**Tskaltubo
9th April street**

Project address:
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Tskaltubo

Stage:
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Column s-5

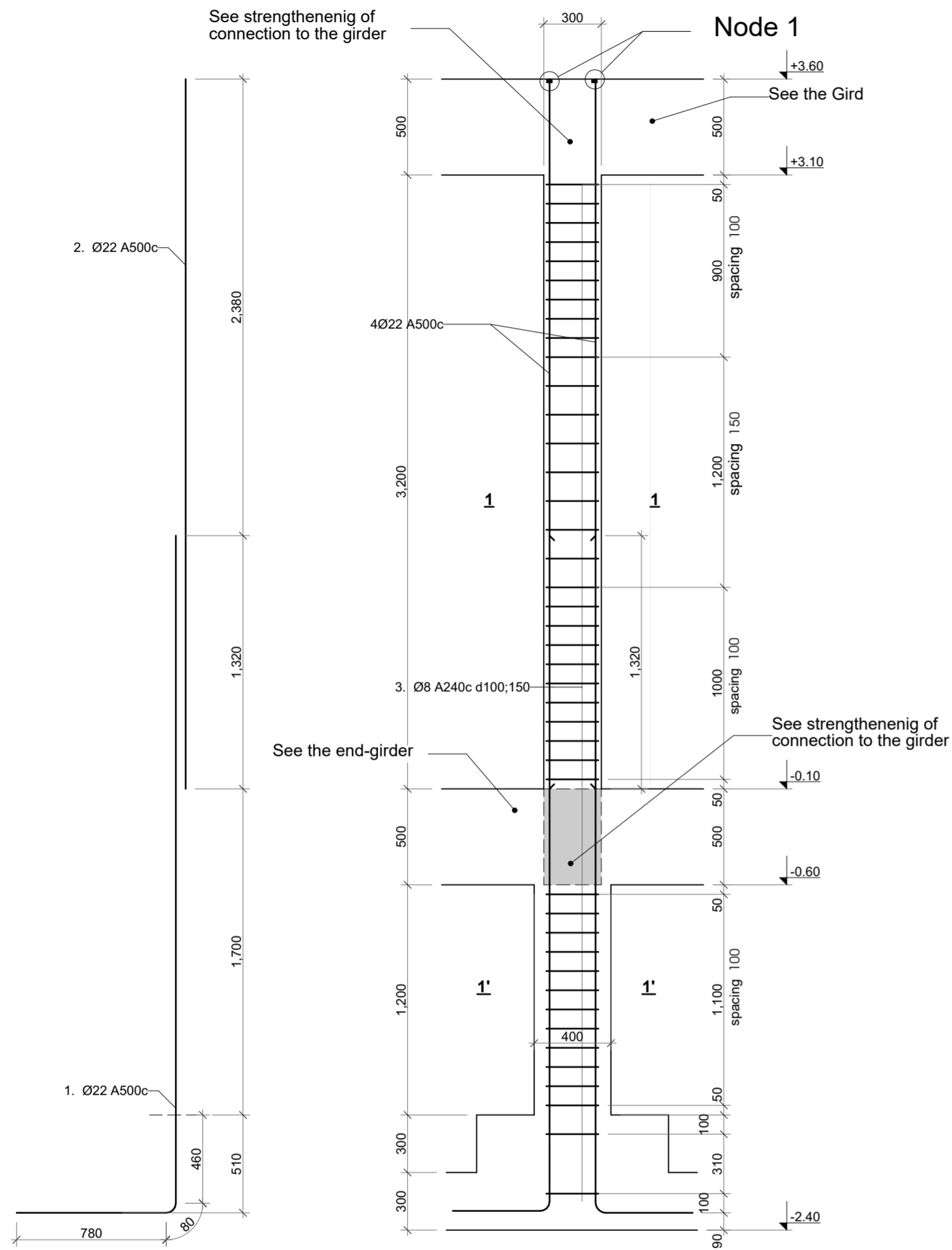
ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava

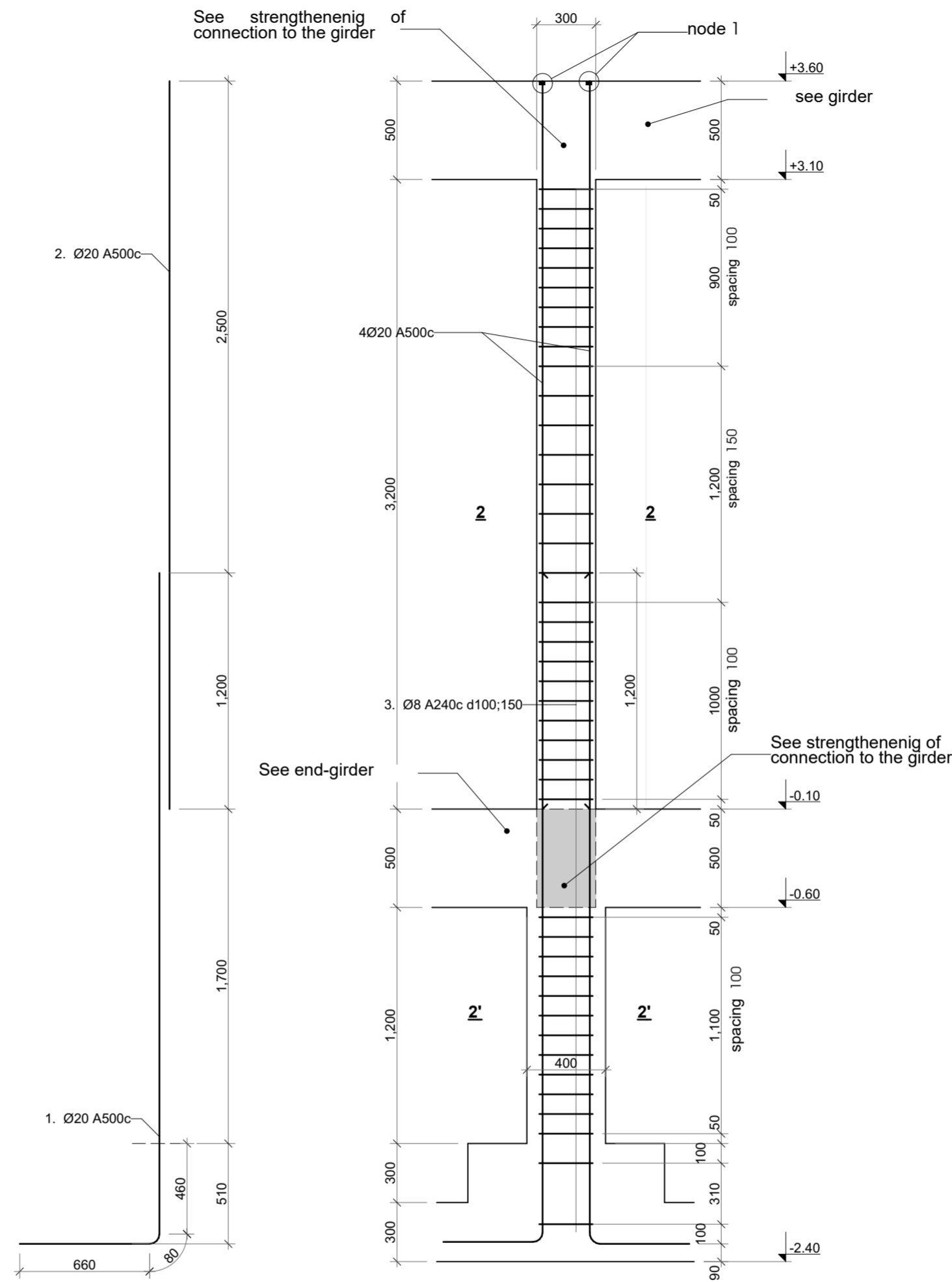


ფორმატი
Format A - 2

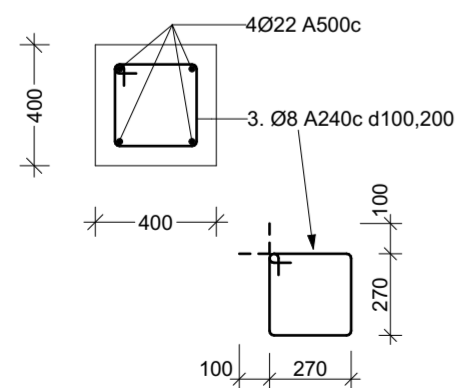
Column S-1



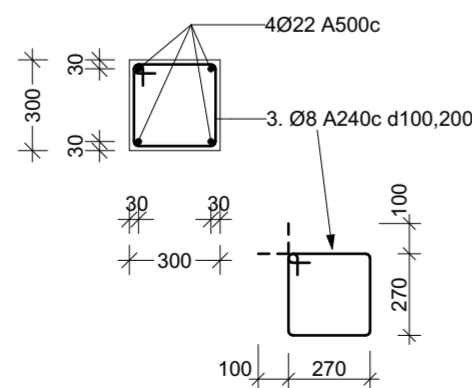
Column S-2



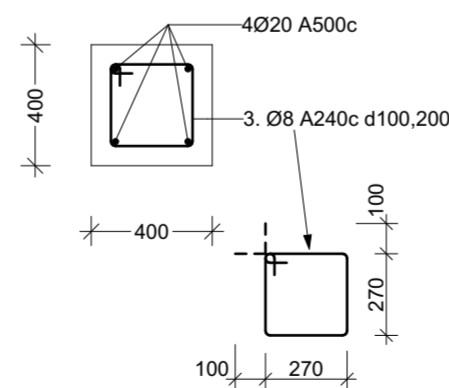
Section 1'-1'



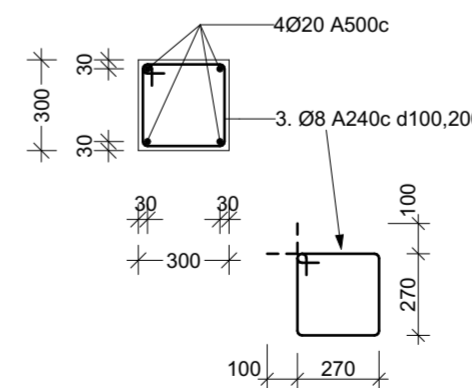
Section 1-1



Section 2'-2'

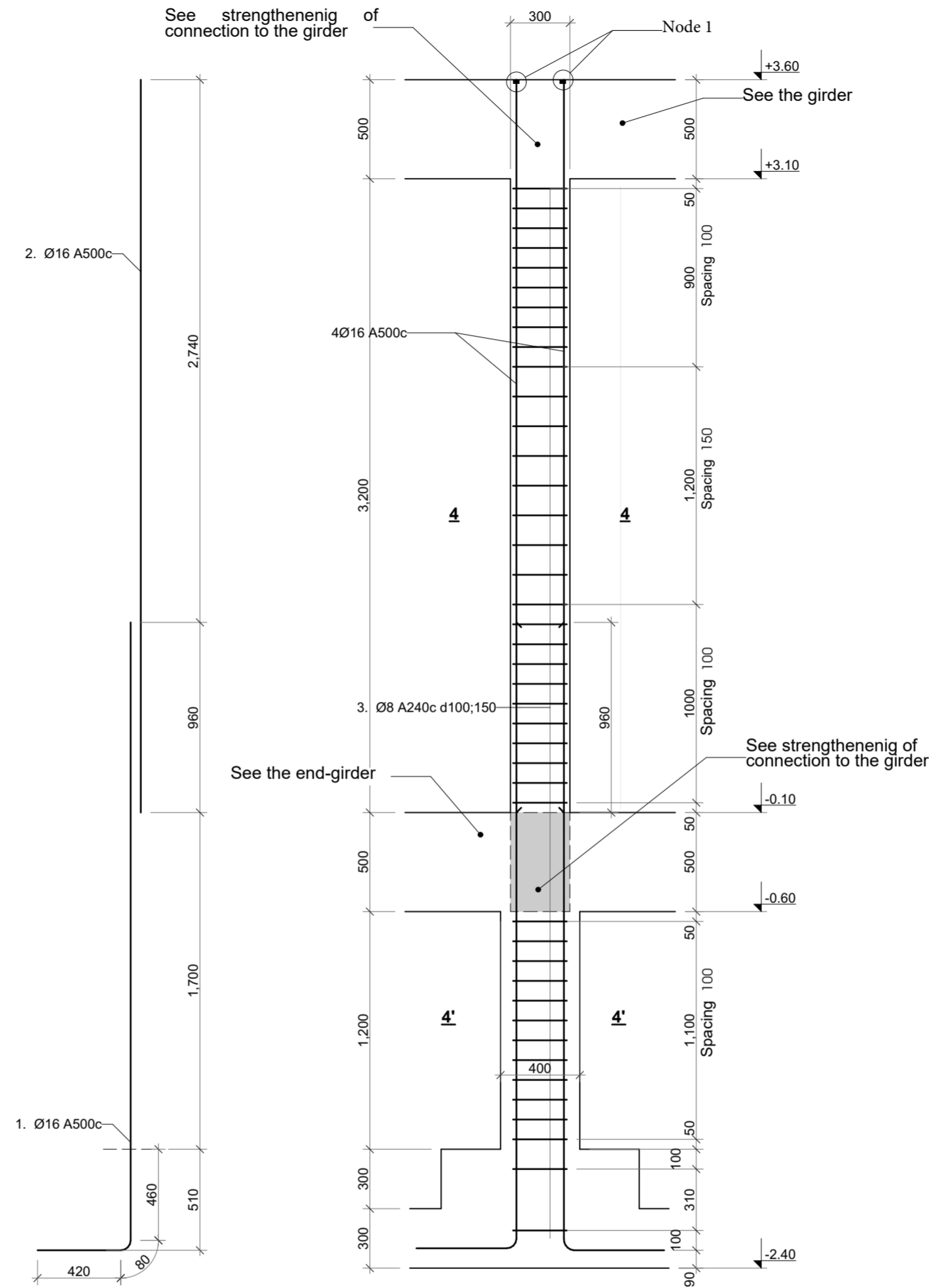
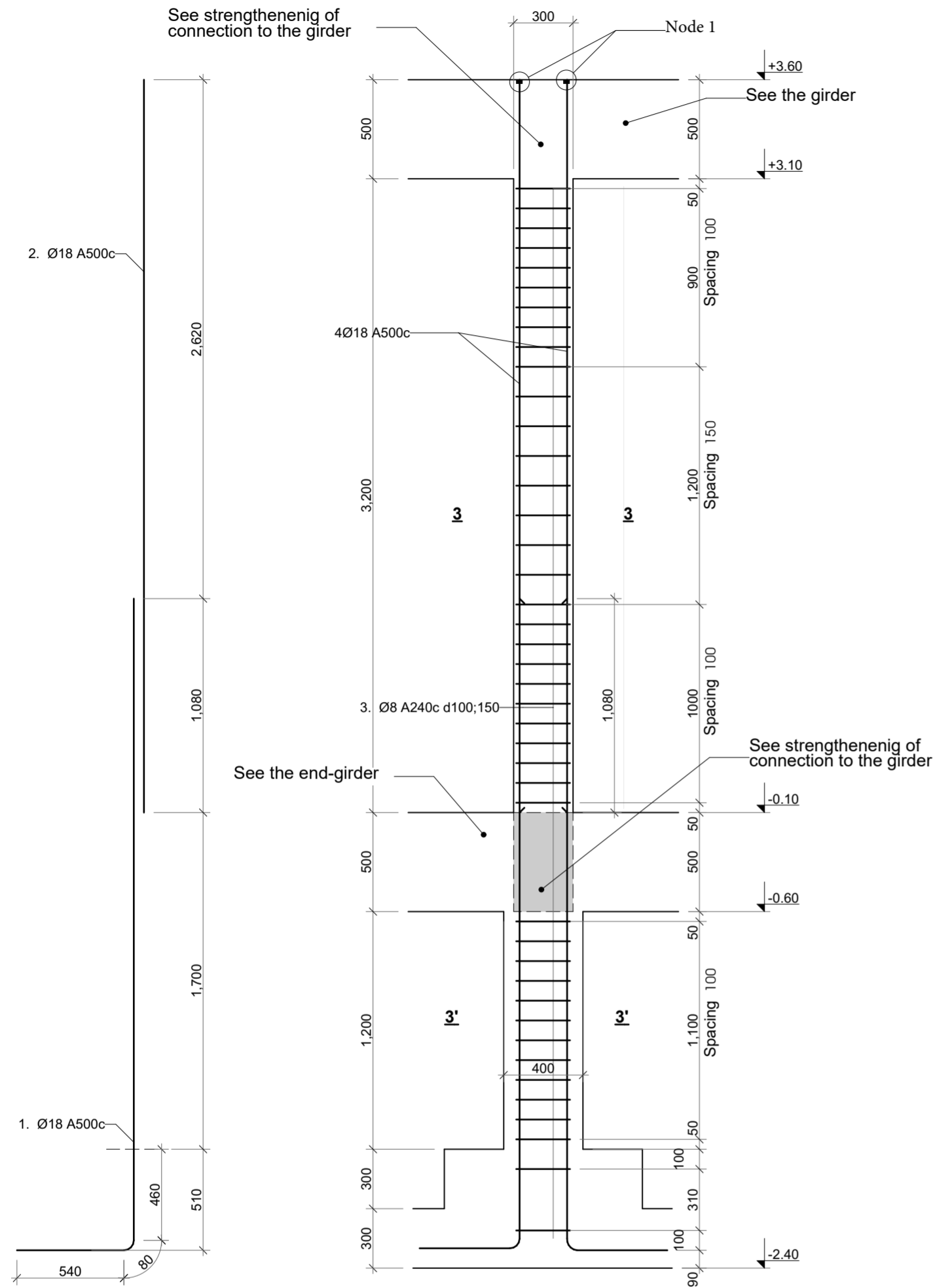


Section 2-2



Column S-3

სვეტილი S-4

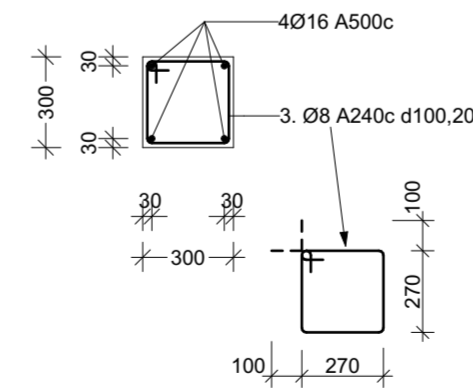
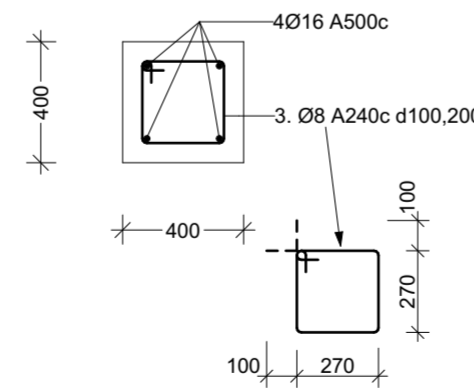
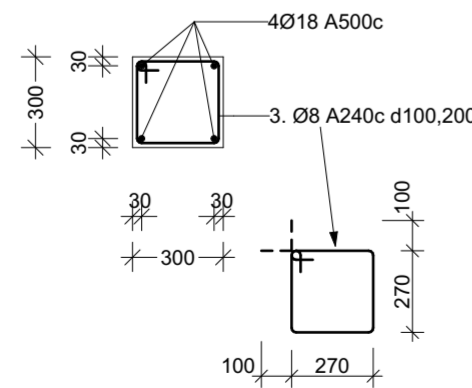
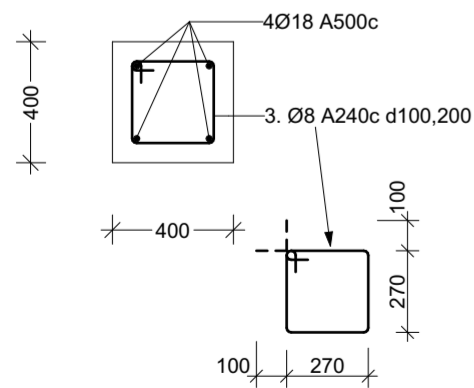


Section 3'-3'

Section 3-3

Section 4'-4'

Section 4-4



Architectural Project

Typical Kindergarten

Tskaltubo 9th April street

Project address:
Georgia,
Tskaltubo

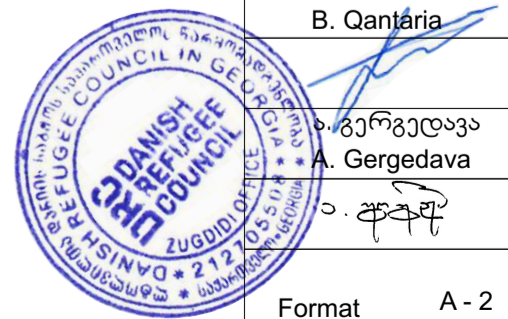
Stage:
Architectural project

Column s-3

Column s-4

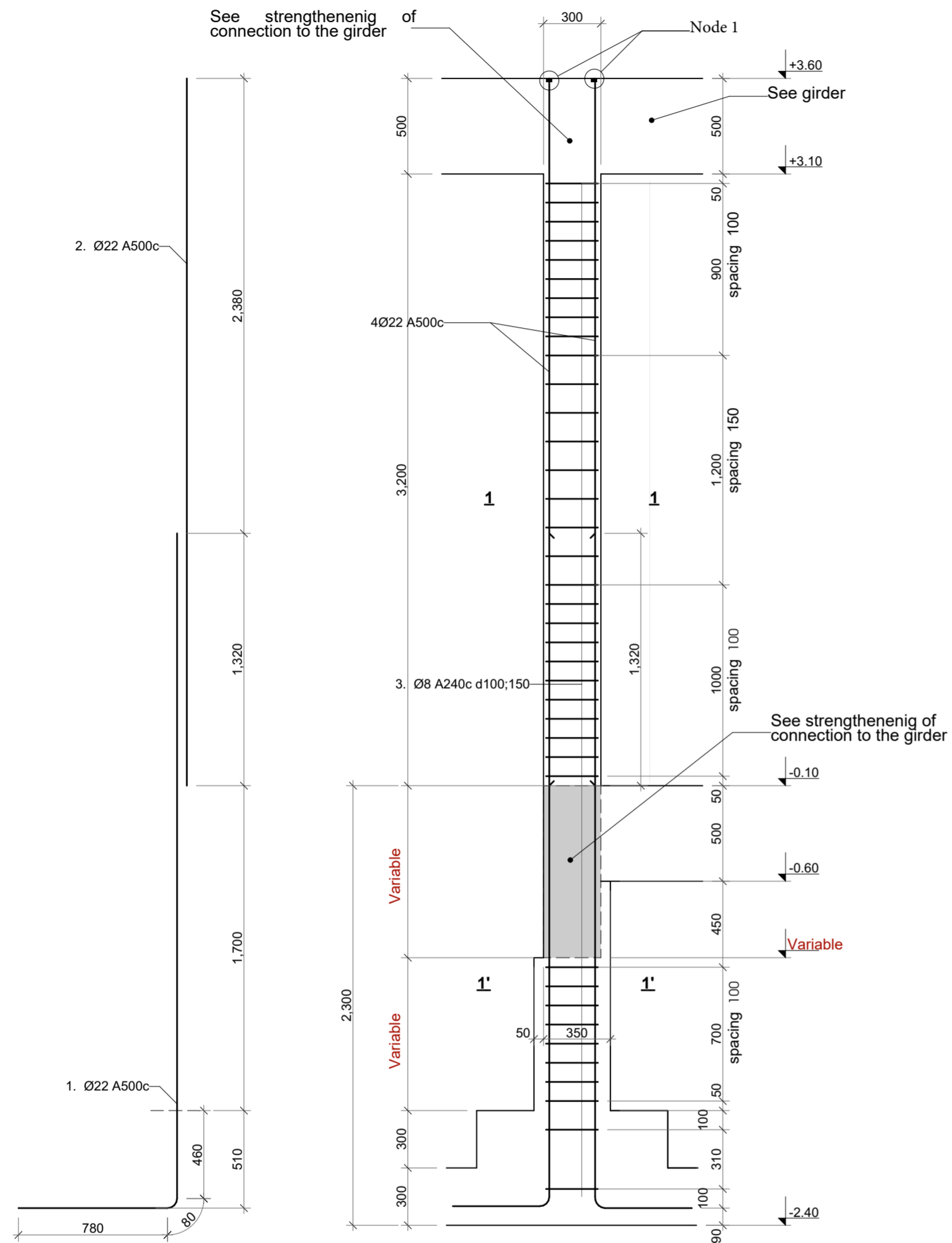
ბ. ჯანთარია
B. Qantaria

ა. გერგდავა
A. Gergedava

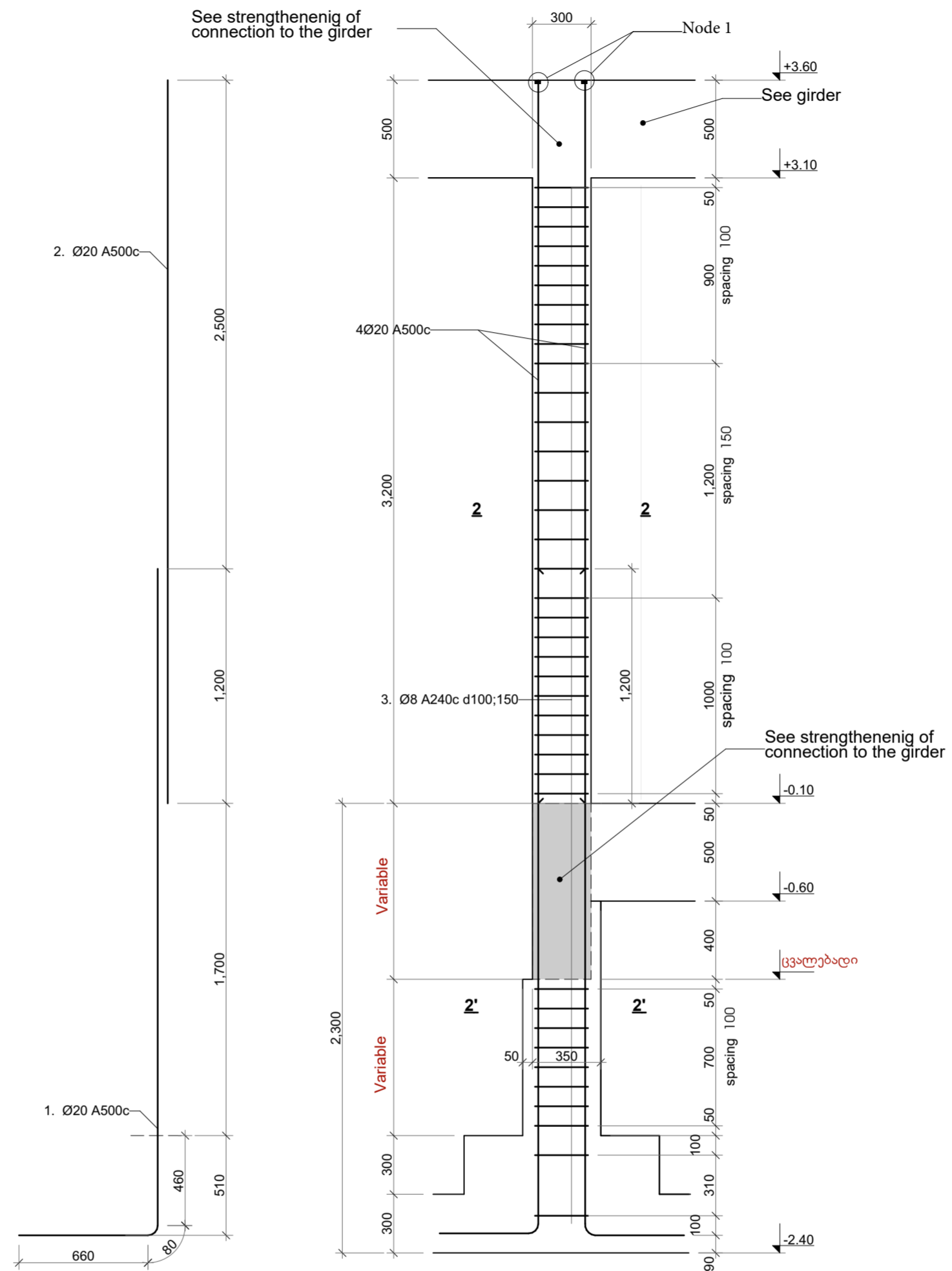


Format A - 2

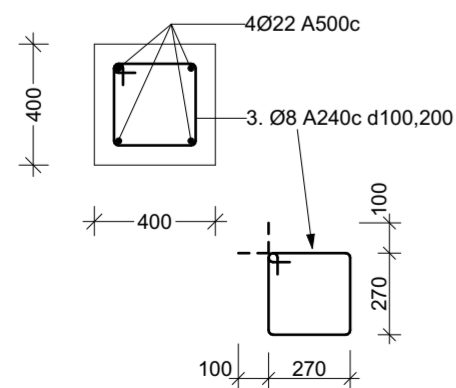
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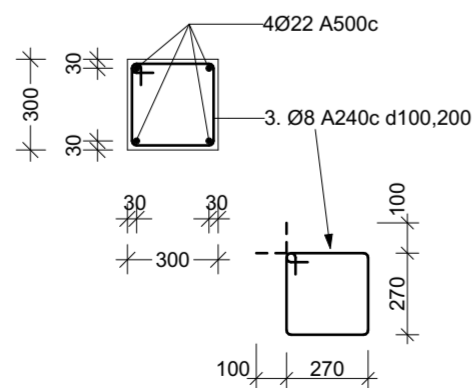
Column S-2'



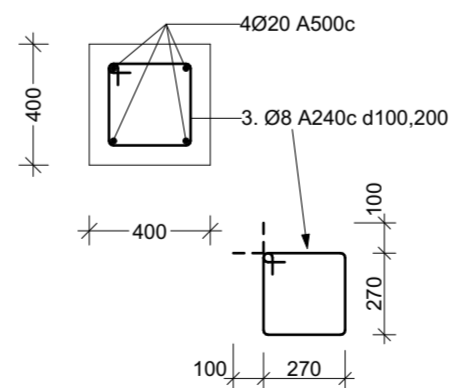
Section 1'-1'



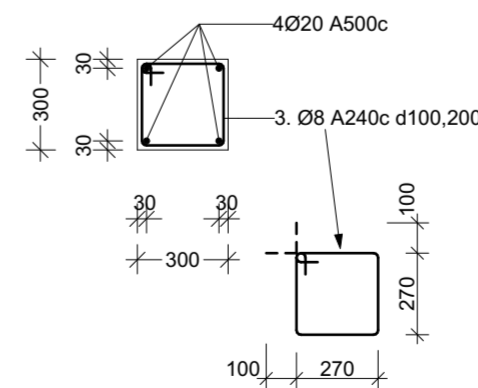
Section 1-1



Section 2'-2'



Section 2-2



Architectural Project
Typical Kindergarten
Tskaltubo 9th April street

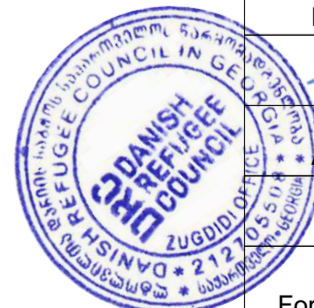
Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Column S-1'
Column S-2'

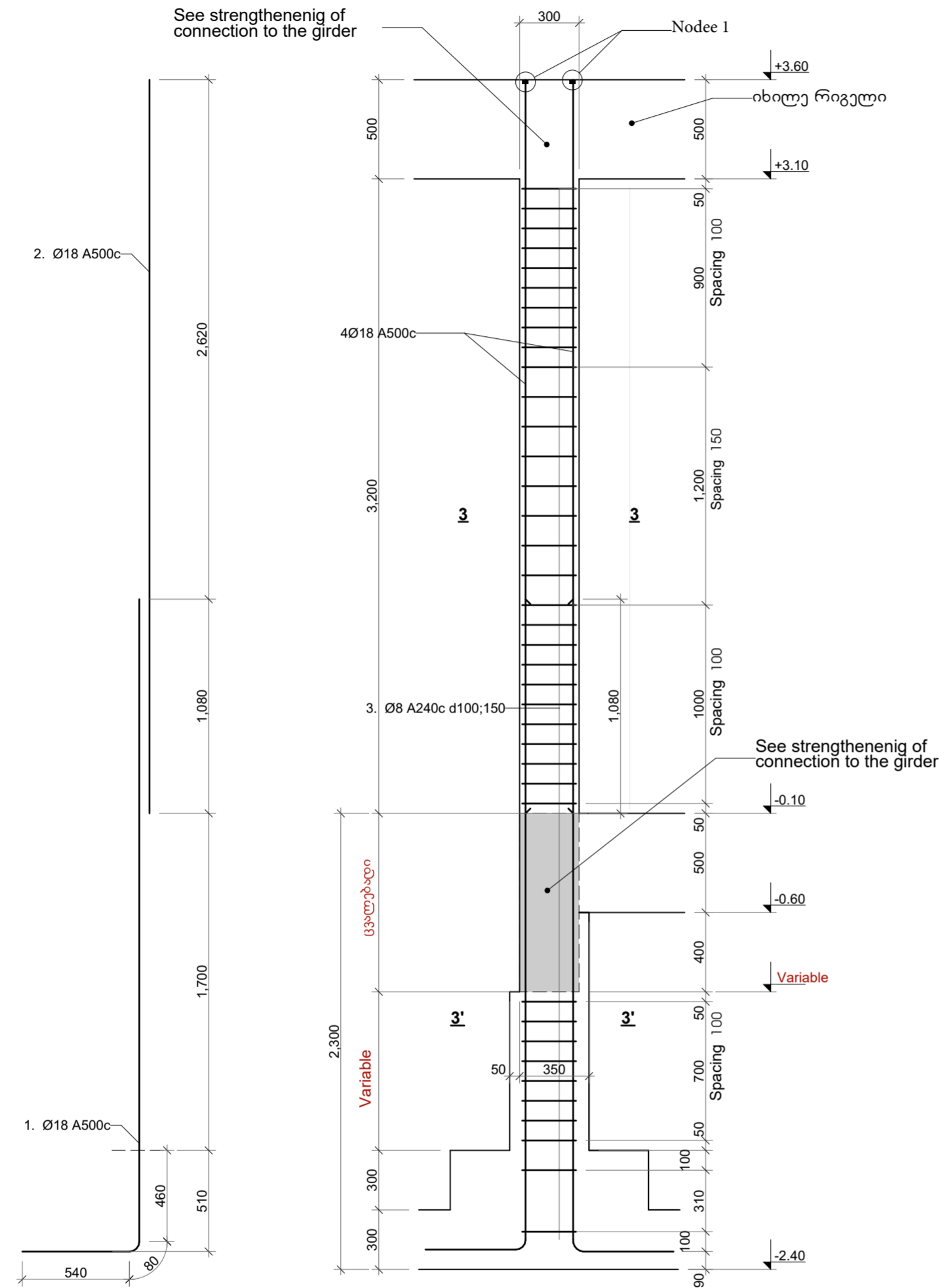
ბ. ჯანთარია
B. Qantaria

ა. გერგდავა
A. Gergedava

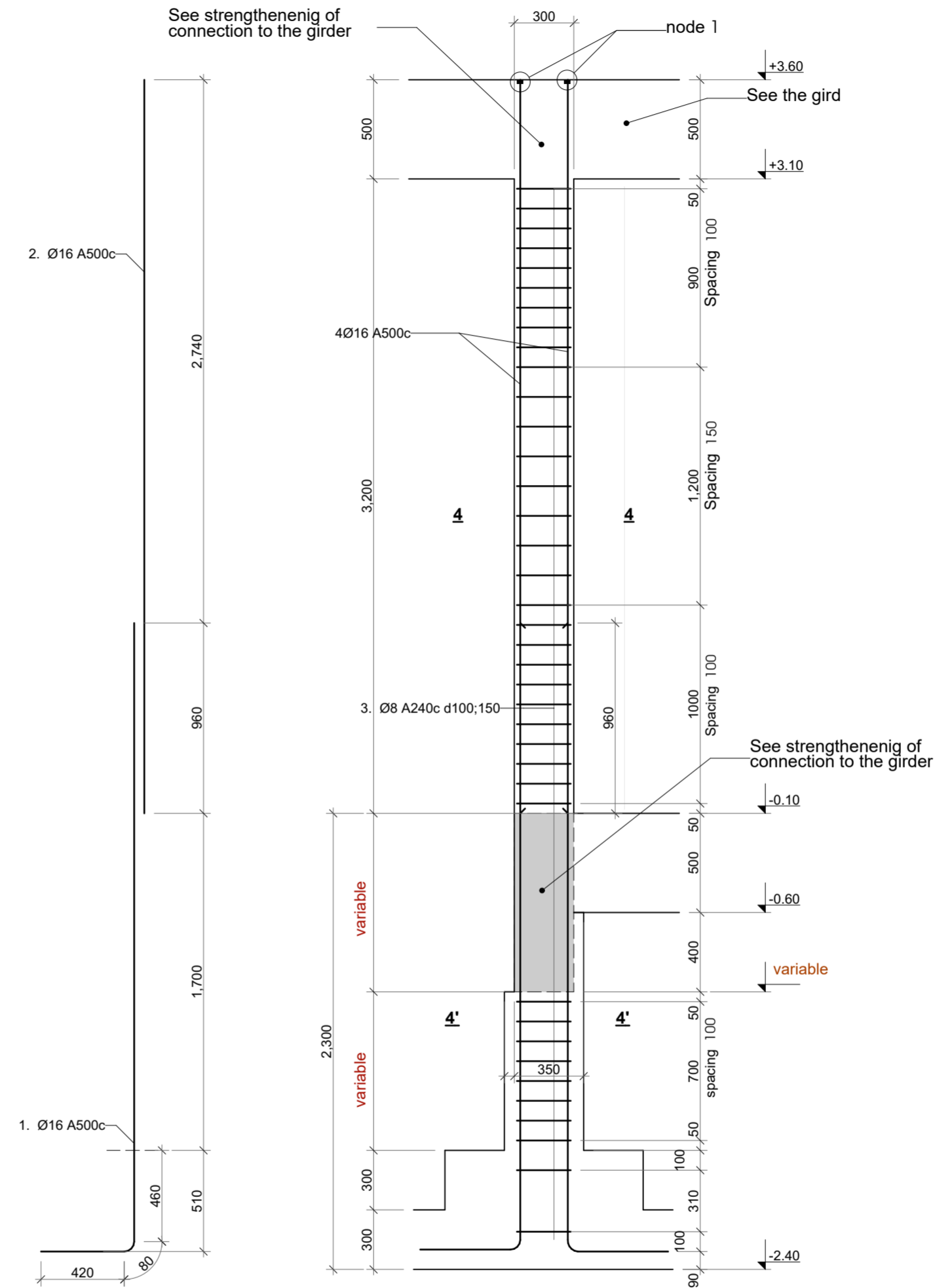


Format A - 2

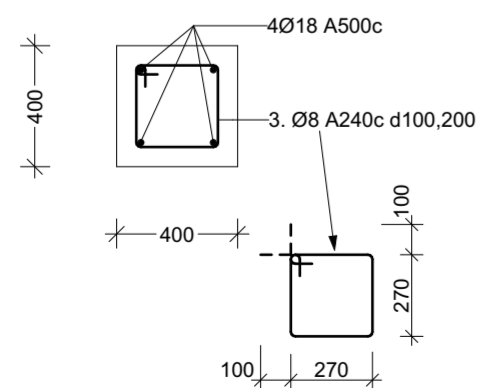
Column S-3'



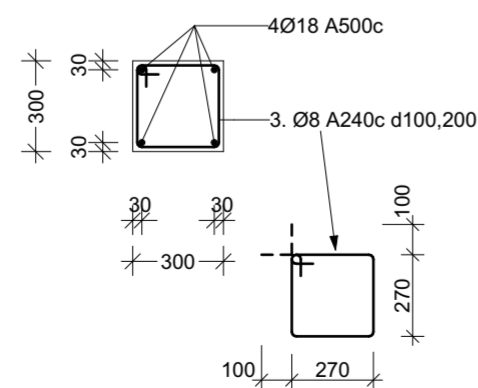
Column S-4'



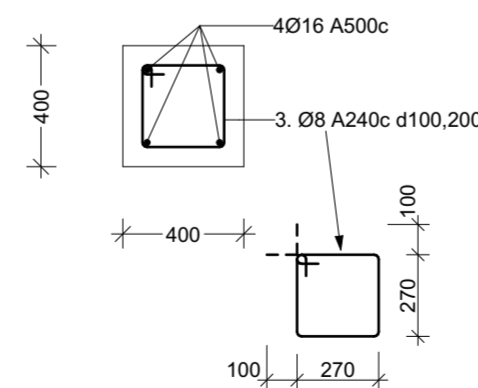
Section 3'-3'



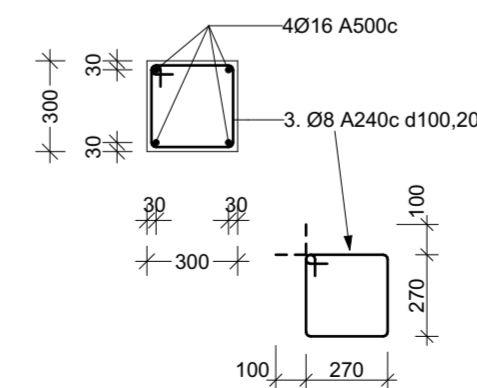
Section 3-3



Section 4'-4'



Section 4-4



Architectural Project
Typical Kindergarten
Tskaltubo 9th April street

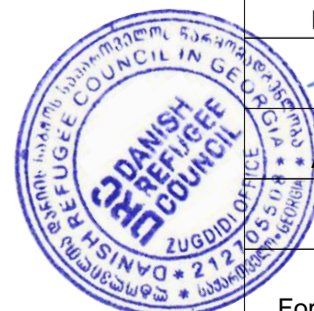
Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Column S-3'
Column S-4'

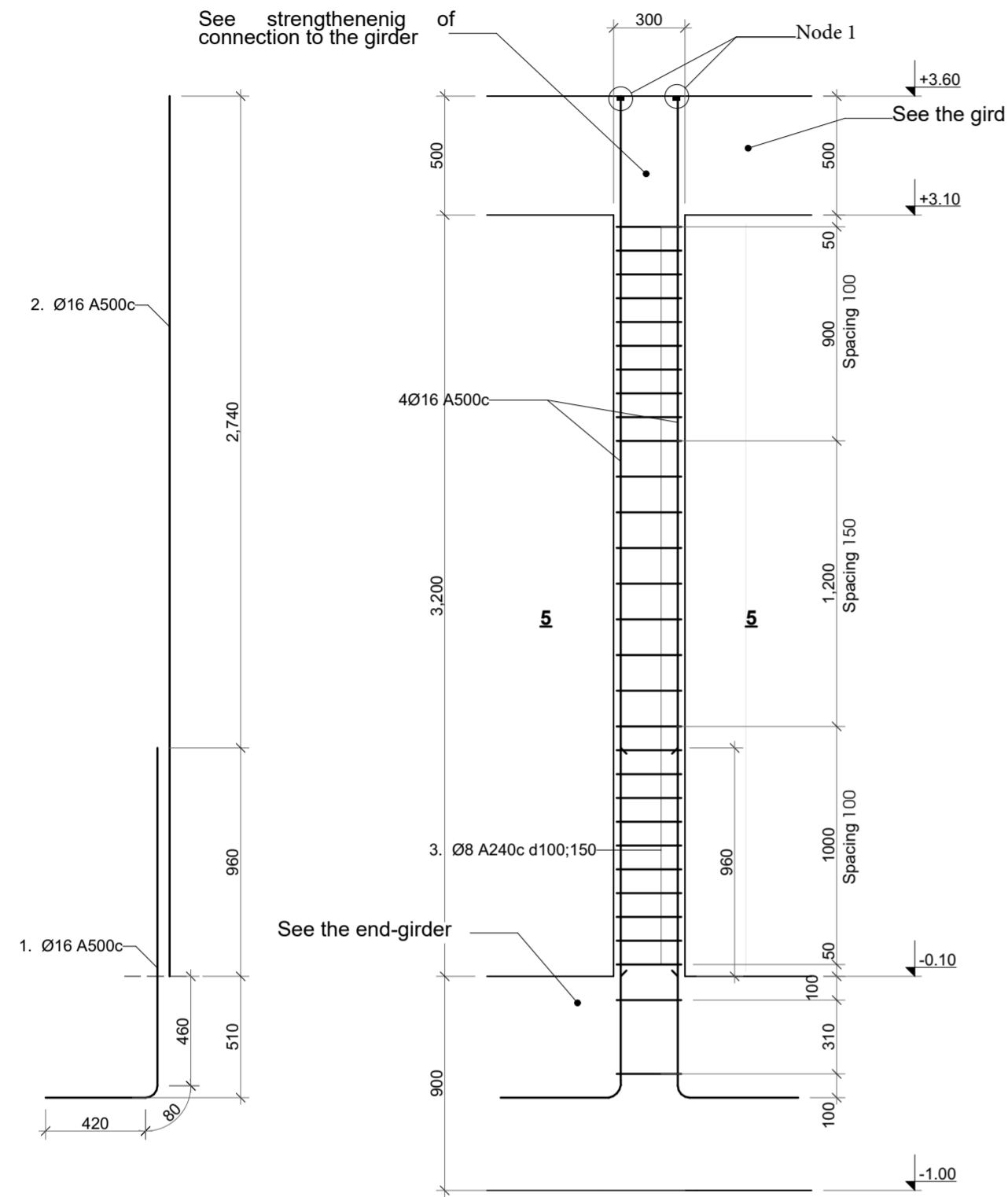
ბ. ჯანთარია
B. Qantaria

ა. გერგდავა
A. Gergedava

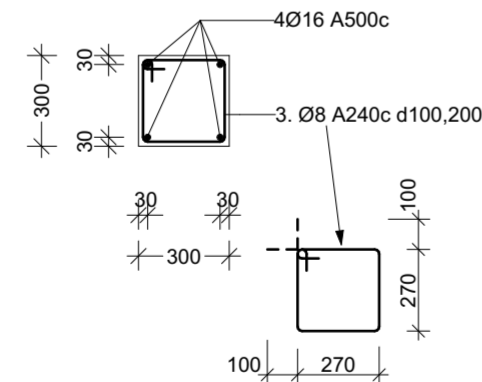


Format A - 2

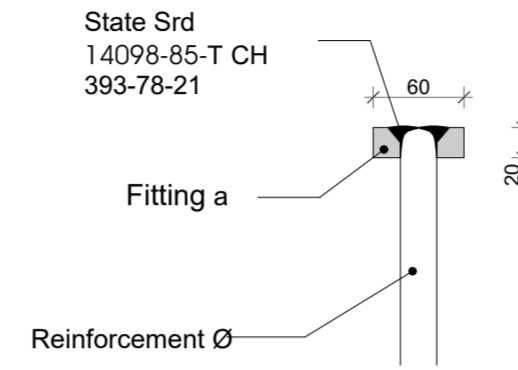
Column S-5



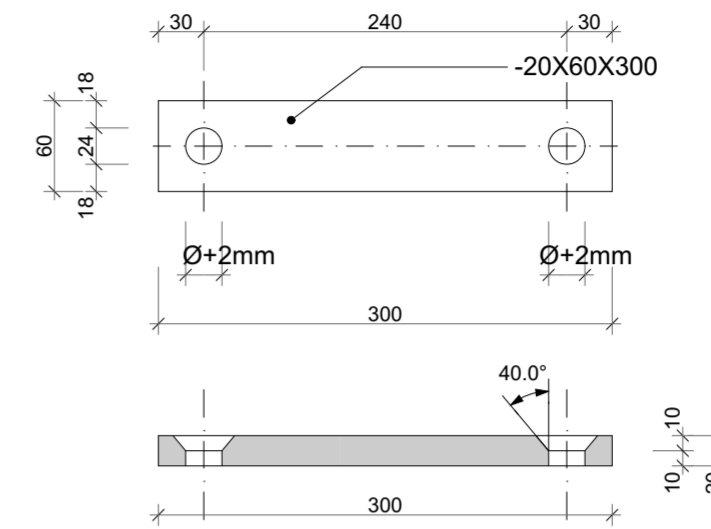
Section 5-5



Node 1



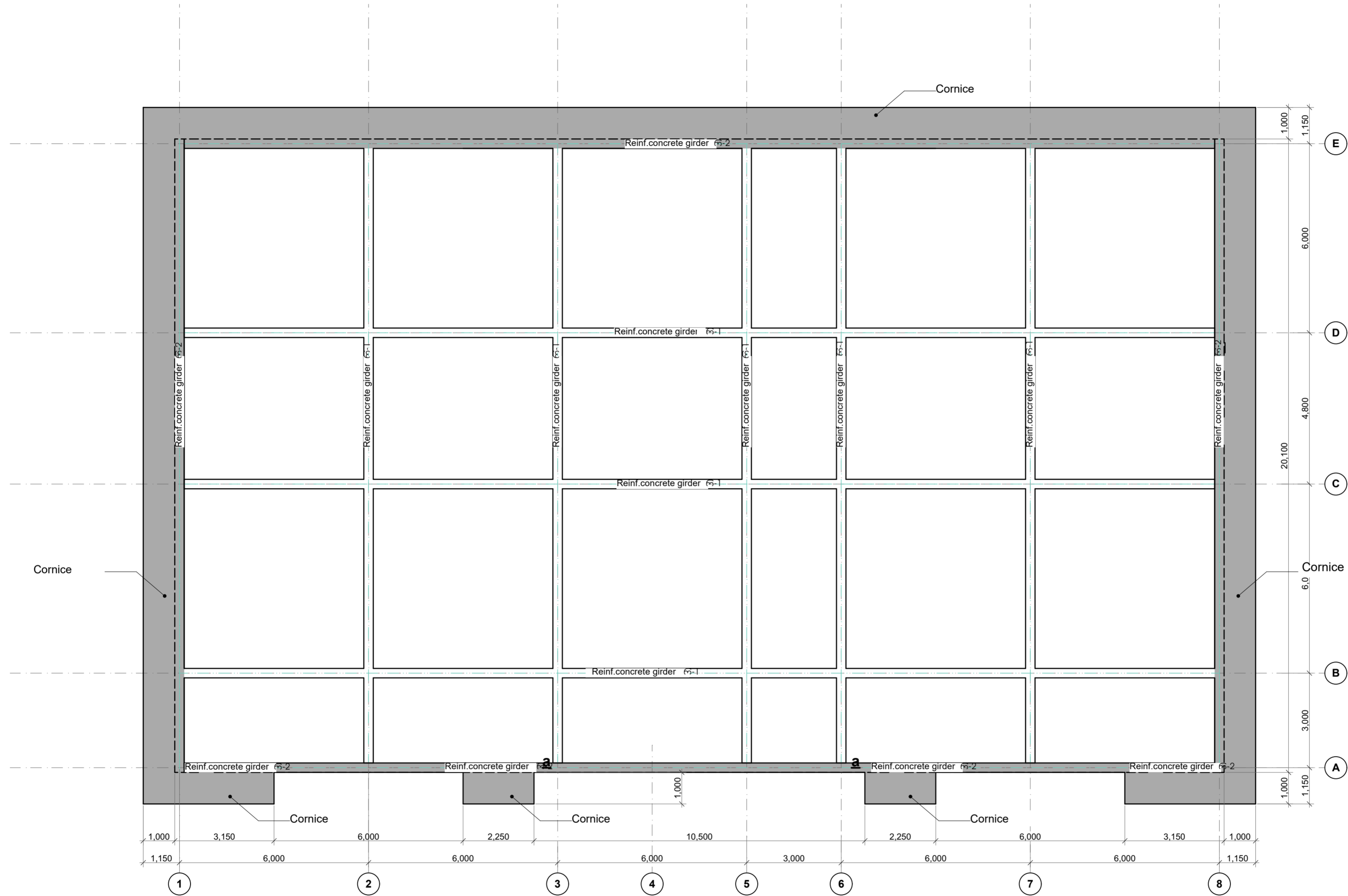
Fitting a



ელემენტი Element	№	არმატურის პროფილი Reinforcement profile	სიგრძე მმ length mm	რაოდენობა Qty	საერთო სიგრძე მ Total length m	ბეტონი მ3 Concrete m3	არმატურის ამოკრუვა Specification of reinforcement						
							კოორდინატი Coors-section	საერთო სიგრძე მ Total length m	საერთო სიგრძე მ Total length with loss m	განმარბ. წონა Weight of r/m, tin	საერთო წონა Total Weight, ton	საერთო წონა საბეტონო წონა (კვადრ.) ტონა Total weight per class	
რკინაბეტონის სვეტები Reinforced concrete columns													
s-1 და s-1' (10 ცალი)	1	22 A500c	4340	40	173.6		A240c	6 A240c		0.0	0.222	0.00	0.8
	2	22 A500c	3700	40	148			8 A240c	1920.0	2016.0	0.394	0.80	
	3	8 A240c	1280	420	537.6								
s-2 და s-2' (13 ცალი)		20 A500c	4100	52	213.2		A500c	6 A500c		0.0	0.222	0.00	3.6
		20 A500c	3700	52	192.4			8 A500c		0.0	0.394	0.00	
		8 A240c	1280	546	698.88			10 A500c	1280.0	1344.0	0.616	0.83	
	18 A500c	3860	32	123.52		12 A500c			0.0	0.887	0.00		
	18 A500c	3700	32	118.4		14 A500c			0.0	1.208	0.00		
	8 A240c	1280	336	430.08		16 A500c		139.6	146.6	1.578	0.23		
s-4 და s-4' (4 ცალი)		16 A500c	3620	16	57.92		18 A500c	241.9	254.0	1.997	0.51		
		16 A500c	3700	16	59.2		20 A500c	405.6	425.9	2.465	1.05		
		8 A240c	1280	168	215.04		22 A500c	321.6	337.7	2.983	1.01		
s-5 (1 ცალი)		16 A500c	1920	4	7.68		25 A500c		0.0	3.851	0.00		
		16 A500c	3700	4	14.8								
		8 A240c	1280	30	38.4								
რეგულთან გადაკვეთის უბნების Strengthening of girder intersection parts		10 A500c			1280								
Steel Sheet ფილაგანის ფურცელი -20X60X300													
		ბეტონი B25 Concrete B25				21.2							



Plan of Girders at +3.60 level



**Architectural
Project**

**Typical
Kindergarten**

**Tskaltubo
9th April street**

Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

**Plan of Girders at
+3.60 level**

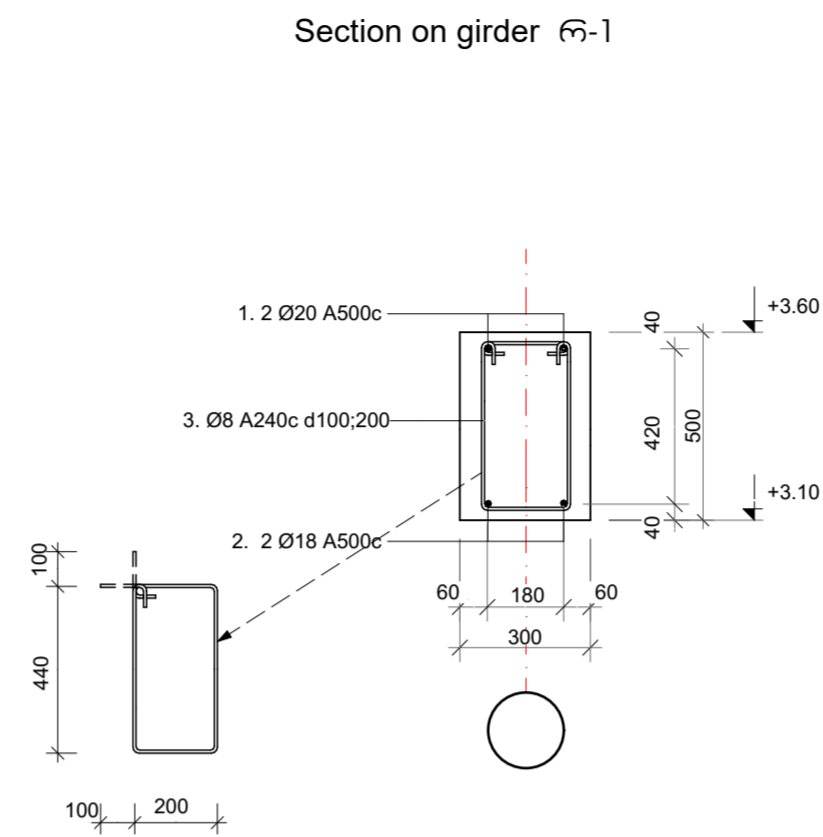
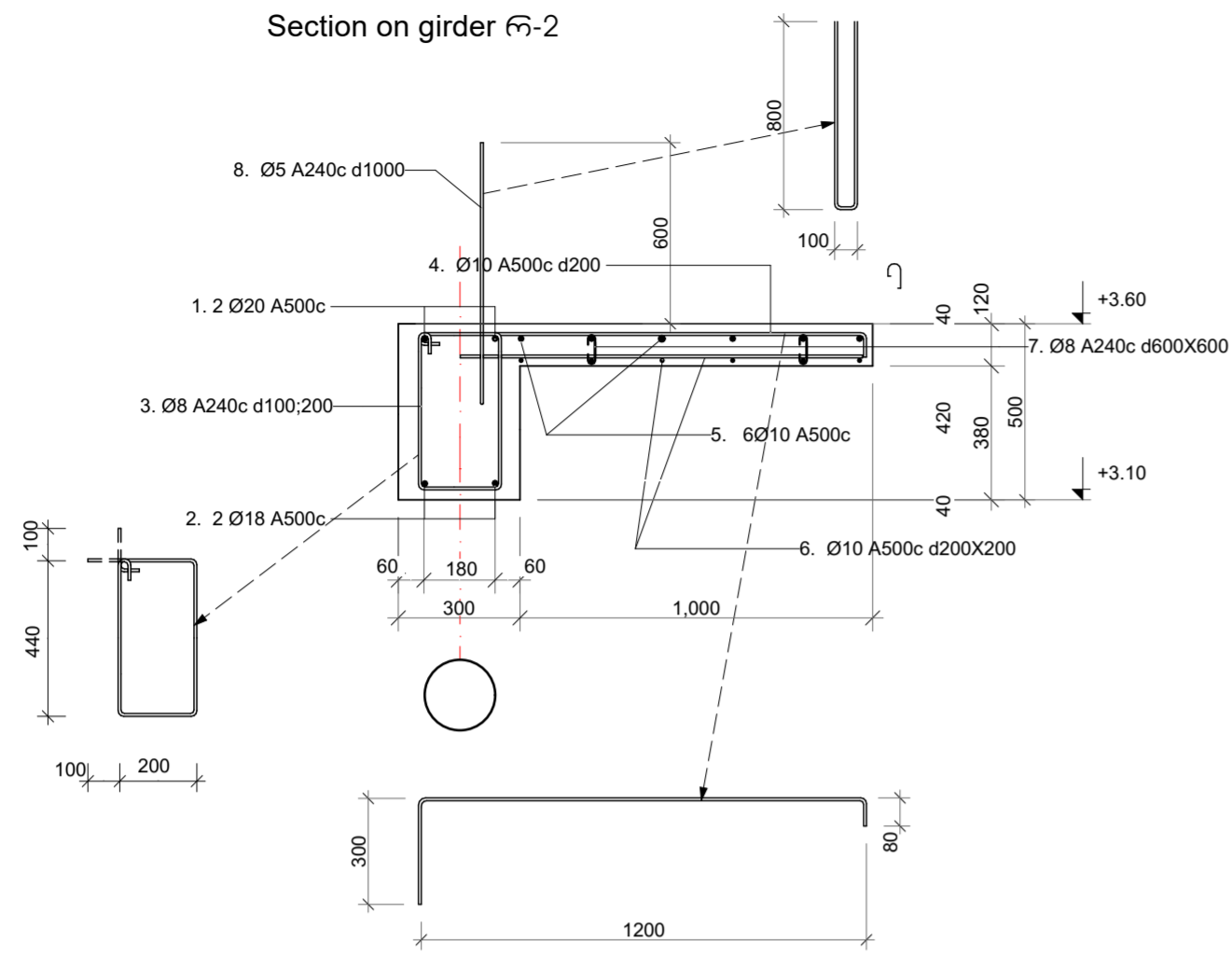
ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava

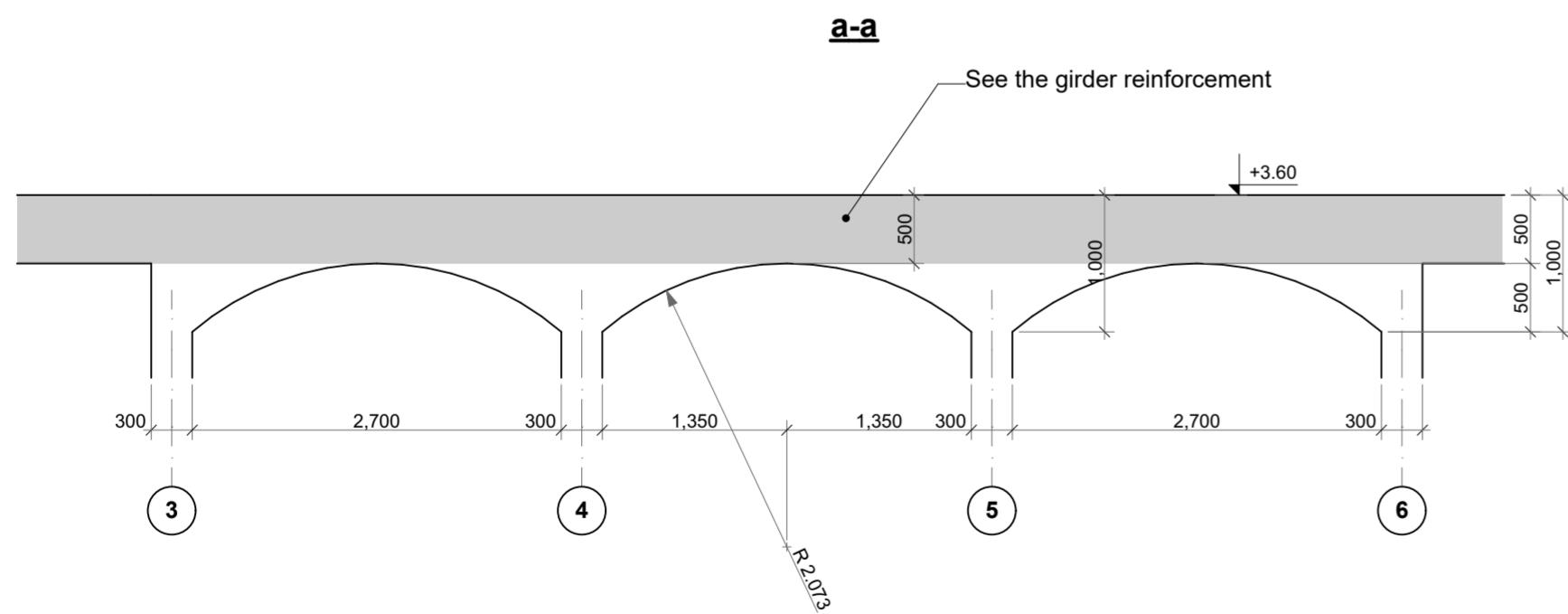


Format A - 2

Page	Pages
24	33

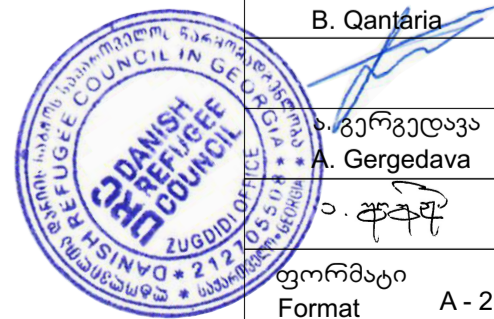


Section in arched areas



ელემენტი Element	№	არმატურის პროფილი Reinforcement profile		რაოდენობა Qty	საერთო სიგრძე მ Total length m	ბეტონი მ3 Concrete m3	სპეციფიკაცია Specification of reinforcement								
		სიგრძე მ Length mm	რაოდენობა Qty				საერთო სიგრძე მ Total length m	საერთო სიგრძე მ Total length with loss	გრძობის წონა Weight of r/m	საერთო წონა Total Weight, tons	საერთო წონა (კვასის მიხედვით) ტონა	კონკრეტის მოცულობა			
რკინაბეტონის რიგელები +3.60 ნიშნულზე Reinforced concrete girders at +3.60															
რანდკოტი 1 End-girder 1	1	20 A500c	218900	2	437.8		A240c	6 A240c	238.0	238.0	0.222	0.05	1.3		
	2	18 A500c	214920	2	429.84			8 A240c	3085.0	3239.3	0.394	1.28			
	3	8 A240c	1480	1327	1963.5			6 A500c		0.0	0.222	0.00			
რანდკოტი 2 End-Girder 2	1	20 A500c	116600	2	233.2		A500c	8 A500c		0.0	0.394	0.00	4.6		
	2	18 A500c	114480	2	229.0			10 A500c	2267.0	2380.4	0.616	1.47			
	3	8 A240c	1480	707	1046.4			12 A500c		0.0	0.887	0.00			
	4	10 A500c	1580	470	742.6			14 A500c		0.0	1.208	0.00			
	5	10 A500c	94000	6	564.0			16 A500c		0.0	1.578	0.00			
	6	10 A500c			960.0			18 A500c	659.0	692.0	1.997	1.38			
	7	8 A240c	260	288	74.9			20 A500c	671.0	704.6	2.465	1.74			
	8	5 A240c	1700	140	238.0			22 A500c		0.0	2.983	0.00			
ბეტონი B15 m3 Concrete B15 m3						55.1	სულ Total			5.92					

Note:
The sheet should be considered with sheet 16, in particular with the reinforcement of girders and the standard diagrams of their connection to columns.



Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Girder r-1
Sections
Nodes

ბ. ჯანთარია
B. Qantaria

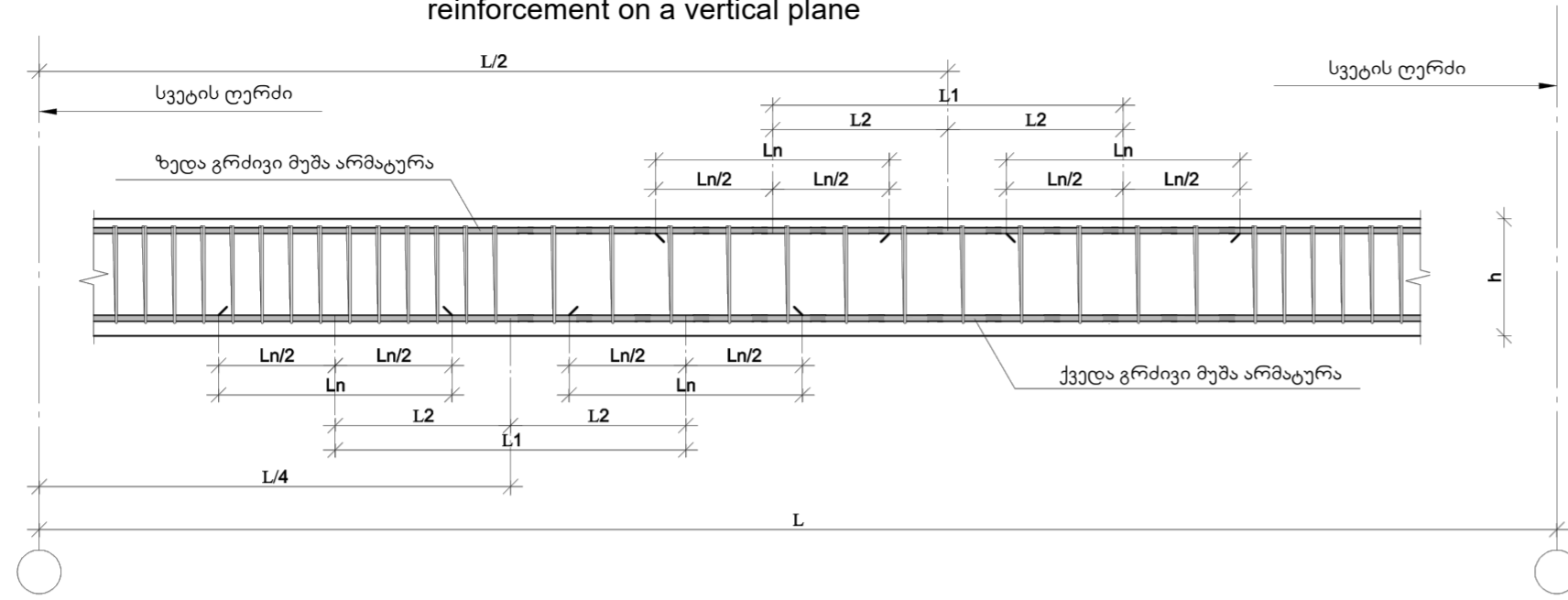
ა. გერგედავა
A. Gergedava

ფორმატი
Format A - 2

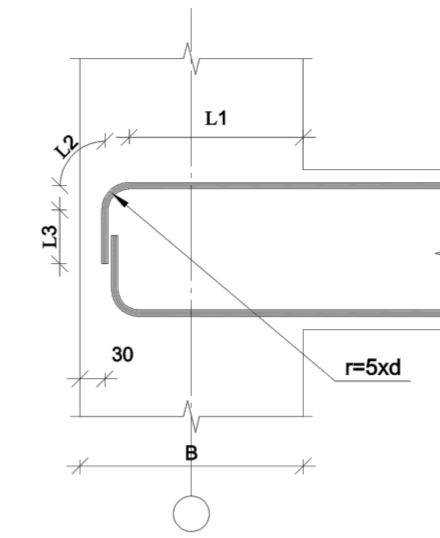
ფურცელი
Page 25

ფურცლები
Pages 33

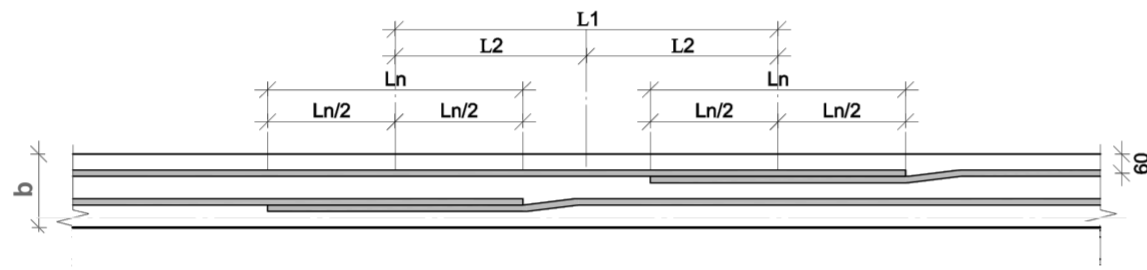
Locations of monolithic gird bonding by crossbar in the upper and lower span of the reinforcement on a vertical plane



Fixing (bending) Node of Grid in the upper and lower reinforcement column



Plan of monolithic gird bonding of crossbar in the upper and lower span of the reinforcement



Parameters of gird bond crossbar in the upper and lower reinforcement

არმატურის დიამეტრი (მმ)	არმატურის ბაზალა (მმ) $L_1=4rD$	ბაზალაში უნდა იქნას შერის განაკვეთი (მმ) $L_2 \geq 1.5 L_{კვ}$	მინიმუმ "x" ნიშნულზე არმატურის ბაზალაში უნდა იქნას განაკვეთი (მმ) $L_3 \geq L/2$	საბოლოო ბაზალაში უნდა იქნას განაკვეთი (მმ) $L_4 = L_{კვ}$
Ø16 A500C	640	960	480	1600
Ø18 A500C	720	1080	540	1800
Ø20 A500C	800	1200	600	2000
Ø22 A500C	880	1320	660	2200
Ø25 A500C	1000	1500	750	2500

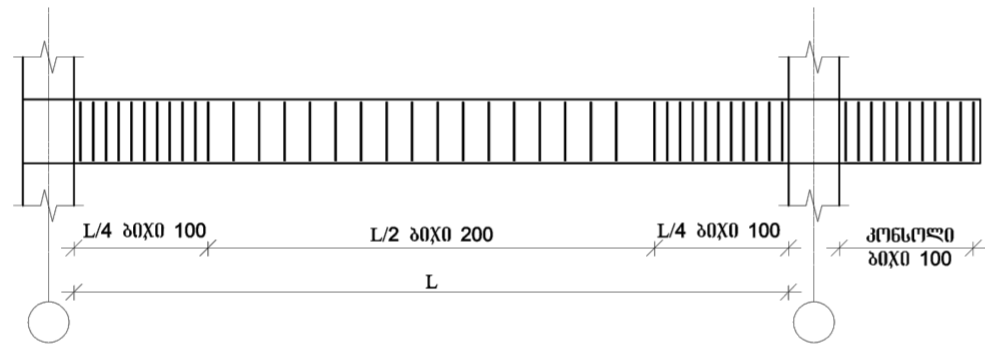
Parameters of fixing node of grid in the upper and lower reinforcement column

რ(90)ა (B=400)

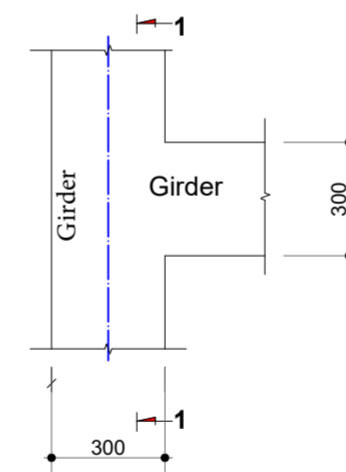
$$L_{კვანთარ} = 40d = L_1 + L_2 + L_3 = 2L_1 \quad (88)$$

არმატურის დიამეტრი Ø	$L_{კვანთარ}=40D$	$r=5d$ მმ	$L_1=L_{(ბაზა)} \times 0.5$ (მმ)	$L_2=(56d) \times D$ (მმ)	$L_3=L_{(ბაზა)} - (L_1 + L_2)$ (მმ)
Ø16 A500C	640	80	320	126	194
Ø18 A500C	720	90	360	141	219
Ø20 A500C	800	100	400	157	243

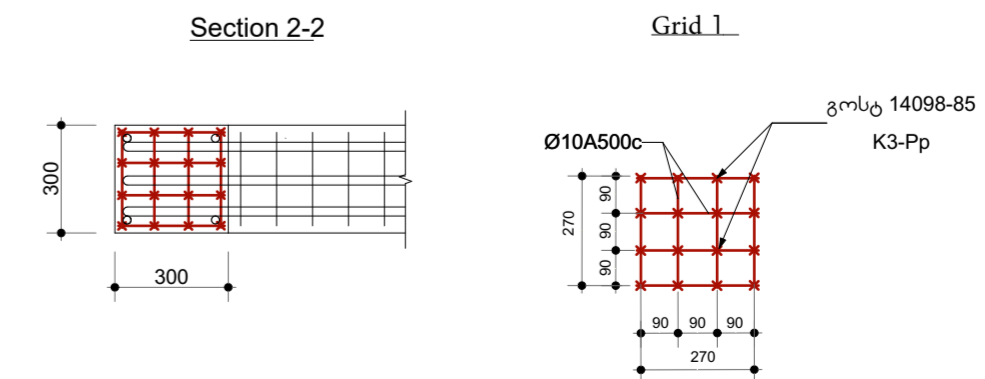
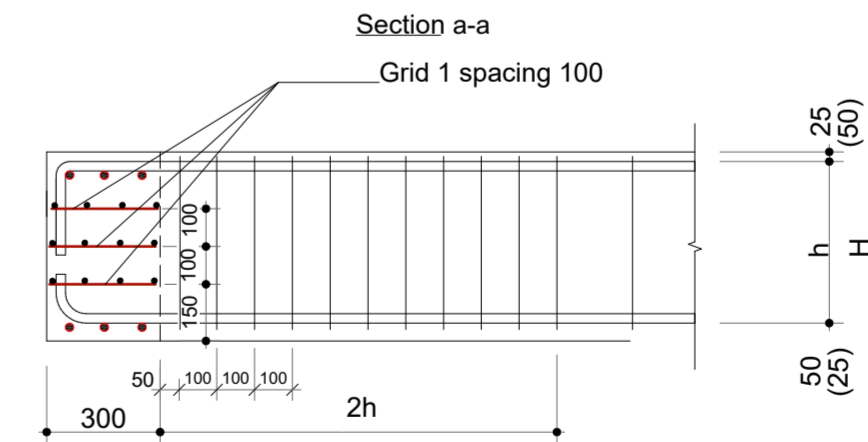
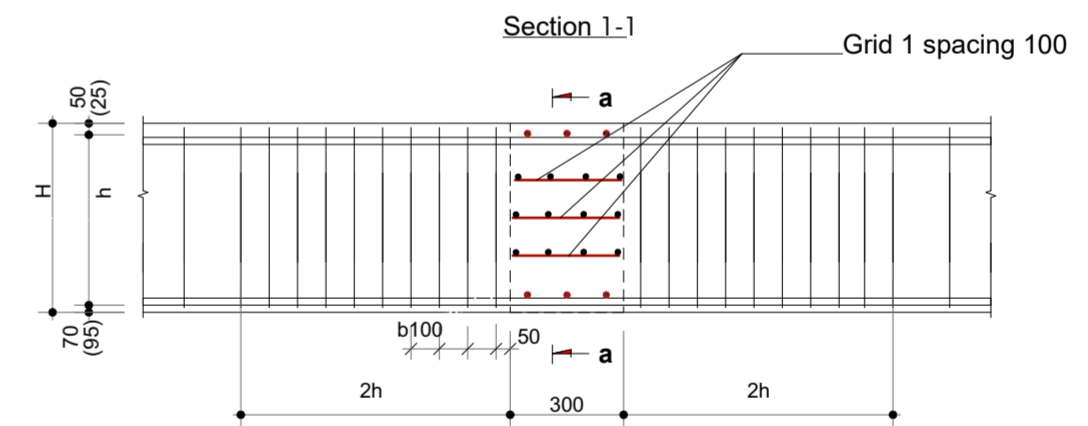
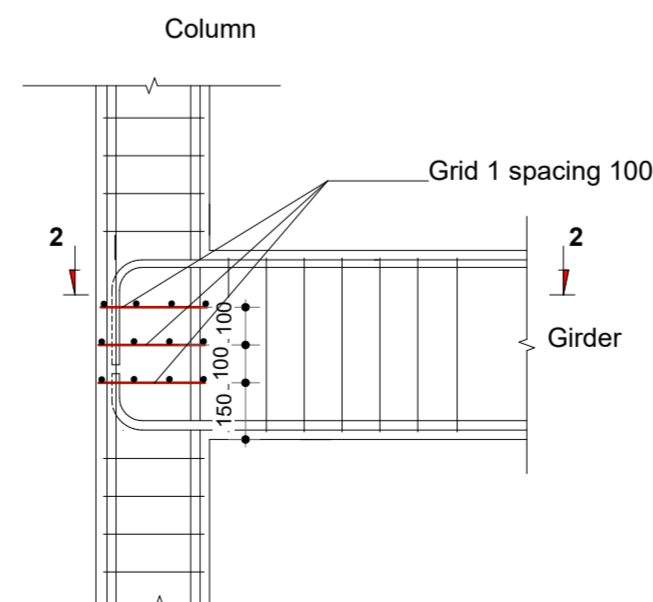
Allocation plan of gird hanger



Strengthening of the Gird to Connection to the node



Strengthening of the intersection of grid and columns



Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Momolith Girders
Strengthening of Nodes

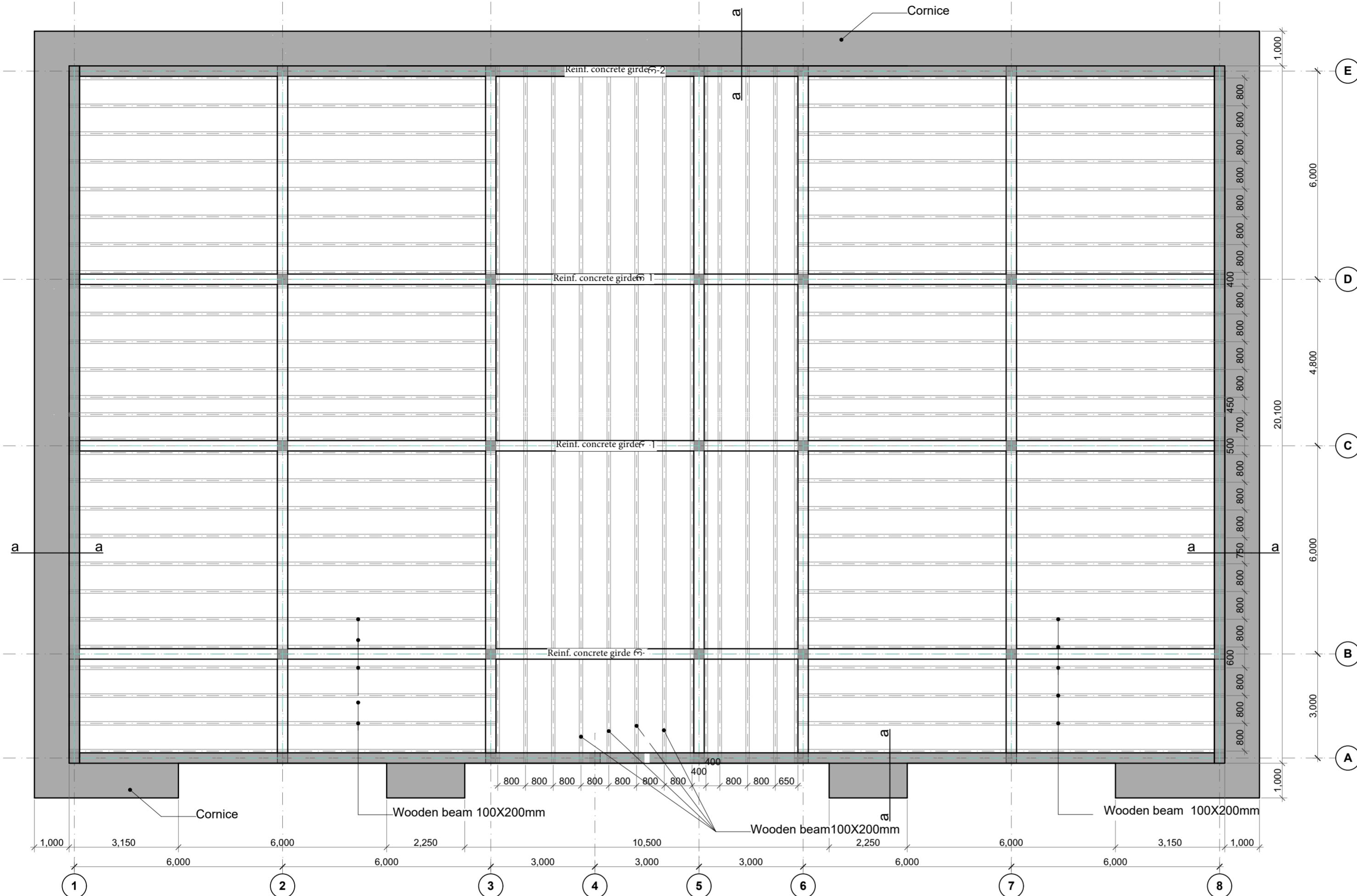
ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava

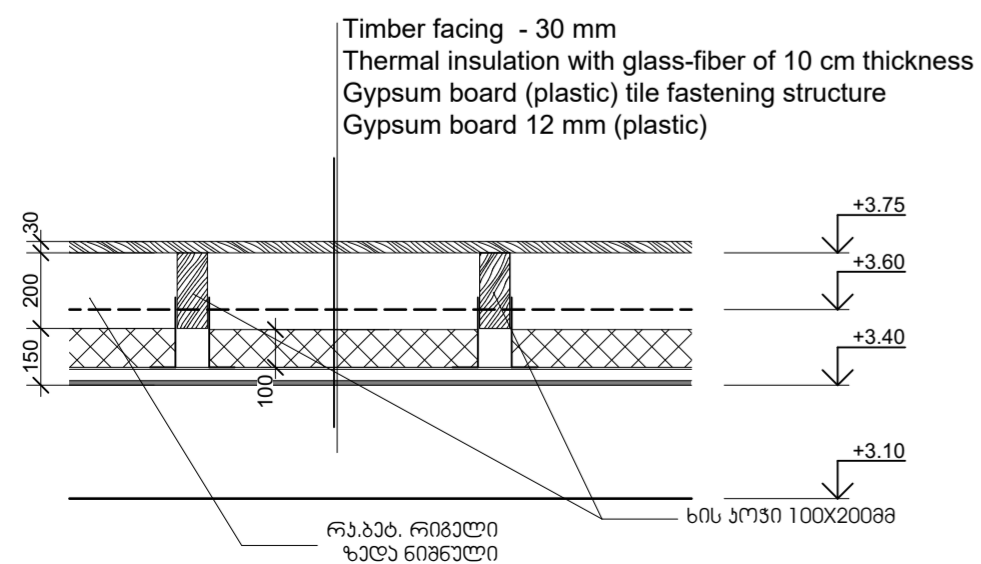
ფორმატი
Format A - 2



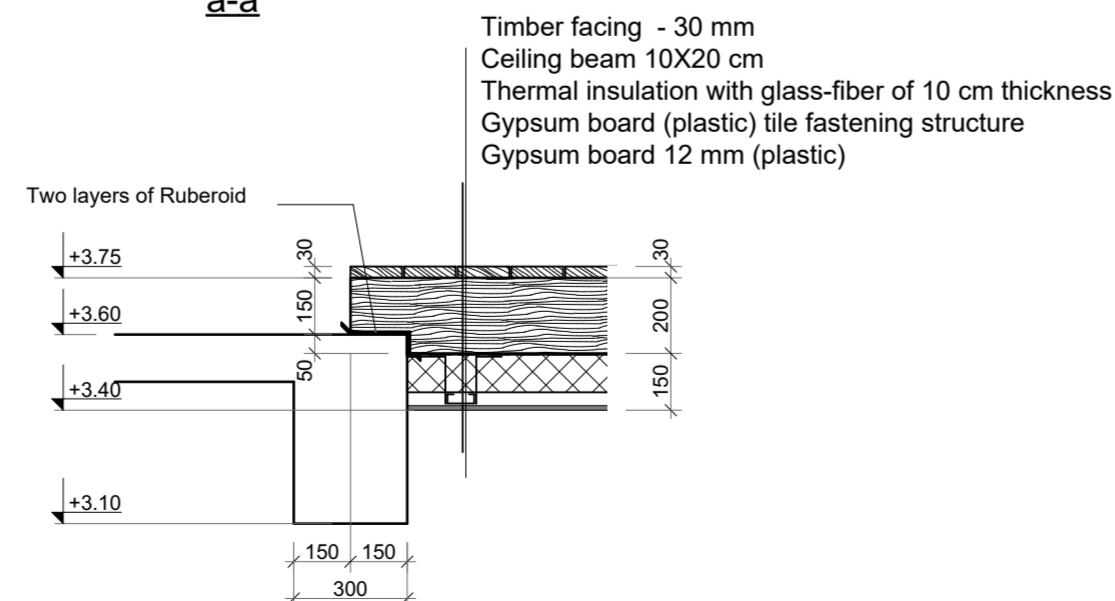
Plan of ceiling wooden beams at +3.60 level



Ceiling Structure



a-a

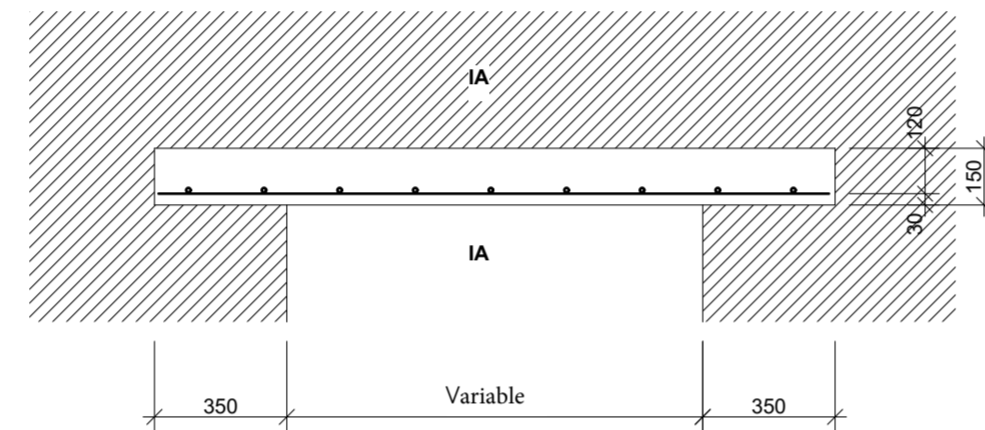
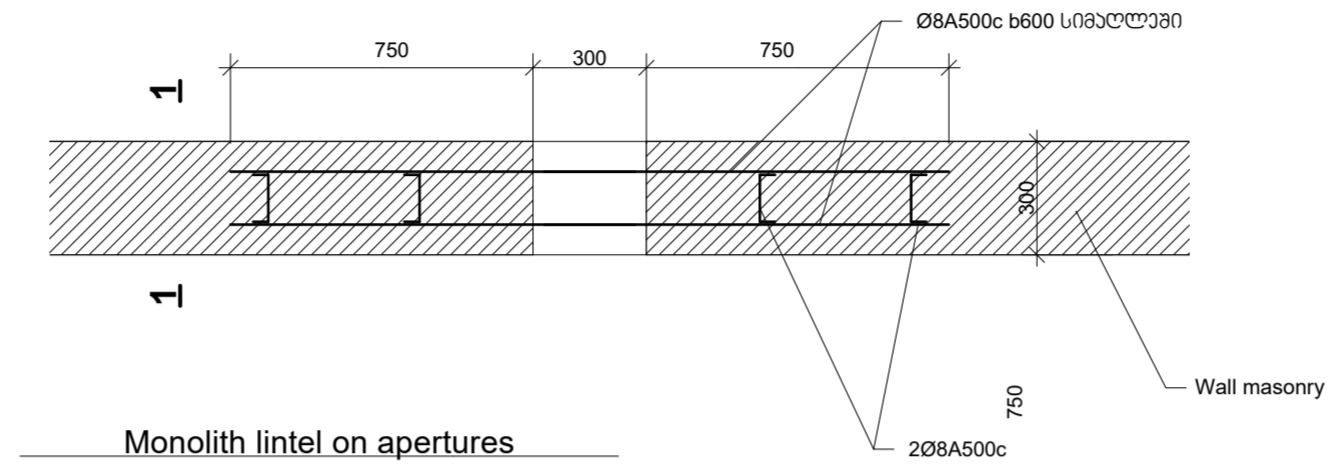
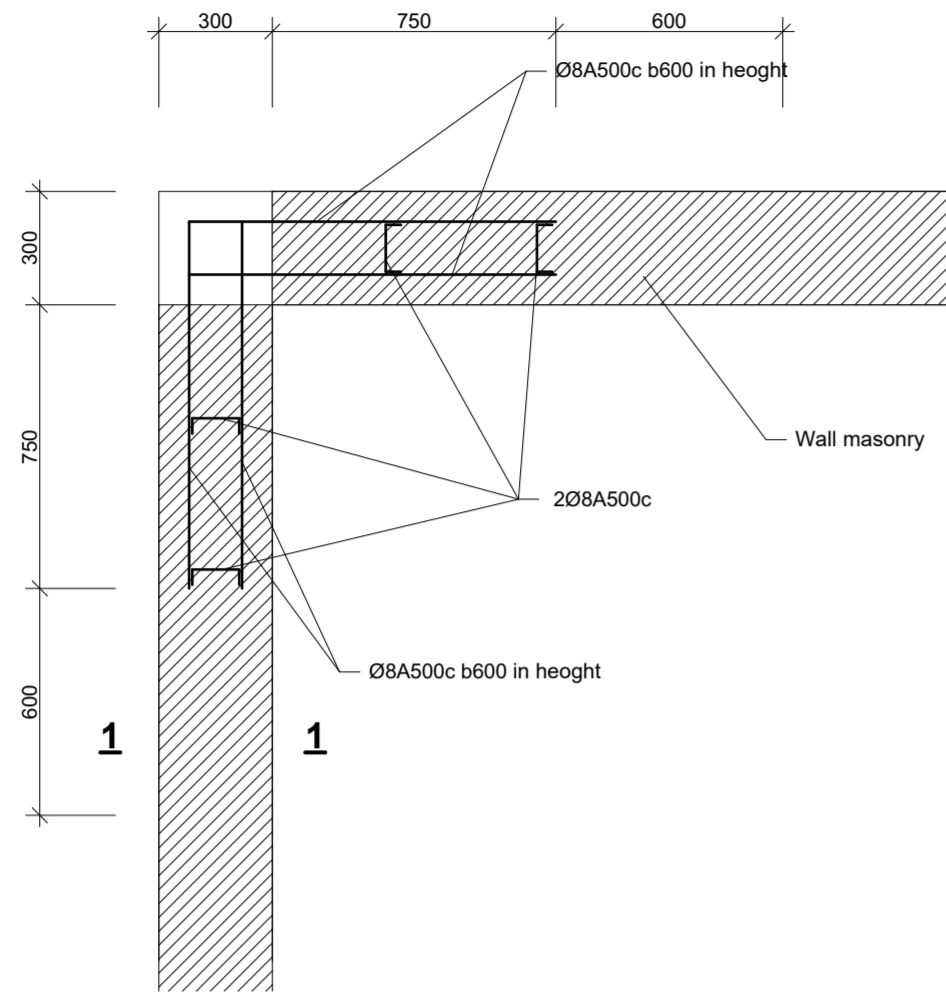


სავაჭრის ცხრილი

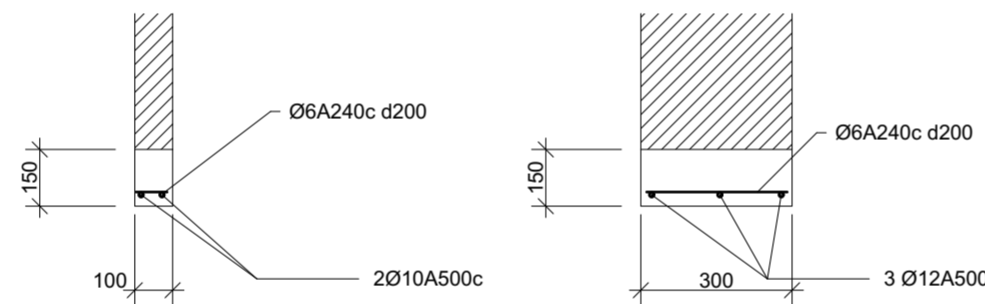
კოჭის კვეთი	სიგრძე მ	რაოდენობა	საუ სიგრძე მ	მთლიანი
ხის კოჭი 100X200	6	134	804	17.7
ხის კოჭი 100X200	3	13	39	0.9
ხის კოჭი 100X200	4.8	13	62.4	1.4
		Σ		19.9



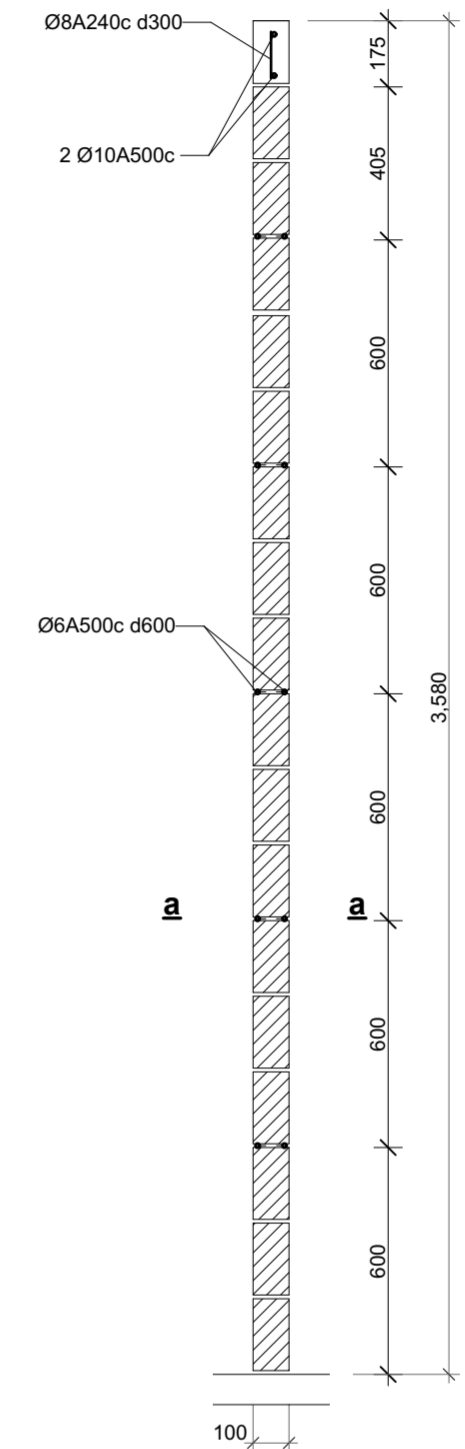
Connection of the columns to the external walls



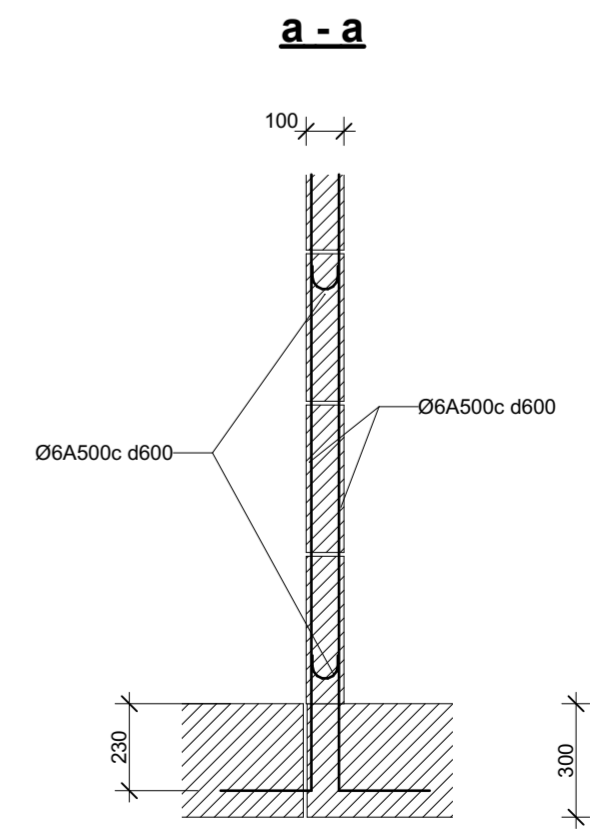
A-A
On partition On external wall



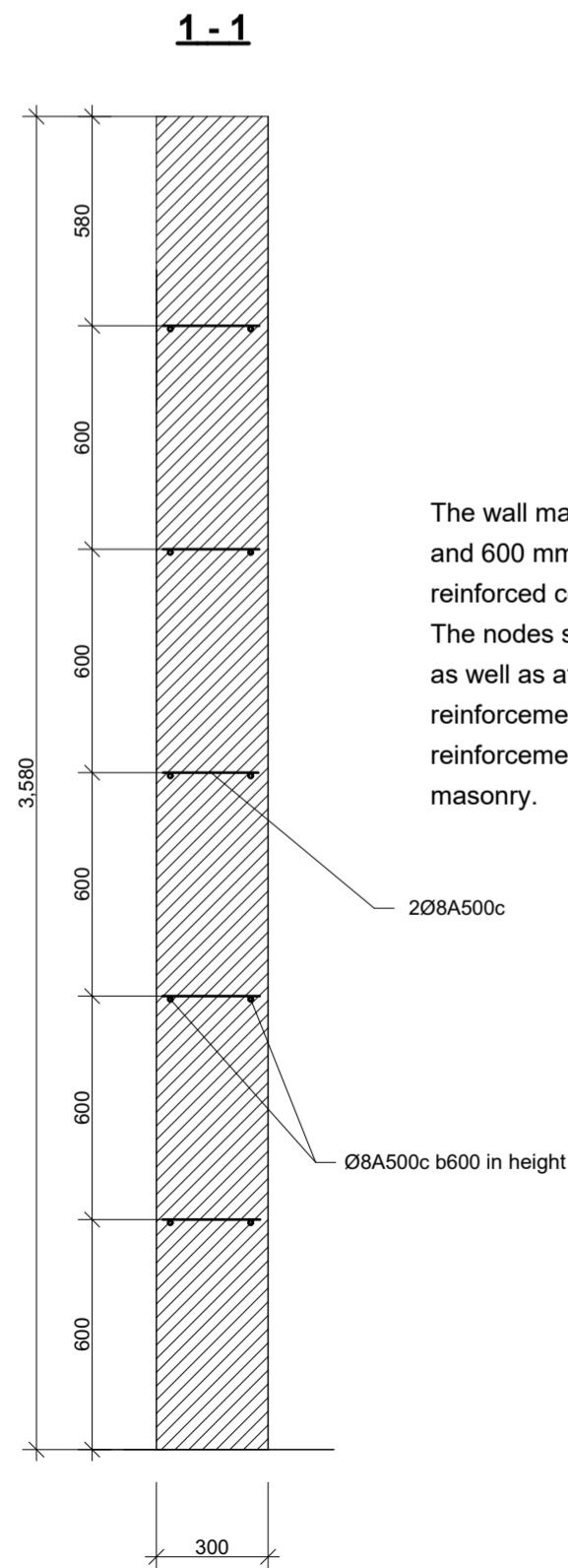
ტიხრის არმირება
Partition reinforcement



a a



a - a



1-1

The wall masonry should be connected to the wall frames by reinforcement cantilever of 750 mm long and 600 mm in height. If the wall (masonry) length is more than 3 meters, it must be connected to the reinforced concrete structure of the ceiling with reinforcement rods. The nodes shown in the drawing can be made by building the framed and bearing walls simultaneously, as well as after concreting. It requires perforation of the frame structure at 20 cm depth and anchor reinforcement rods by a polymer cement solution. Stone partitions should be reinforced with 2Ø6A1 reinforcement, at 600mm spacing in height, and anchored with reinforced concrete frame or wall masonry.

ელემენტი Element	№	არმატურის პროფილი	სიგრძე მმ	რაოდენობა	საკონკრეტო სიგრძე მ	ბეტონი მ3
ზღუდარები						
ზღუდარი გარე კედელზე Lintel on external wall	1	12 A500c			512	
	2	6 A240c			410	
ზღუდარი შიგა კედელზე Lintel on internal wall	1	10 A500c			396	
	2	6 A240c			114	
ბეტონი B25 m3						7.9
კედლების და ტიხრების არმირება Reinforcement of walls and partitions						
ტიხრების არმირება Reinforcement of partitions		6 A500c			3040	
გარე კედლების და ზღუდრების არმირება Connection of external walls and columns		10 A500c			1360	

Specification of reinforcement არმატურის აღწერვა						
კლასი Class	კვეთი Cross-section	საერთო სიგრძე მ Total length m	საერთო სიგრძე წინააღმდეგობა მ Total length with loss, m	გრძობის წონა Weight of rim	საერთო წონა ტონა Total weight , ton	საერთო წონა (კლასის მსხვერპლი) ტონა Total weight per class, ton
A240c	6 A240c	524.0	524.0	0.222	0.12	0.1
	8 A240c		0.0	0.394	0.00	
A500c	6 A500c	3040.0	3040.0	0.222	0.67	2.3
	8 A500c		0.0	0.394	0.00	
	10 A500c	1756.0	1843.8	0.616	1.14	
	12 A500c	512.0	537.6	0.887	0.48	
	14 A500c		0.0	1.208	0.00	
	16 A500c		0.0	1.578	0.00	
	18 A500c		0.0	1.997	0.00	
20 A500c		0.0	2.465	0.00		
22 A500c		0.0	2.983	0.00		
25 A500c		0.0	3.851	0.00		
სულ Total					2.40	

Architectural Project
Typical Kindergarten
Tskaltubo
9th April street

Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Lintels,
Connection of the
columns to the
external walls

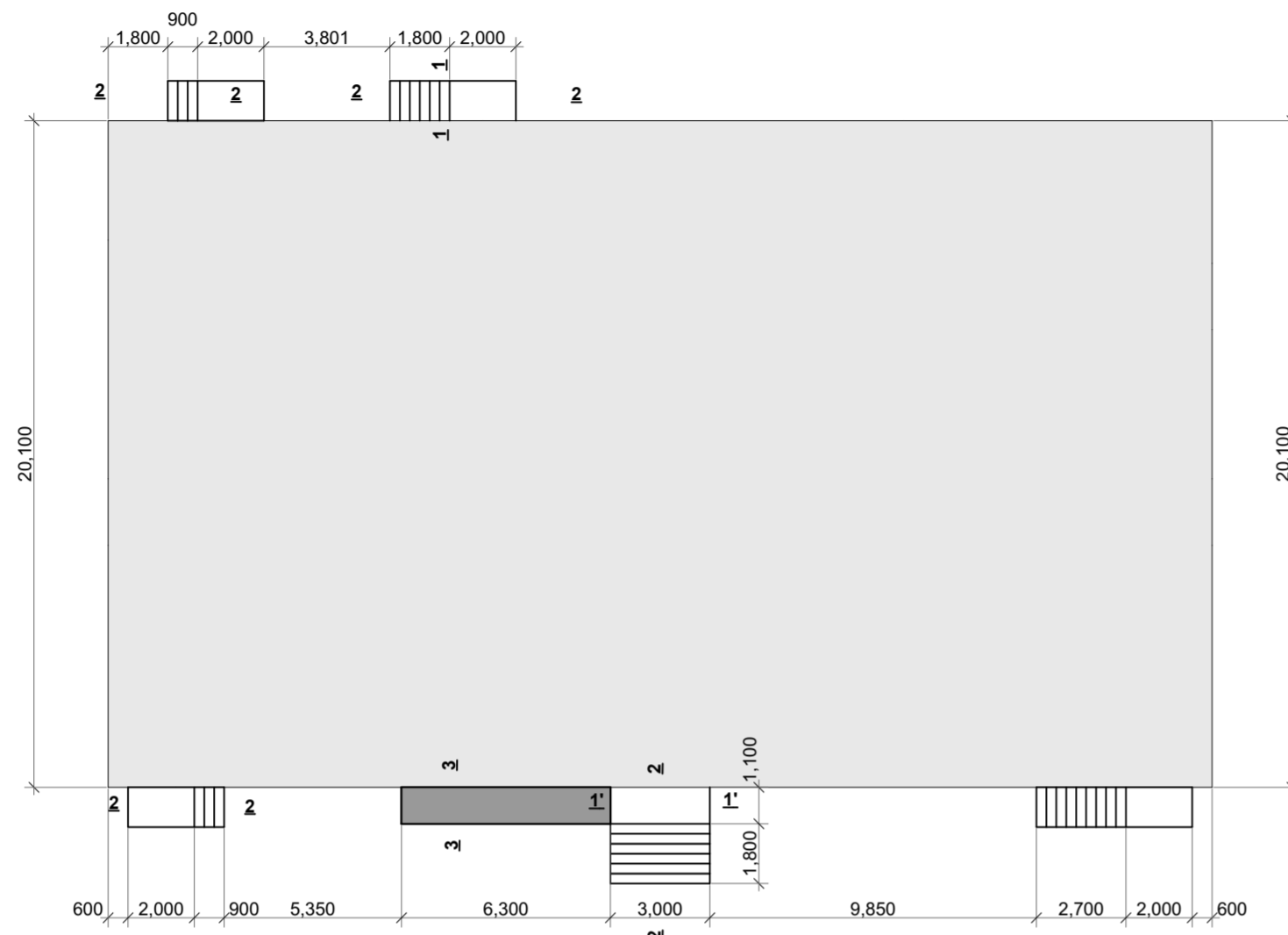
ბ. ქანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava

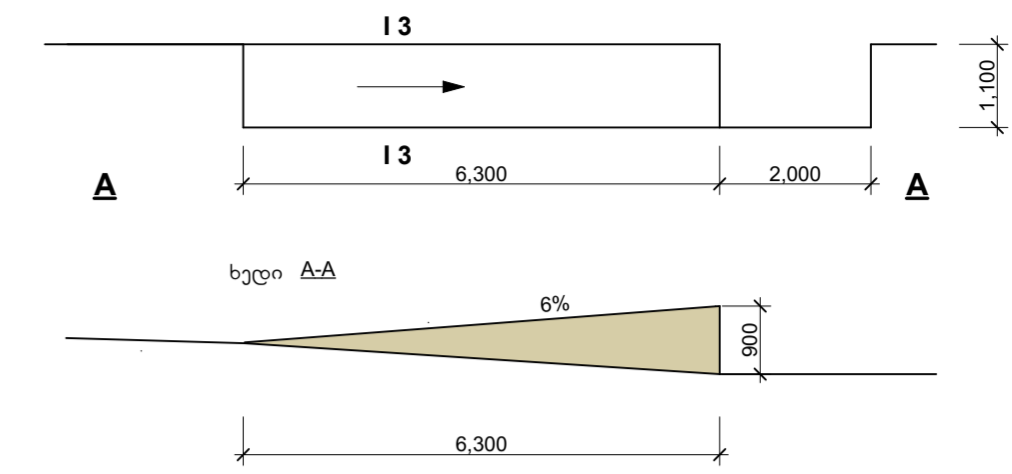


Format A - 2

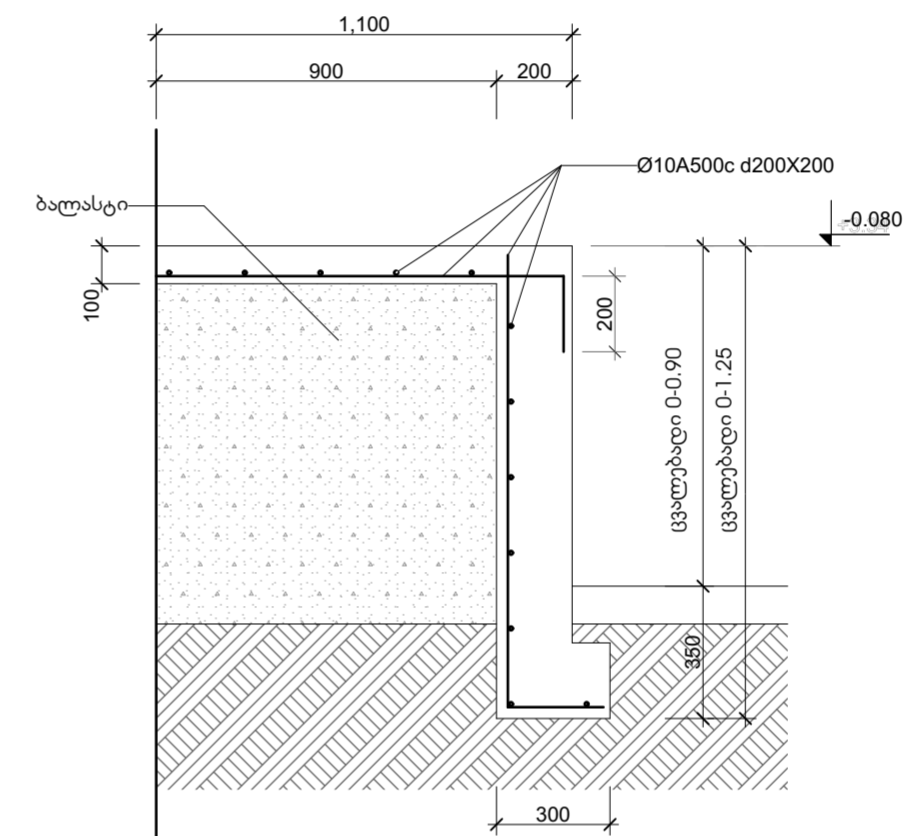
Staircases and Ramp on the Plan



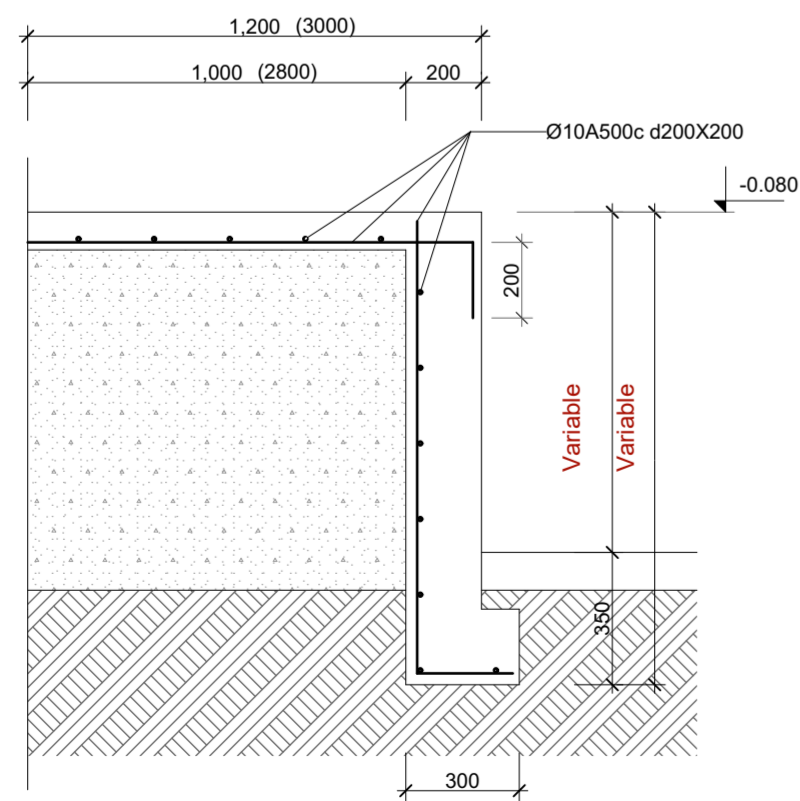
Plan of Ramp



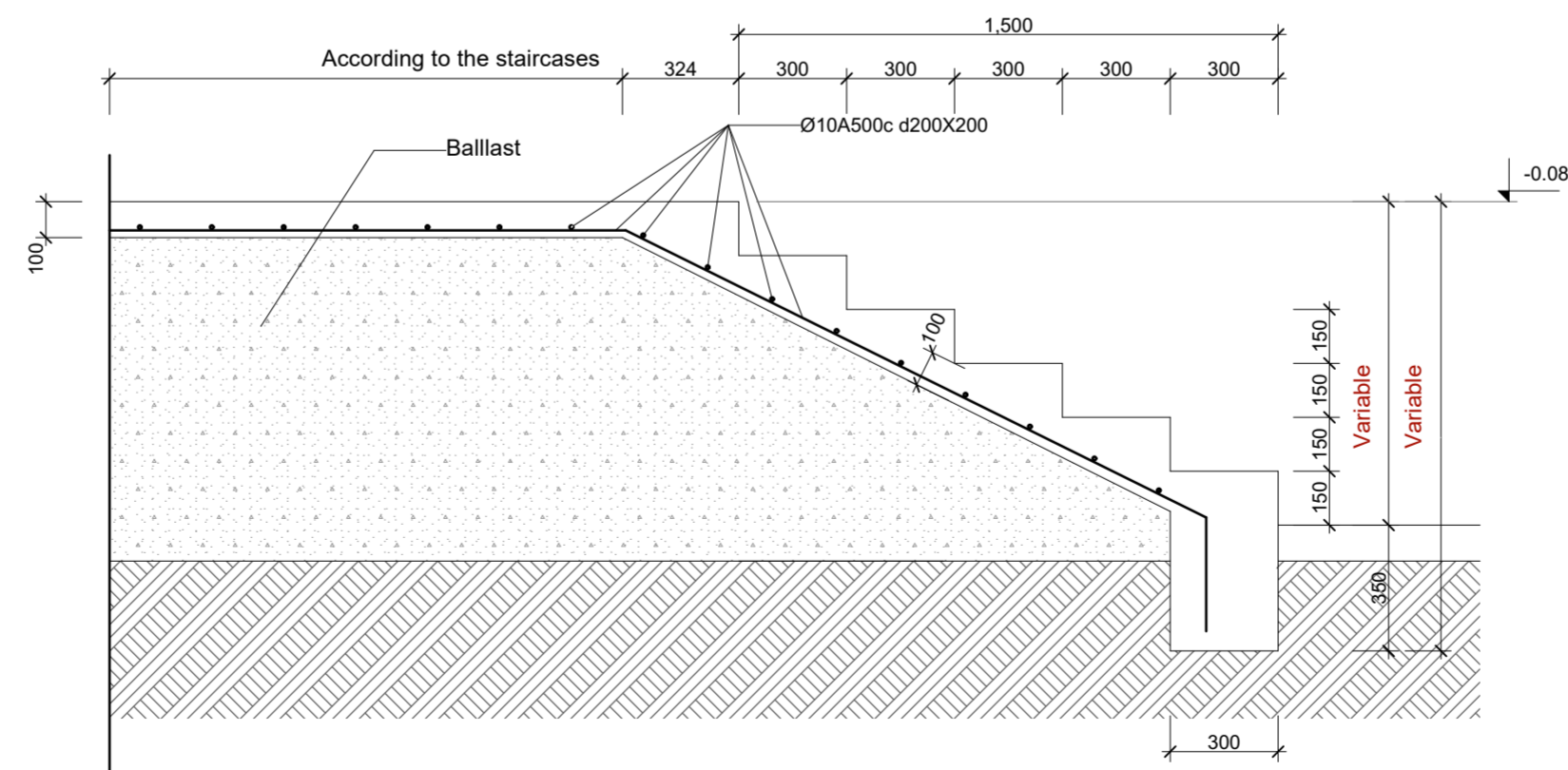
ჭრიტი 3-3



Section 1-1 (1'-1')



Section 2-2



ელემენტი Element	№	არმატურის პროფილი Reinforcement profile	სიგრძე მმ Length mm	რაოდენობა Q-ty	საერთო სიგრძე მ Total length m	ბეტონი მ3 Concrete m3
კიბეები და პანდუსი Staircases and ramp						
კიბეები და პანდუსი Staircases and ramp	1	10 A500c			1280	
		ბეტონი B25 m3 Concrete B25 m3				14.5

Architectural
Project
Typical
Kindergarten
Tskaltubo
9th April street

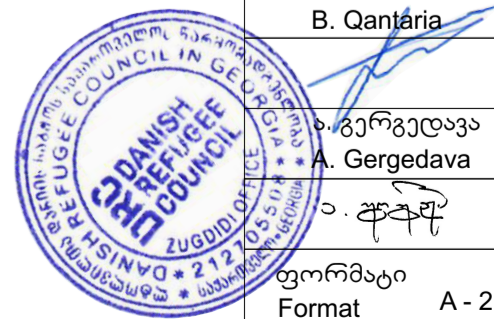
Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Staircases
and Ramp
on the Plan

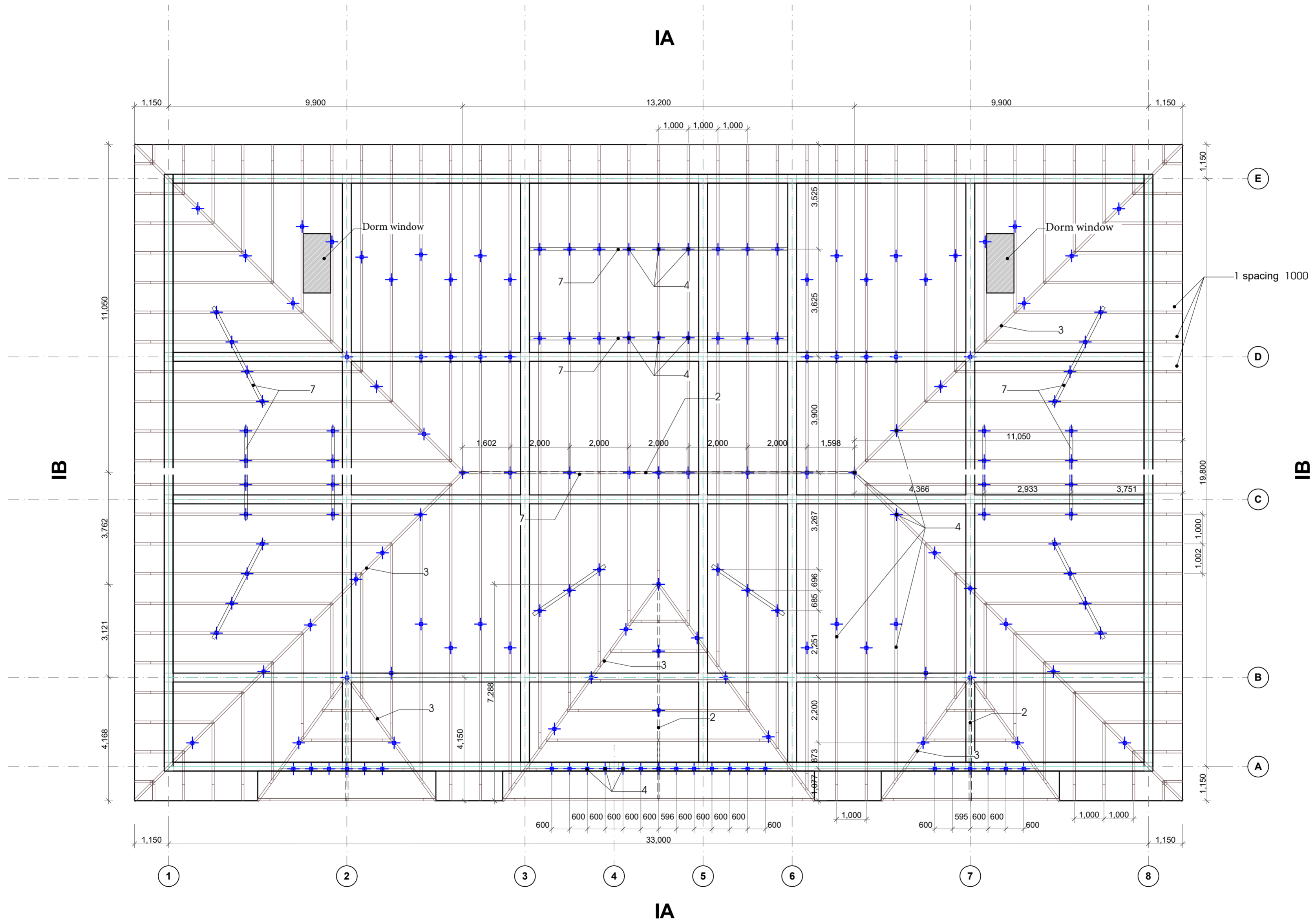
ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava



ფორმატი
Format A - 2

Plan of the Wooden Structure of Roof



Architectural
Project

Typical
Kindergarten

Tskaltubo
9th April street

Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Plan and render
of the Wooden
Structure of Roof

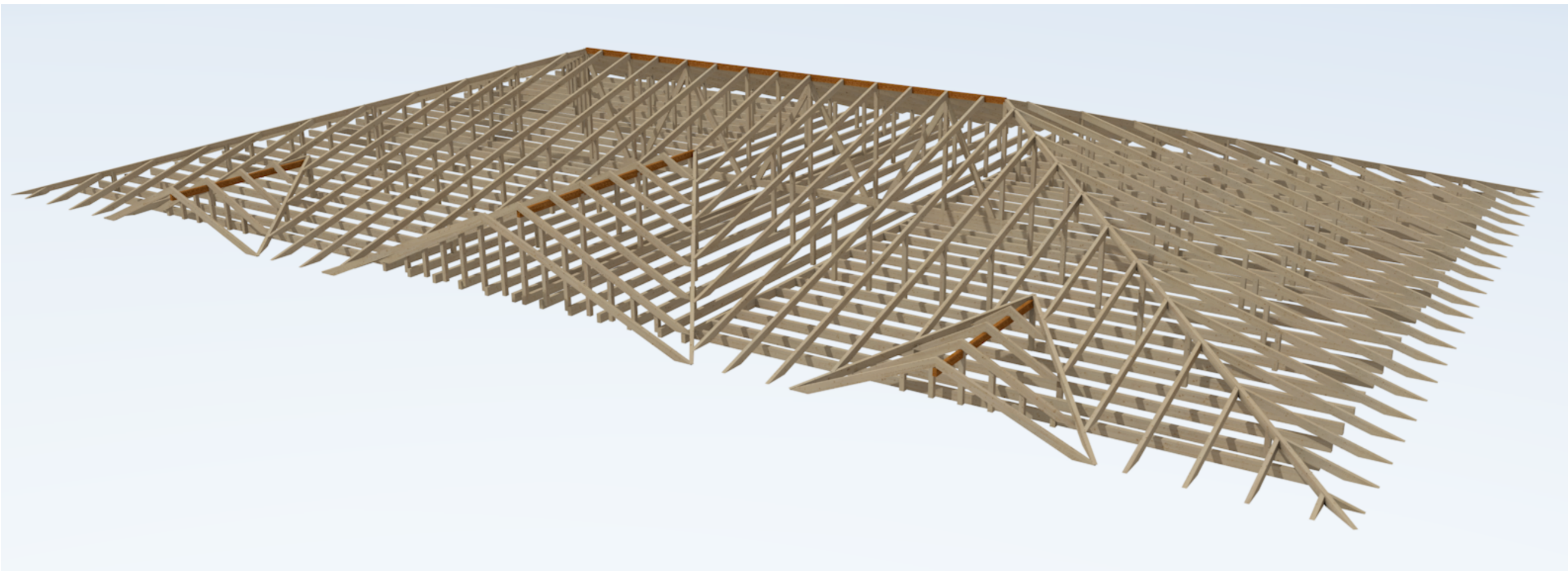
ბ. ჯანთარია
B. Qantaria

ა. გერგედავა
A. Gergedava



Format A - 2

Render of the Roof Wooden Structure

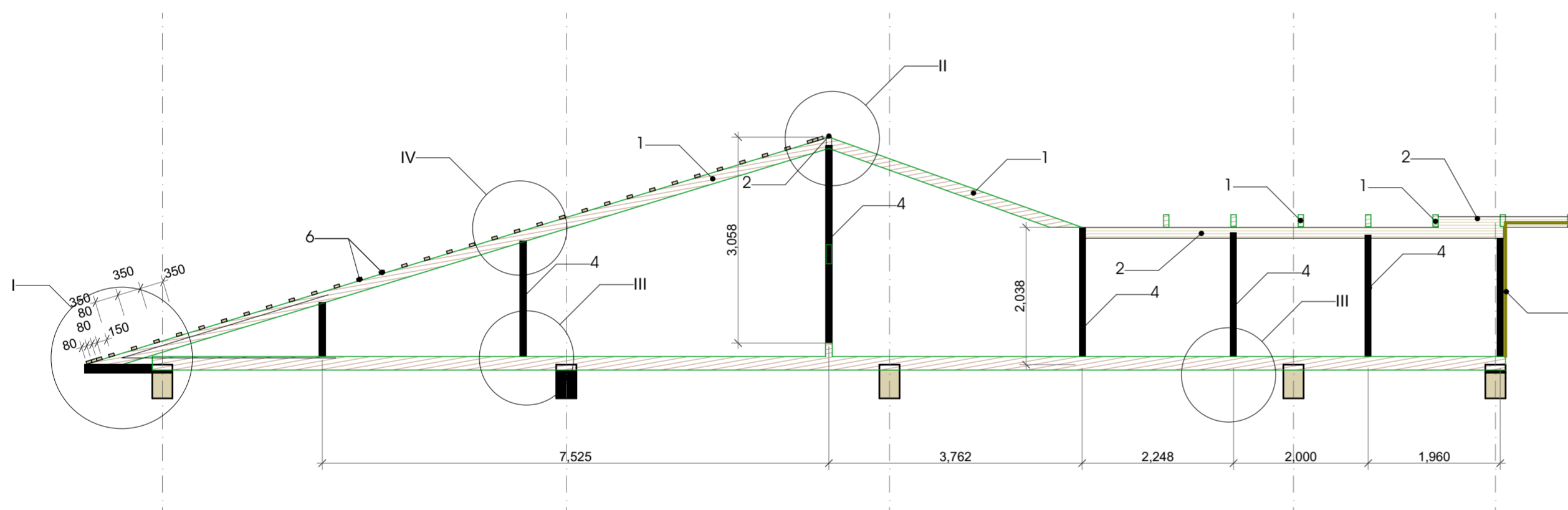


Specification of wooden elements

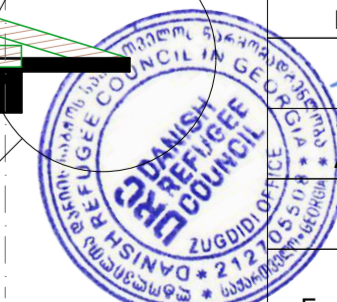
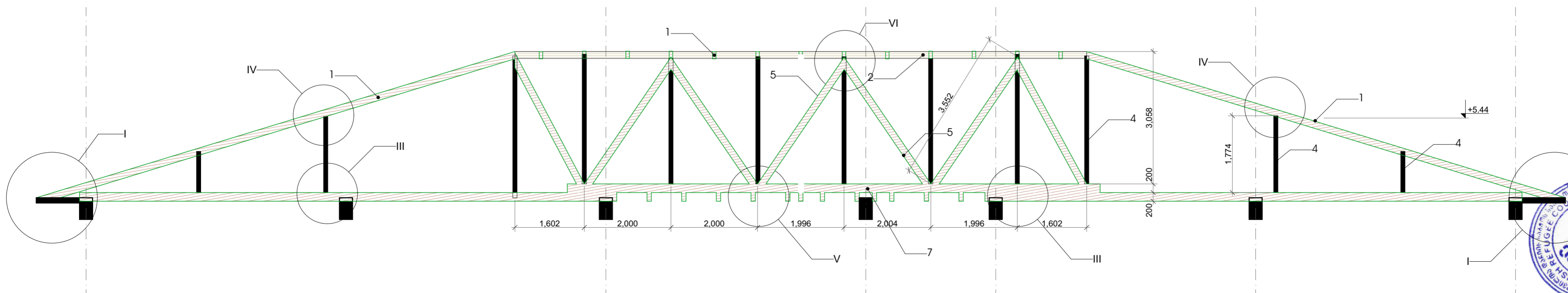
სის პლანების სპეციფიკაცია					
N	სისის სპეციფიკაცია Beam section	სისის სისი width mm	სისის სისი height mm	სისის სისი Total length m	სისის სისი volume m3
1	სისის სისი Rafter	80	160	840	10.75
2	სისის სისი Ridge beam	80	160	32	0.41
3	სისის სისი Diagonal rafter	80	160	108	1.38
4	სისის სისი Pillar	100	100	304	3.04
5	სისის სისი Brace for connections	100	100	28	0.28
6	სისის სისი Squared timber bar	40	80	2897	9.27
7	სისის სისი Spreading beam	80	160		0.60
				Σ	25.73

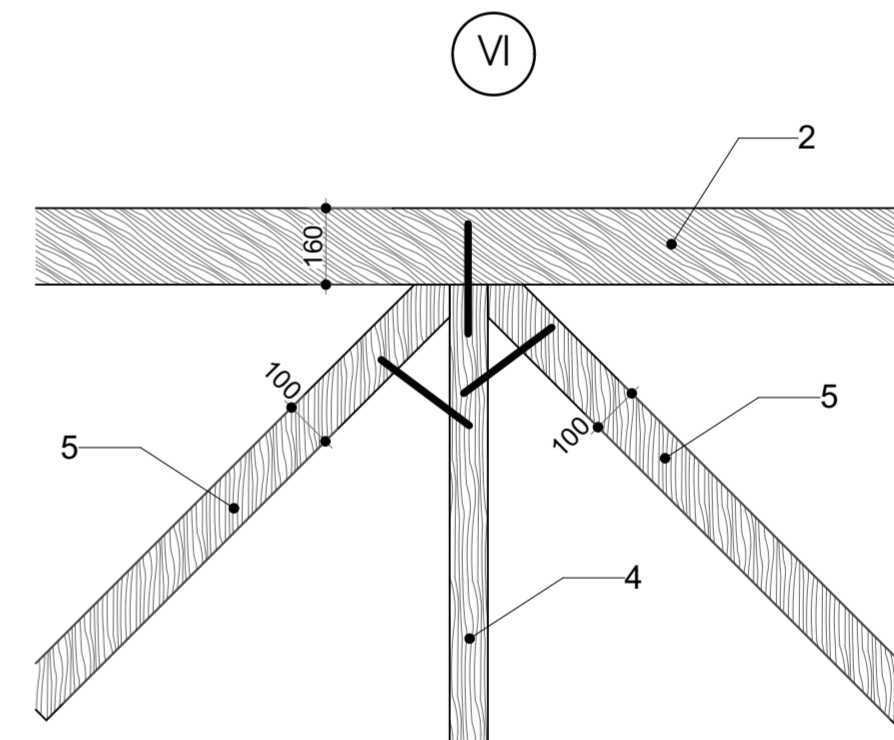
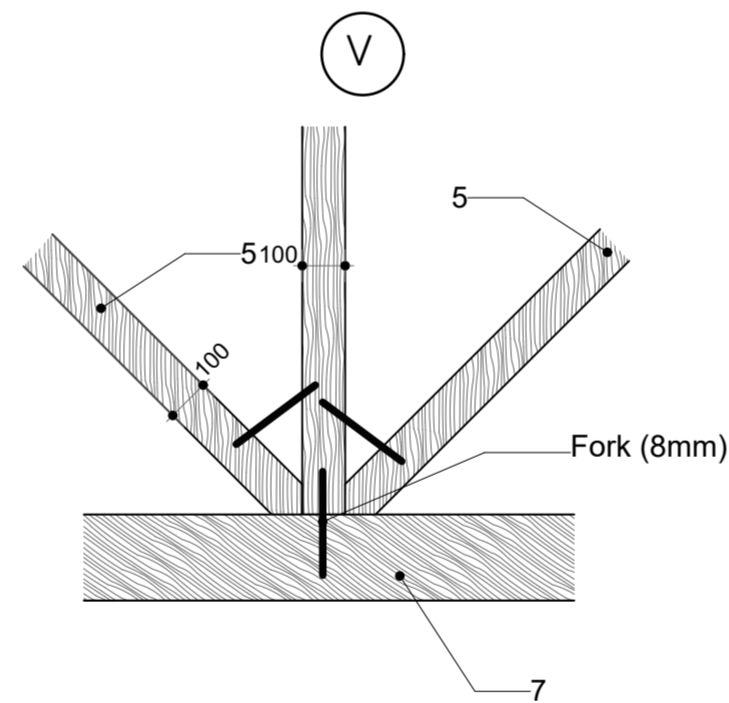
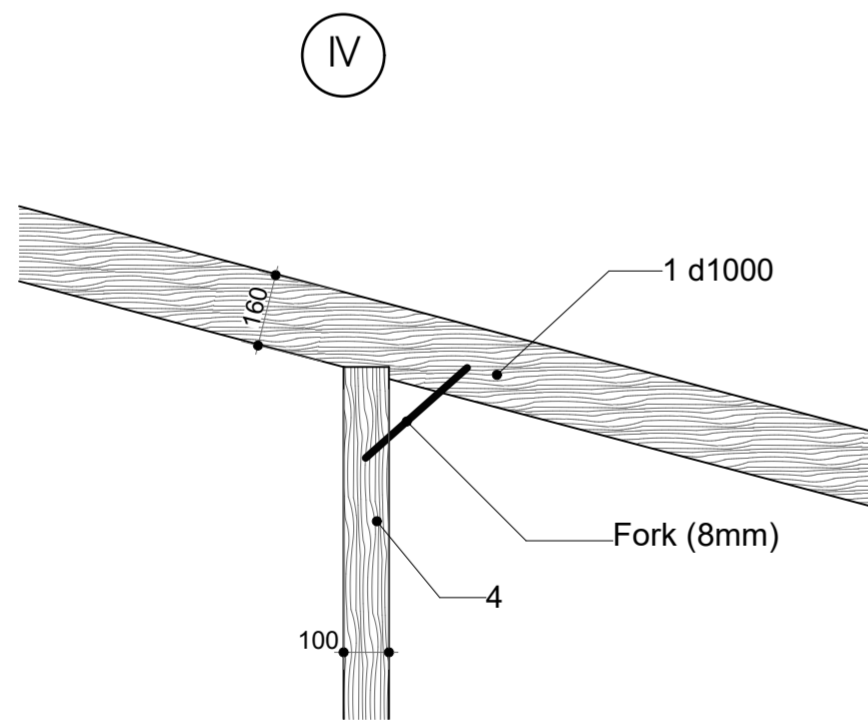
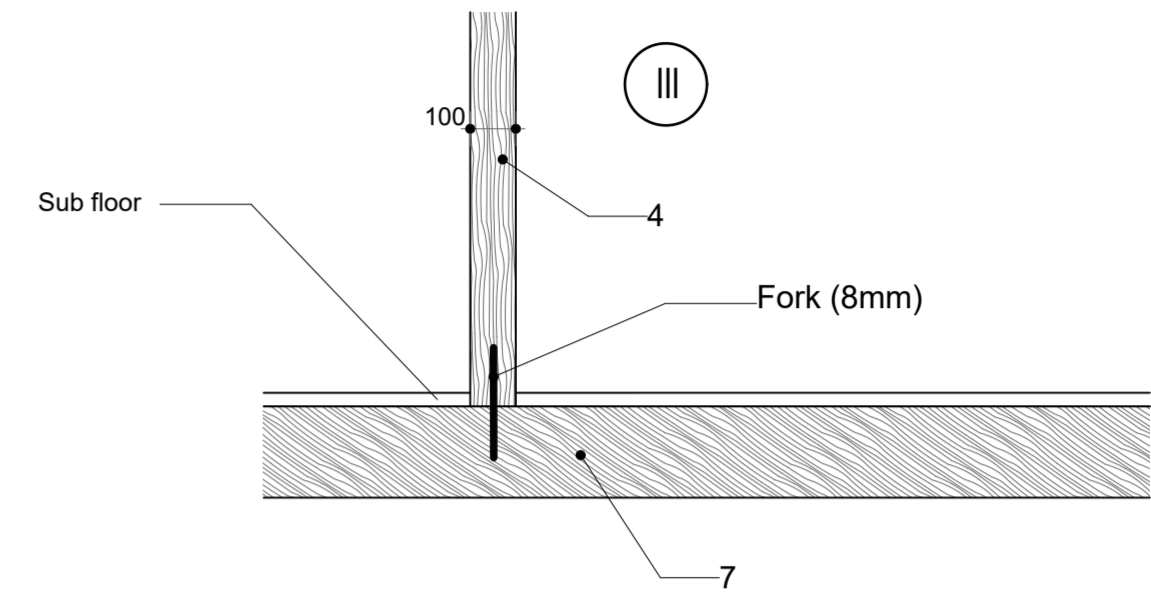
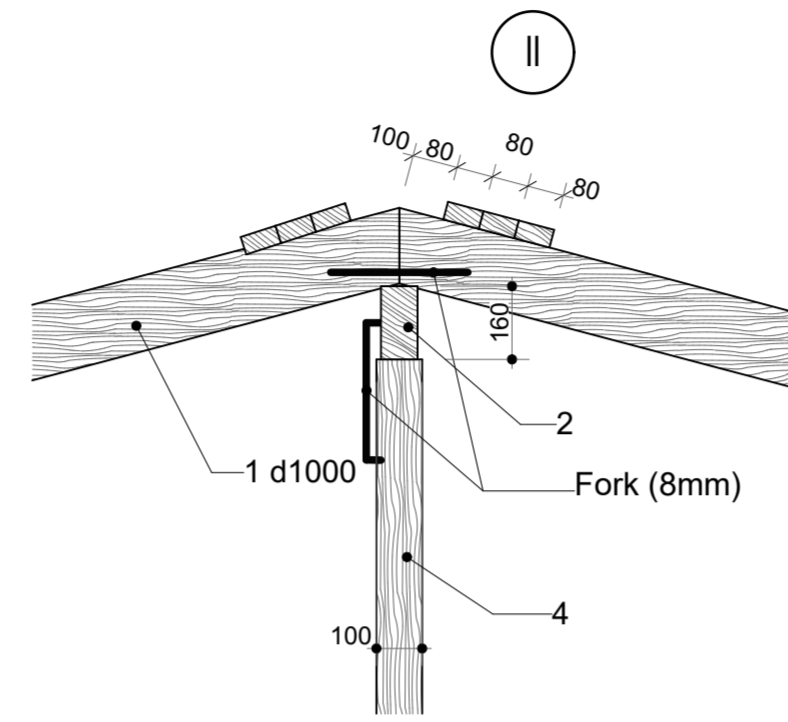
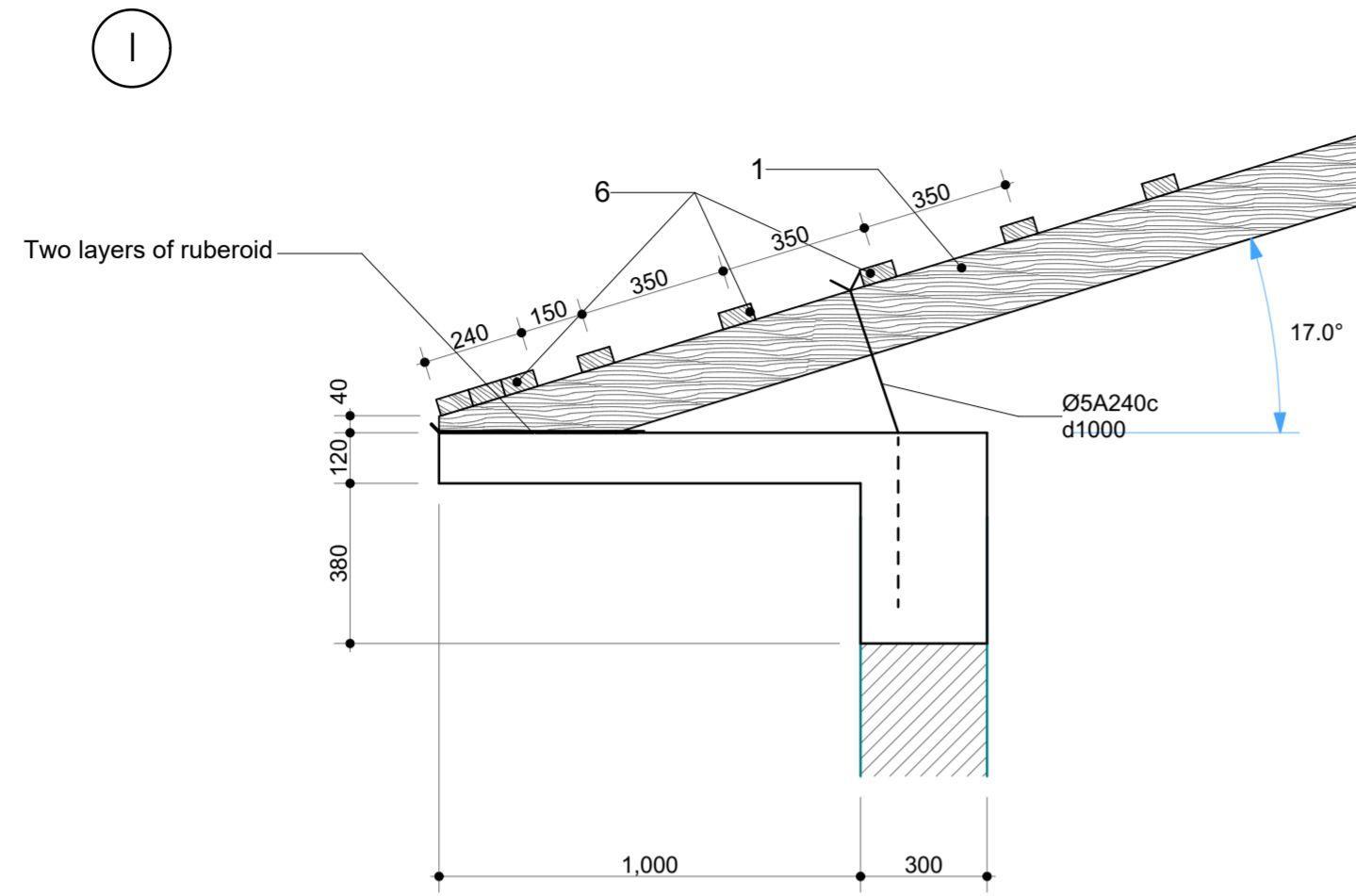
Roof and ceiling wooden structures are made from second-class dried coniferous wood material.

Section A-A



Section B-B





Note:
It is necessary to treat wooden structures with both fire-retardant solutions and antiseptics.

Architectural Project
Typical Kindergarten
Tskaltubo 9th April street

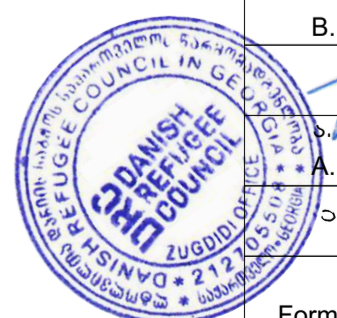
Project address:
Georgia,
Tskaltobo

Stage:
Architectural project

Nodes

ბ. ჯანთარია
B. Qantaria

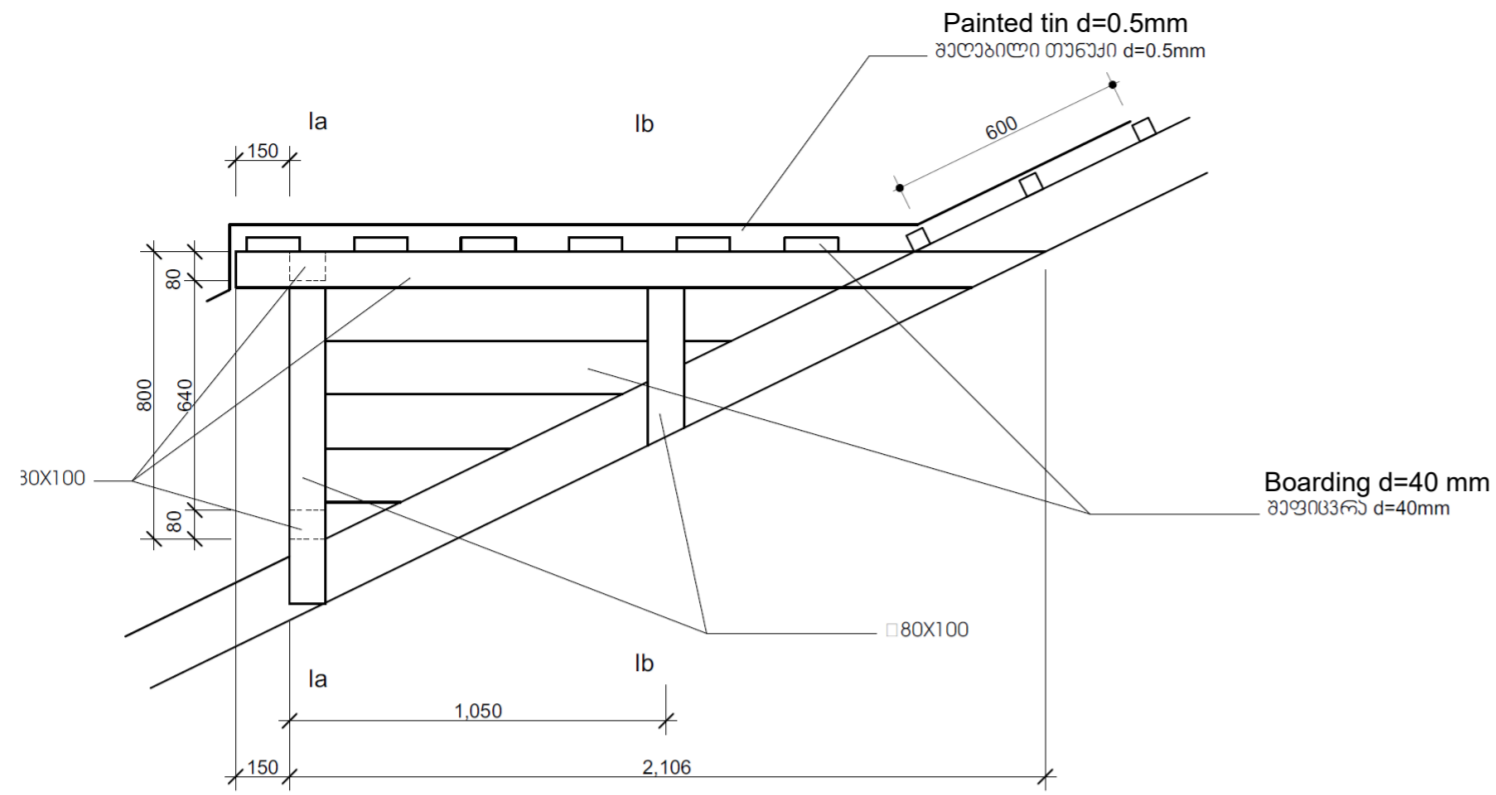
ა. გერგდავა
A. Gergedava



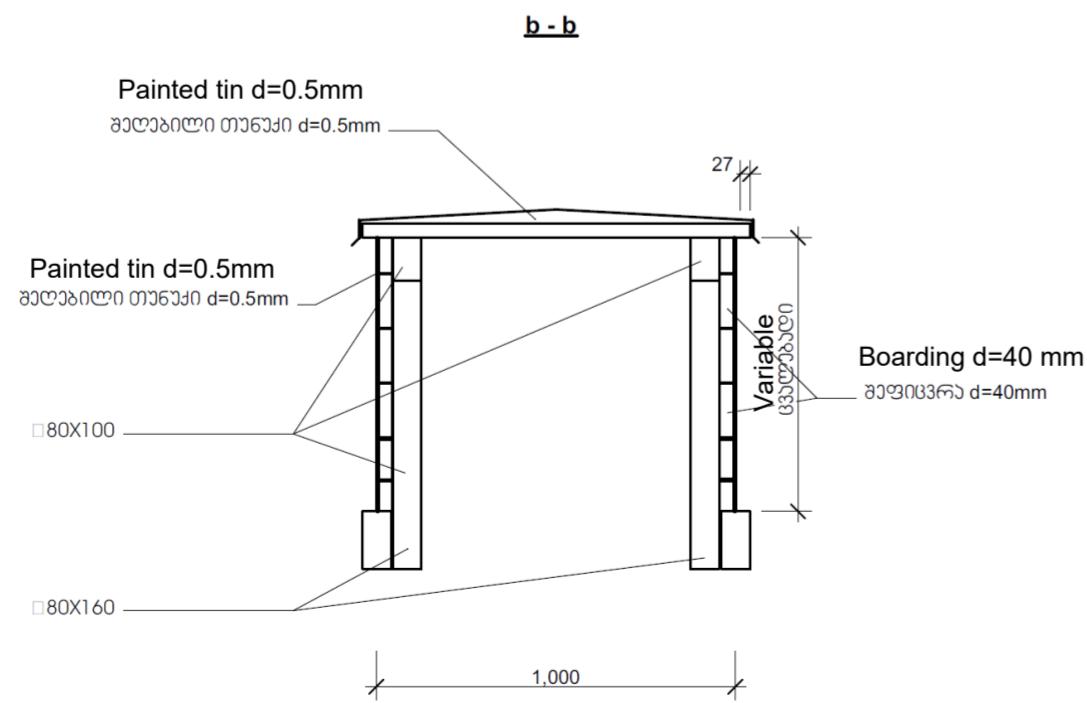
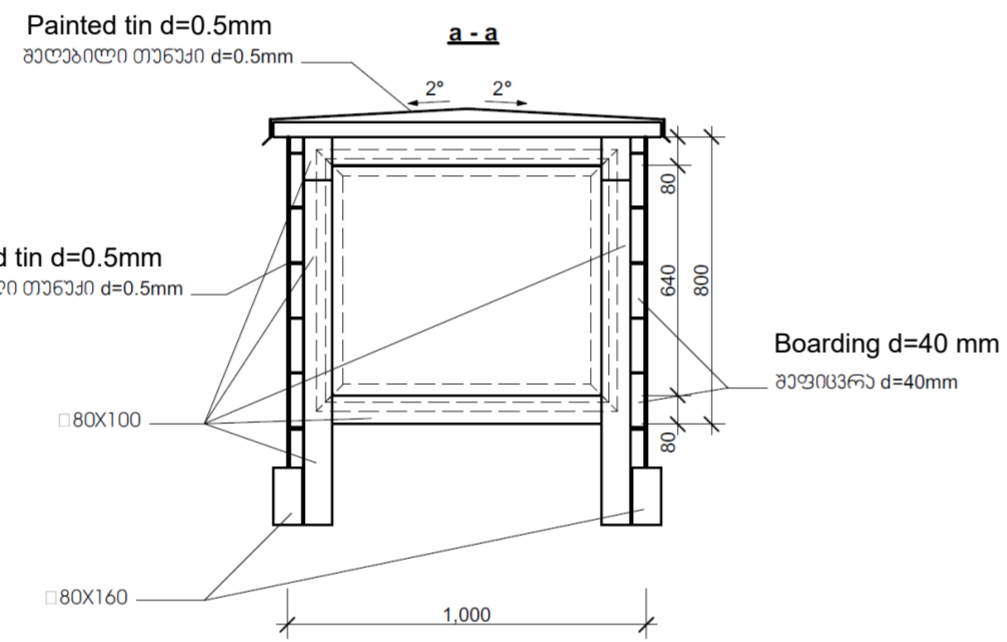
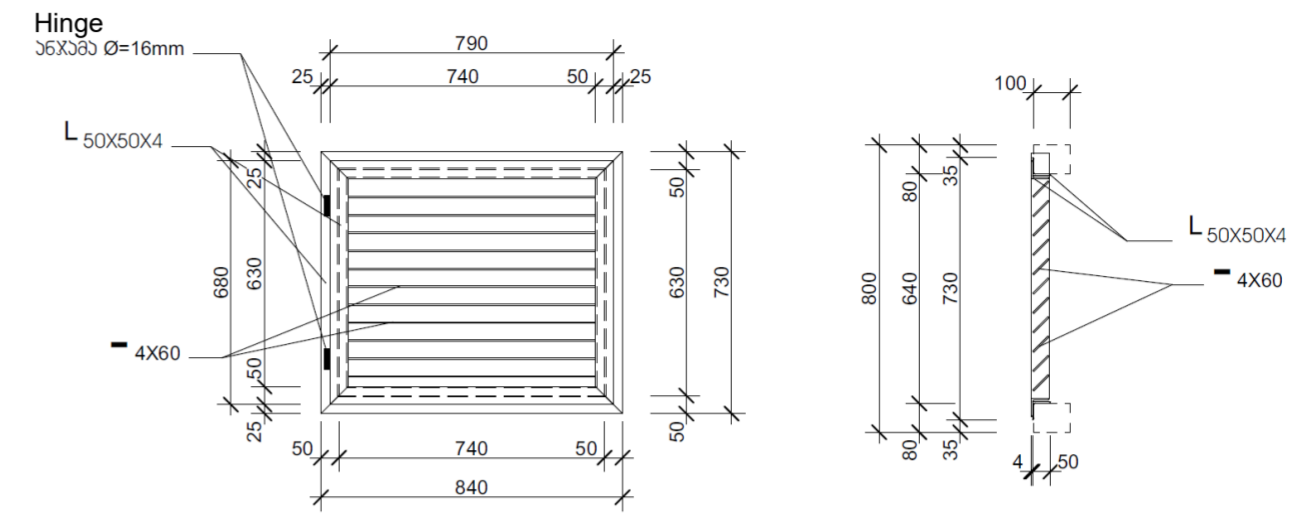
Format A - 2

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Dorm Window
სამეგრესი



Steel window
ფოლადის სარკმელი



Specification of Steel

Section	Length m	Qty	Total length m	weight kg
L50X50X4	0.73	2	1.46	4.23
L50X50X4	0.84	2	1.68	4.87
L50X50X4	0.68	2	1.36	3.94
L50X50X4	0.79	2	1.58	4.58
60X4	0.69	11	7.59	14.27
				31.90

Architectural Project
Typical Kindergarten
Tskaltubo
9th April street

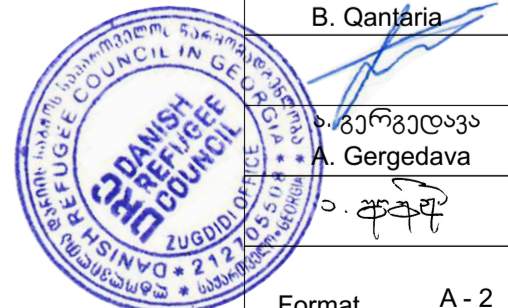
Project address:
Georgia,
Tskaltubo

Stage:
Architectural project

Dorm window

ბ. ქანთარია
B. Qantaria

ა. გერგდავა
A. Gergedava



Format A - 2