Danish Refugee Council

Iaghluja, Marneuli, Georgia

Working Project

Individual Residential House

(8X8)

Structural, Plumbing and Electrical Parts

2019

CONTENT

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential House

(8X8m)

-

Project address:

Georgia,
Marneuli

-

Stage:
Architectural project

CONTENT

Format A - 3

Page	Pages
2	24

Structural Design

The working project of the structural design is developed based on the project documentation in accordance with the architectural drawings.

Site name: Residential District in Marneuli town
Site Address: Iaghluja, Marneuli
According to seismic zones - 8 scores
Seismicity of the area - 8 scores.
The design wind load is 30 kgf / m2
The design snow load is 50 kgf / m2

Statistically, the average temperature of the cold month in the winter months is -0.1 degrees Celsius, and the average temperature in summer is 30,3 degrees.

Results of Engineering-Geological Survey:

Dangerous geological processes are not observed in the specified area and they are not expected in the future, it is in satisfactory engineering-geological conditions;

The cover of the second layer is obtained as a base of the foundation, namely the brown clay, semi-dense, with a rarely taped pebble.

Parameters of the Ground::

Conditional calculation impedance Ro = 2.2 kgf/cm2; p = 1.90 g / cm3; E = 320 kgf / cm 2

Internal friction Coefficient φ ° = 20; Specific traction c = 0.20 kgf / cm2.

The walls of the ground do not need artificial reinforcement to arrange the trenches of the foundation, it will be arranged by an artificial slope.

After removal of the foundation trench, it is necessary to conduct additional assessment of the geological situation in order to ensure the reaching of the calculation impedance of ground on the foundation basis 2.2 kgf / cm2 (220 kPa).

Foundations:

The foundations are monolith strip footing, with a base of 50 cm width; while the width of the wall is 30 cm. Deepening of the foundation is 110 cm. As well as it will be the central, padded, with steps, with the same deepening. After concreting of the foundation, one layer of hydro-insulating material should be placed on the surfaces of the soil.

Damp proof material:

The walls are reinforced (so called sandwich structure) three-layer masonry, specifically, the external; layer of perforated ceramic brick, middle layer of thermal insulation XPS tiles and internal layer of small wall block.

The bearing structure of the building is the framed structure of reinforced concrete slabs consisting of walls with reinforced inserts (cores, belts) monolith reinforced concrete slab and a reinforced concrete belt binding at the ceiling level, in the work of which the reinforced walls are included.

The reinforced cores are concreted in parallel to the construction of reinforced bearing walls.

The partitions are made from the reinforced small wall pumice blocks. The construction block quality must be no less than M-100 (100 kgf / cm2), according to sand-cement mortar M-100 (100kgf / cm2).

The building block quality should be at least M-200, and at least F-75 of frost resistance grade.

Floor decks:

The bearing structure of the house floor decks is a monolith reinforced concrete girderless floor construction of 150 mm thickness.

Roof:

The roof will be built with painted metal slabs on a wooden structure.

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential house (8X8m)

Project address:
Georgia,
Marneuli

-

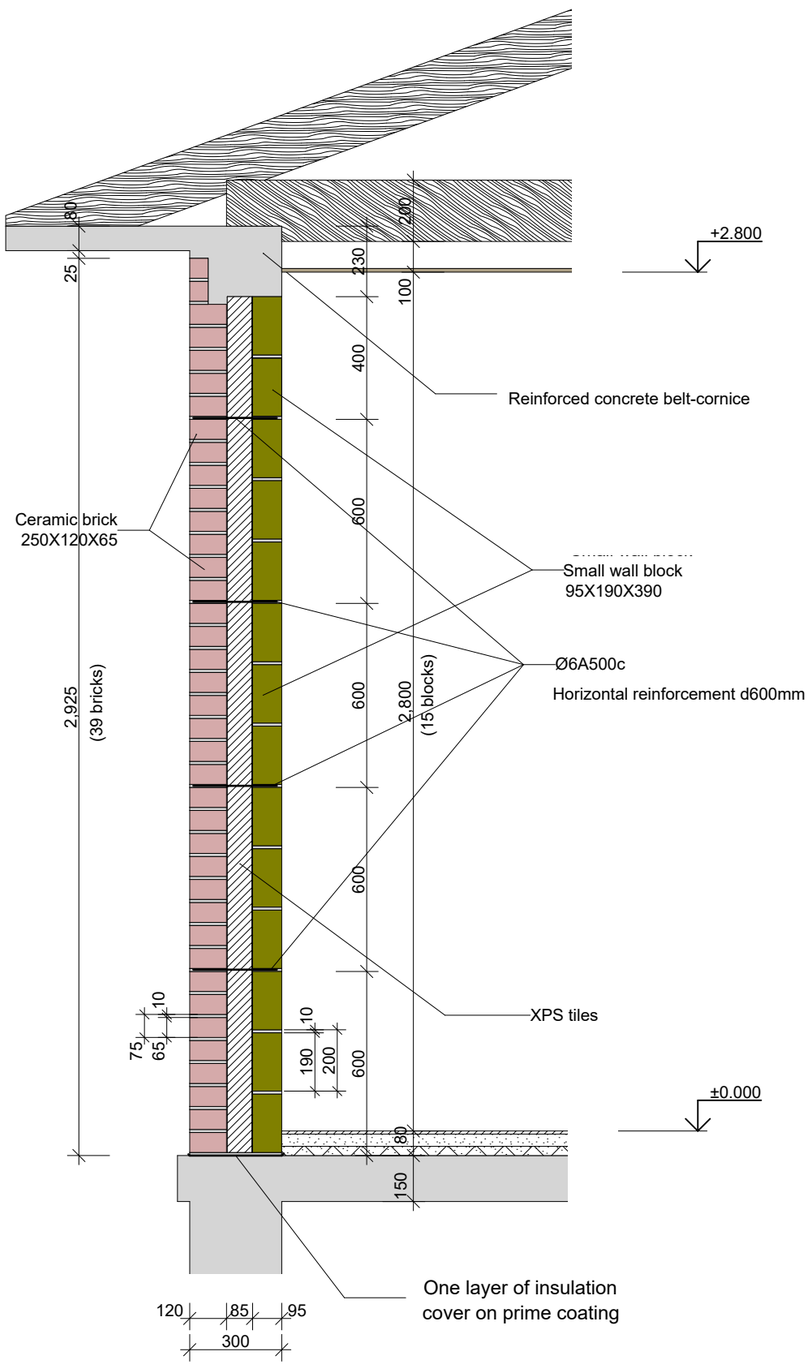
Stage:
Architectural project

Explanatory Letter

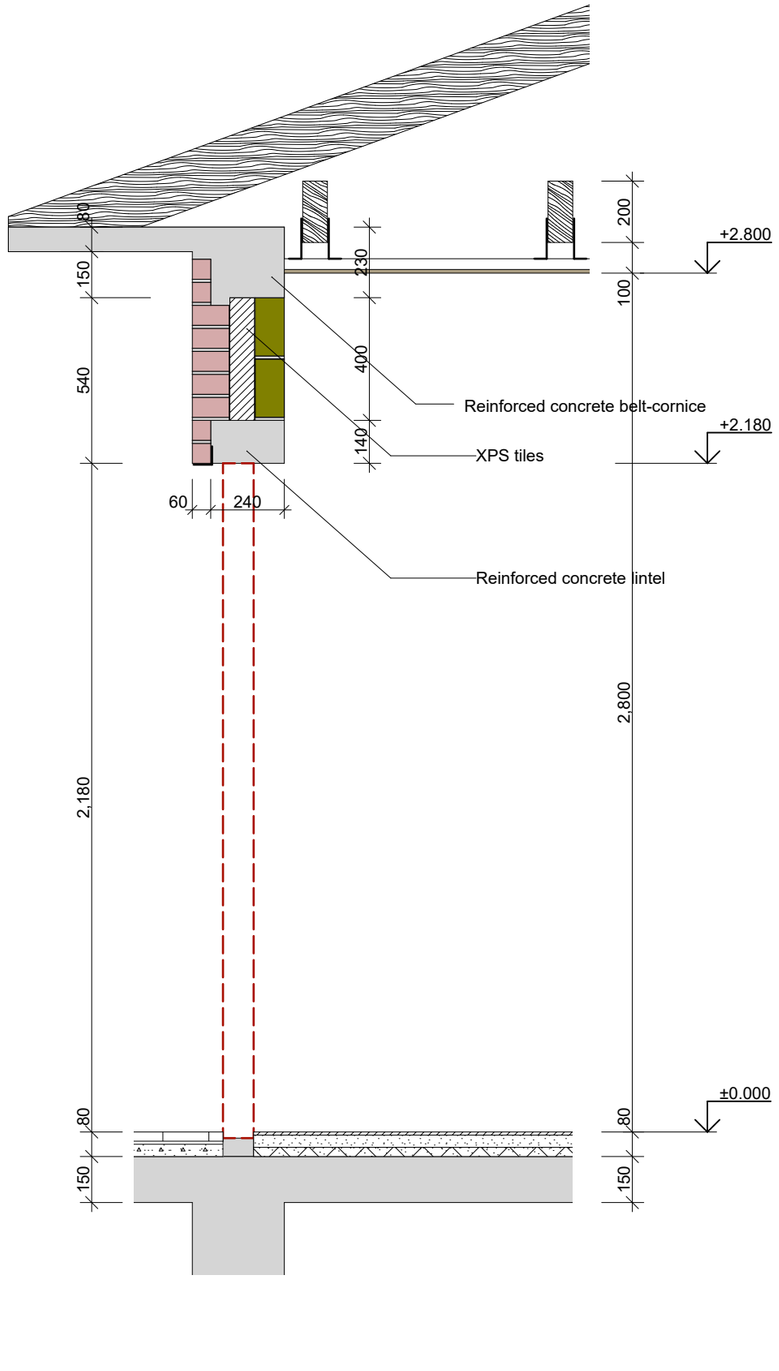
Format A - 3

Page	Pages
3	24

Section on the wall



Section on the Wall at the door Aperture



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:

Georgia,
Marneuli

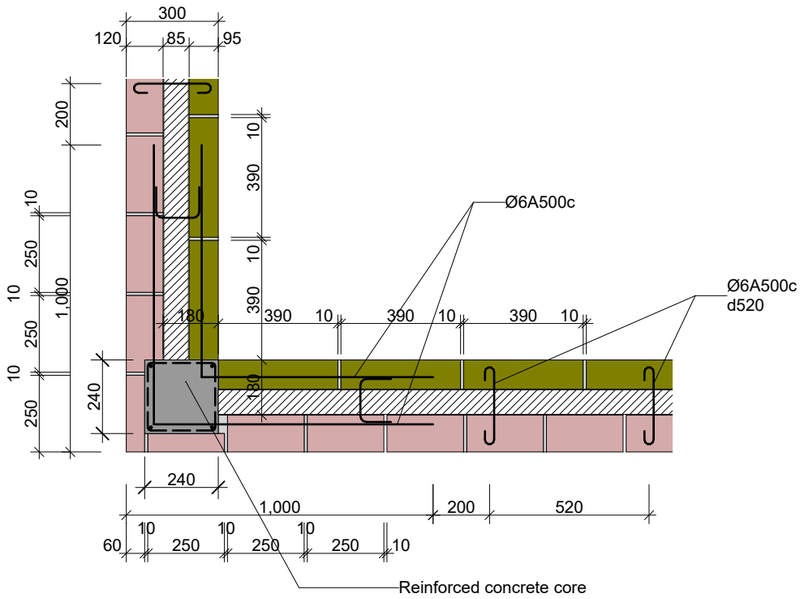
-

Stage:
Architectural project

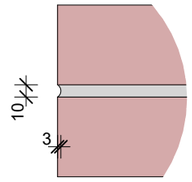
Wal Planl

Format	A - 3
Page	Pages
4	24

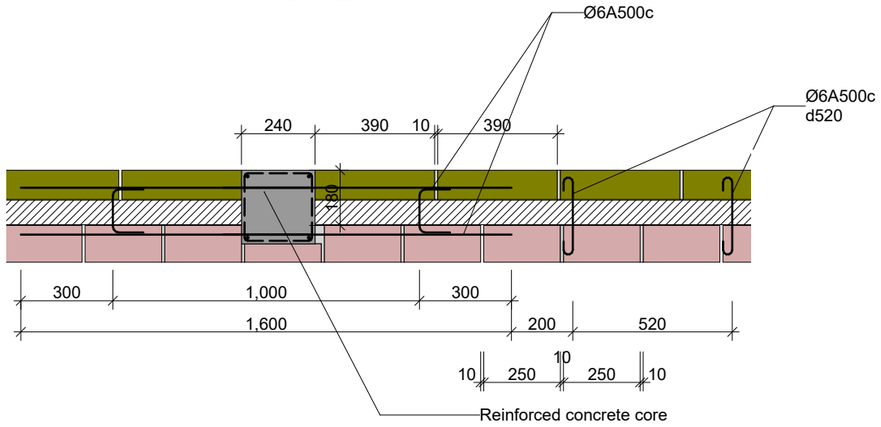
Wall Plan



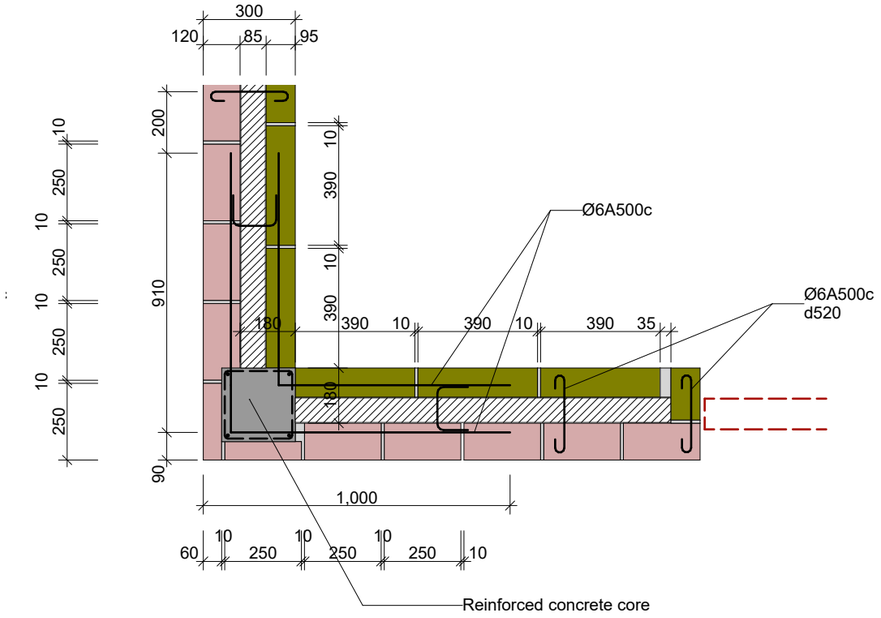
Filling the bricks with mortar in the horizontal and vertical plane

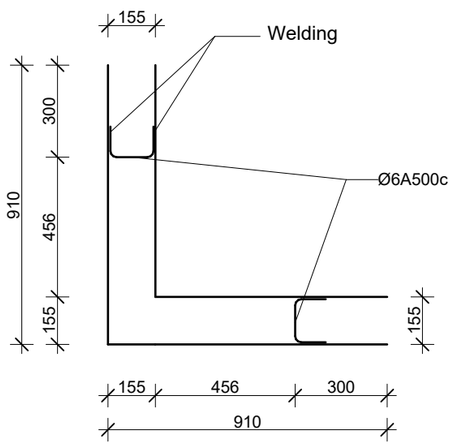


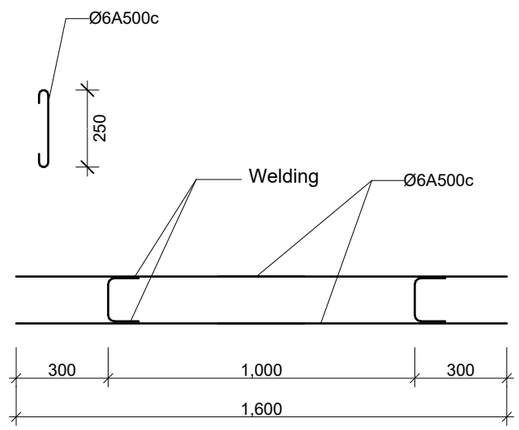
Wall Plan

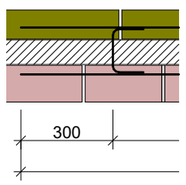


Wall Plan Near the Window and Door Aperturres









DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential House

(8X8m)

Project address:

Georgia,
Marneuli

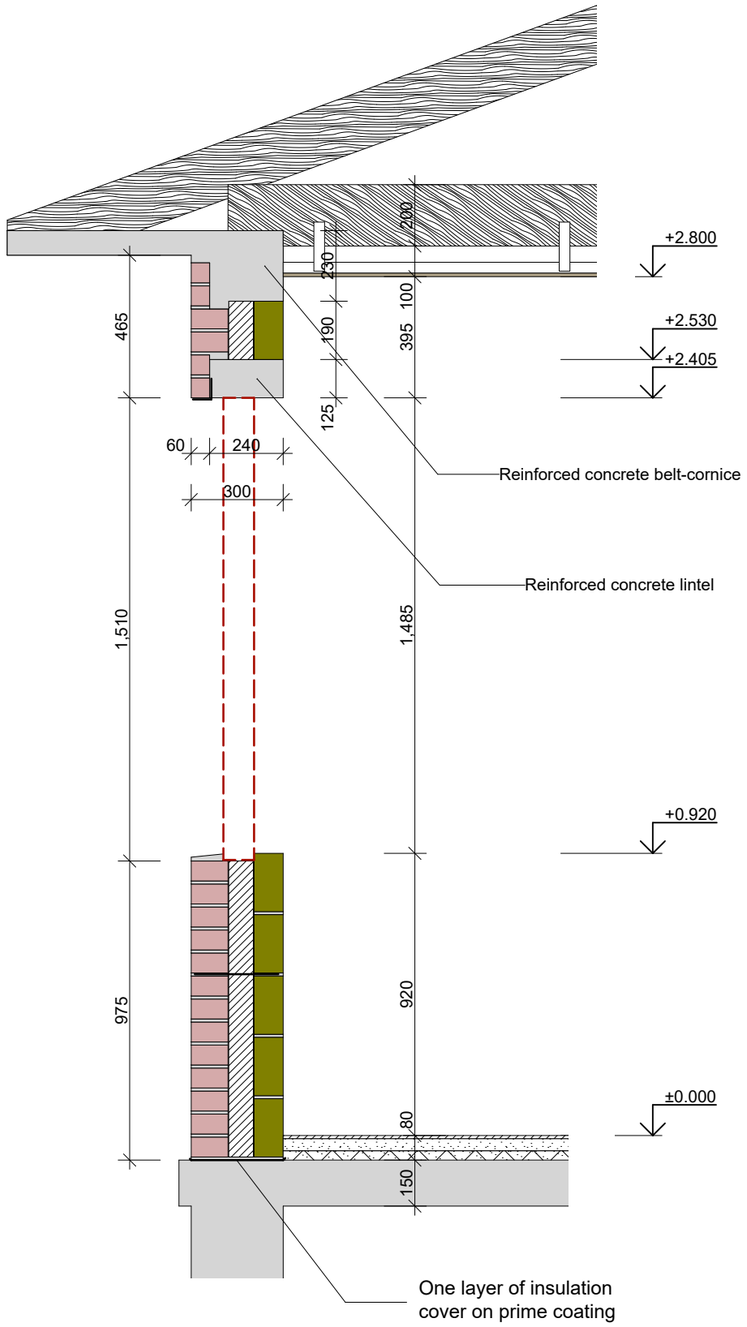
Stage:
Architectural project

Wall plan

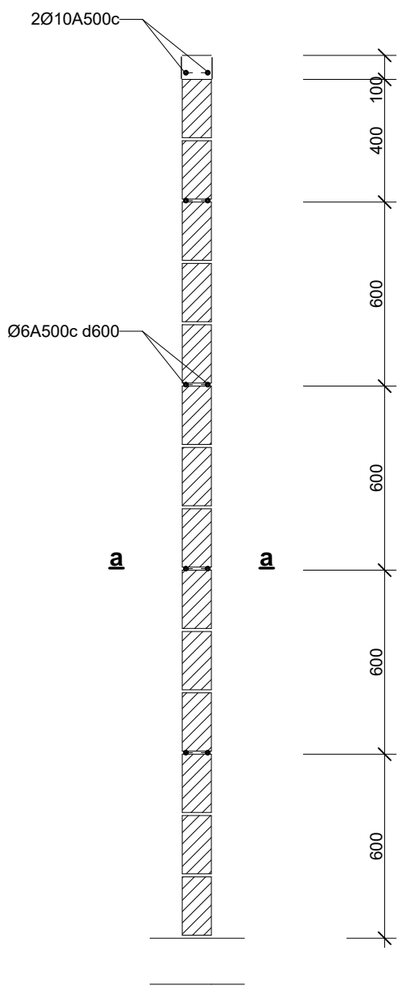
Format A - 3

Page	Pages
5	24

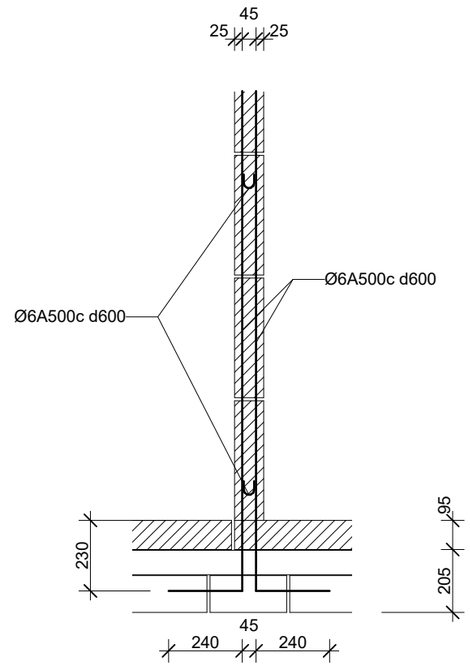
Section on the Wall by the Window Aperture



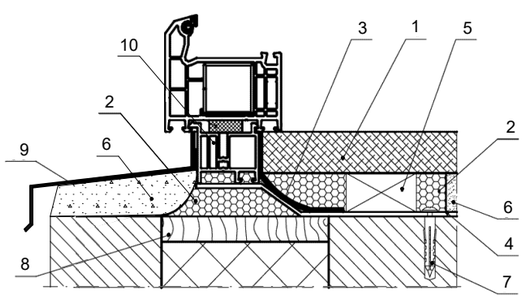
Partition Reinforcement



a - a



Window Node by the Windowsill



1. Windowsill
2. Installation foam
3. Vapour seal tape
4. Flexible Anchor
5. Bearing support
6. Plaster
7. Fixing anchor
8. layer of concrete mortar
9. Eaves gutter
10. Auxiliary profile

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential House

(8X8m)

Project address:

Georgia,
Marneuli

-

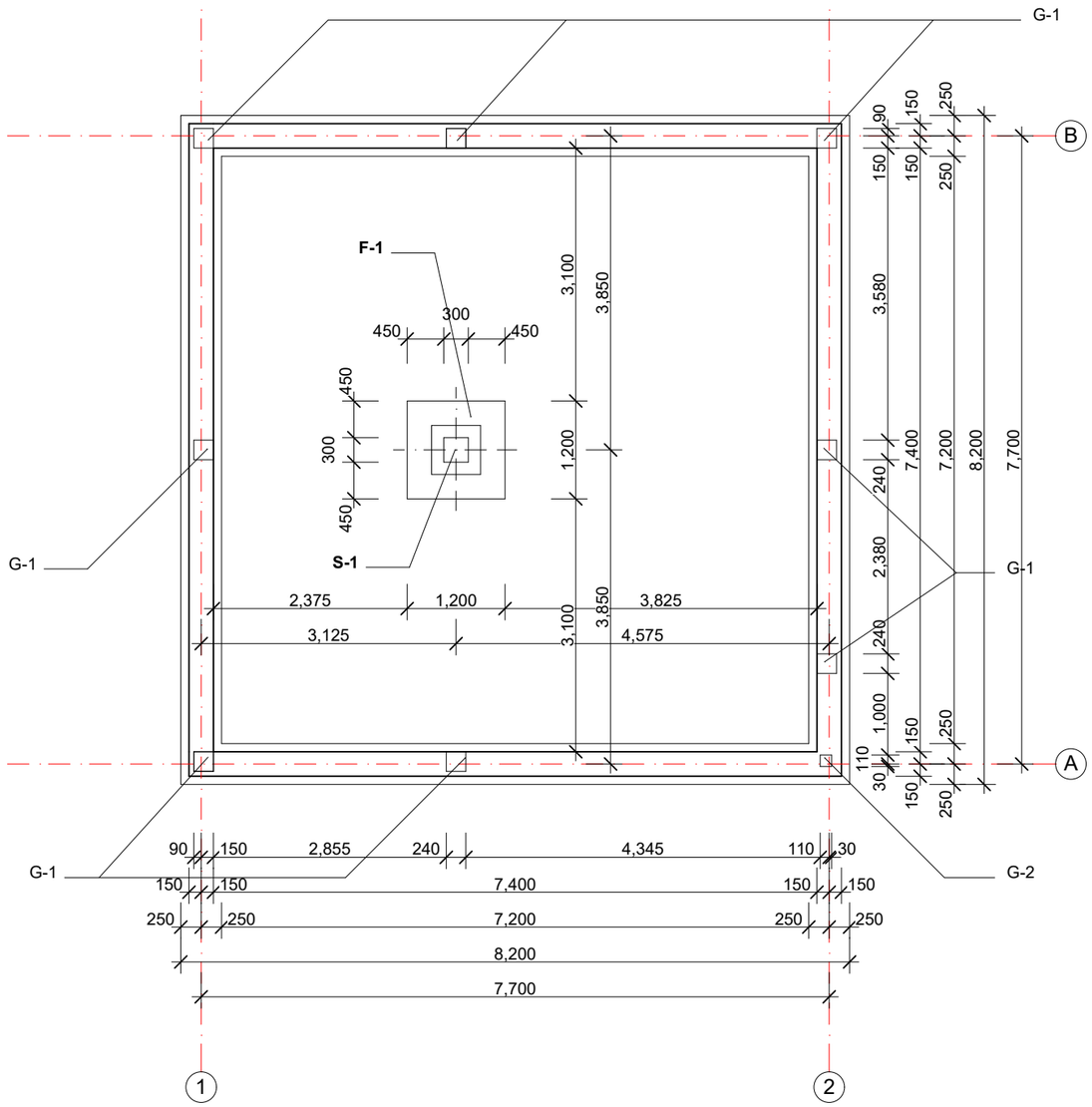
Stage:
Architectural project

Reinforcement of Partition

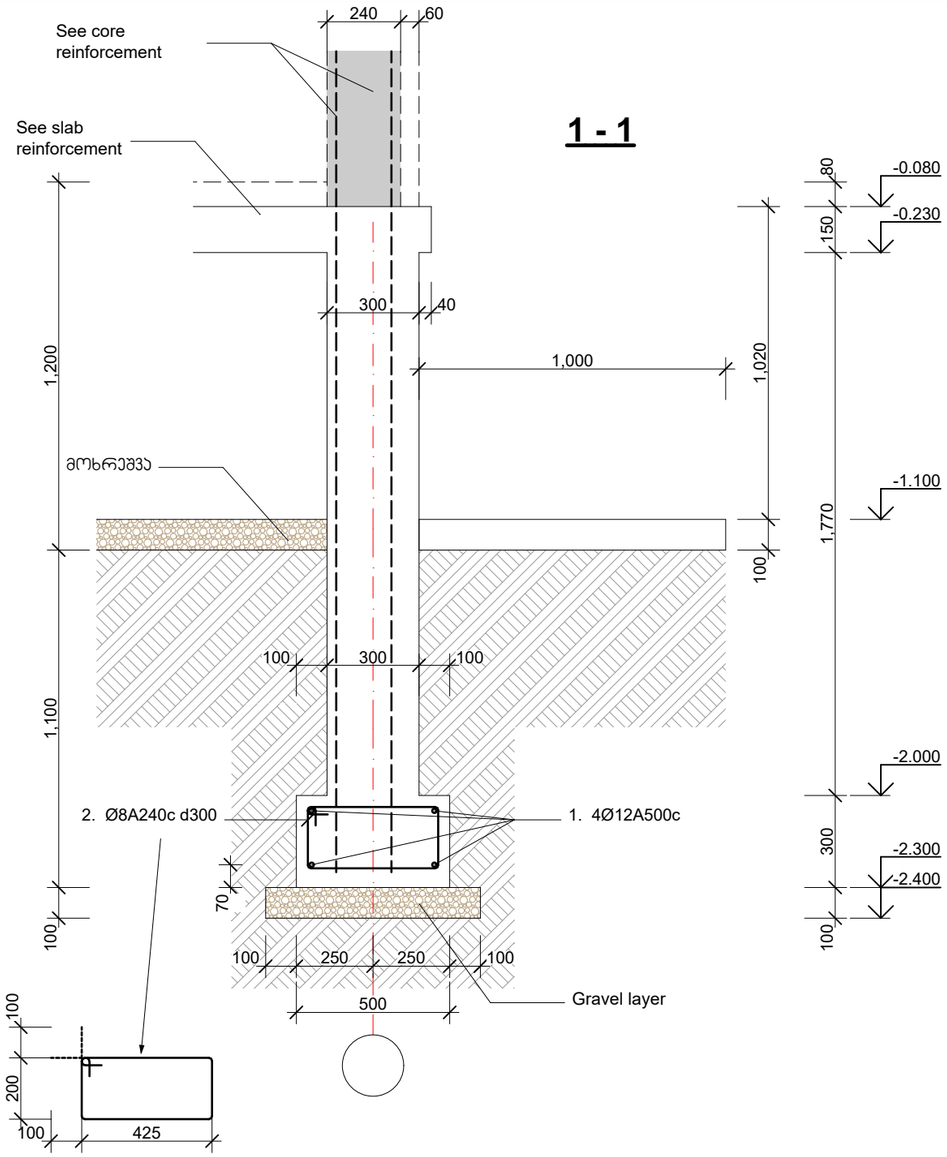
Format A - 3

Page	Pages
6	24

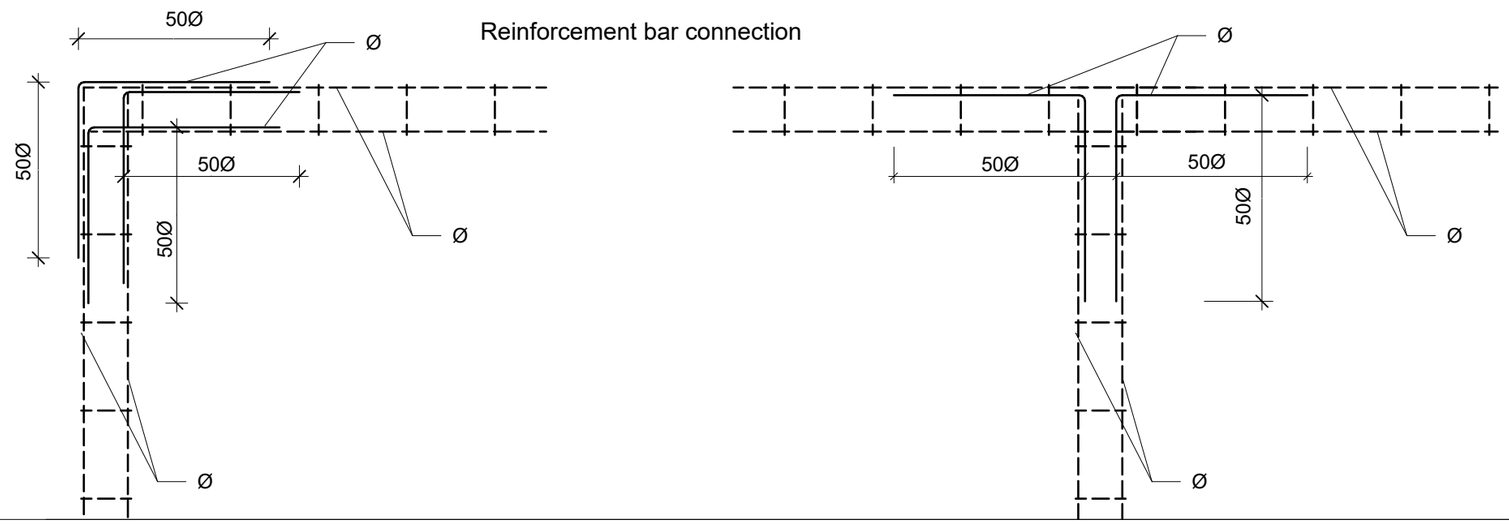
Foundation Plan



1 - 1



Reinforcement bar connection



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:

Georgia,
Marneuli

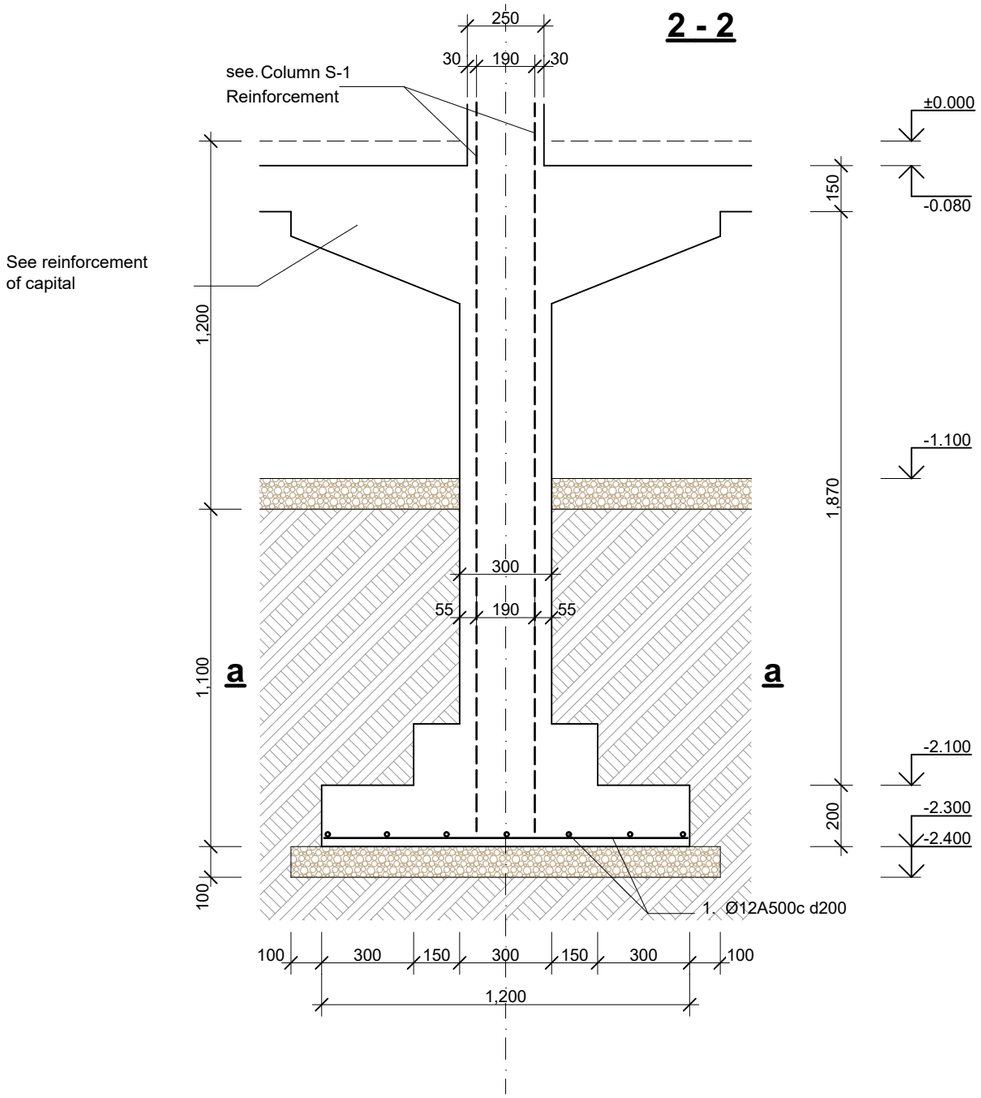
Stage:
Architectural project

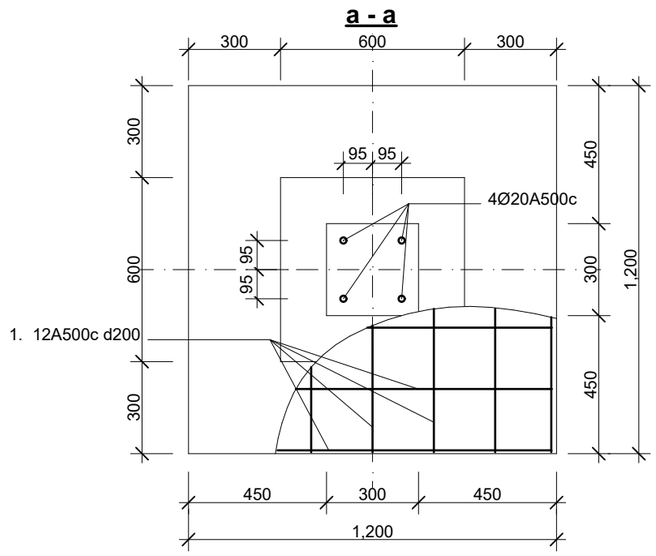
Foundation plan

Format A - 3

Page	Pages
7	24

Pad foundation F-1





DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual
Rsidential house

(8X8m)

Project address:

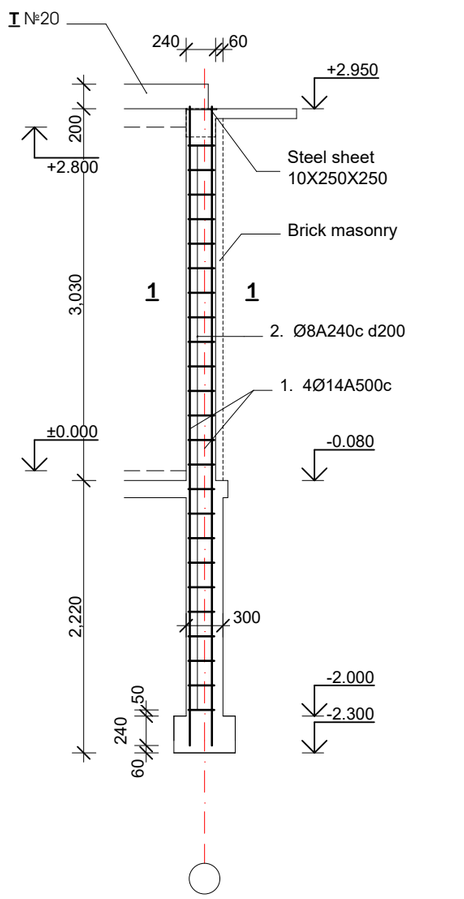
Georgia,
Marneuli

Stage:
Architectural project

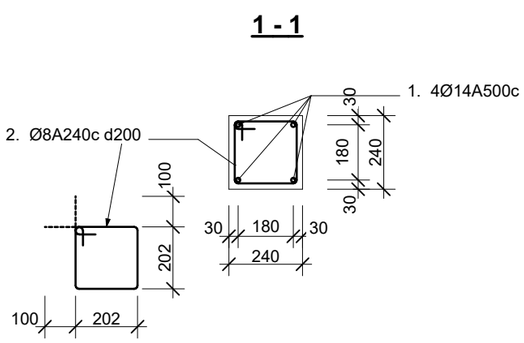
Pad foundation

Format	A - 3
Page	Pages
8	24

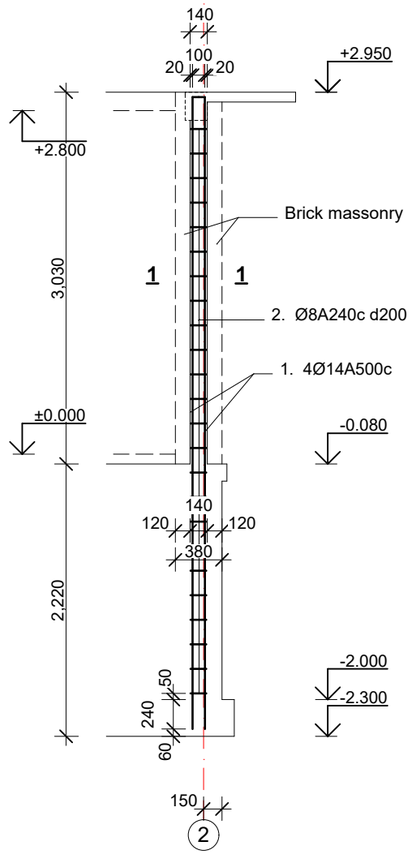
Core G-1



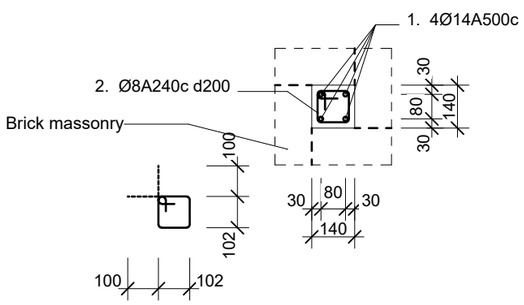
1 - 1



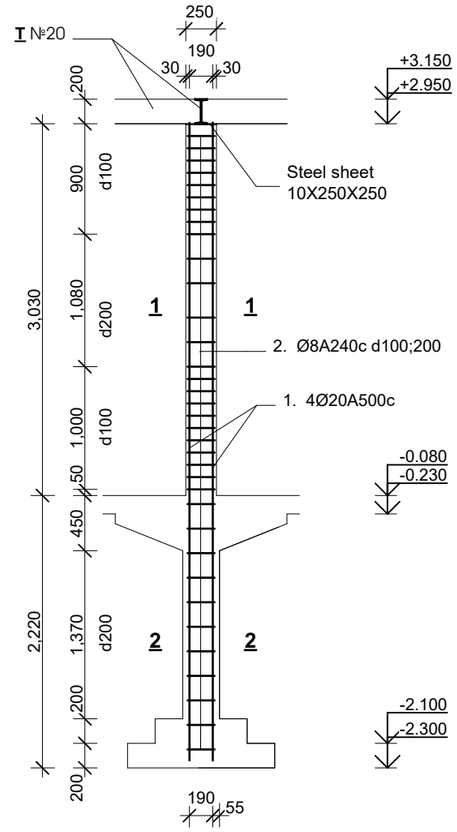
Core G-2



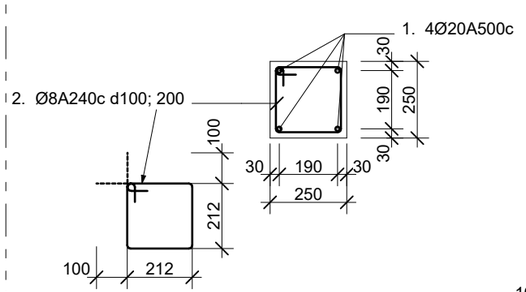
1 - 1



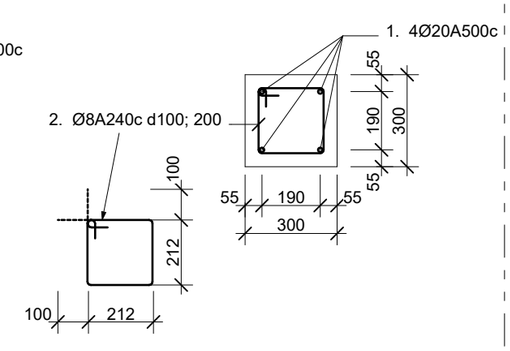
Column S-1



1 - 1



2 - 2



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:
Georgia,
Marneuli

-

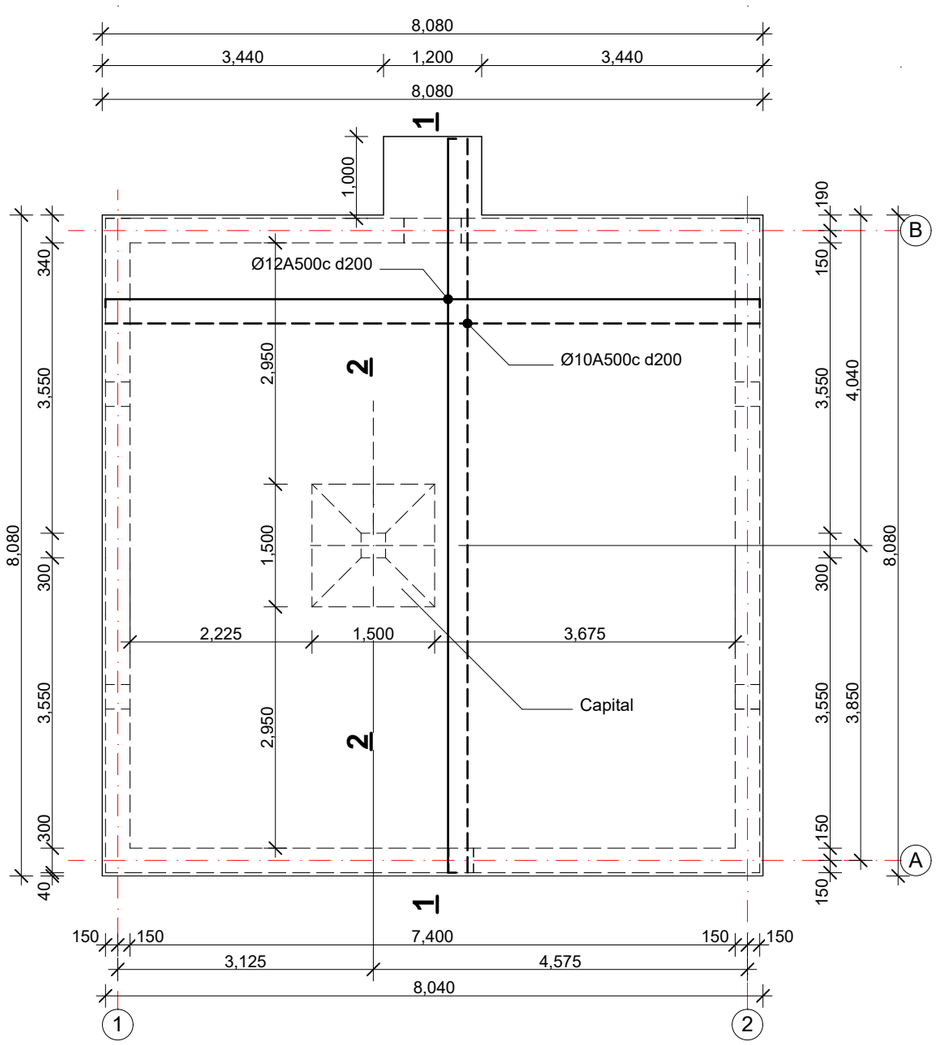
Stage:
Architectural project

Columns

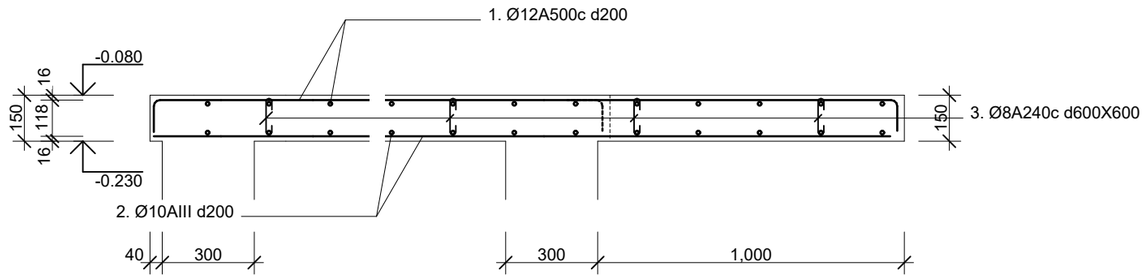
Format A - 3

Page	Pages
9	24

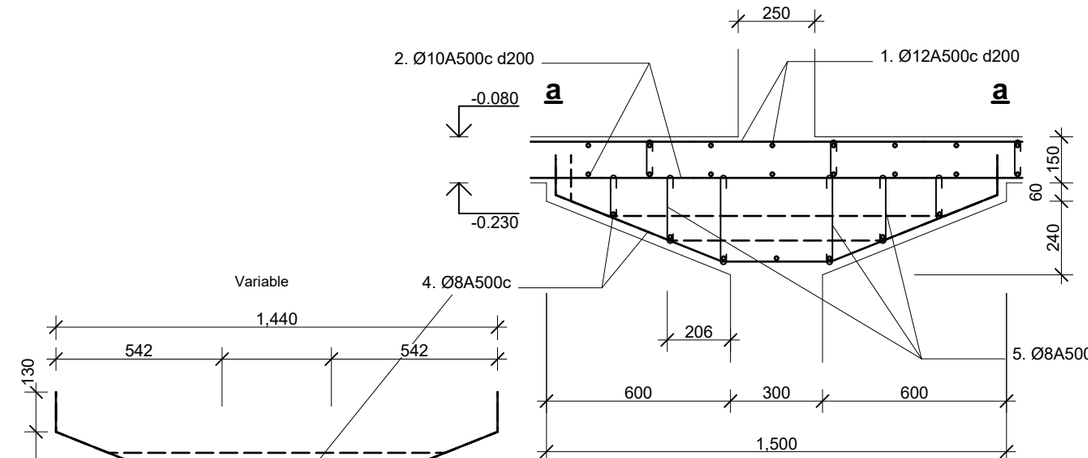
Plan of the reinforced concrete slab



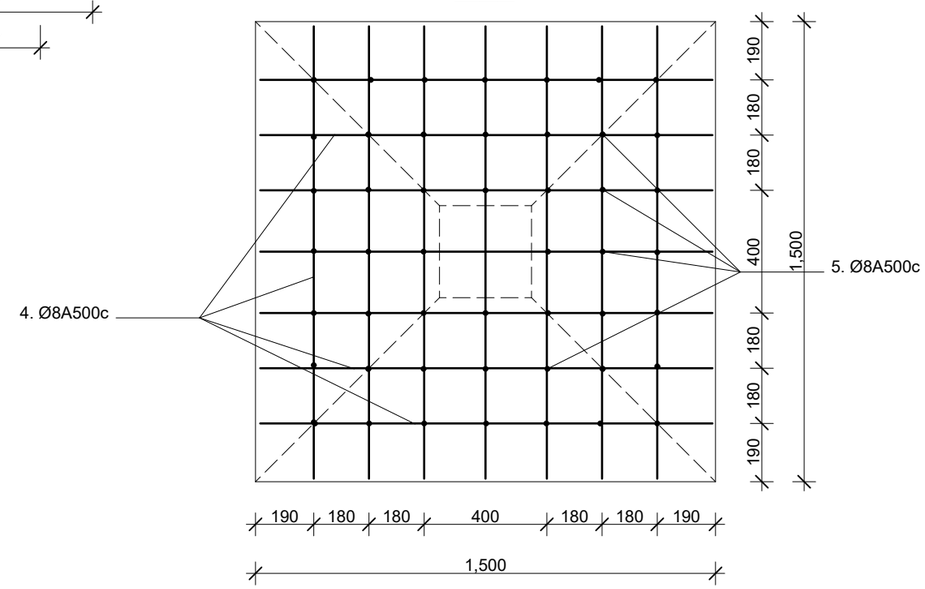
1 - 1



2 - 2



a - a



Danish Refugee Council

Individual house
(8X8m)

Project address:
Georgia,
Marneuli

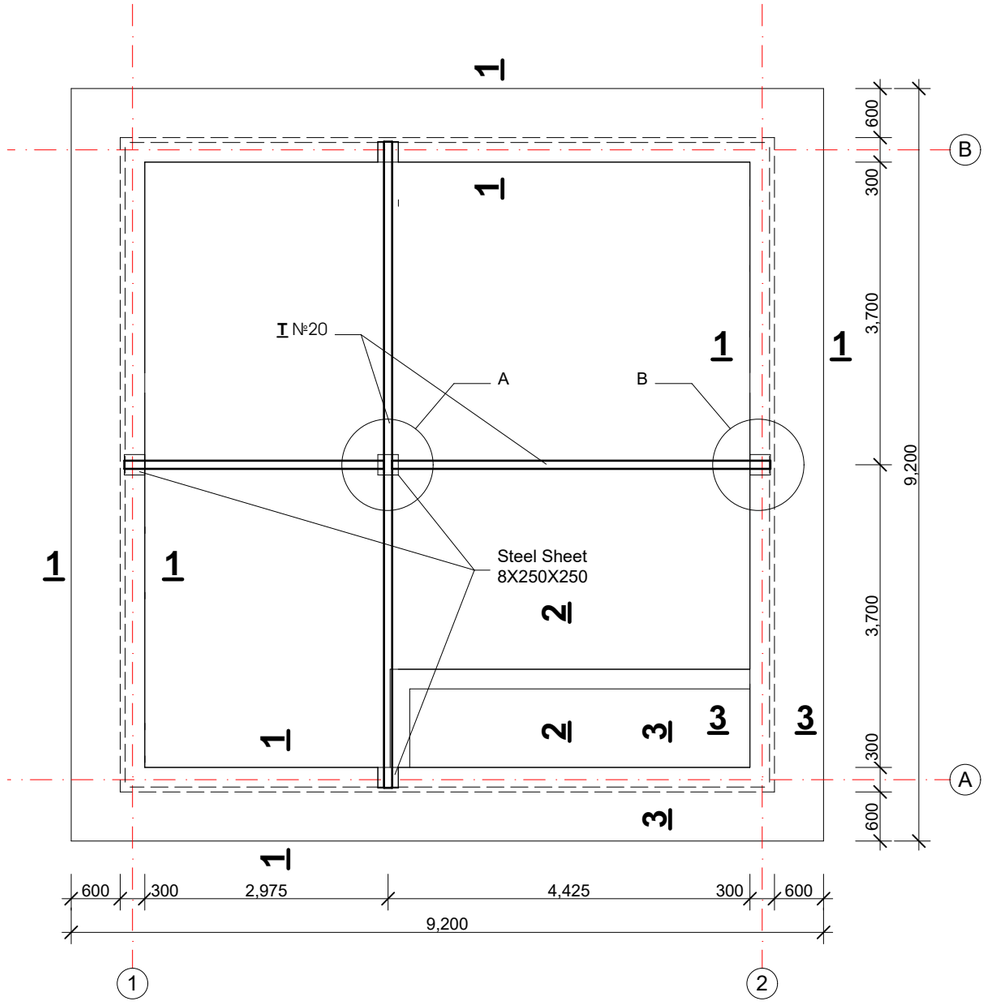
-

Stage:
Architectural project

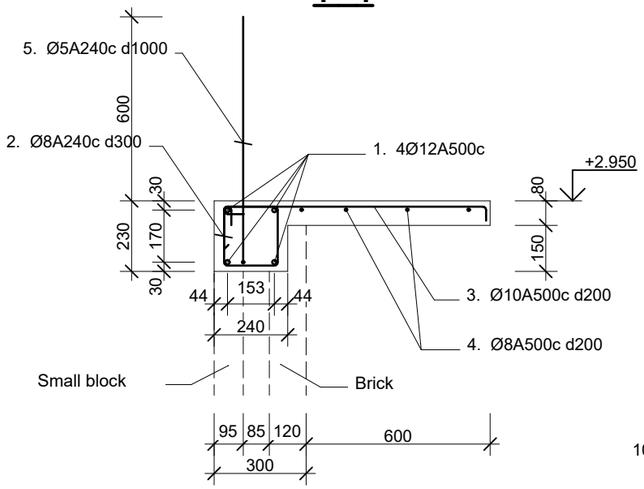
Plan of the reinforced concrete slab

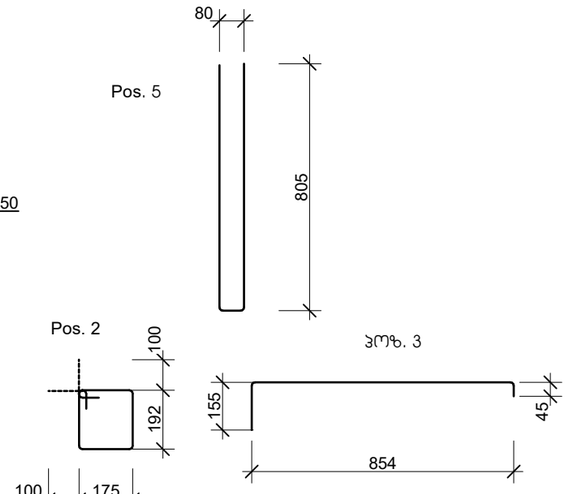
Format	A - 3
Page	Pages
10	24

Plan of Bond Beam and Cornice Structures on the indicator + 3,150

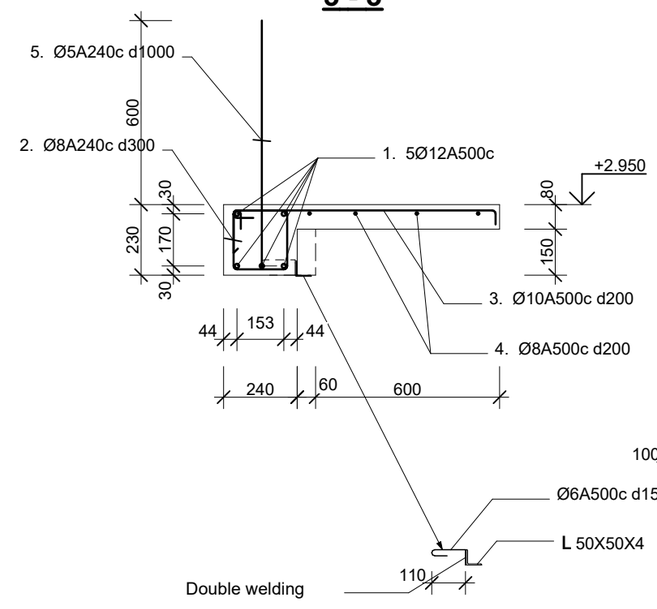


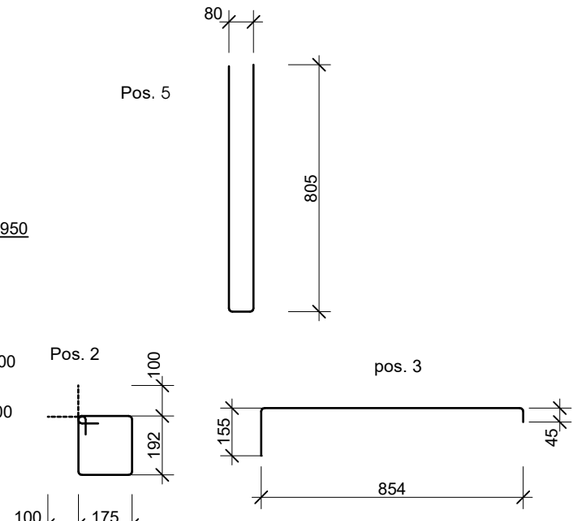
1 - 1



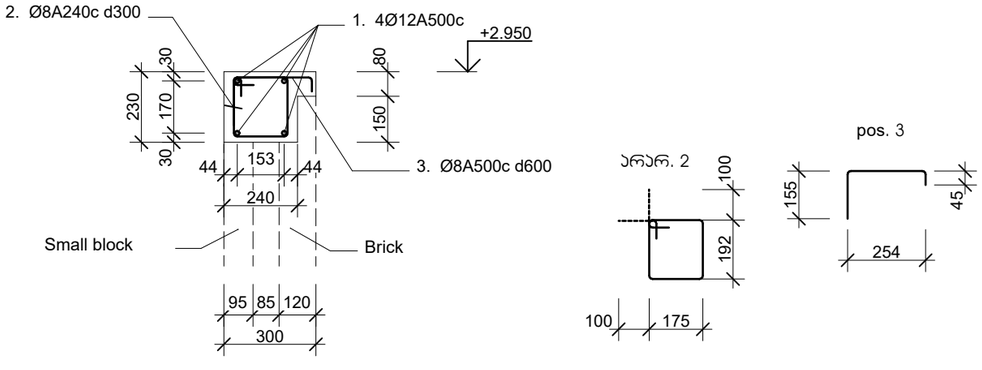


3 - 3





2 - 2



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential House

(8X8m)

Project address:

Georgia,
Marneuli

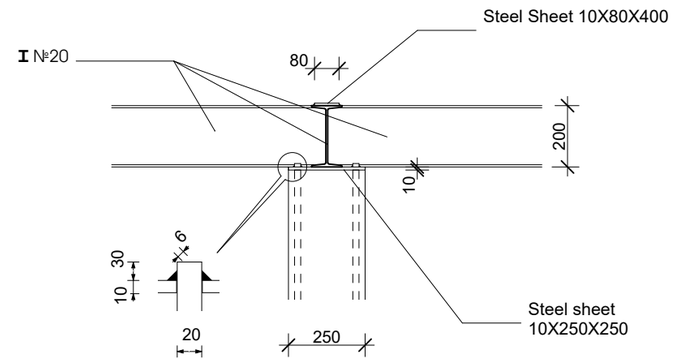
-

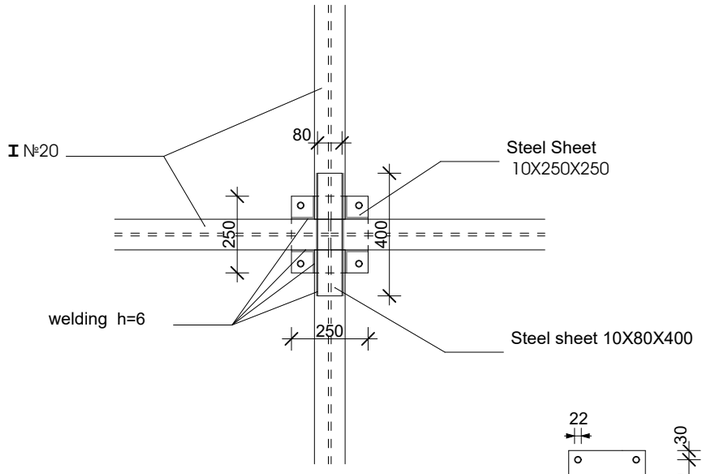
Stage:
Architectural project

Plan of Bond Beam and Cornice Structures on the indicator + 3,150

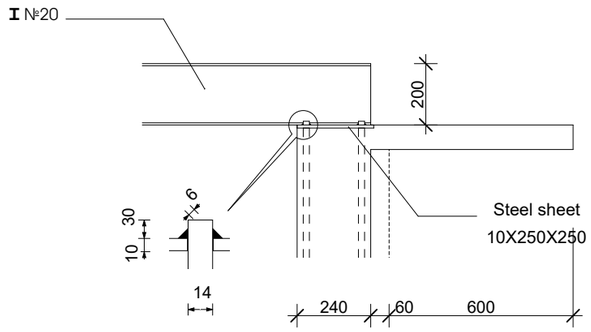
Format	A - 3
Page	Pages
11	24

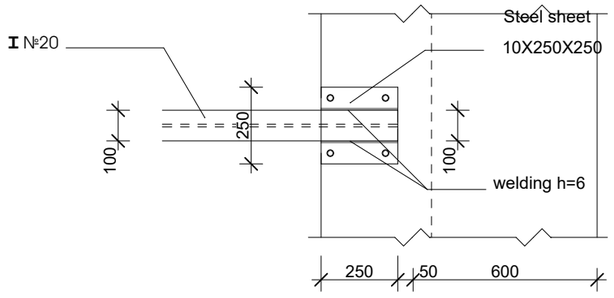
A

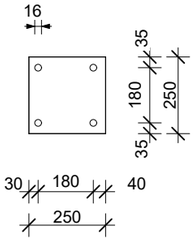




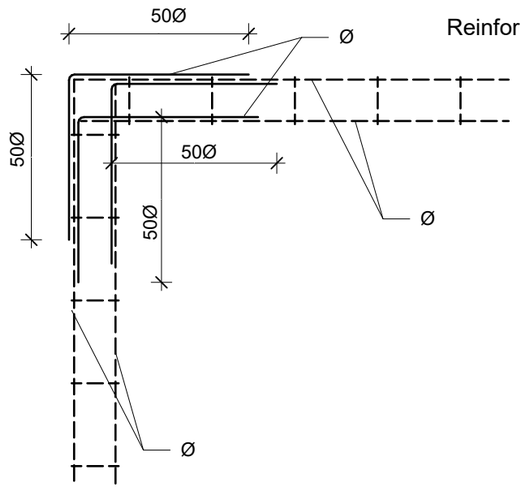
B

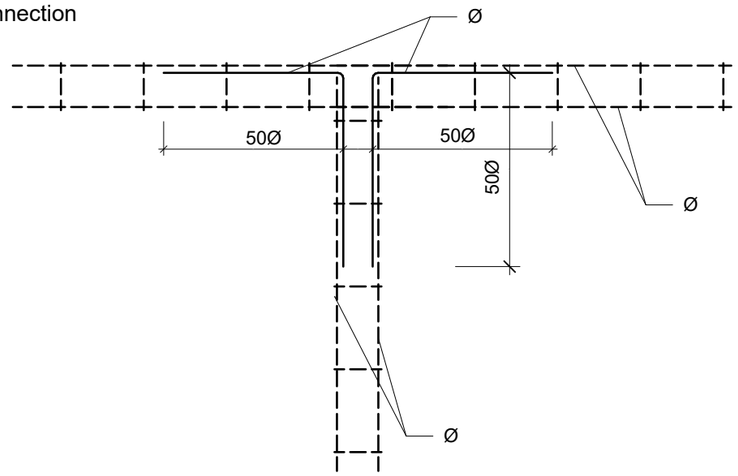






Reinforcement bar connection





DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual
Residential House

(8X8m)

Project address:

Georgia,
Marneuli

-

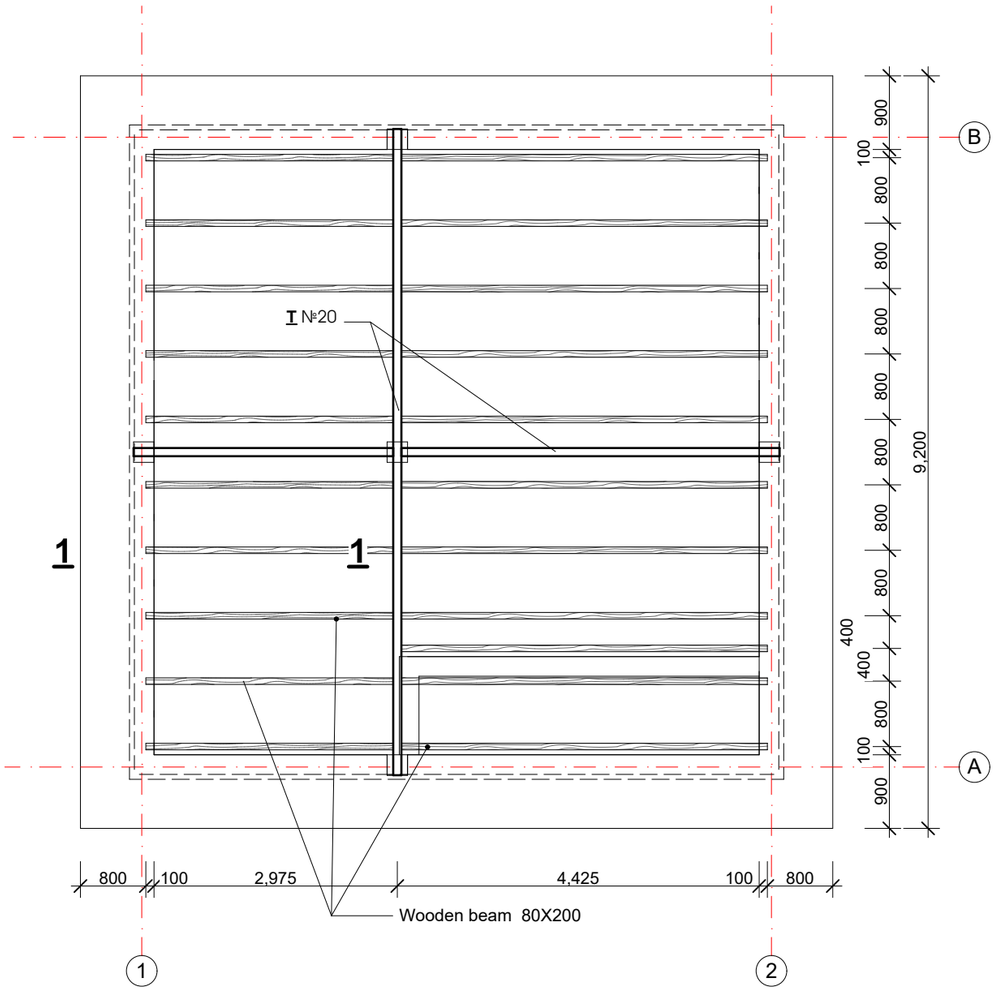
Stage:
Architectural project

Node A; B

Format A - 3

Page	Pages
12	24

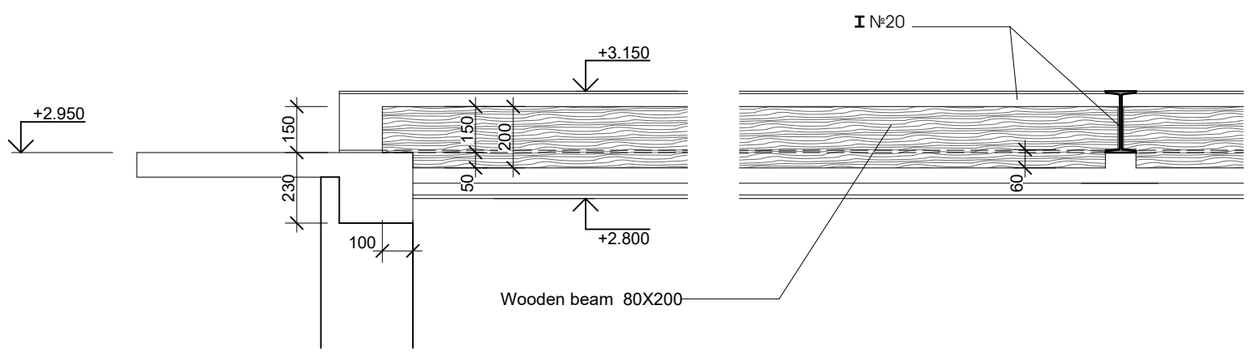
Ceiling structure



სპეციფიკაცია
Specification

ჯოხის კვეთი Beam Section	სიგრძე m Length	რაოდენობა Quantity	სულ სიგრძე m Total length m	მოცულობა მ3 Volume m3
ხის ჯოხი 80X200 Wooden beam 80X200	3.2	10	32.00	0.51
ხის ჯოხი 80X200 Wooden beam 80X200	4.7	11	51.70	0.83
			Σ	1.34

1 - 1



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential house
(8X8m)

Project address:
Georgia,
Marneuli

-

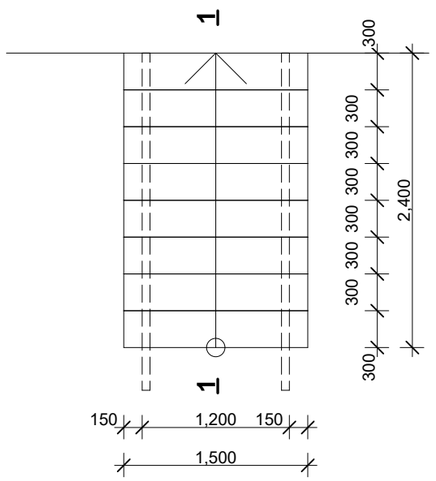
Stage:
Architectural project

Ceiling construction

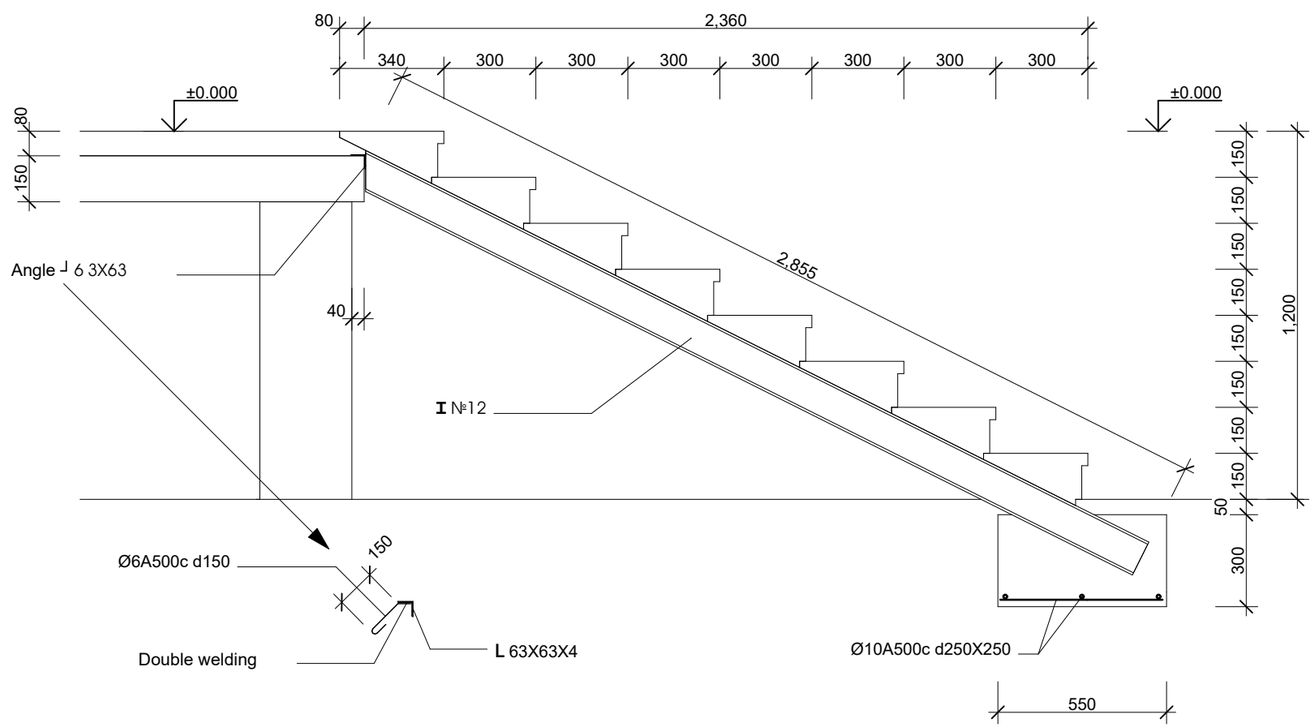
Format A - 3

Page	Pages
13	24

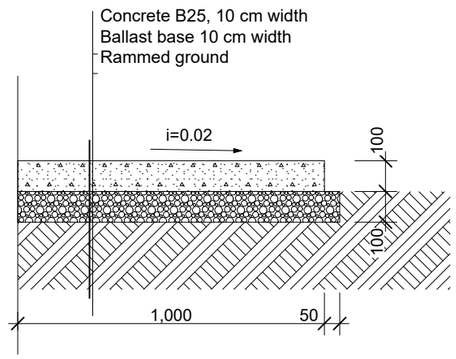
Staircase 1



1-1



Structure of Walkway



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:

Georgia,
Marneuli

-

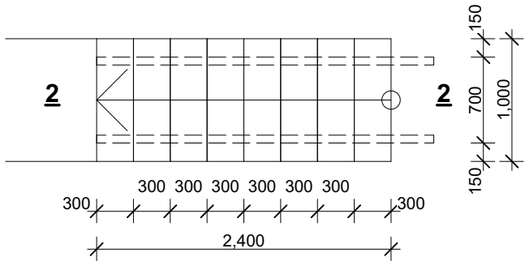
Stage:
Architectural project

Staircases

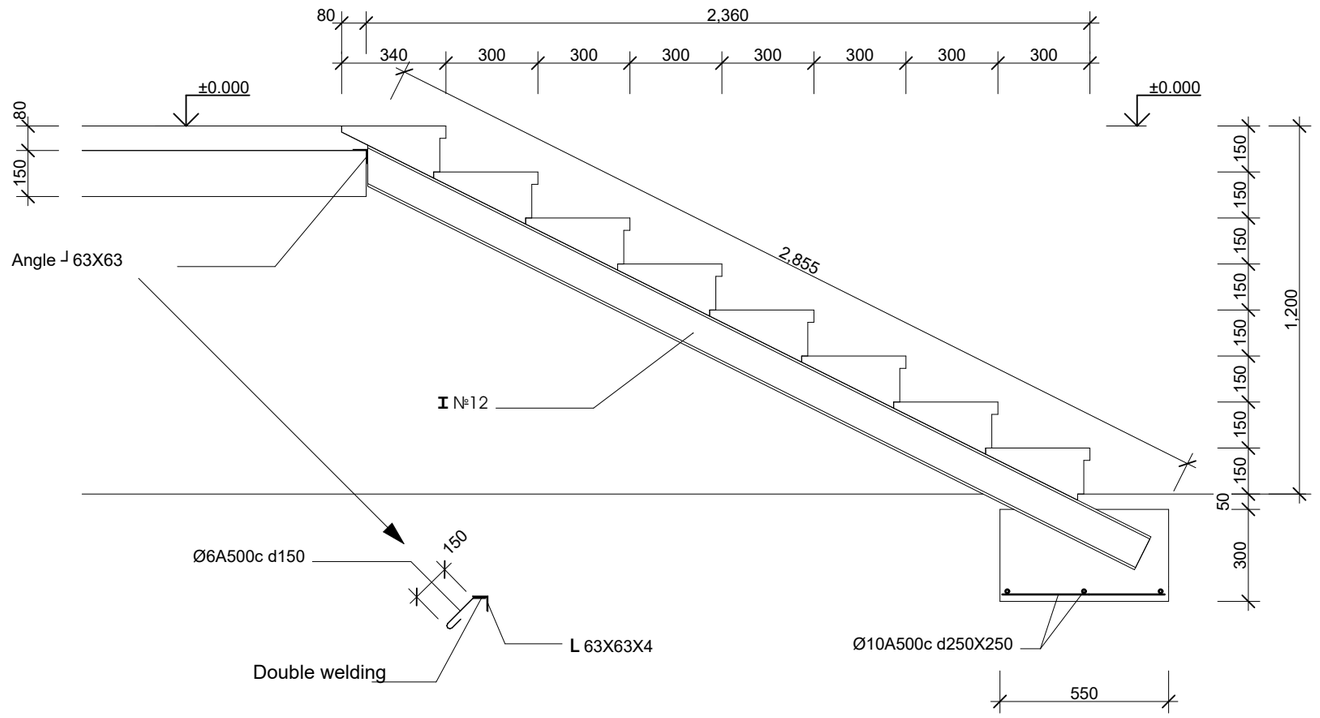
Format A - 3

Page	Pages
14	24

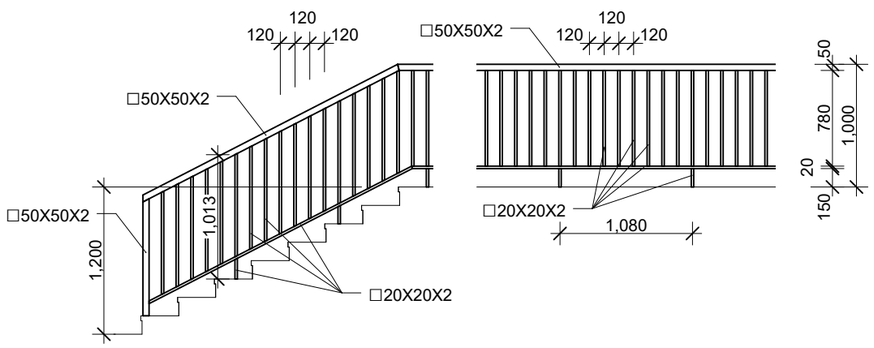
Staircase 2



2-2



Railing



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:

Georgia,
Marneuli

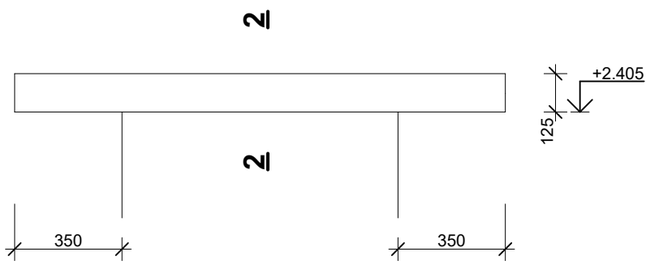
-

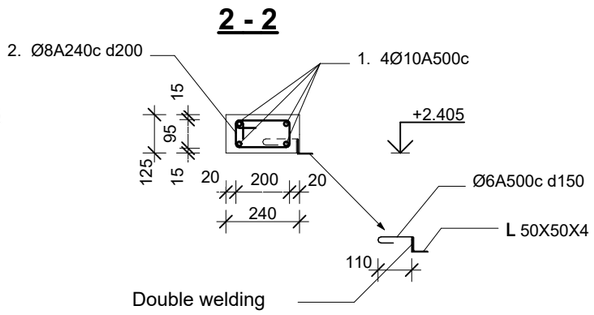
Stage:
Architectural project

Stairs

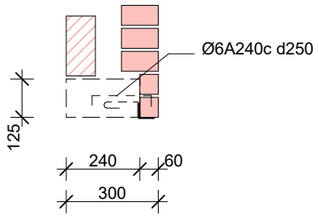
Format	A - 3
Page	Pages
15	24

Window lintel

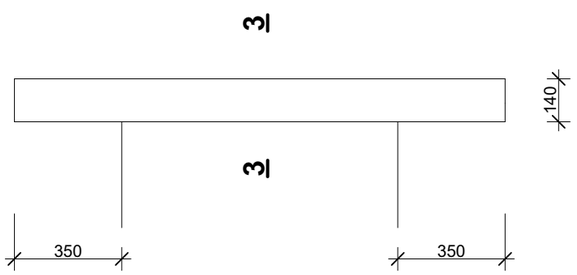


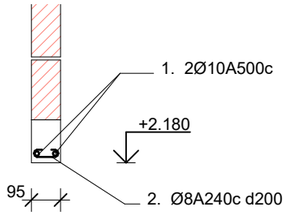


Lintel to be concreted on angles after brick masonry

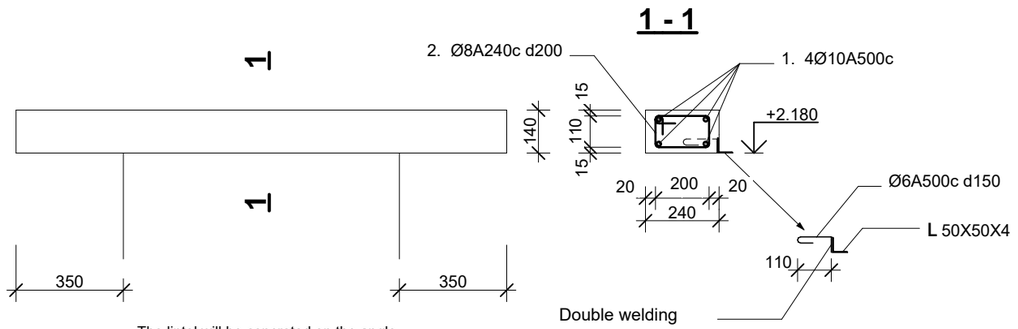


Door lintel on partition

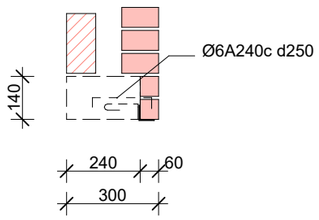




Door Lintel



The lintel will be concreted on the angle square after the masonry



DANISH REFUGEE COUNCIL

ლტოლვილთა დანიის საბჭო

Individual Residential house

(8X8m)

Project address:

Georgia,
Marneuli

-

Stage:
Architectural project

Reinforced concrete lintel

Format A - 3

Page	Pages
16	24

ელემენტი Component	№	პროფილი Profile	სიგრძე მმ length	რაოდენობა quantity	საერთო სიგრძე მ Total length m	
საძირკველი Foundation						
საძირკველი ლენტური Strip foundation	1	12 A500c	45400	4	181.6	
	2	8 A240c	1450	103	149.35	
საძირკველი ქვერტილოვანი Pad foundation F-1	1	12 A500c	1180	14	16.52	
	ბეტონი B25 m3 Concrete B25 m3					22.1
რკინაბეტონის სვეტები და გულანები Reinforced concrete columns and cores						
გულანა G-1 (8ცალი) Core G-1 (8 pcs)	1	14 A500c	5200	32	166.4	
	2	8 A240c	1010	208	210.08	
გულანა G-2 (1ცალი) Core G-2 (1 pcs)	1	14 A500c	5200	4	20.8	
	2	8 A240c	610	26	15.86	
სვეტი S-1 (1ცალი) Column S-1 (1 pcs)	1	20 A500c	5200	4	20.8	
	2	8 A240c	1050	35	36.75	
	ბეტონი B25 Concrete B25					1.63
რკინაბეტონის გადახურვის ფილა Reinforced Concrete Floo Slab						
ფილა	1	12 A500c			740.00	
	2	10 A500c			730.00	
	3	8 A240c			71.00	
კაპიტელი Capital	4	8 A500c	1750	14	24.50	
	5	8 A240c	350	48	16.80	
	ბეტონი B25 m3 Concrete B25 m3					11

ელემენტი Component	№	პროფილი Profile	სიგრძე მმ Length mm	რაოდენობა Quantity	საერთო სიგრძე მ Total length m	
ლაყუარდანი და კოჭები Carnice and beams						
ჭრილი 1-1,3-3 Section 1-1,3-3	1	12 A500c	45800	4	183.20	
	2	8 A240c	950	103	98.17	
	3	10 A500c	1050	180	189.00	
	4	8 A500c	40800	4	163.20	
	5	5 A240c	1690	40	67.60	
		50X50X4				5.60
ჭრილი 2-2 Section 2-2	1	12 A500c	6800	4	27.20	
	2	8 A240c	950	24	22.80	
	3	8 A500c	455	9	4.10	
ორტესებრი კოჭები I-beams		I #20	7900	1		7.90
		I #20	4650	1		4.65
		I #20	3250	1		3.25
	ბეტონი B25 m3					3.9
ზლუდარები Lintel						
ზლუდარი გარე კედელზე Lintel on external wall	1	10 A500c			62.2	
	2	8 A240c	630	76	47.88	
		50X50X4				9.8
ზლუდარი ტიხრებზე Lintel on partition	1	10 A500c			16	
	2	8 A240c	245	35	8.575	
	ბეტონი B25 m3					0.65
კიბეები Staircases						
	1	10 A500c			20	
		I #12	2900	4		11.6
		63X63X4				2.5
	ბეტონი B25 m3 Concrete B25 m3					0.52
კედლების და ტიხრების არმირება Reinforcement of walls and partitions						
	1	6 A500c			670	

არმატურის ამოკრეფა Quality of reinforcement

	ჭრილი Cross section	საერთო სიგრძე მ Total length m	წრფივის წონა Weight og r/m	საერთო წონა კგ Total weight kg	საერთო წონა (კლასის მიხედვით) კგ Total weight (according to the class) kg
A240c	5 A240c	68.0	0.190	12.9	280.3
	8 A240c	678.0	0.394	267.4	
A500c	6 A500c	670.0	0.222	148.7	2148.4
	8 A500c	192.0	0.394	75.7	
	10 A500c	1017.0	0.616	626.7	
	12 A500c	1149.0	0.887	1019.6	
	14 A500c	187.0	1.208	225.9	
	16 A500c		1.578	0.0	
	18 A500c		1.997	0.0	
	20 A500c	21.0	2.465	51.8	
	22 A500c		2.983	0.0	
	25 A500c		3.851	0.0	
სულ				2428.7	

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential

(8X8m)

House

Project address:

Georgia,
Marneuli

-

Stage:
Architectural project

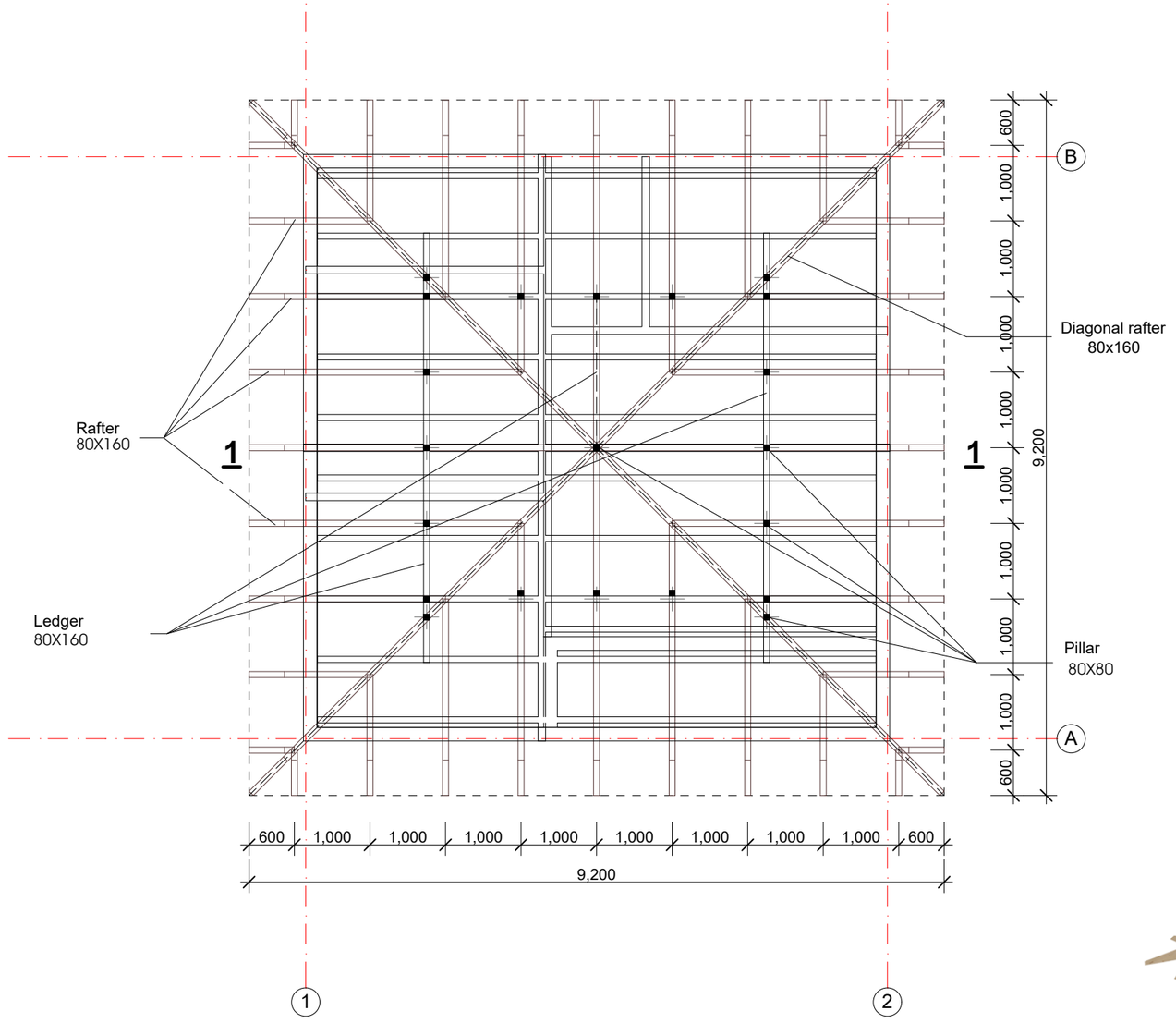
Specifications of

Format A - 3

Page	Pages
17	24

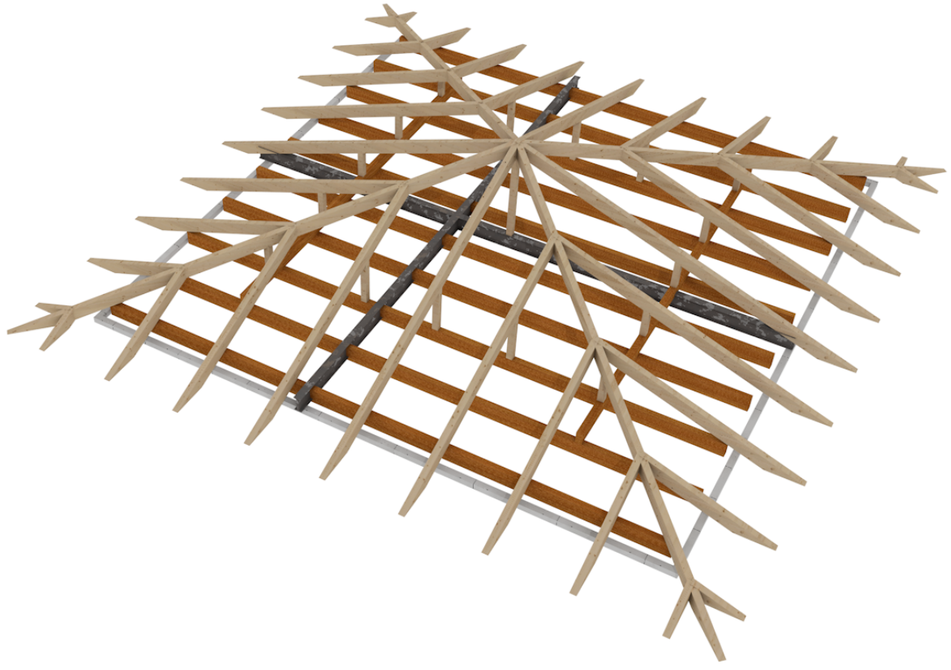
სახურავის სტრუქტურის გეგმა

Roof Structure Plan



სპეციფიკაცია
Specification

ჯოხის ჯვეთი Beam section	სისქე მმ Thickness mm	სიმაღლე მმ Height mm	საერთო სიგრძე მ Total length m	მოცულობა მ3 Volume m3
დიაგონალური ნიფხვი Diagonal rafter	80	160	21.38	0.27
ნიფხვი Rafter	80	160	90.00	1.15
მაუერლატი Wall-plate	80	80	32.00	0.20
გამანაწილებელი ჯოხი Distribution beam	80	160	11.40	0.15
დგარი Pillar	80	80	14.00	0.09
ლარტყის ძელაკი Joist	50	50	344.00	0.86
			∑	2.73



DANISH REFUGEE COUNCIL

ლტოლვილთა დანიის საბჭო

Danish Refugee Council

ინდივიდუალური საცხოვრებელი სახლი
(8X8მ)

Individual house
(8X8m)

Project address:

Georgia,
Marneuli

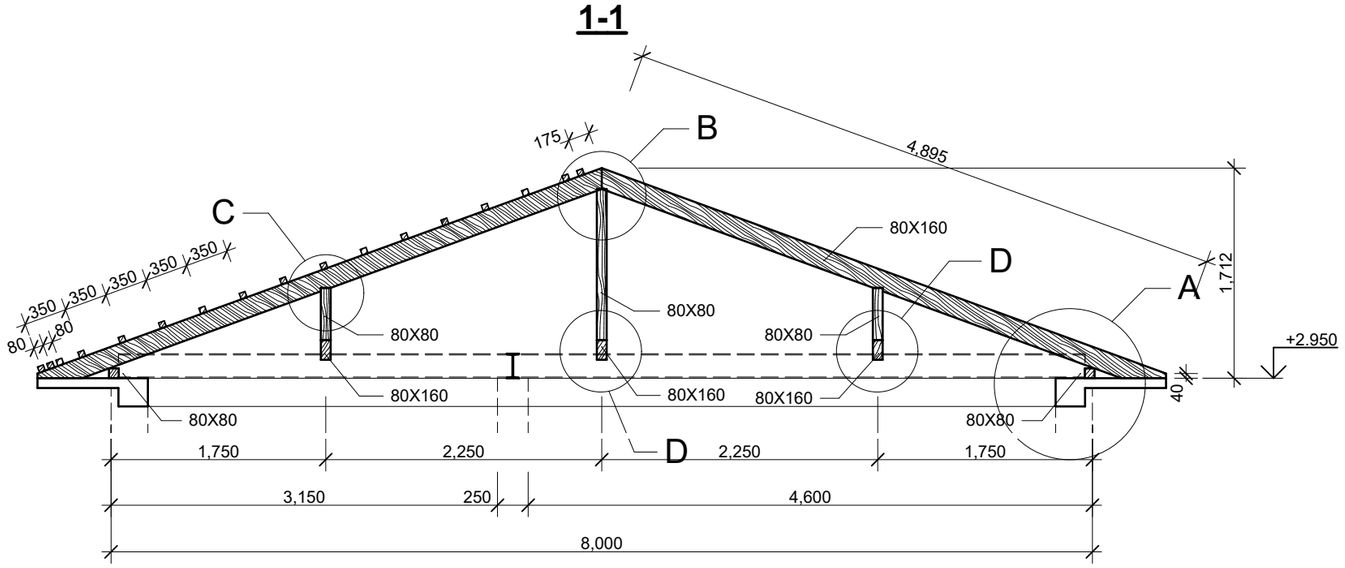
-

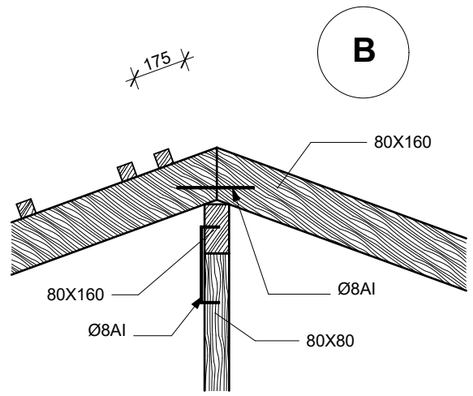
Stage:
Architectural project

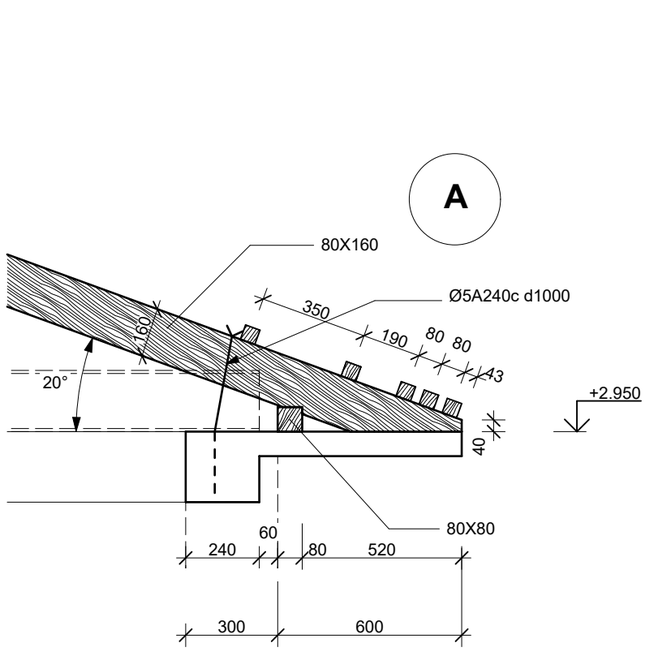
Roof structure plan

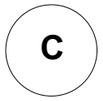
Format	A - 3
Page	Pages
18	24

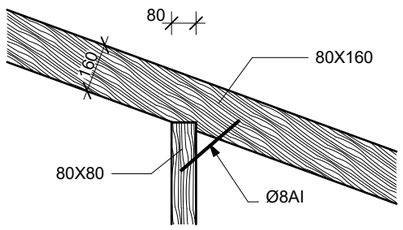
1-1

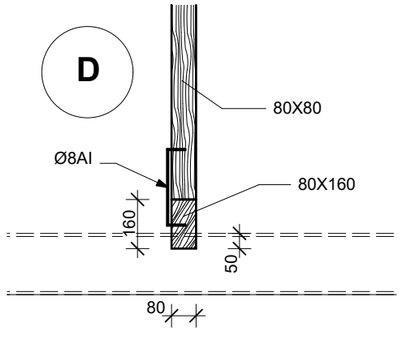












DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

-

Project address:

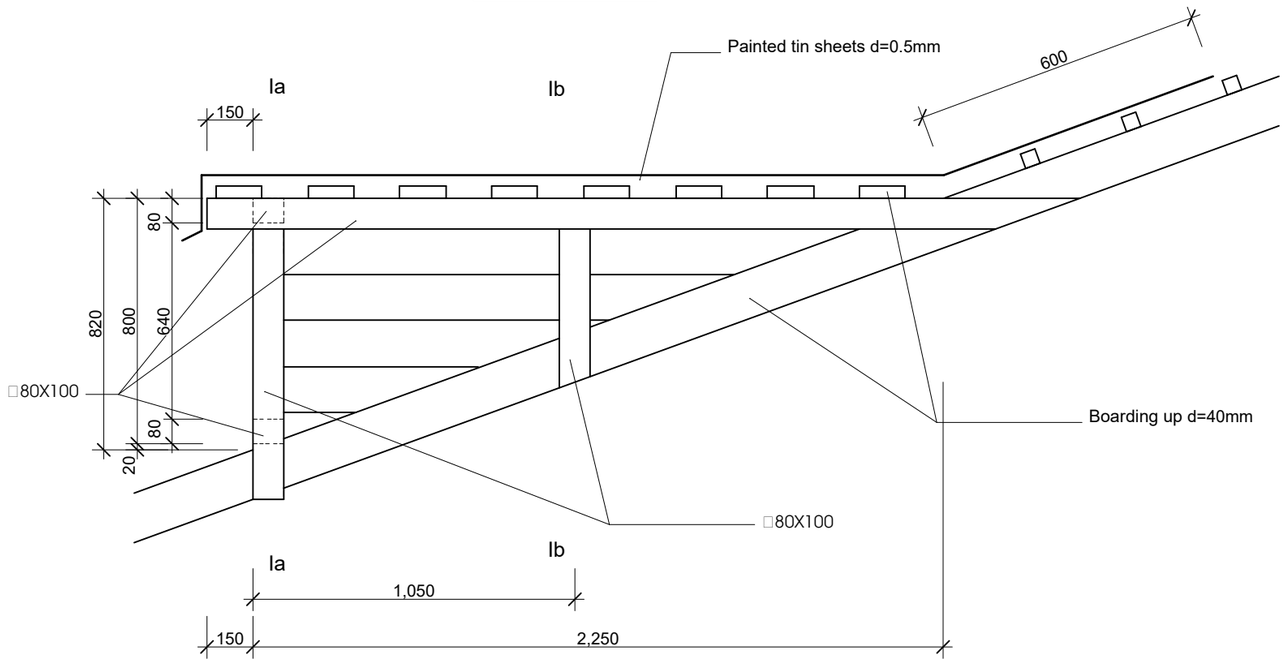
Georgia,
Marneuli

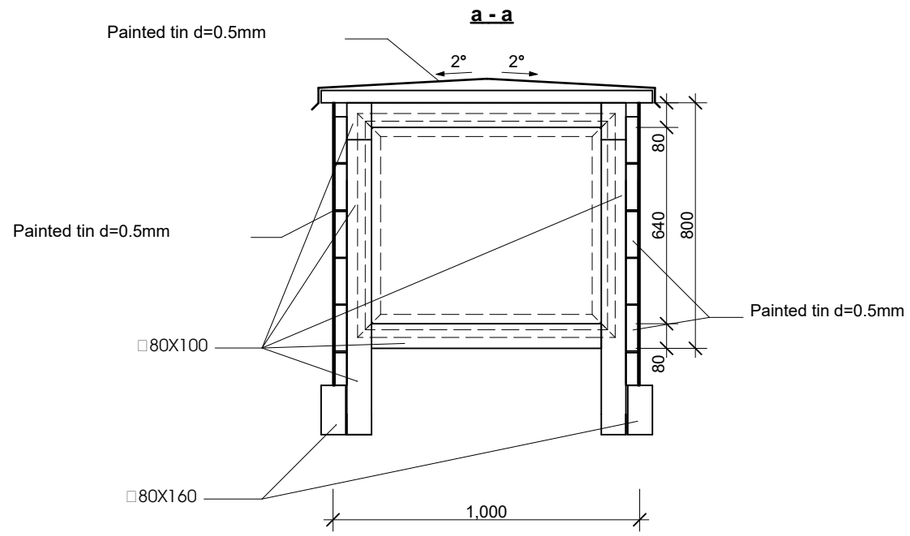
Stage:
Architectural project

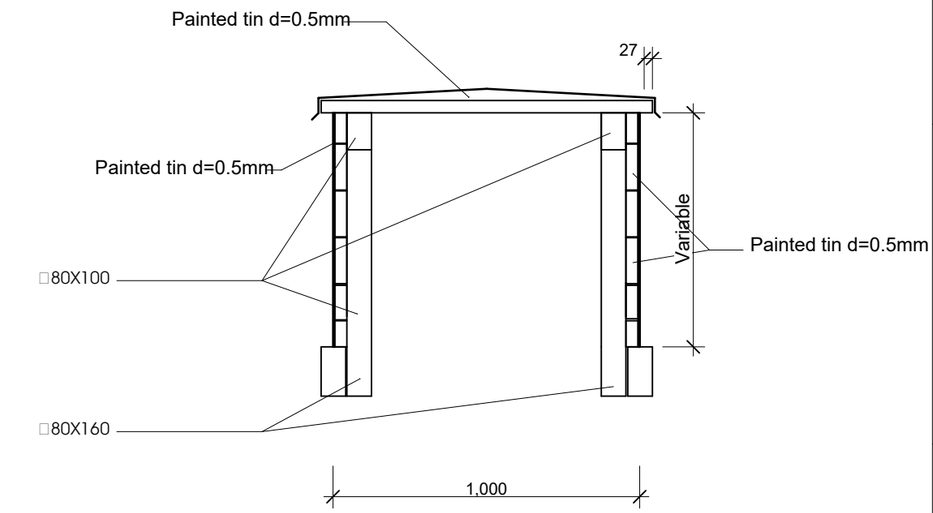
1-1
A, B, C, D

ფორმატი Format	A - 3	
ფურცელი Page		ფურცლები Pages
19		24

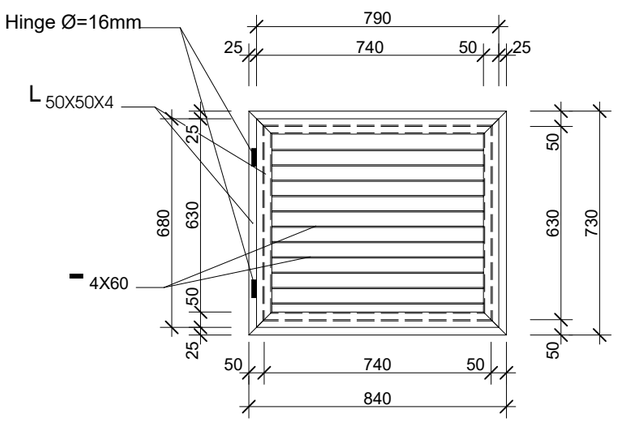
Dormer Window

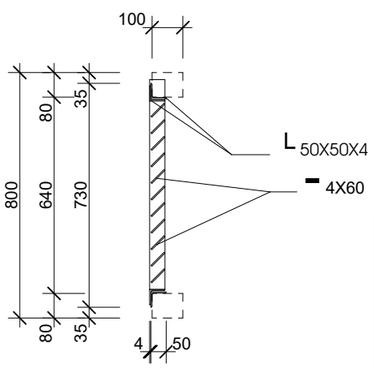






Steel Vent Window





ფოლადის სპეციფიკაცია Specificaion of Steel

კოჭის კვეთი Section of Beam	სიგრძე m Length m	რაოდენობა quantity	სულ სიგრძე m Total m	წონა kg 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

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:
Georgia,
Marneuli

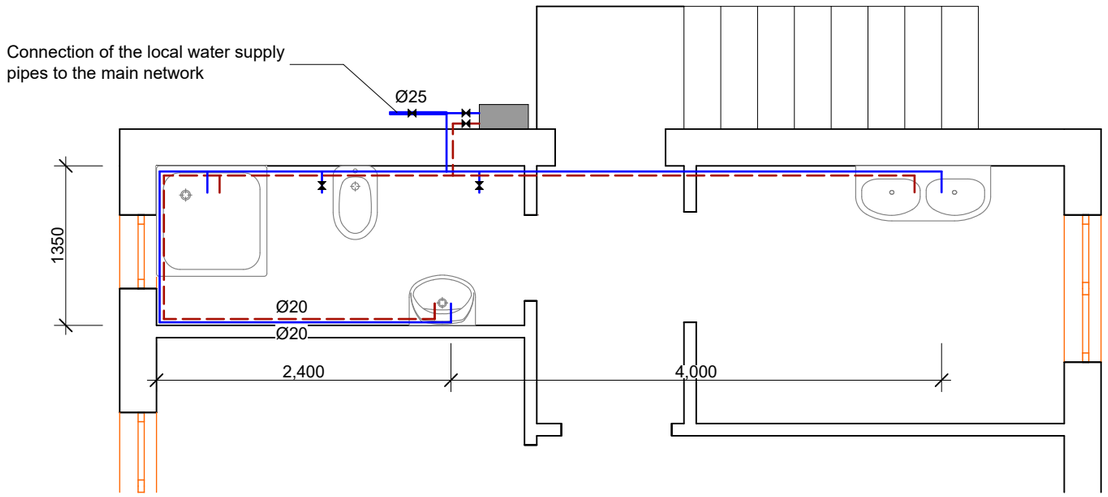
Stage:
Architectural project

Dormer window

Format A - 3

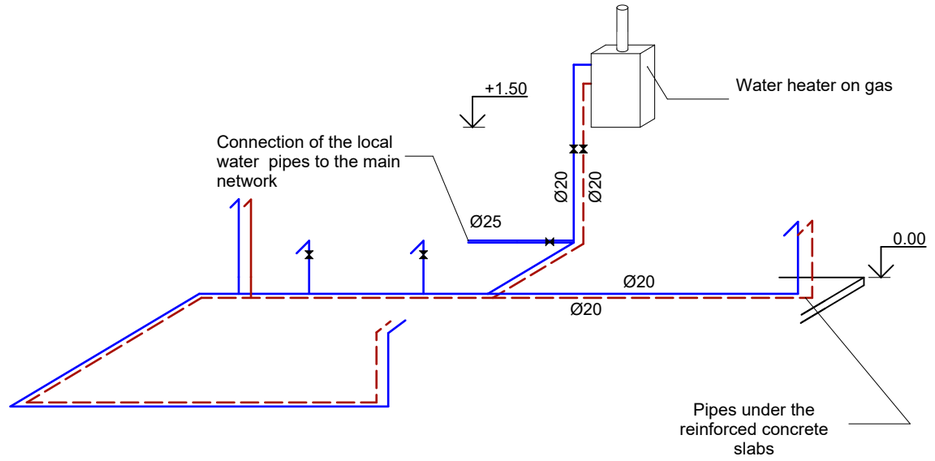
Page	Pages
20	24

Water Supply System Plan



Plastic water pipe for cold water D-20 mm

Water Supply System Axonometry



სპეციფიკაცია Specification			
№	დასახელება List	განზომილების ერთეული UoM	რაოდენობა Q-ty
1	ხელსაბანის კომპლექტი, ნიჟარით, შემრევით, ხიფონით და ნიჟარის ფეხით Sink, mixer tap, plumbing trap, sink stand.	ცალი pcs	1
2	სამზარეულოს უჟანგავი ფოლადის ნიჟარა, შემრევით და ხიფონით Kitchen stainless steel sink, mixer tap, plumbing trap	ცალი pcs	1
3	შხაპის ქვეშ შემრევით და ხიფონით Shower unit wit mixer tap and plumbing trap	ცალი pcs	1
4	უნიტაზის კომპლექტი ჩამრეცხი ავზით და გოფრირებული საკანალიზაციო მილით WC bowl with flush tank and corrigated sewage pipe	ცალი pcs	1
5	ტრაპი დ-50მმ Floor trap 50 mm	ცალი pcs	1
6	პლასტმასის ცივი წყლის წყალსადენის მილი დ-25მმ Plastic water pipe for cold water D-25 mm	მეტრი m	35
7	პლასტმასის ცივი წყლის წყალსადენის მილი დ-20მმ Plastic water pipe for cold water D-20 mm	მეტრი m	16
8	პლასტმასის ცხელი წყლის წყალსადენის მილი დ-20მმ Plastic water pipe for hot water D-20 mm	მეტრი m	14
9	პლასტმასის ვენტილი დ-25 Plastic valve D-25	მეტრი m	1
10	პლასტმასის ვენტილი დ-20 Plastic valve D-20	მეტრი m	4
11	პლასტმასის კანალიზაციის მილი დ-100მმ Plastic sewage pipe D-100mm	მეტრი m	37.8
12	პლასტმასის კანალიზაციის მილი დ-50მმ Plastic sewage pipe D-50mm	მეტრი m	15.0
13	საკანალიზაციო ჭის ლუქი Hatch of the sewage manhole	ცალი pcs	1

Water Supply System

Water supply of the residential house is provided through the water pipeline from the street. Supply of running watery is carried out under with the incoming water pipe placed under the roof slabs of the first floor. The water will pass through the mechanical filter. Quantity of water-service meter equipment is five. The water pipeline network will be constructed from polypropylene pipes and fittings.
Cold and hot water pipes should be insulated with heat insulation. First of all, the two-meter pipe should be latched with insulation, then the mineral cotton insulation of 5 cm thickness should be fixed.
The hot water supply of the building is carried out through the gas water heater.

Sewerage System

The sewerage network of the residential house is represented by a single pillar and a pipeline, through which the sanitary sewage flows into the sewerage manhole of the yard. The sewage pipes are provided under the roof slabs and will be fixed on the same slabs with bracing, a horizontal part of the pipe to be insulated with heat insulation (10 cm thickness). The sewerage network is built with 100 and 50 mm polypropylene pipes. For the purpose of ventilation of the network, the pillar of 0.2 m separates from the ceiling and stops transversely in the attic. The horizontal sections of the drainage network will be built by the following minimum slope: for 100-pipes -0,02; 50 pipes - 0,03.

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:
Georgia,
Marneuli

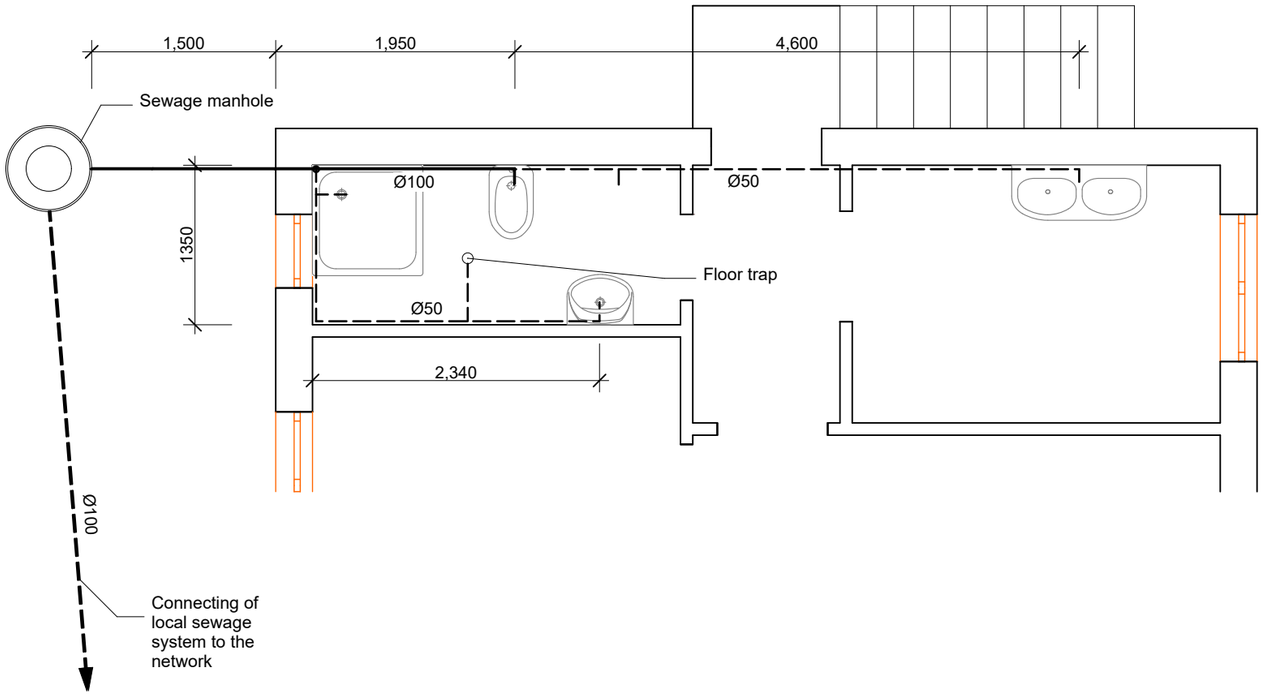
Stage:
Architectural project

Water supply system

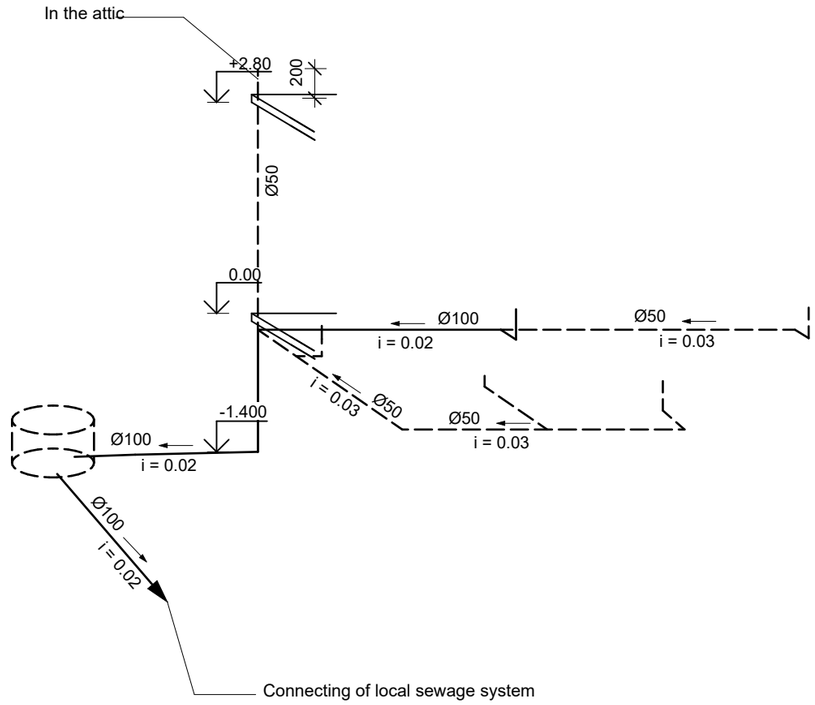
Format A - 3

Page	Pages
21	24

Sewage System Plan



Sewage System Axsonometry



DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual Residential House

(8X8m)

Project address:

Georgia,
Marneuli

-

Stage:
Architectural project

Sewage system

Format	A - 3
Page	Pages
22	24

Power Supply

The electric part of the residential project is implemented on the basis of BCH-59-88 and RD34.20.185-94 of international and residential buildings and public construction electric designs, in compliance with the architectural-construction, technological, sanitary and other technical requirements. The voltage of the electric network is 220V, with the transformed matrix neutral. The residential house will be supplied with power from the power meter. The electricity to the power meter will be provided by the local energy distribution company. The power distribution switchboard will be installed behind the entrance door in the corridor.

The switchboard should be at least of IP40 class of safety protection. Automatic breakers should comply with international standard IEC 947-2 (EN 60898), requirements with B or C-response with 6 KA short-circuit making and breaking capacity. Electrical wiring should be performed on copper PVC-type flat cord corresponding to the standard fire. The high-power supply is provided with a cable of 3X2,5 mm 2 crossing and lighting with a cable of 3X1,5 mm2 crossing, the wiring will be made under the plaster.

In the rooms, the switches will be installed at the height of 90 cm from the floor and the plugs will be installed at the height of 30 cm from the floor. In the yard, near the distribution switchboard (at least 1 meter away from the foundation of the house) grounding circuit should be installed. The 3 electrodes of the grounding circuit must be 2-meter rods of the steel angle 5 * 50 * 50. they must be buried on 0.5 m depth from the surface of the earth, 3 m from each other. The grounding electrodes are connected to each other with a 30X3 mm shield, by welding with electrodes. Connection to the networking circuit is made of a copper cable of 1 * 16 mm 2.

From the town town network

Copper cable 3x6mm2

Distribution switchboard

Principal Plan of the Distribution Switchboard

50J/3/**C**

Incoming Line Data	L1 N PE											
Rated Automated electricity A		10J/1/**B**	10J/1/**B**	10J/1/**B**	10J/1/**B**	16J/1/**C**	16J/1/**C**	16J/1/**C**	16J/1/**C**	16J/1/**C**	16J/1/**C**	16J/1/**C**
Cable Section mm2		Copper cable 3x1.5mm2	Copper cable 3x1.5mm2	Copper cable 3x1.5mm2	Copper cable 3x1.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2	Copper cable 3x2.5mm2
Line #		G_1	G_2			D_1	D_2	D_3	D_4	D_5		
		Lightning				High-Power Consumer						
Group of storages		Kitchen, Common Room Hall Balcony	bedrooms Bathroom	Reserve	reserve	Kitchen,	Bathoom	Common room Hall	Beddroom	Bedroom	Reserve	Reserve

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house (8X8m)

Project address:

Georgia,
Marneuli

-

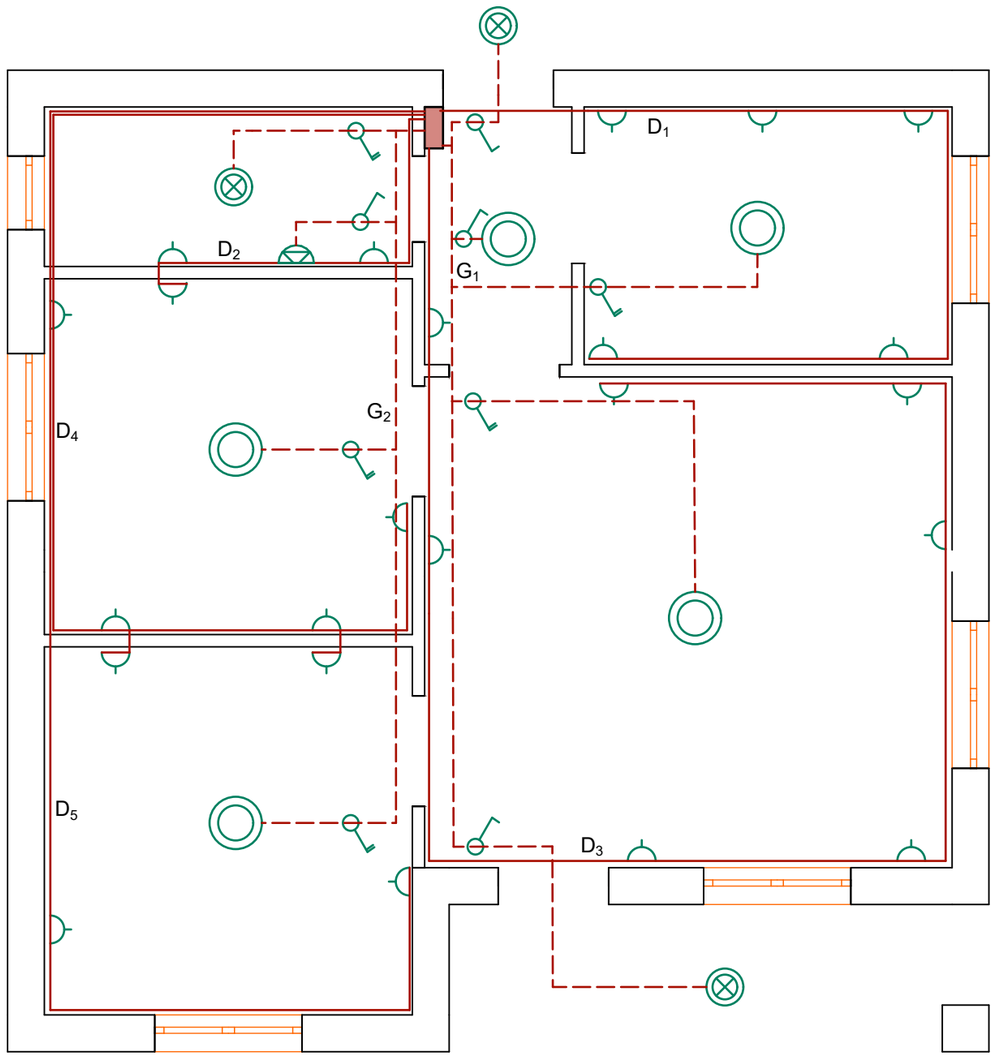
Stage:
Architectural project

Plan of Distribution Switchboard

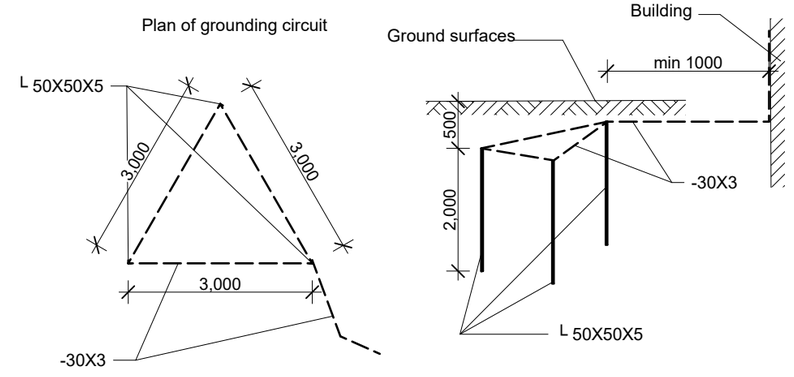
Format A - 3

Page	Pages
23	24

Electrical System Plan



№	დასახელება List	განზომილების ერთეული UoM	რაოდენობა Q-ty
1	განაწილებელი ფარი, ჩაფლული, შემყვანზე ორპოლუსა ავტომატური ამომრთველით 50ამპ. სახაზო ავტომატური ამომრთველებით 220ვ10ა-4ც+220ვ16ა-8ც Distribution switchboard,two-pole circuit-breaker 50A Line circuit breaker220V1-A-4pcs/220V16A-8pcs	ცალი pcs	1
2	საშტეფსელო როზეტი ორპოლუსა მესამე დამამიწებელი კონტაქტით 10ამპ Two-pole outlet socket with grounding contact 10A	ცალი pcs	23
3	ამომრთველი ერთკლავიშიანი One key swtitch	ცალი pcs	4
4	ამომრთველი ორკლავიშიანი Two key Switch	ცალი pcs	5
5	ოთახის სანათი სანათი მოწყობილობა Lighting fixture of the room	ცალი pcs	5
6	ტენგამძლე კედლის ბრა Moisture resisant wall mount lightning fixture	ცალი pcs	1
7	ტენგამძლე სანათი მოწყობილობა Moisture resisant lightning fixture	ცალი pcs	3
8	კაბელი სპილენძის ორმაგი იზოლაციითკვეთი3X1,5კვ.მმ Copper cable 3x1.5 mm2 double-insulated	მეტრი m	52
9	კაბელი სპილენძის ორმაგი იზოლაციითკვეთი3X2,5კვ.მმ Copper cable 3x2.5mm2 double insulated	მეტრი m	154
10	შემომყვანი კაბელისპილენძის ორმაგი იზოლაციით კვეთი 3X6კვ.მმ Incoming copper cable 3x6mm2 double insulated	მეტრი m	30
11	განაწილებელიკოლოფი Distribution box	ცალი pcs	20



Distribution switchboard

Lighting fixture of the room

Moisture resisant lightning fixture

Moisture resisant wall mount lightning fixture

One key switch

One key switch

Outlet Socket

Copper cable 3x1.5 mm2

Copper cable 3x2.5 mm2

DANISH REFUGEE COUNCIL

Danish Refugee Council

Individual house
(8X8m)

Project address:
Georgia,
Marneuli

Stage:
Architectural project

Electrical
system

Format A - 3

Page	Pages
24	24