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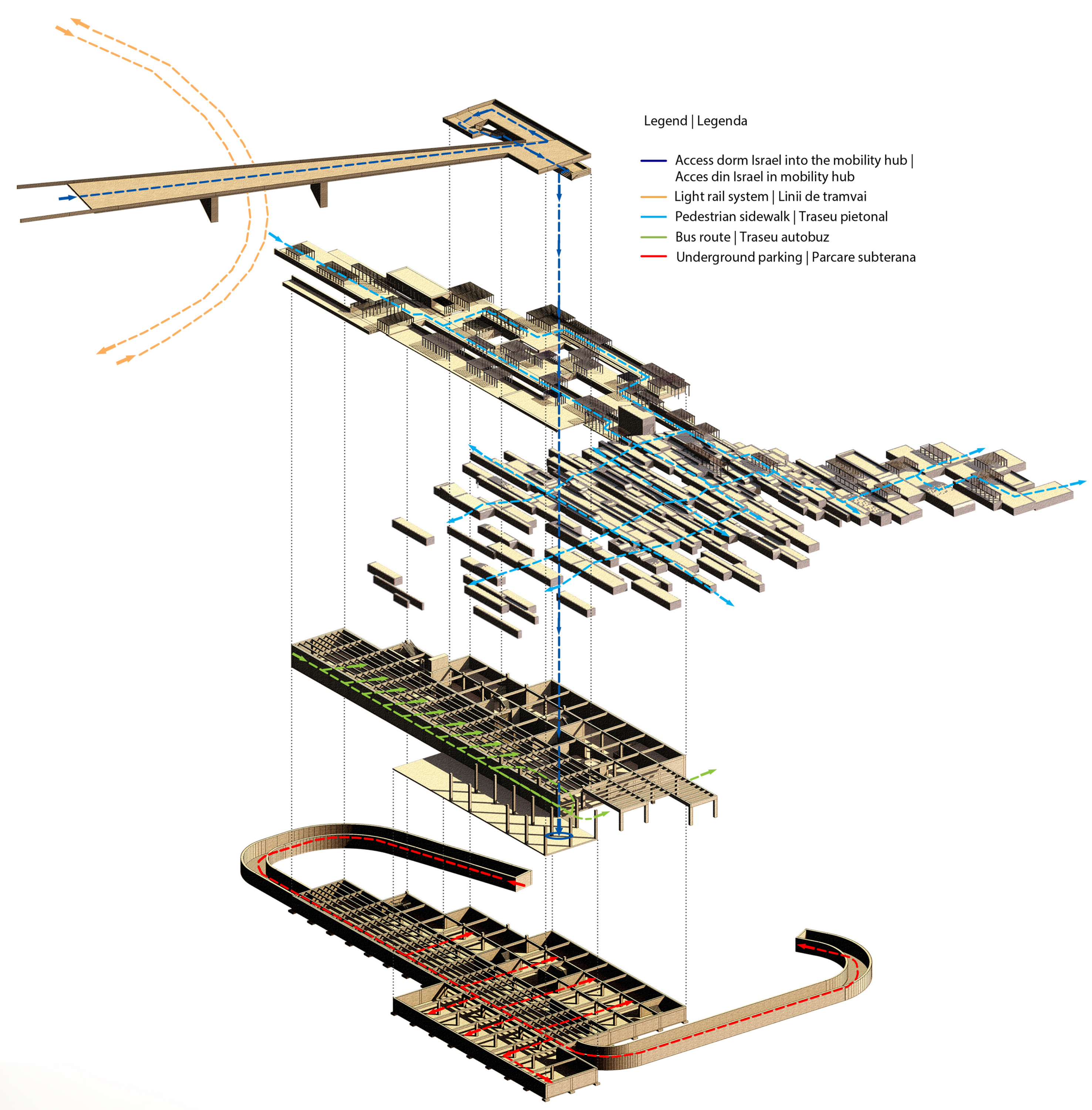
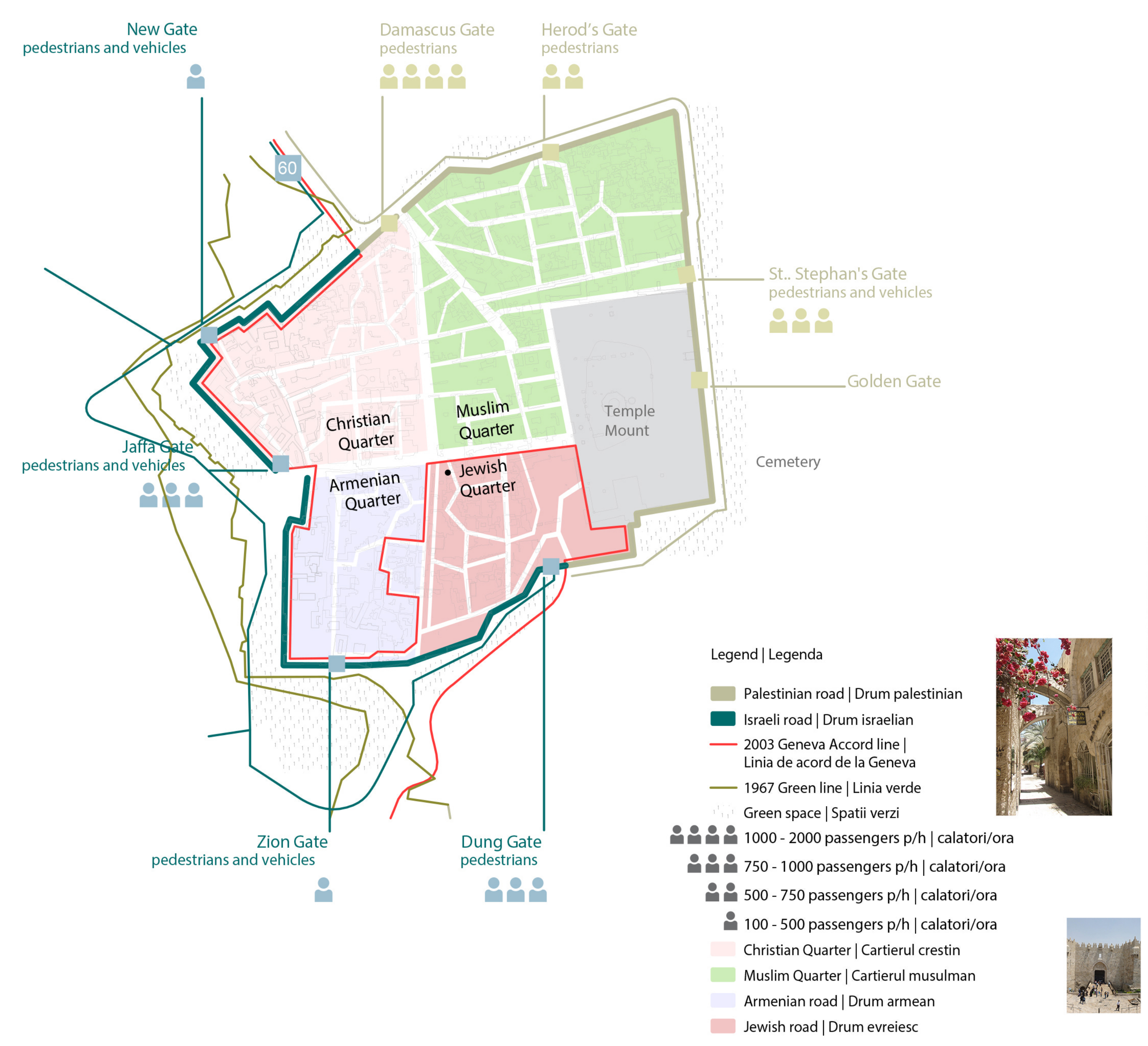
ARCH016

INTERVENTION FOR "DAMASCUS TRIANGLE"





SITE & CONTEXT

The site of the project is located in Jerusalem on the borderline between Israel and Palestine.

It has been named "Damascus Traingle" by the citizens because of its form in the plan view and because one of the triangle's borders is Damascus Gate - the most important entrance in The Old City of Jerusalem. The whole area is marked as no man's land and stands at the intersection of a Jewish Israeli neighborhood, a Muslim Palestinian neighborhood and the Old City Walls of Jerusalem.

In 2016, the Municipality of Jerusalem in collaboration with University of Bezalel held conferences and explained the importance of suggesting solutions for these kind of issues they are confronting nowadays. By following the borderlines through Jerusalem established during the Geneva Accord which took place in 2003, it becomes obvious not only that the city starts to be divided, but it creates colossal voids in the urban fabric. These voids remain unsolved and they can generate other possible issues in the future - social, religious, cultural, etc. "Damascus Tringle" is one of these sites with an uncertain character.

THE CONCEPT

The aim of the project was to create connections between the three parts surrounding the site, but also subtle separations in order to maintain a mechanism which doesn't create conflicts between these parts. In order to do so, a very good understanding of the actual situation was necessary. The complexity of the research lead in the end to the conclusion that the existing "layers" can still coexist, into an architectural solution, but organized clearly. The project was planned for today's situation in Jerusalem, but also for time of peace in the future as there is a will to guide the actual condition to a much better one.

THE PROJECT

SEPARATION

The project works as a mobility hub which includes a car parking, a bus terminal with bus parking and a tram line, including a tram station. The separation between Israeli and Palestinian sides is made in a very suble way in this case, without being obvious from the Urban Platform which stands above. The mobility hub is located underground and the access for the people is from this Urban Platform, so they cannot be bothered by the cars, noise and so forth.

CONNECTIONS

The main connection element is the Urban Platform. This is where all the sides meet to one level or another.

The connection with the Israeli side is made with a bridge which leads to the Urban platform. The bridge is the only signal for the current situation, it shows up as an "accident" and in the same time binds everything together. Because the events are still uncertain in Jerusalem, the bridge ends up with a checkpoint which can be undone in times of piece without affecting the Urban Platform in any way.

In the Palestinian neighborhood there was and is still kept a culture for commerce. In the past, the "Damascus Triangle" was also used for temporary markets. Since it has this uncertain character, the markets take place not very often, but the Urban Platform stands as a binder and organized system of activities which offer the opportunity to organize these temporary markets, religious events, social events, cultural events without interfering with any conflict.

The Urban Platform becomes a constellation of activities close to the Old City Walls of Jerusalem. It becomes a garden, a park, it is integrated into the natural landscape and topography. This absorbs people who exit the Old City from Damascus Gate and the agitation calms down when the platform reaches the coast in the north of the triangle and the life just continues to go on into the city. It can also work the other way around and just guide nicely the flow of the people into the Old City of Jerusalem.

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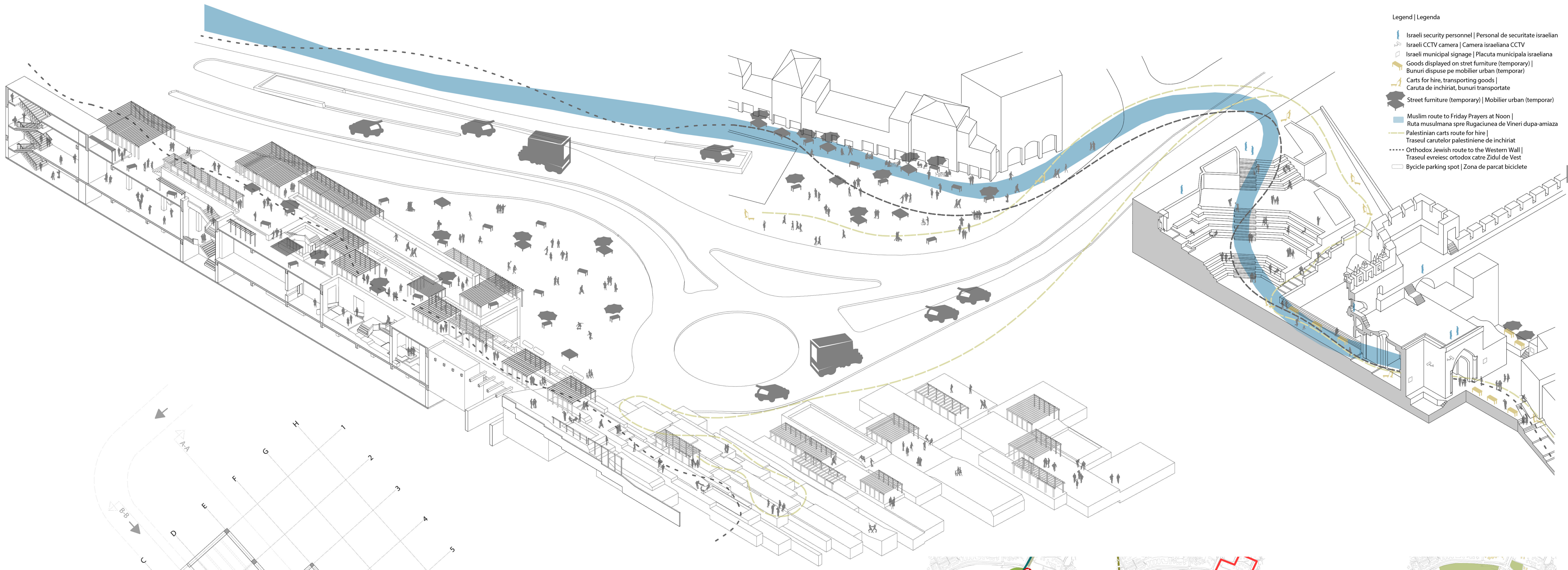
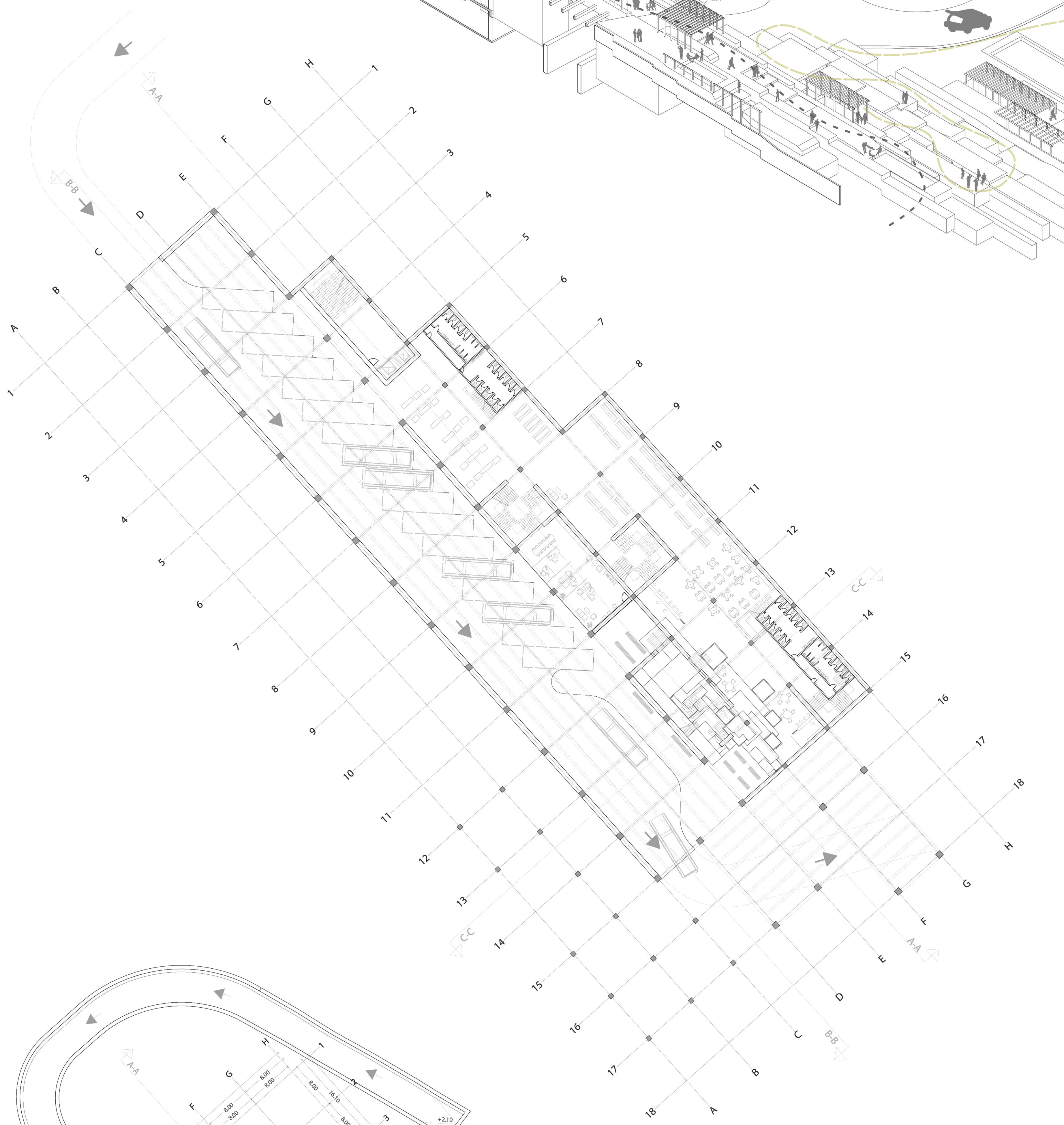
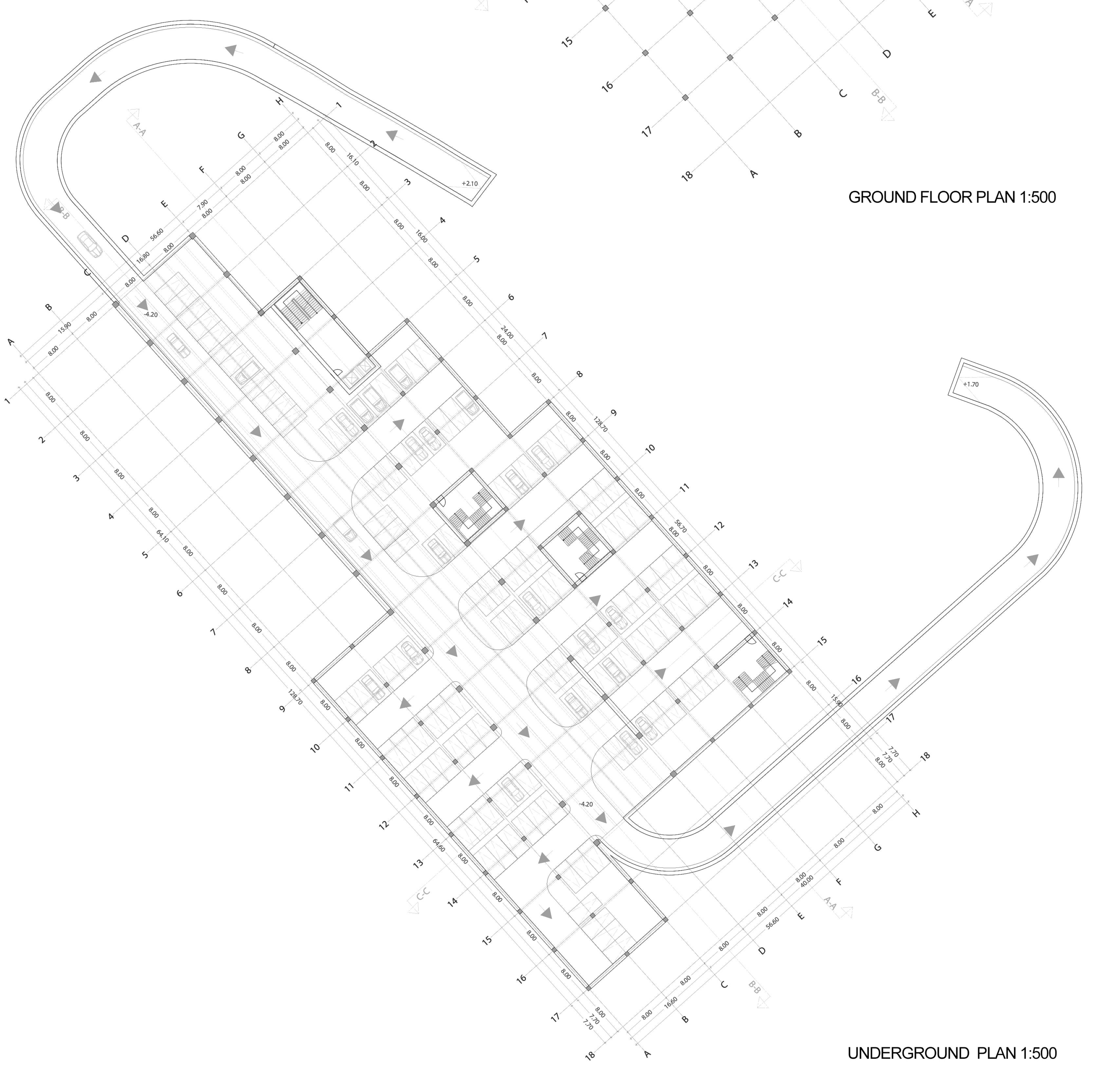
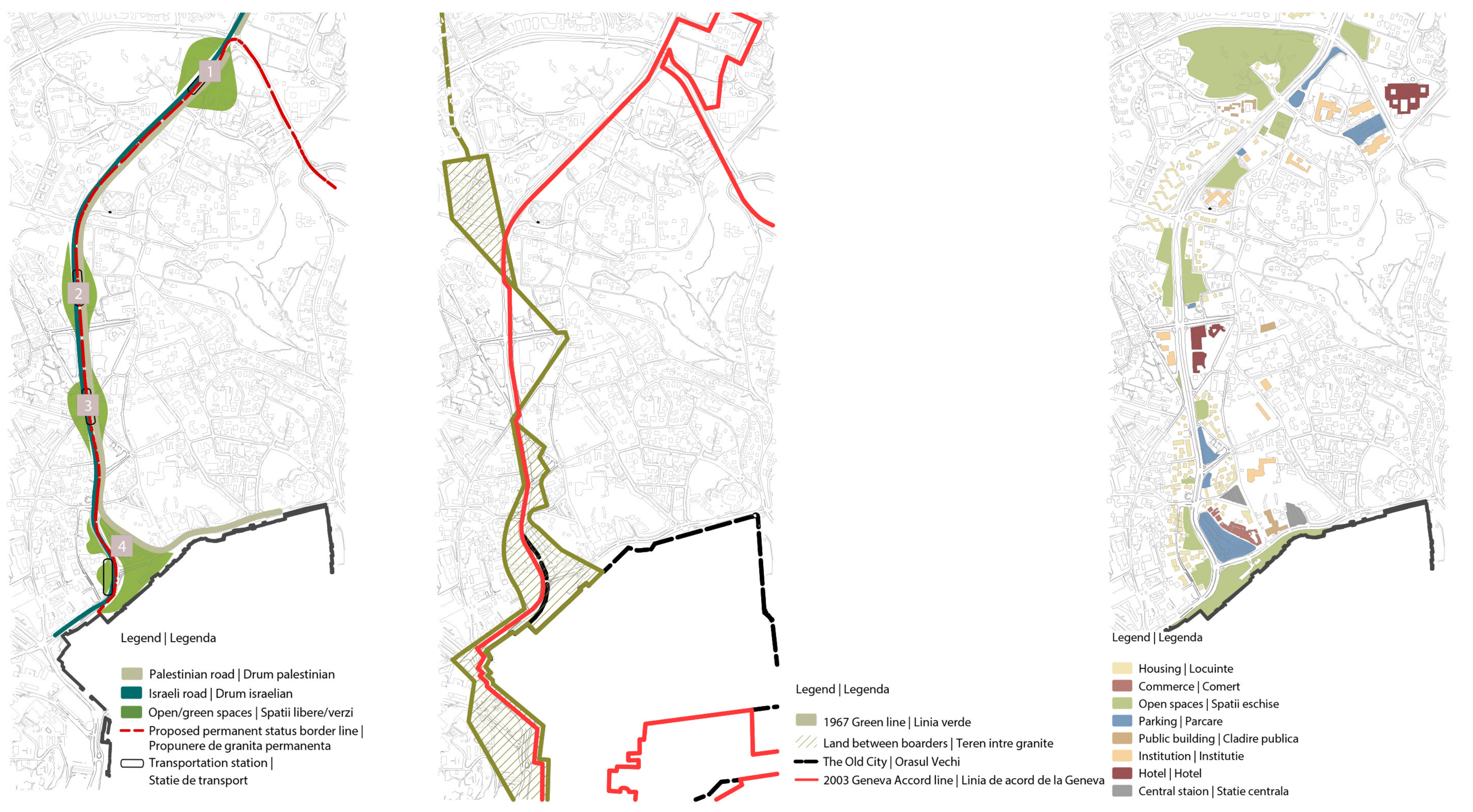


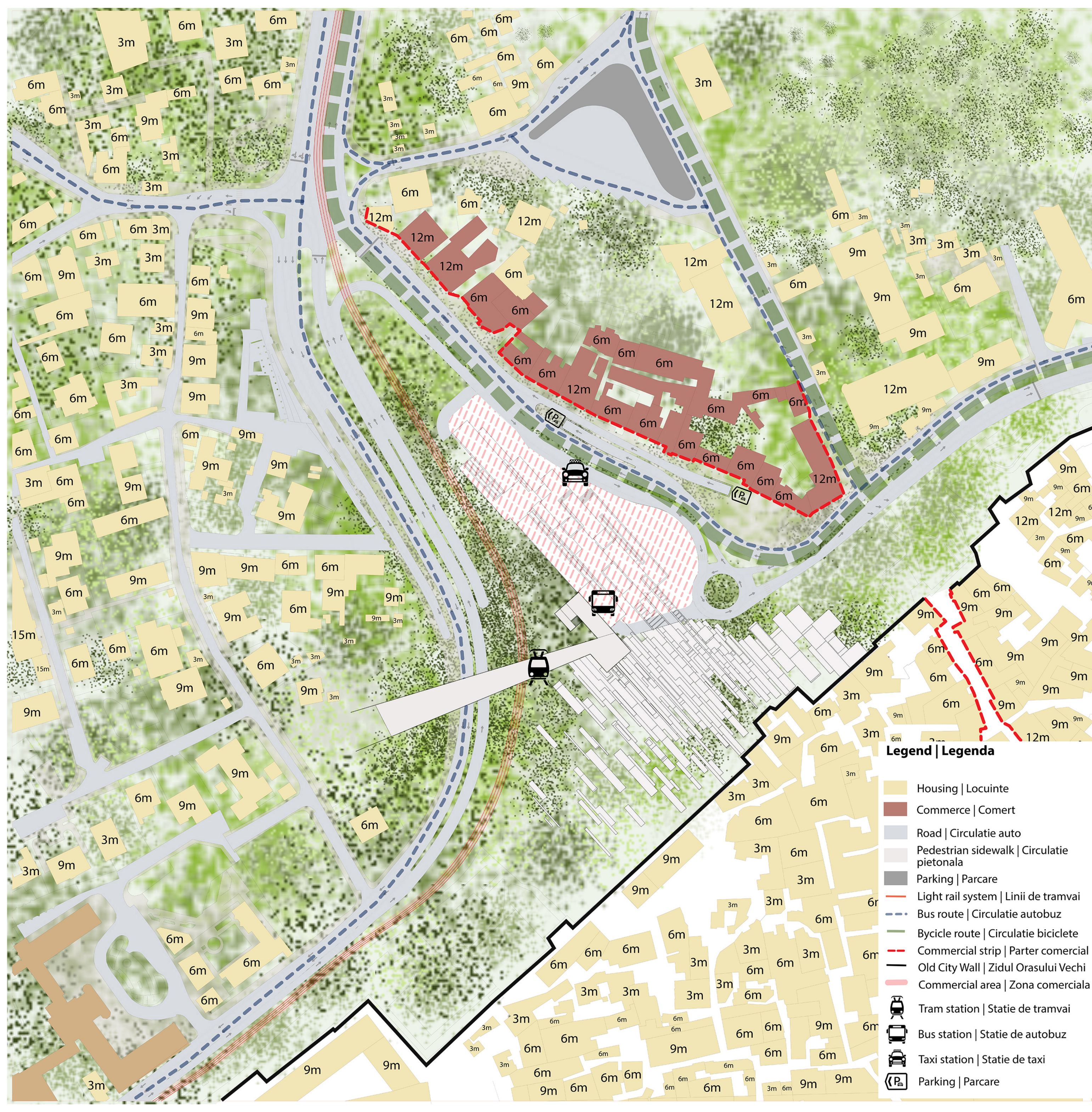


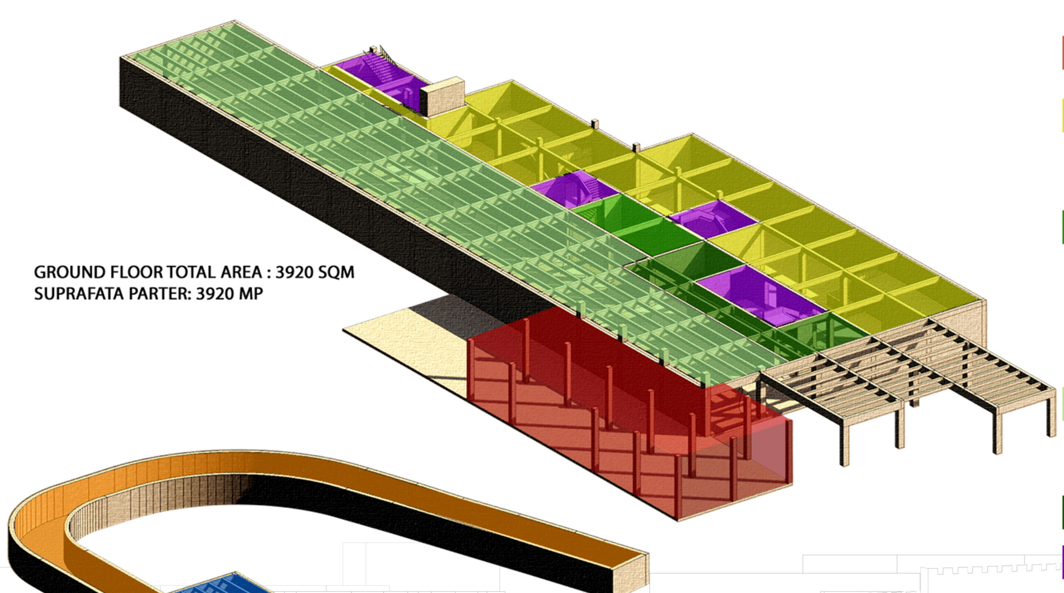
GROUND FLOOR PLAN 1:500



UNDERGROUND PLAN 1:500







SECURITY CHECKPOINT 640 SQM | PUNCT DE CONTROL 640 MP

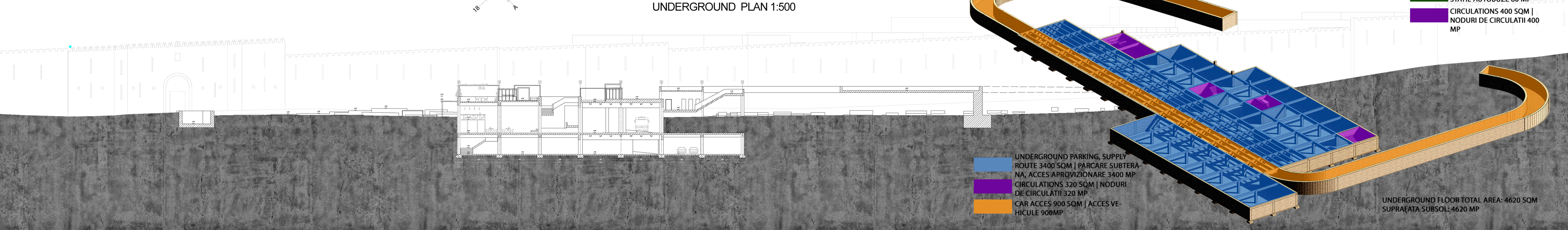
COMMERCIAL AREA 1100 SQM (BATHROOMS, SHOPPING STALLS) | ZONA COMERCIALA 1100 MP (GRUPURI SANITARE, BUTICURI)

STAFF QUARTERS 120 SQM (OFFICES, TERMINAL OFFICE, LOCKERS, RESTING ROOM, TOILETS) | ZONA ANGAJATI 120 MP (BIROURI, BIROU PENTRU TERMINAL, VESTIARE, ZONA COMUNA, GRUPURI SANITARE)

INNER TERMINAL BUS STREET, BUS PARKING 1600 SQM | STRADA INTERIOARA TERMINAL AUTOBUZE, PARCARE AUTOBUZE 1600 MP

BUS STATION 60 SQM | STATIE AUTOBUZE 60 MP

CIRCULATIONS 400 SQM | NODURI DE CIRCULATII 400 MP



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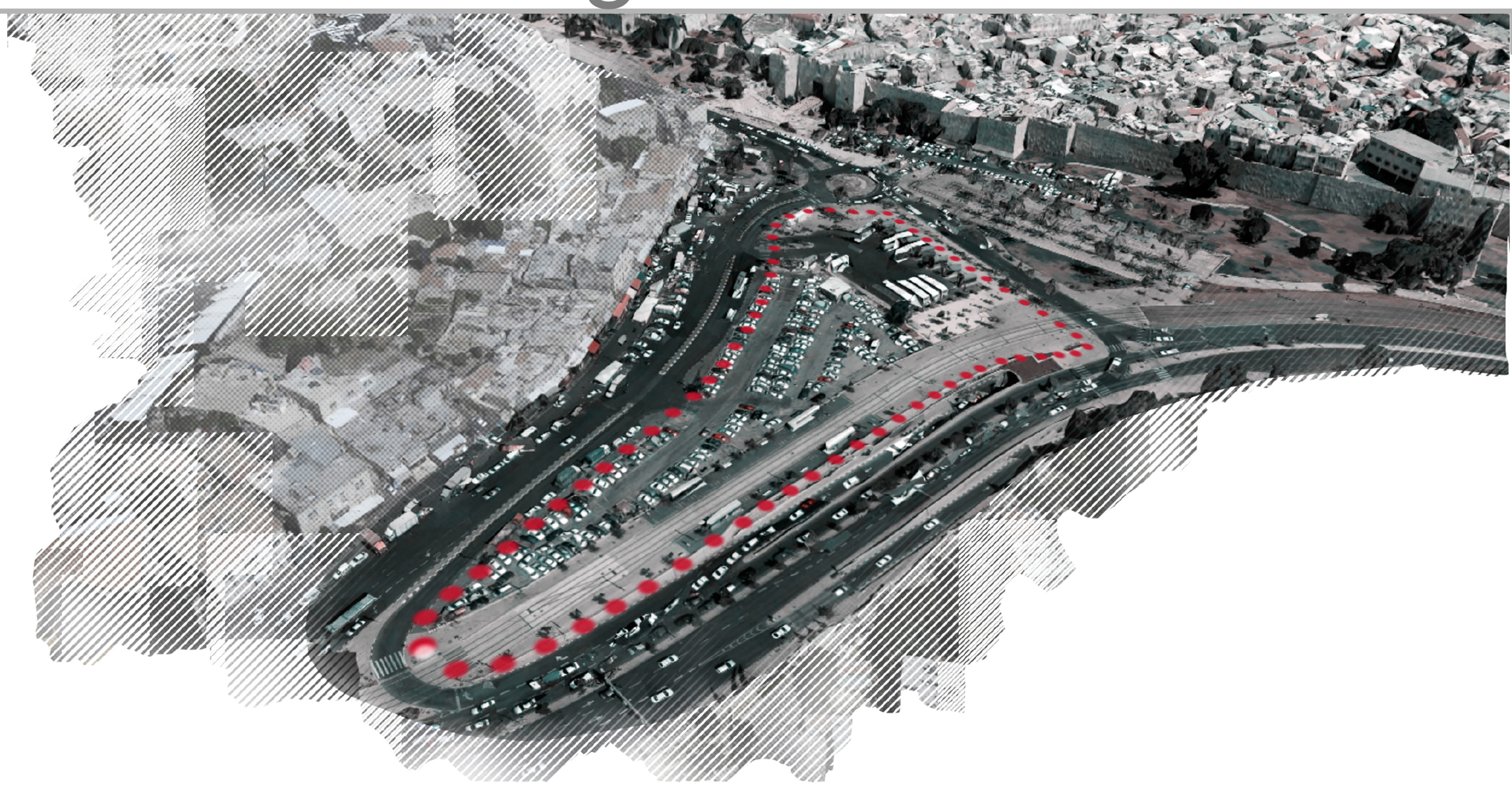
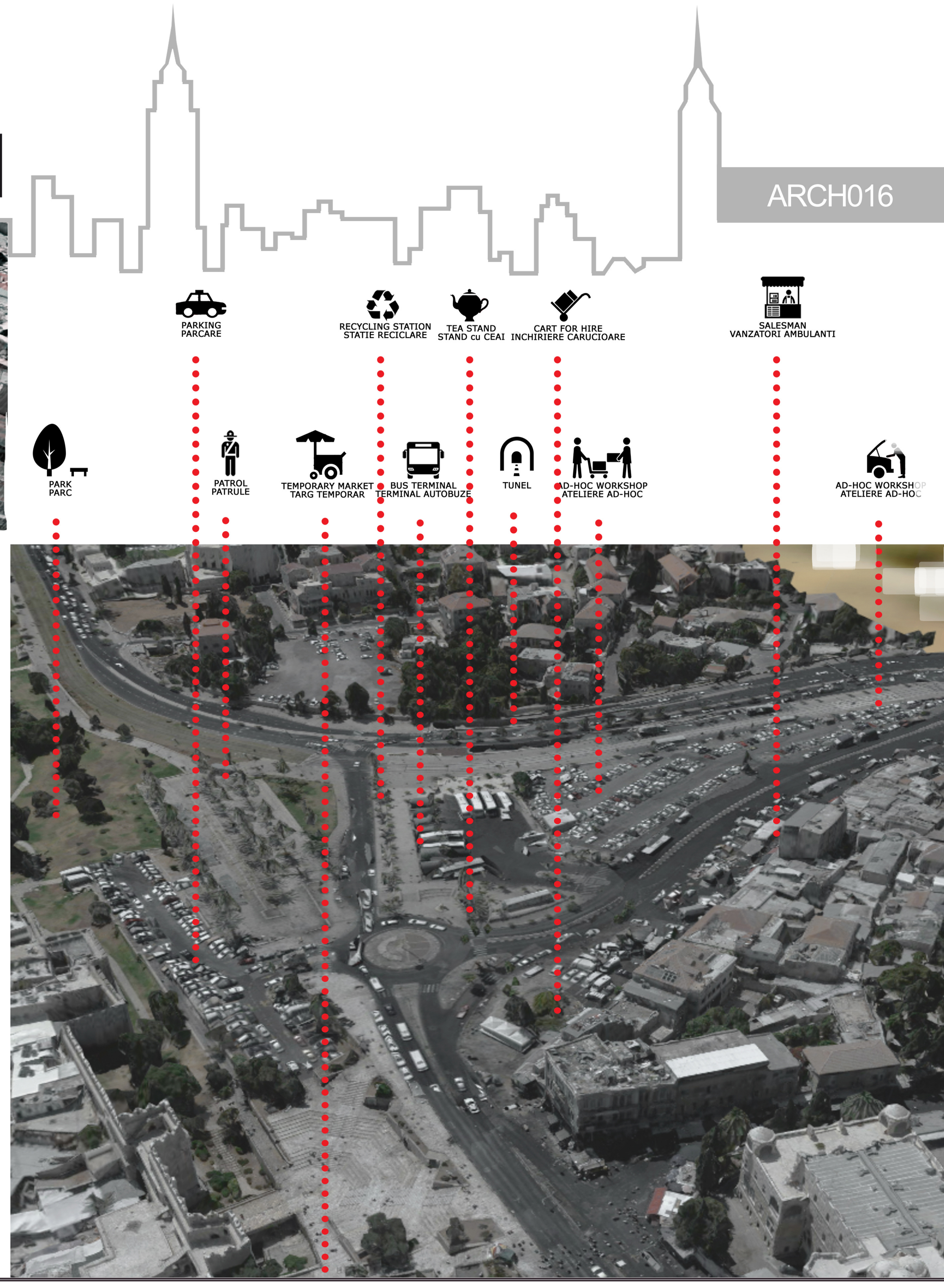
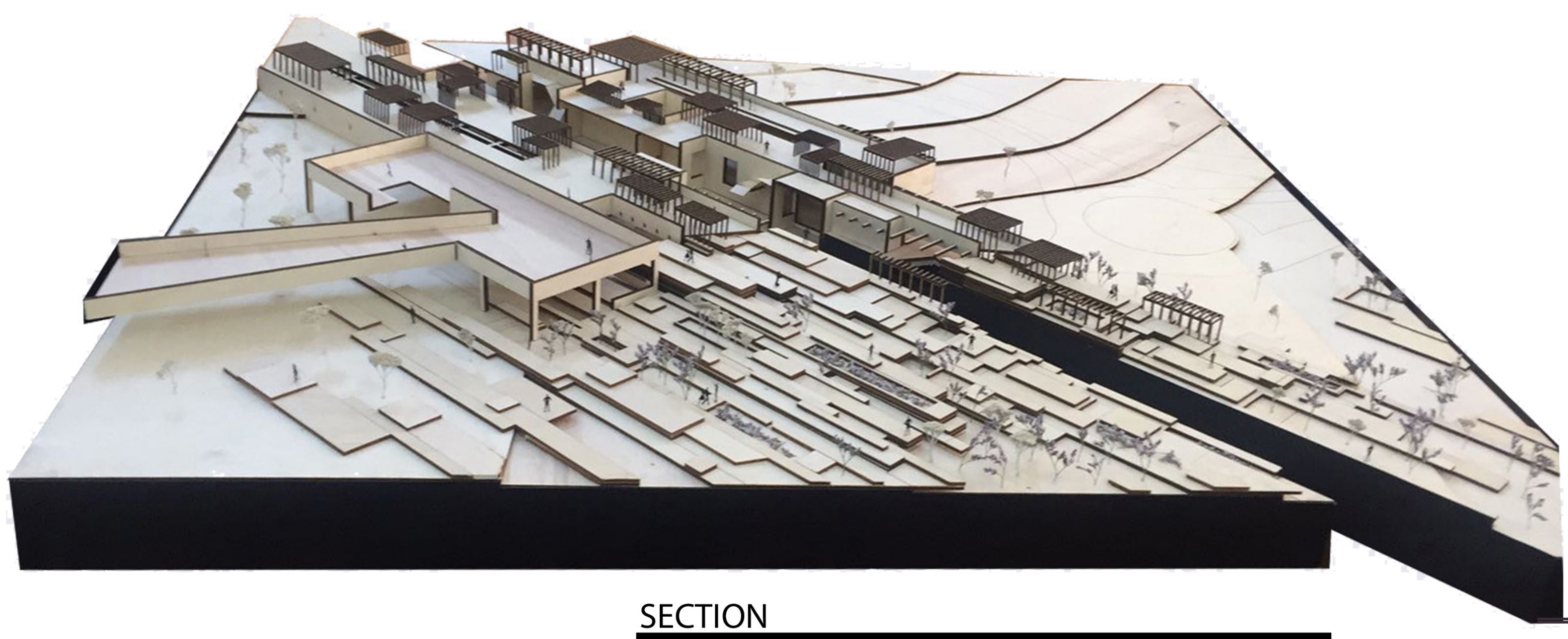
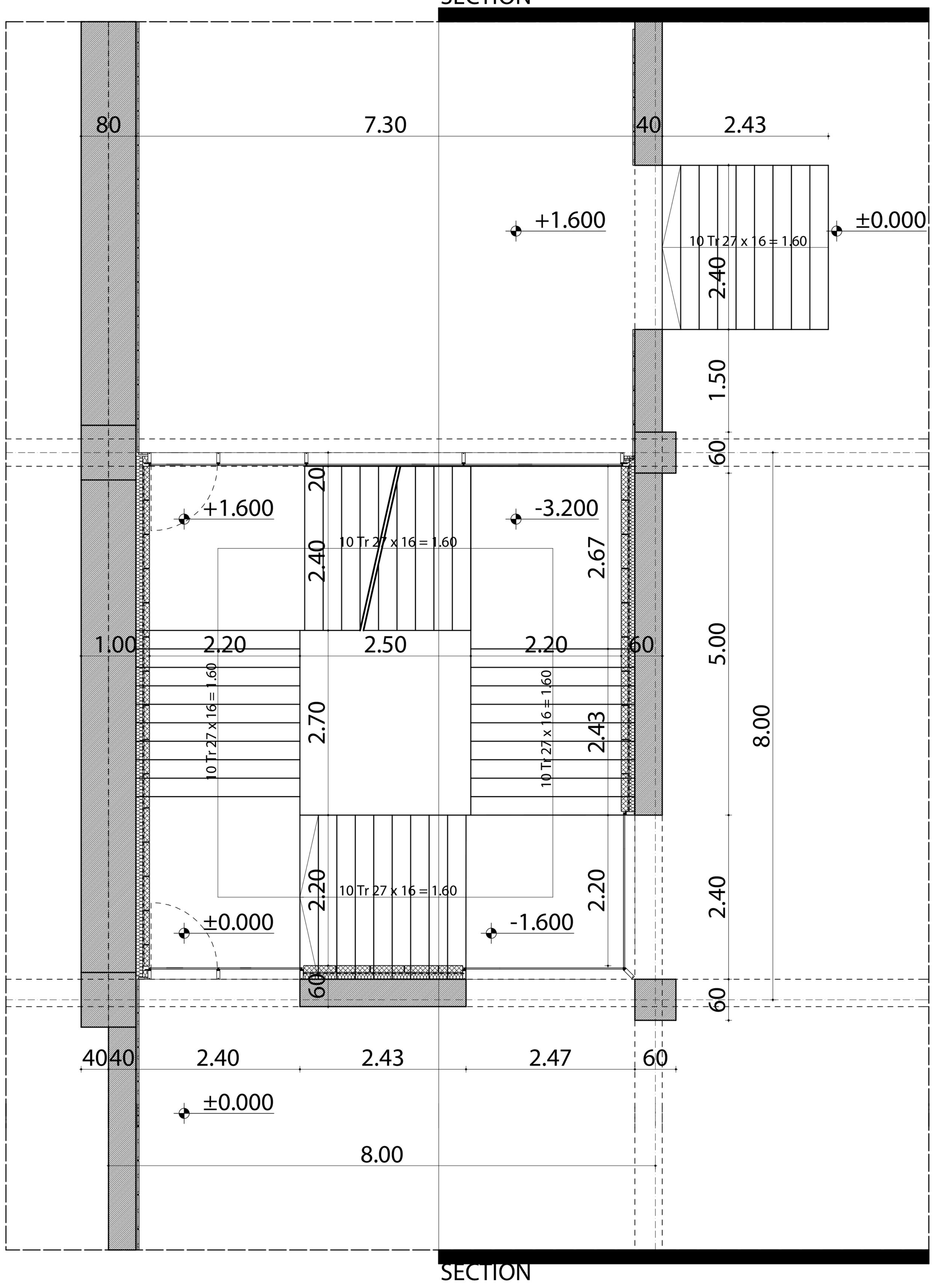


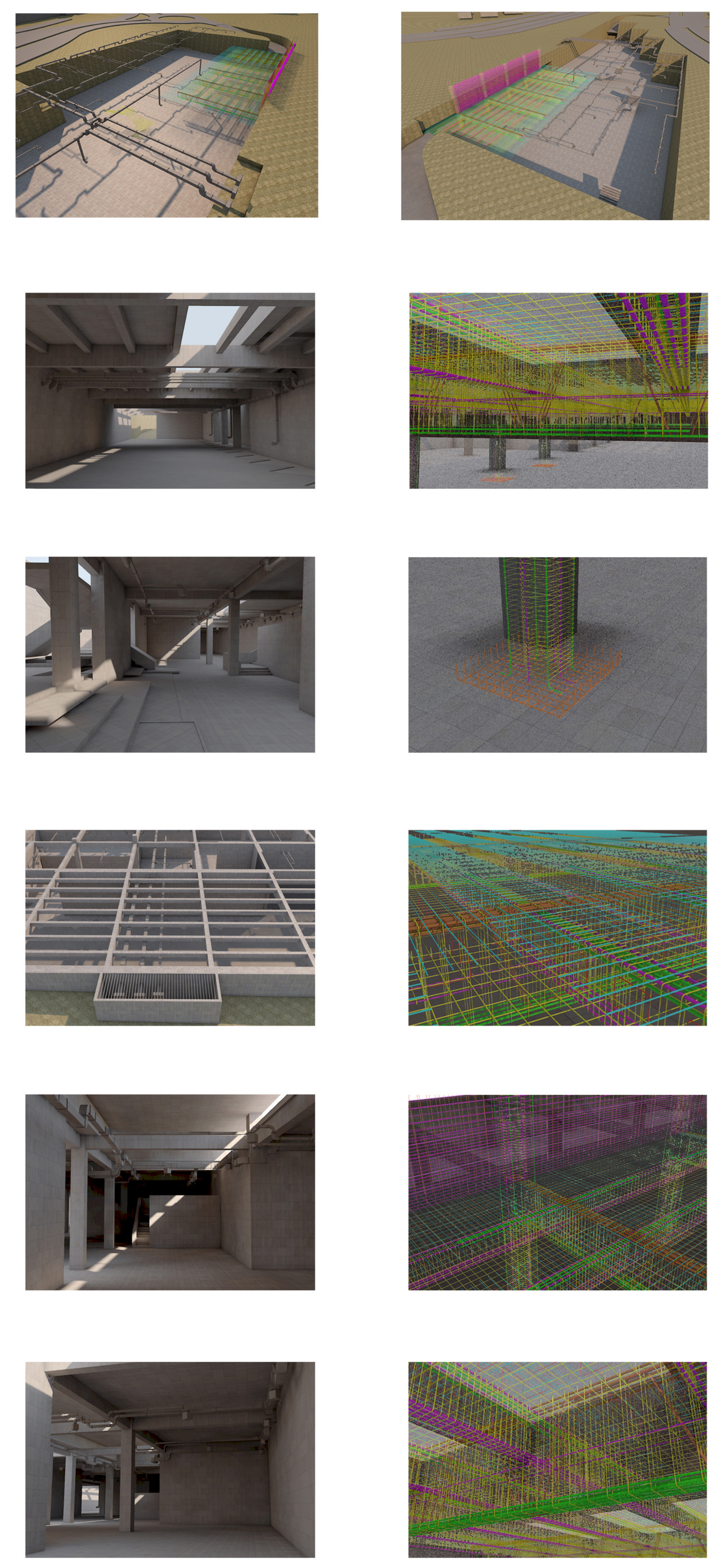


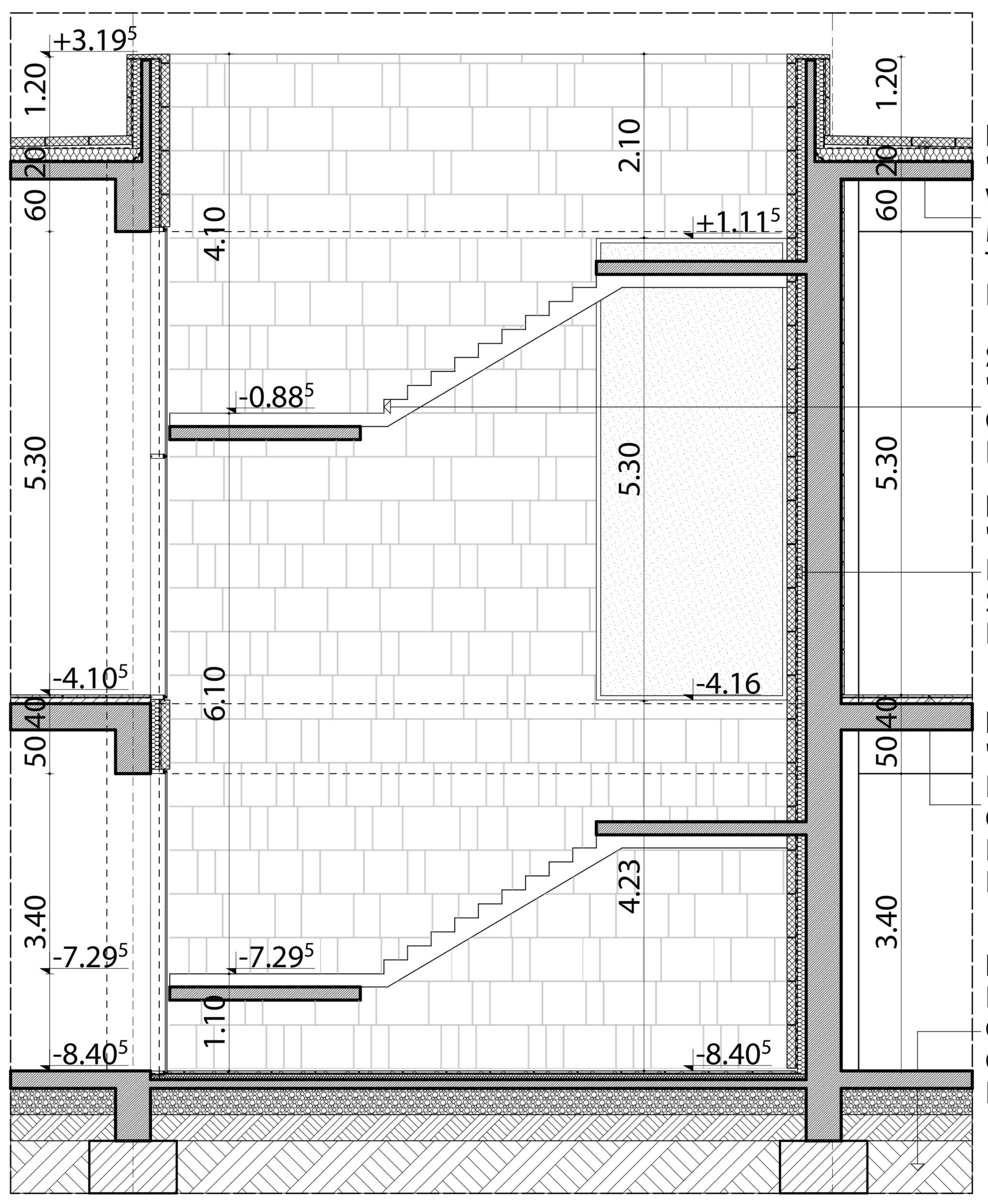


SECTION



SECTION





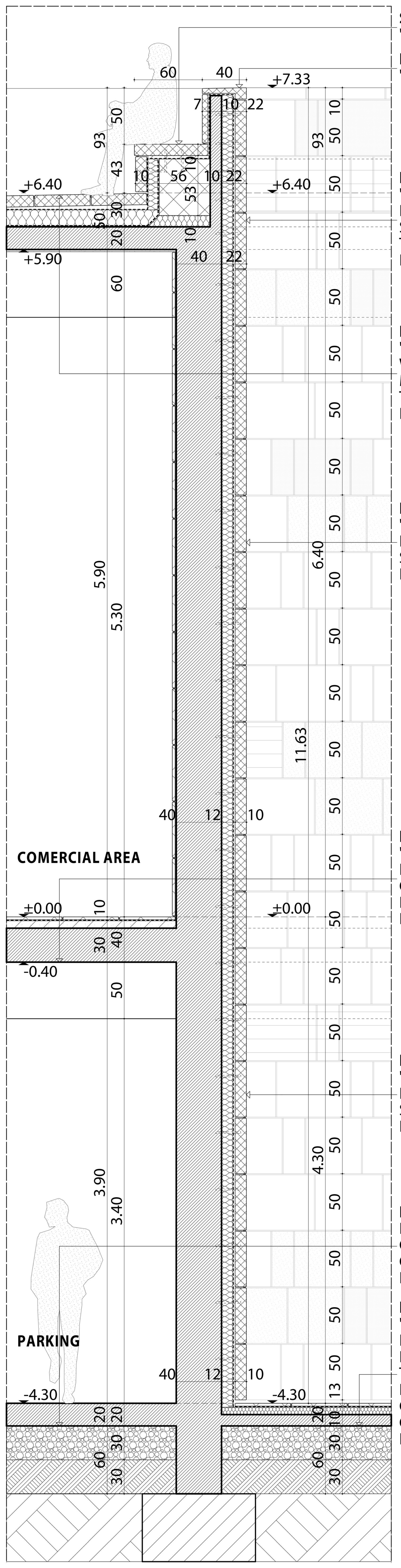
Roof composite
'Jerusalem' limestone, sandblasted finish, 1% slope
Waterproofing membrane, 2 layers
Moisture retention layer
Thermal insulation layer 200mm
Reinforced concrete slab 200mm

Stair composite
'Jerusalem' limestone, sandblasted finish
Cement based stone adhesive
Reinfored concrete ramps and treads 150mm

Exterior wall composite
'Jerusalem' limestone, various finishes
Polypropylene rainproof membrane
Steel suporting structure
Reinforced concrete wall 400mm

Interior slab composite
'Jerusalem' limestone, various finishes
Epoxy resin vapour barrier
Concrete screed, 70mm
Polyethylene membrane
Reinforced concrete slab 300mm

Parking slab composite
Reinforced concrete slab 200mm, smooth finish
Gravel water break layer 300mm
Compacted earth 300mm
Natural earth



Sitting surface
'Jerusalem' limestone, bush-hammered surface

Parapet coping
'Jerusalem' limestone, polished finish

Exterior wall composite
'Jerusalem' limestone, various finishes
Polypropylene rainproof membrane
Steel suporting structure
Thermal insulation layer 100mm
Reinforced concrete wall 100mm

Roof composite
'Jerusalem' limestone, sandblasted finish, 1% slope
Waterproofing membrane, 2 layers
Moisture retention layer
Thermal insulation layer 200mm
Reinforced concrete slab 200mm

Exterior wall composite
'Jerusalem' limestone, various finishes
Polypropylene rainproof membrane
Steel suporting structure
Reinforced concrete wall 400mm

Interior slab composite
'Jerusalem' limestone, various finishes
Epoxy resin vapour barrier
Concrete screed, 70mm
Polyethylene membrane
Reinforced concrete slab 300mm

Exterior wall composite
'Jerusalem' limestone, various finishes
Polypropylene rainproof membrane
Steel suporting structure
Reinforced concrete wall, 400mm

Parking slab composite
Reinforced concrete slab 200mm, smooth finish
Gravel water break layer 300mm
Compacted earth 300mm
Natural earth

Exterior ground slab composite
'Jerusalem' limestone, various finishes
Epoxy resin vapour barrier
Polyethylene membrane
Thermal insulation layer 70mm
Reinforced concrete slab 200mm, smooth finish
Gravel water break layer 300mm
Compacted earth 300mm
Natural earth

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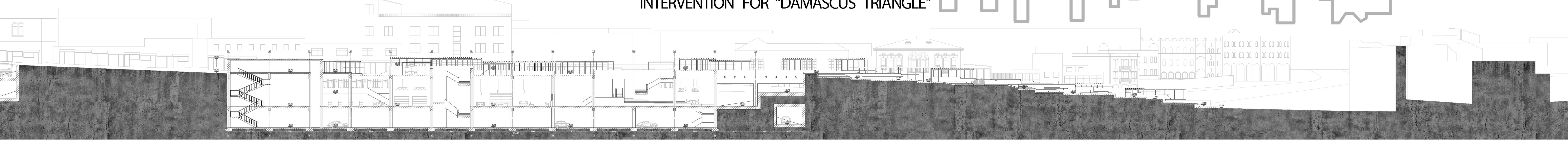
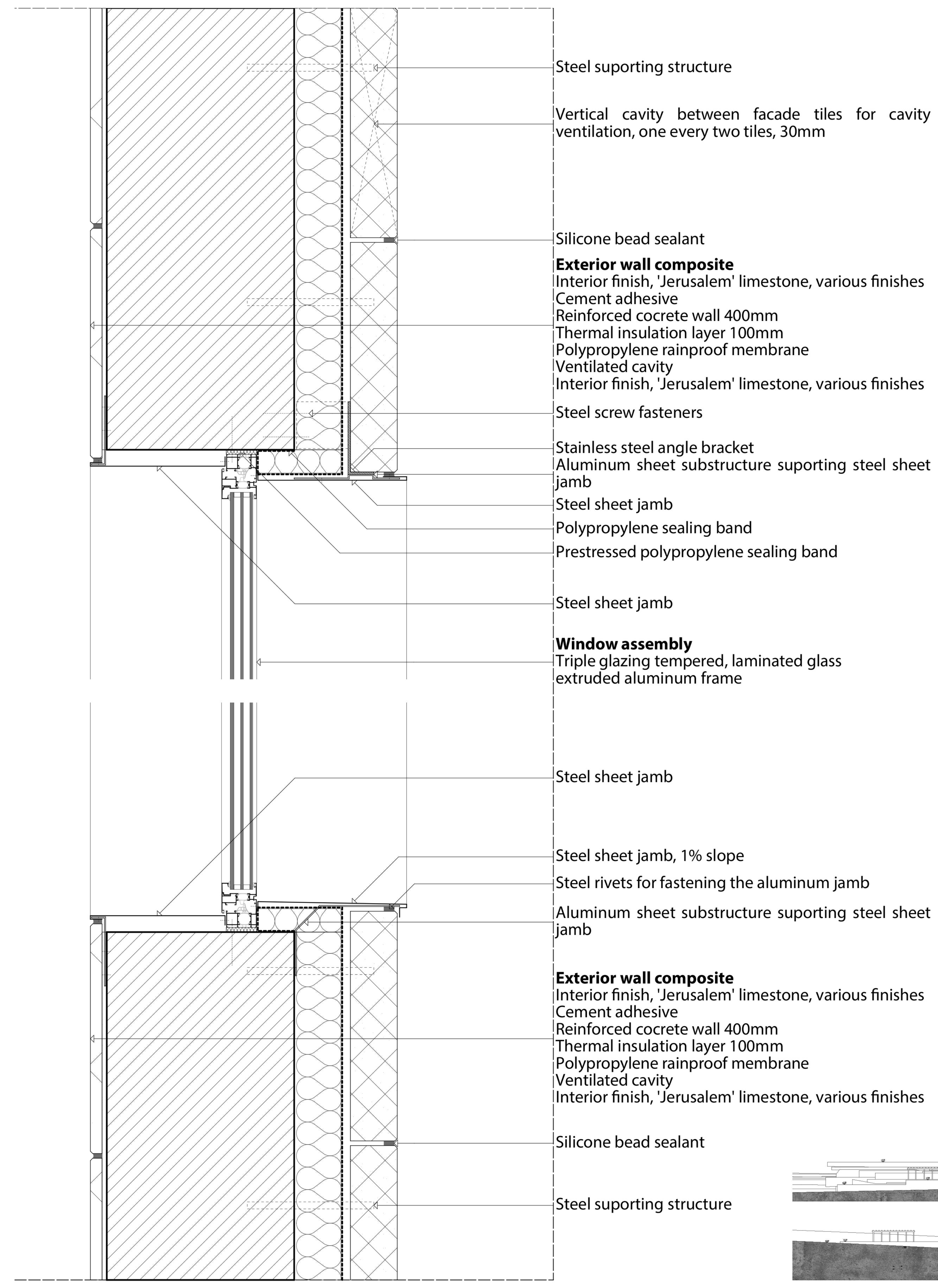
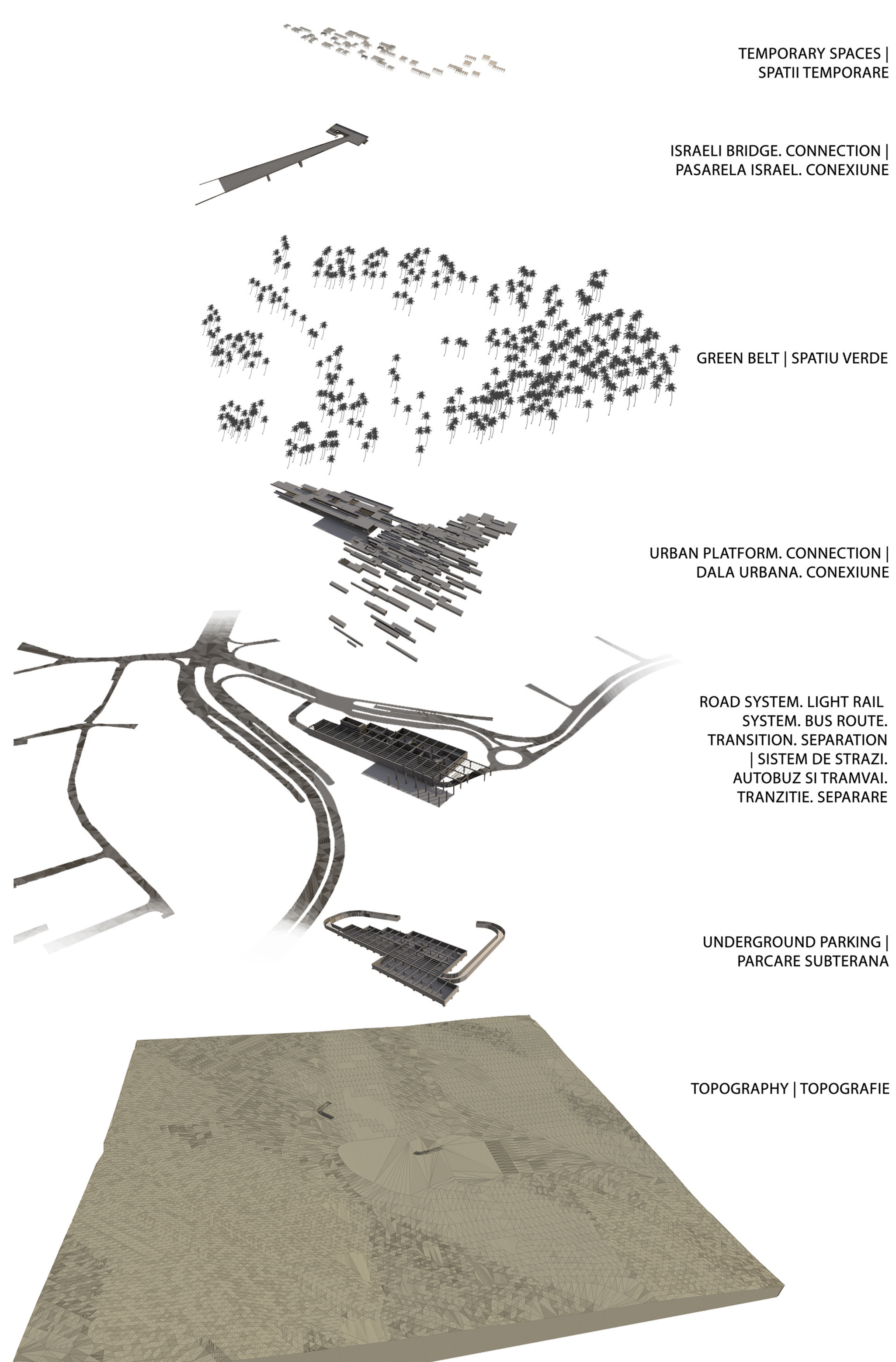
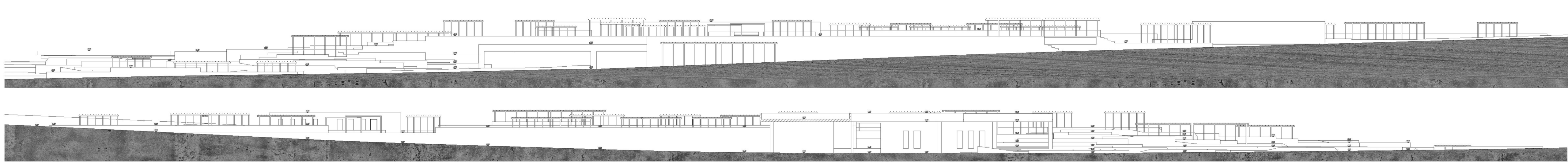
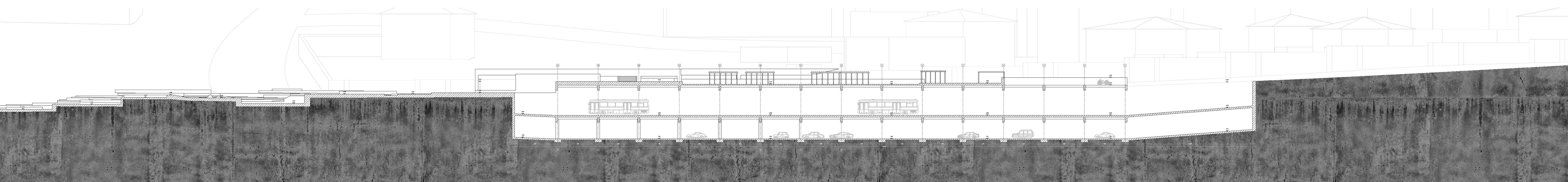






LAYERS OF CONNECTION & SEPARATION | STRATURI DE CONEXIUNE SI SEPARARE





Transversal section
Scale 1:200

SITE CHARACTERISTICS

The building is located in a non-seismic area and it has 2 floors (one underground and another semi-basement).

CLIMATIC CONDITIONS

The characteristic value of the snow load was calculated according to SR EN 1991-1-3-2005.

From the point of view of wind loads:
The reference pressure of the wind was calculated according to theDesign code, Indicative SR EN 1991-1-4-2006.
qref= 0,70 kPa – Wind reference pressure averaged over 10 minutes.

The maximum frost depth is 0,60 - 0.70 m, from the natural land altitude. Taking in consideration the depth of the underground water, the thickness of earth fills and the existing of the very active plastic clays, the minimum foundation depth will be 1.50 m from the actual land altitude, with the condition that the foundations penetrate at least 0.20 m in the good foundation soil.

INFRASTRUCTURE

The chosen solution for foundations is isolated rigid foundations, made of reinforced C25/30 concrete. The isolated rigid foundation will be made on an equalizing layer with 10cm thickness made of C8/10 concrete. Longitudinal and transversal reinforcement was designed from BST 500 S.

RECOMMENDATIONS:

For the foundation digging, it is recommended to execute the excavation at a higher benchmark with 0,15- 0,20m over the foundation benchmark and it will be brought at the benchmark that was before the concrete casting.
It is recommended a careful execution for the pavement of the Urban Platform. Some of the rain water is collected in the drainage system integrated in the deisgn of each slab from the Urban Platform. Therefore, the water flows towards the gardens next to the Old City Walls of Jerusalem. This solution will not allow any water infiltration in the foundation area and it provides an efficient and sustainable way of using the rain water.

GEOTECHICAL CONDITIONS

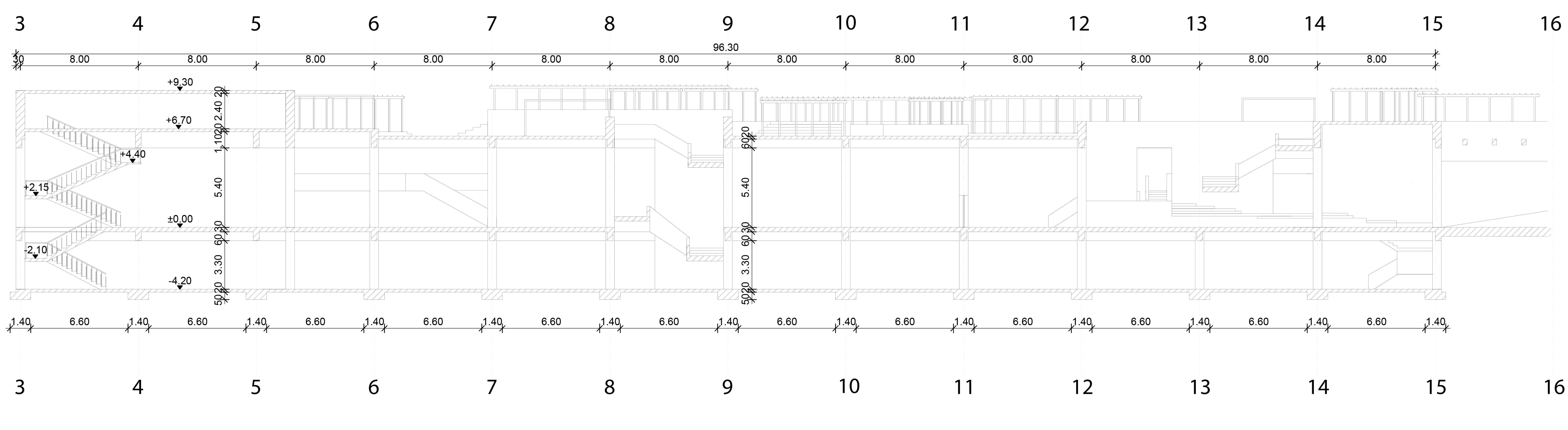
According to the geotechnical land survey, the soil of the site provides local stability in the hypothesis in which the recommendations of this study are respected.
In direct foundation assumption, it is estimated significant differential settlements due to the variation of physico-mechanical properties of the foundation soil, characterized by an accentuated lithological and stratigraphic heterogeneity in the building footprint.
Therefore, it is recommended a foundation through a layer made of a granular material, at least 1,00m thickness, resting on a layer of crushed rocks of 30cm thickness, for the foundation soil consisting of gray-blue clay.

SUPERSTRUCTURE

The structure of the building is based on frames of columns and beams made of monolithic reinforced concrete.
The columns have a rectangular cross section of 60x60cm and 80x80cm.
The beams have rectangular cross section with different sizes as follows:
-The main beams will have 130x40 cm
-The secondary beams will have 70x30 cm
The vertical circulation is achieved through internal staircases designed from monolith reinforced concrete with 15cm thickness of the ramp. This stairs were designed to satisfy a minimum two streams of people, with a 230cm width.

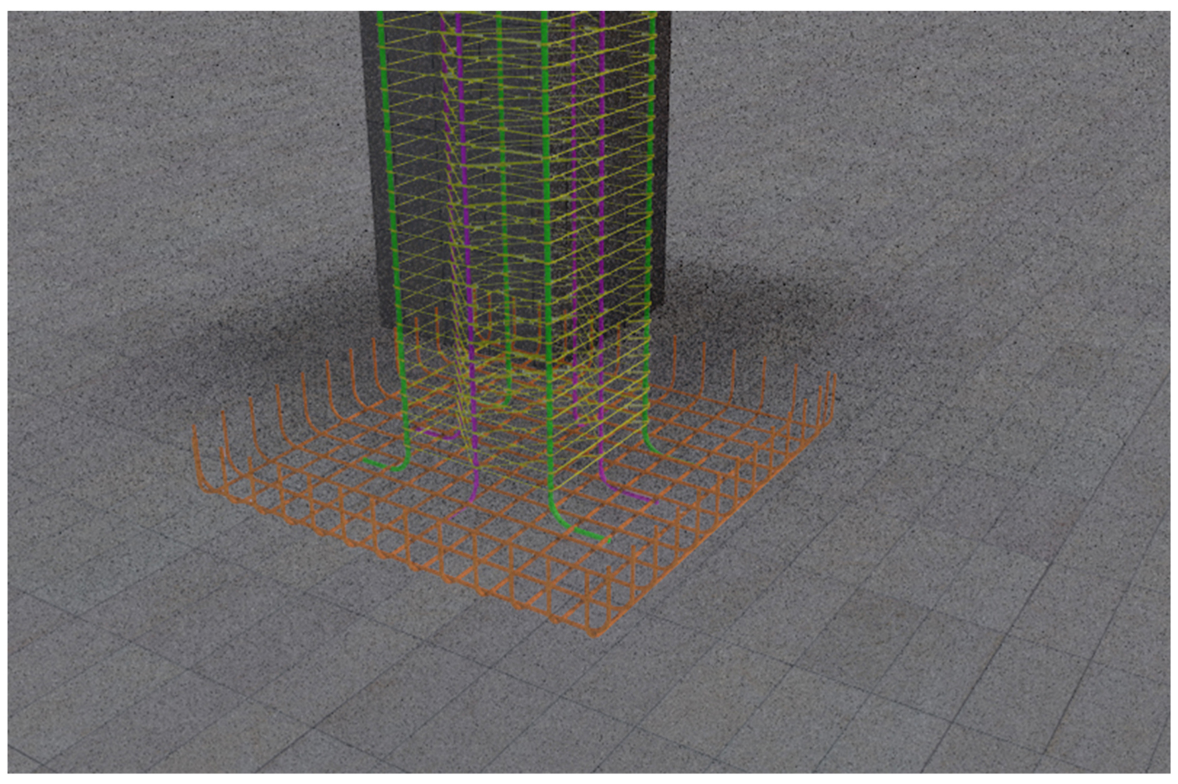
PERFORMANCE REQUIREMENTS FOR A BUILDING

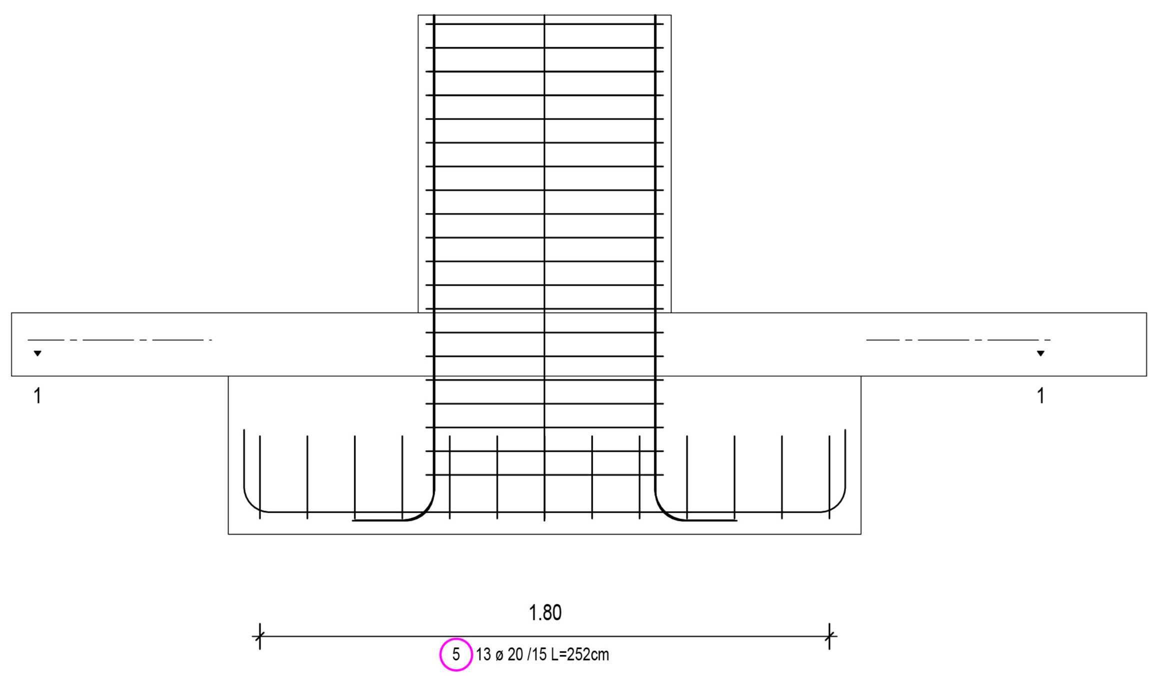
Strength and stability - it must be designed according to the mechanical and physical properties of the soil and to the building weight, in order to transmit loads evenly distributed to the foundation ground. The loads must be considered in their most unfavourable combination.
Exploitation safety – during the lifetime of the building, it must be safe to secure the development of different activities which have to take place in the building.
Fire safety – The resistance of the elements of a structure to collapse, flame protection and heat transmission during a fire is expressed in periods of 2 to 6 hours in order to allow sufficient time for the safe escape of occupants during fire.
In order to manage a proper exploit of the building the following will be forecasted:
-sealed pavements surrounding the building, with a minimum witdh of 1m and the pitch of 5% to the outside.
-the embankments resulted on the score of the systematization will have a pitch of at most 2/3 and the surface will be filled with grass to be sowed.
-gutters will be placed at the basis of the embankments, which will make sure that the rain water can be evacuated.
-town hydric networks will be located at least 3m next to the building's foundation or 1,5m in case of a protection ditch adjustment.



Column footing reinforcement

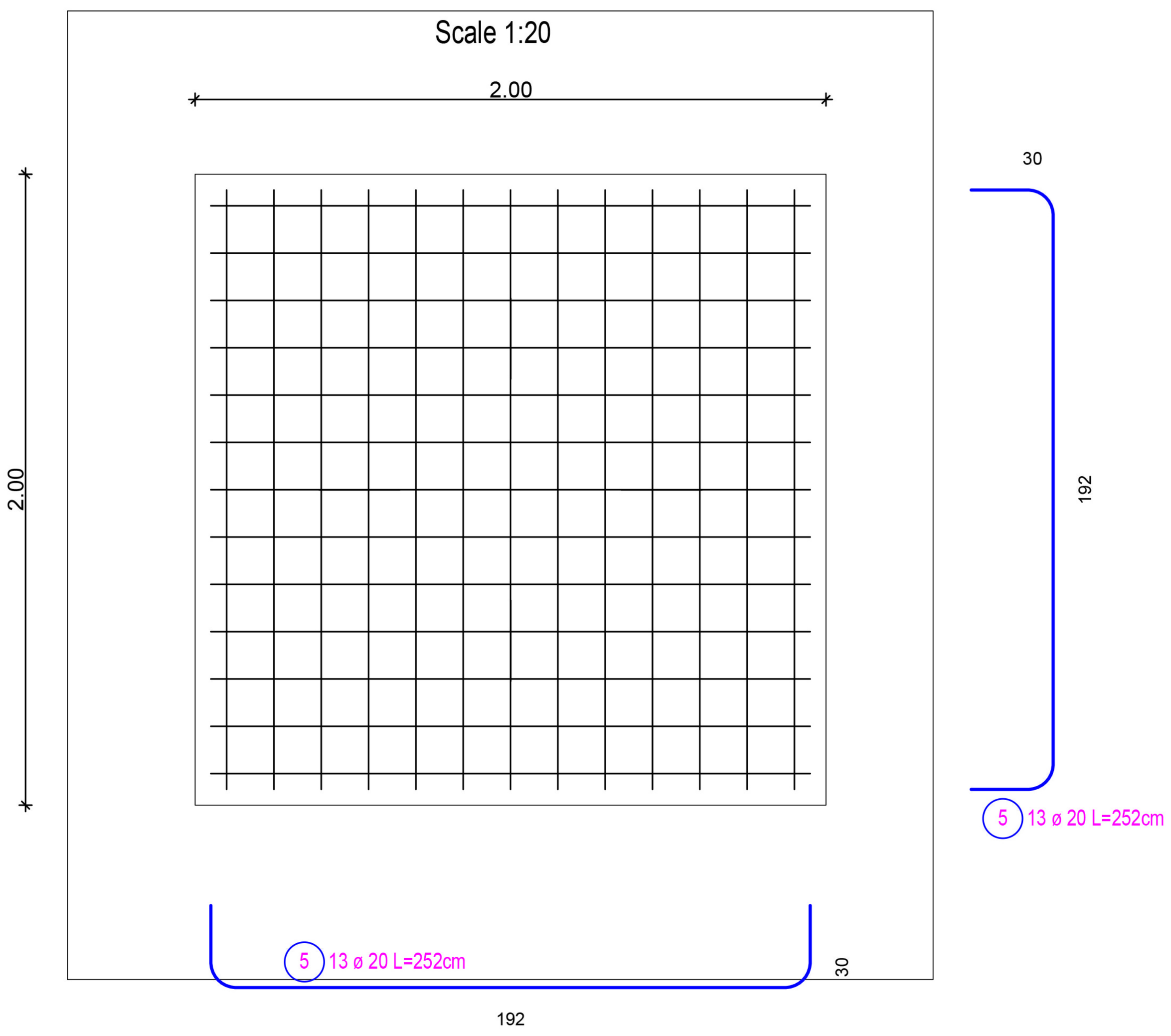
Scale 1:20





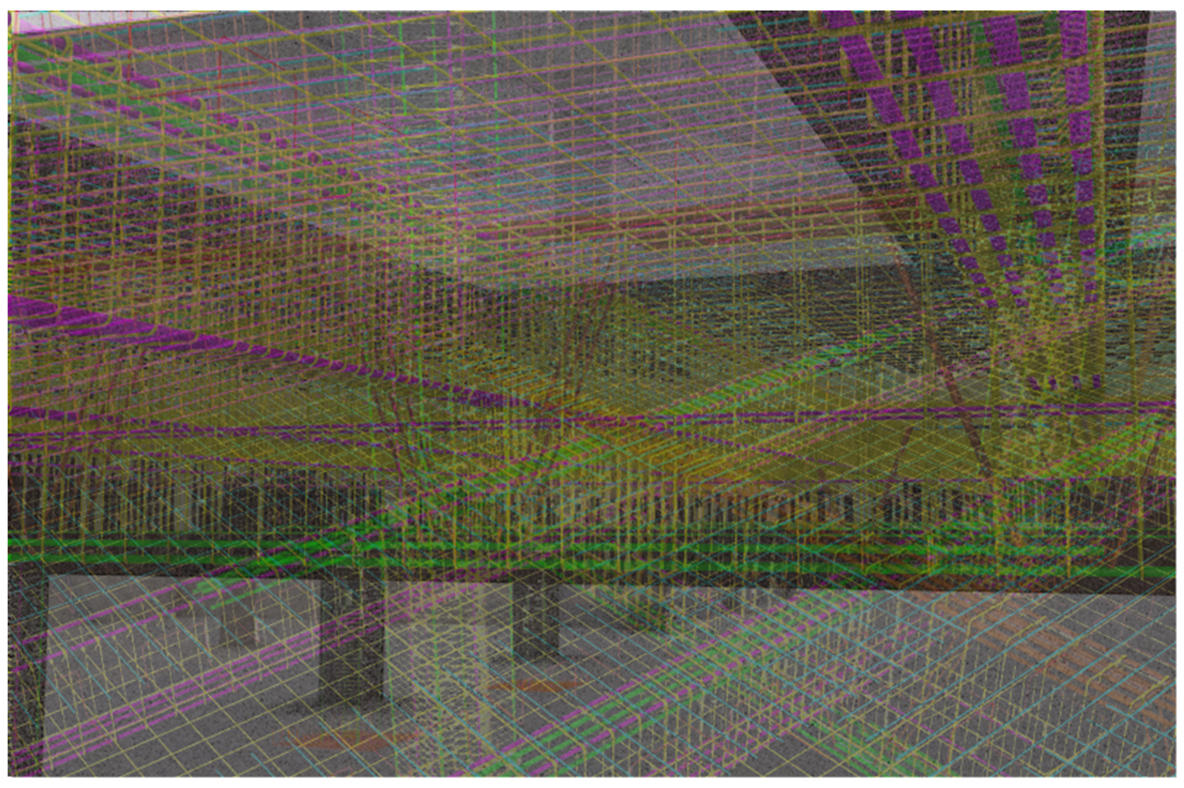
Section 1 - 1

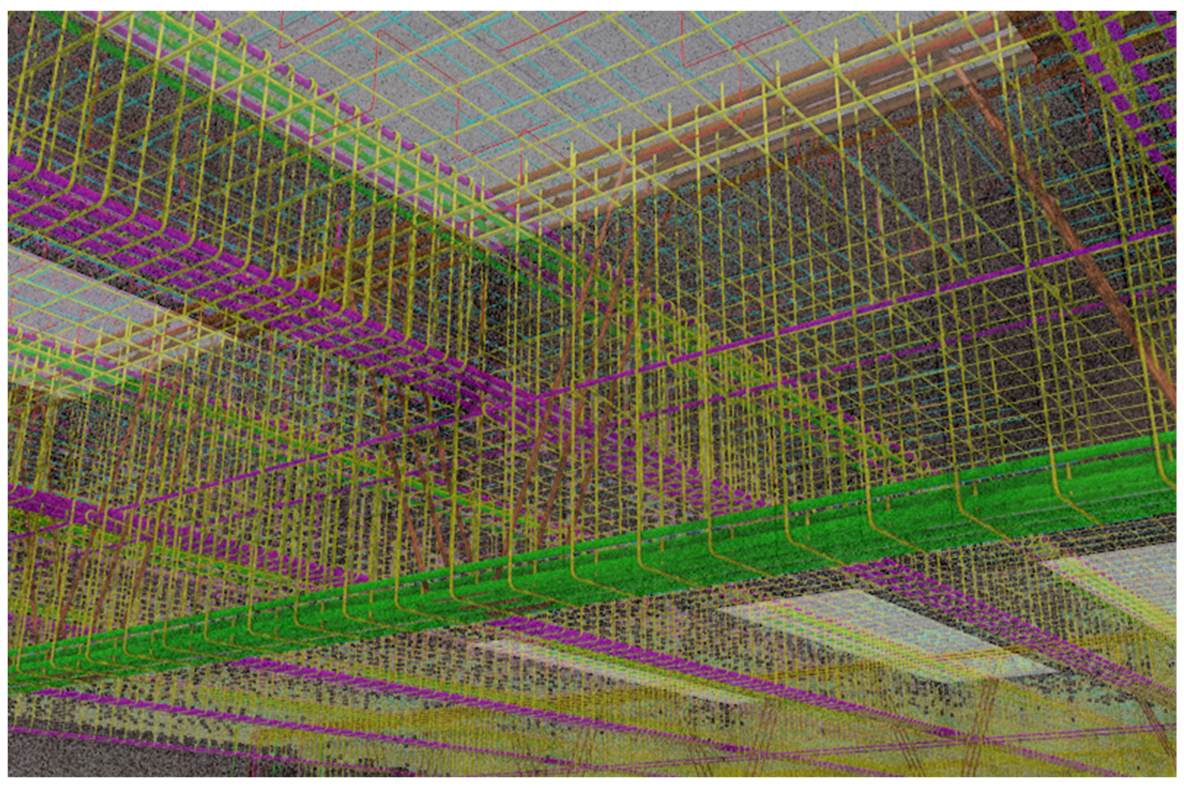
Scale 1:20

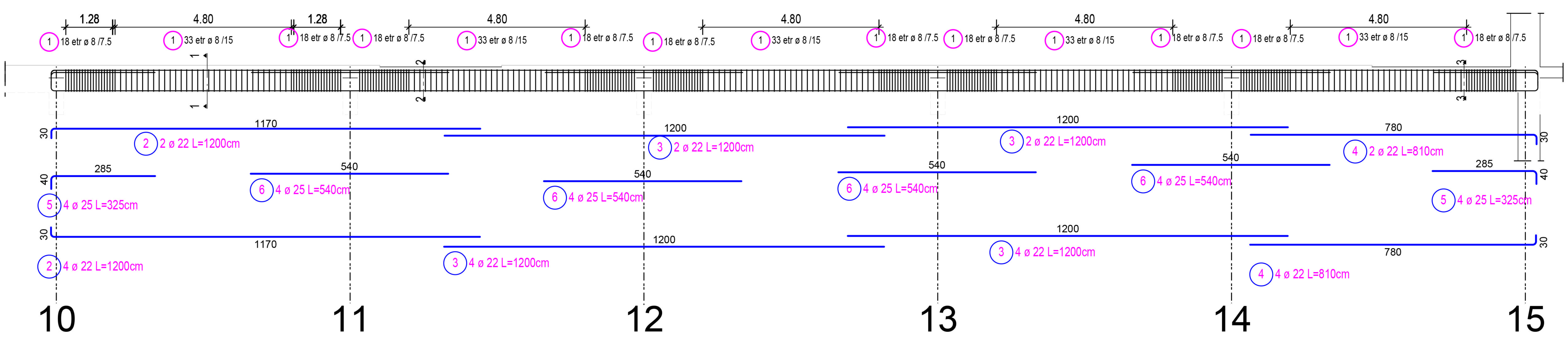


Beam 30x70 detailing

Scale 1:100

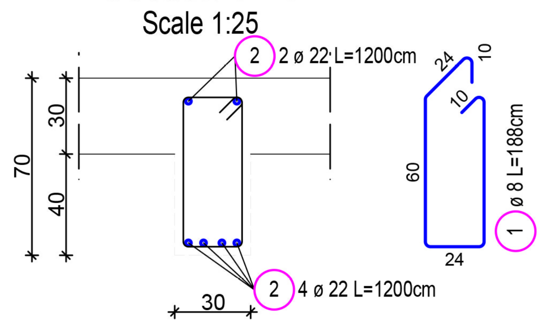






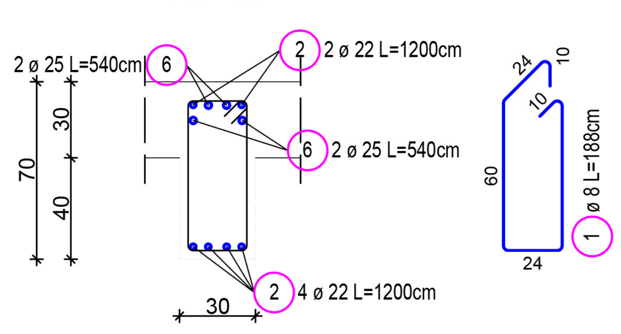
Section 1 - 1

Scale 1:25



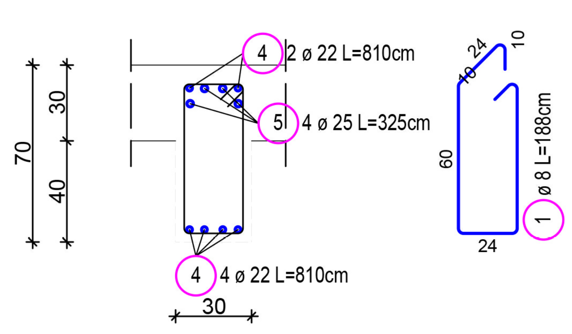
Section 2 - 2

Scale 1:25



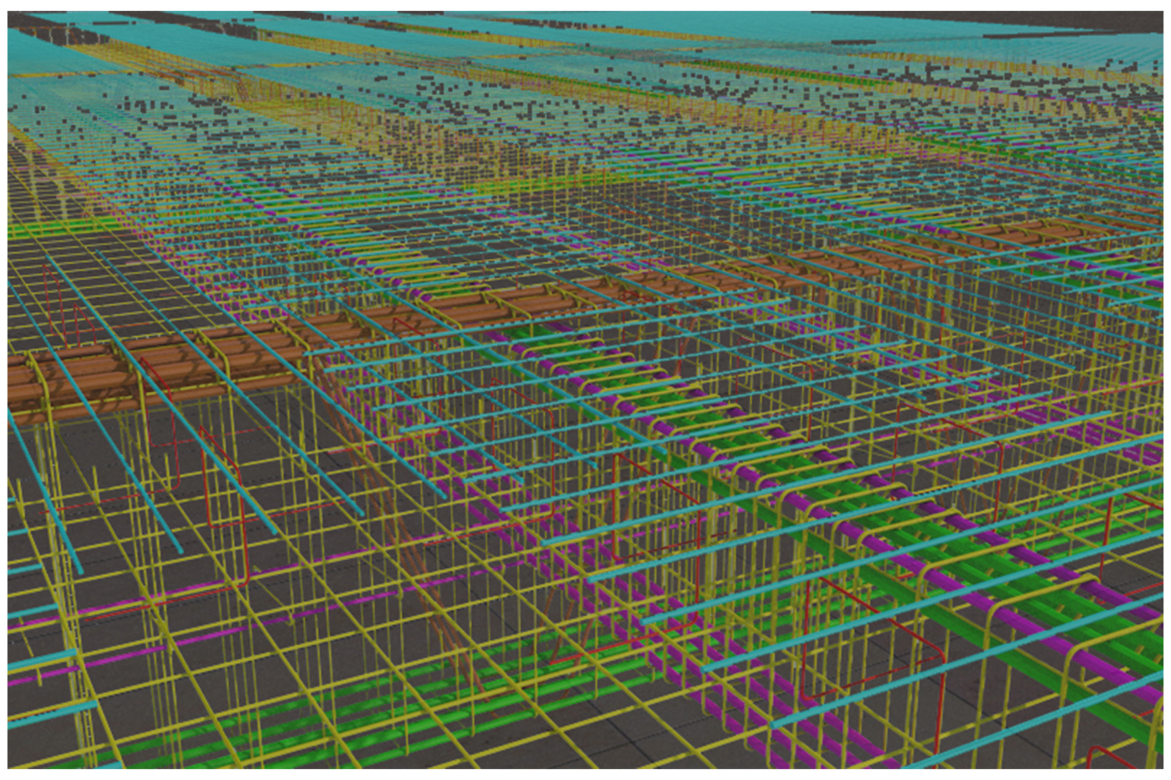
Section 3 - 3

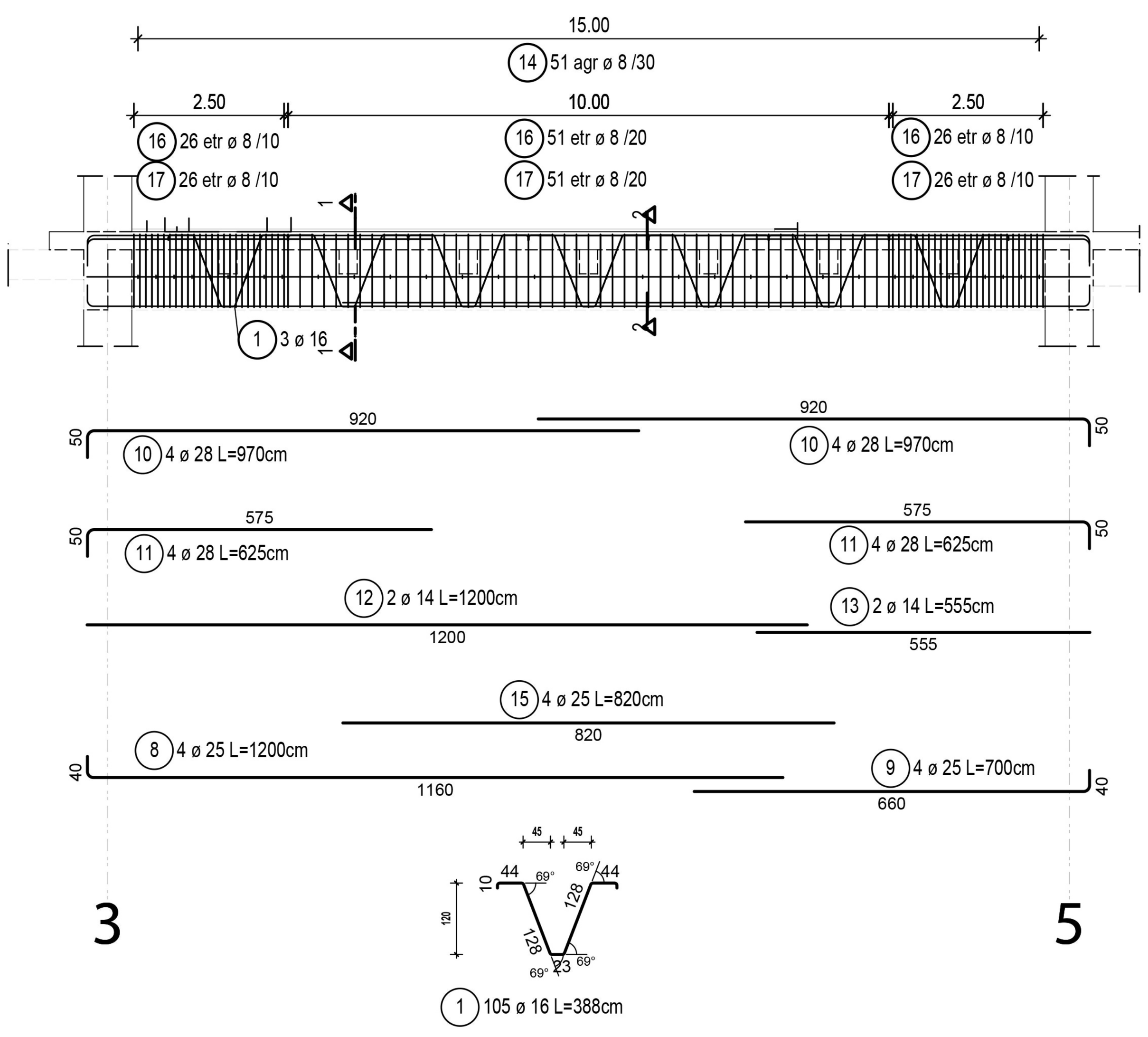
Scale 1:25



Beam 40x130 detailing

Scale 1:100





Section 1 - 1

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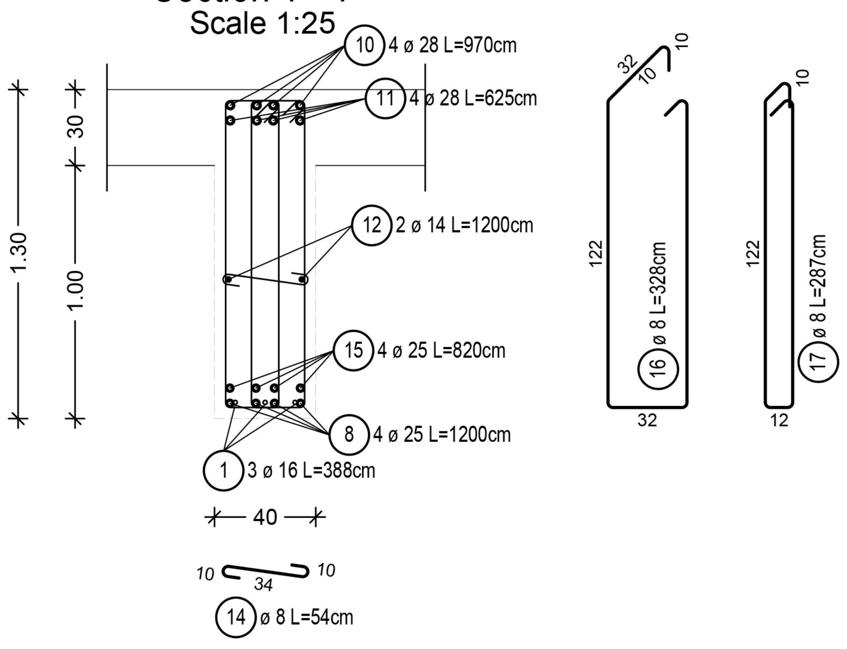

Section 2 - 2

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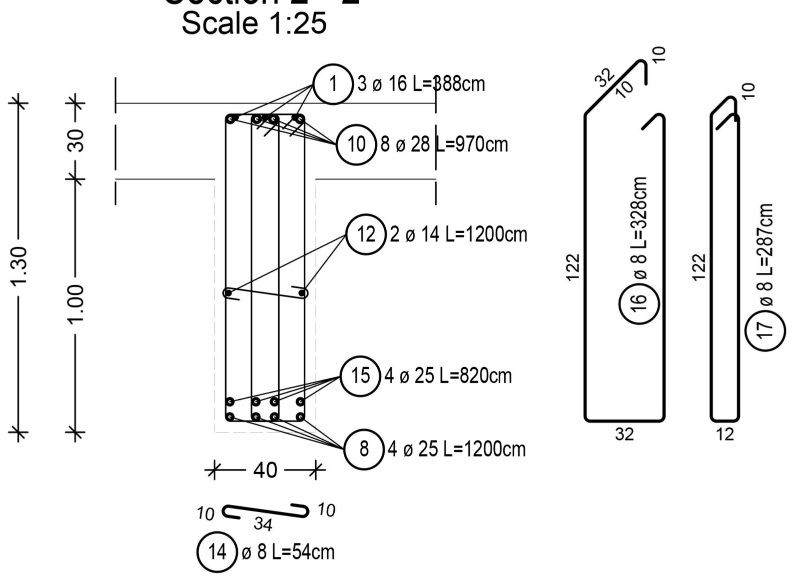
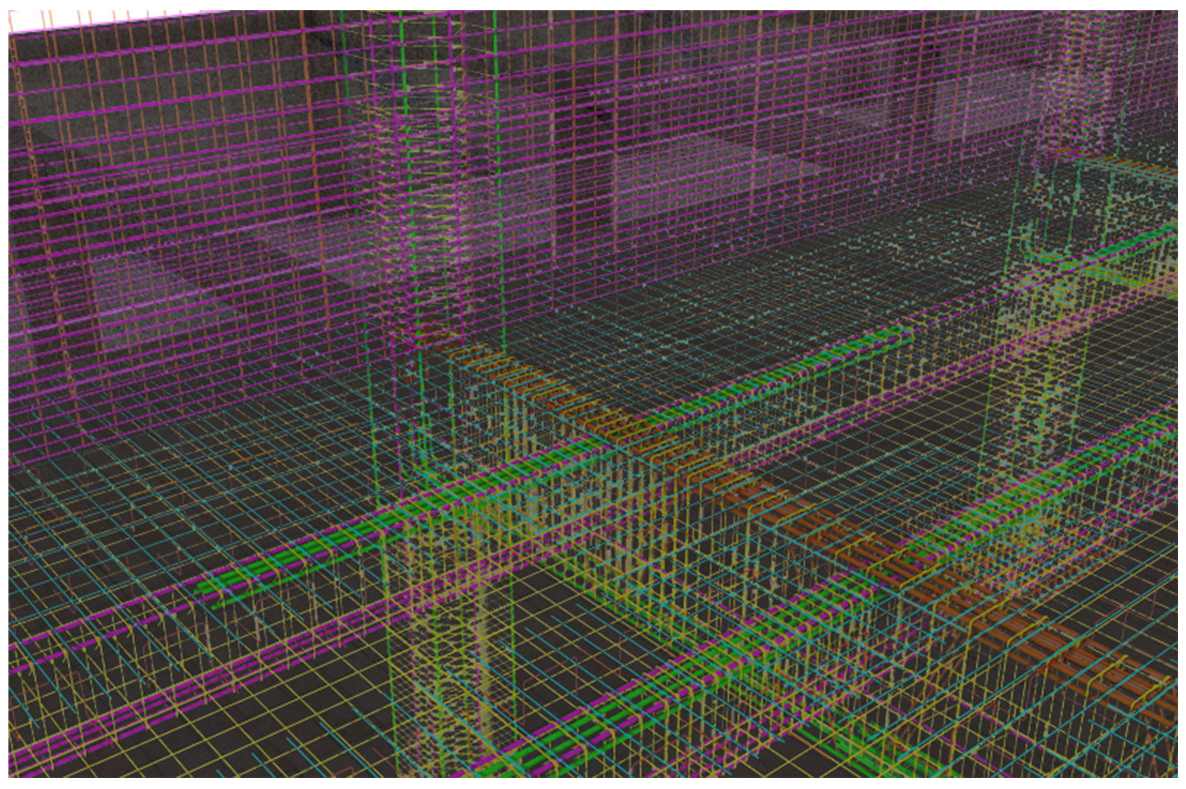
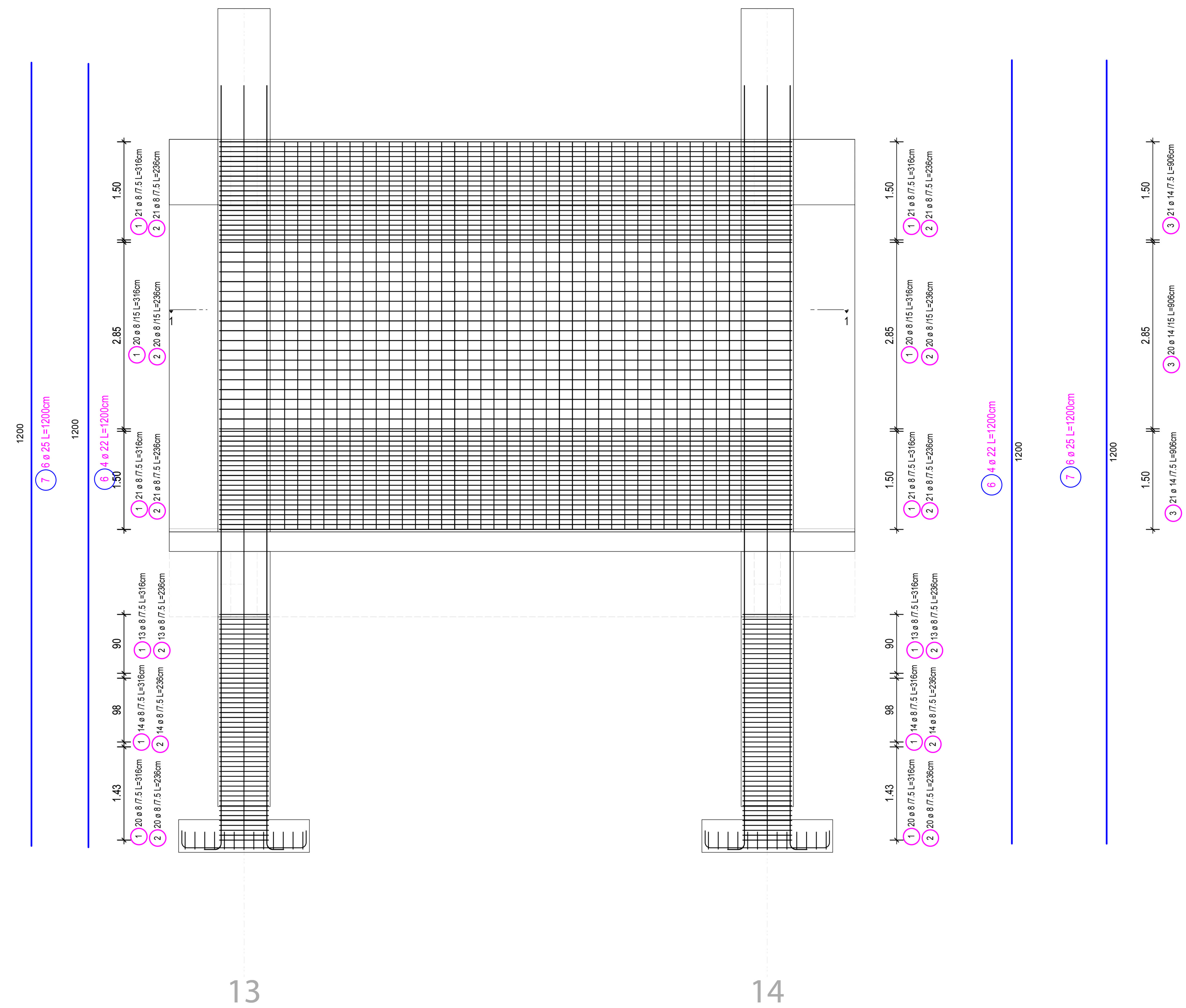


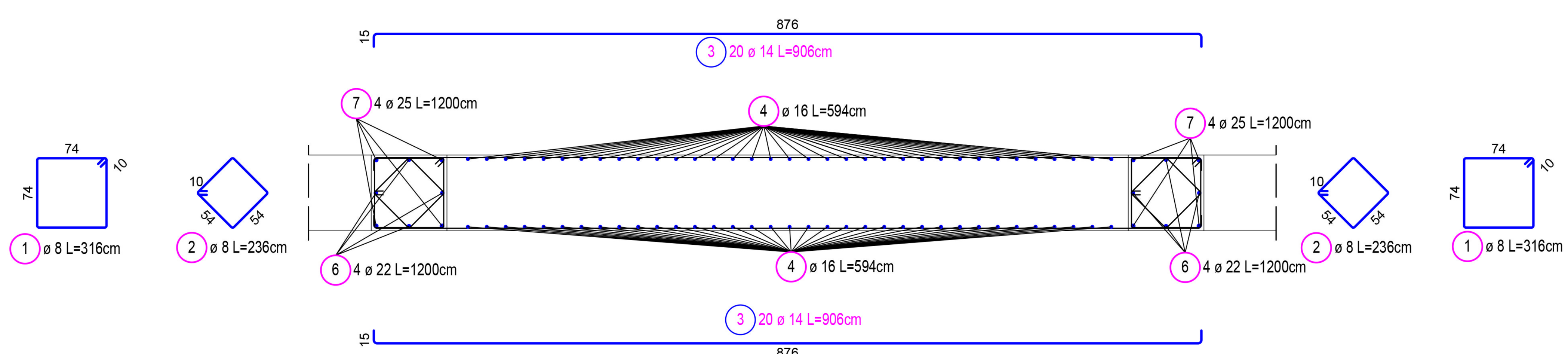
Wall and column reinforcement

Scale 1:50



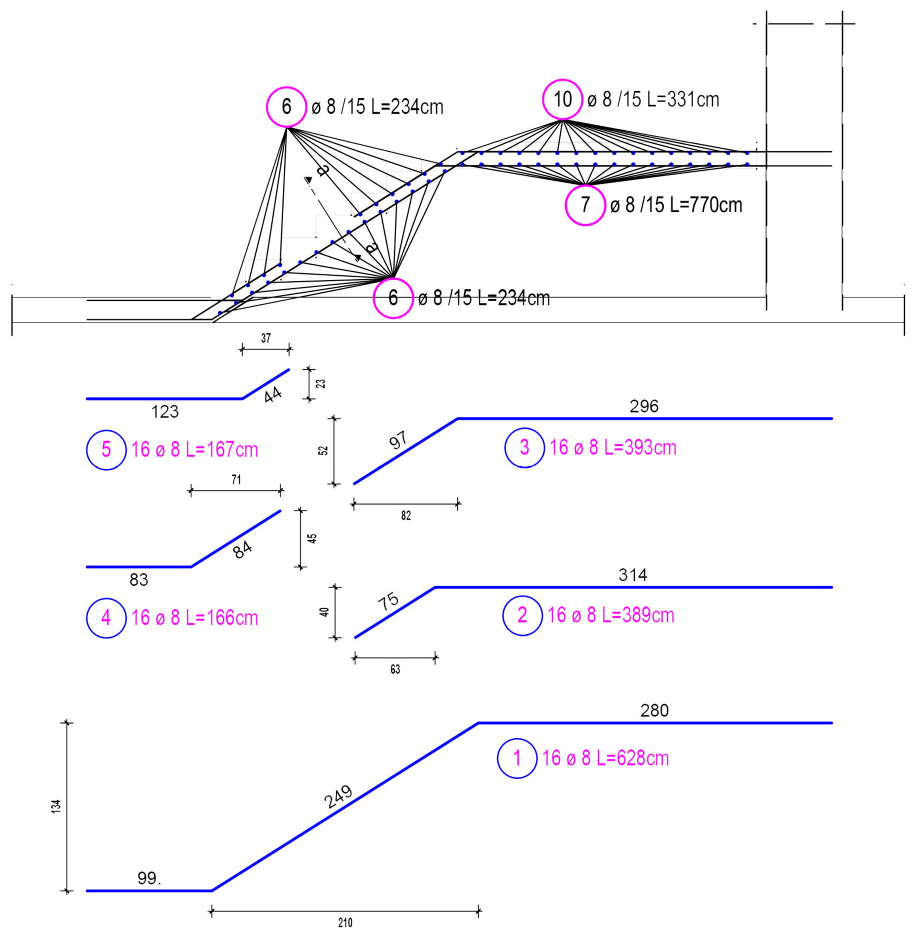


Section 1 - 1

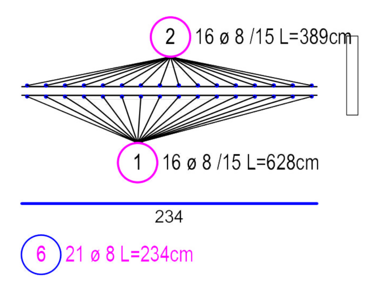


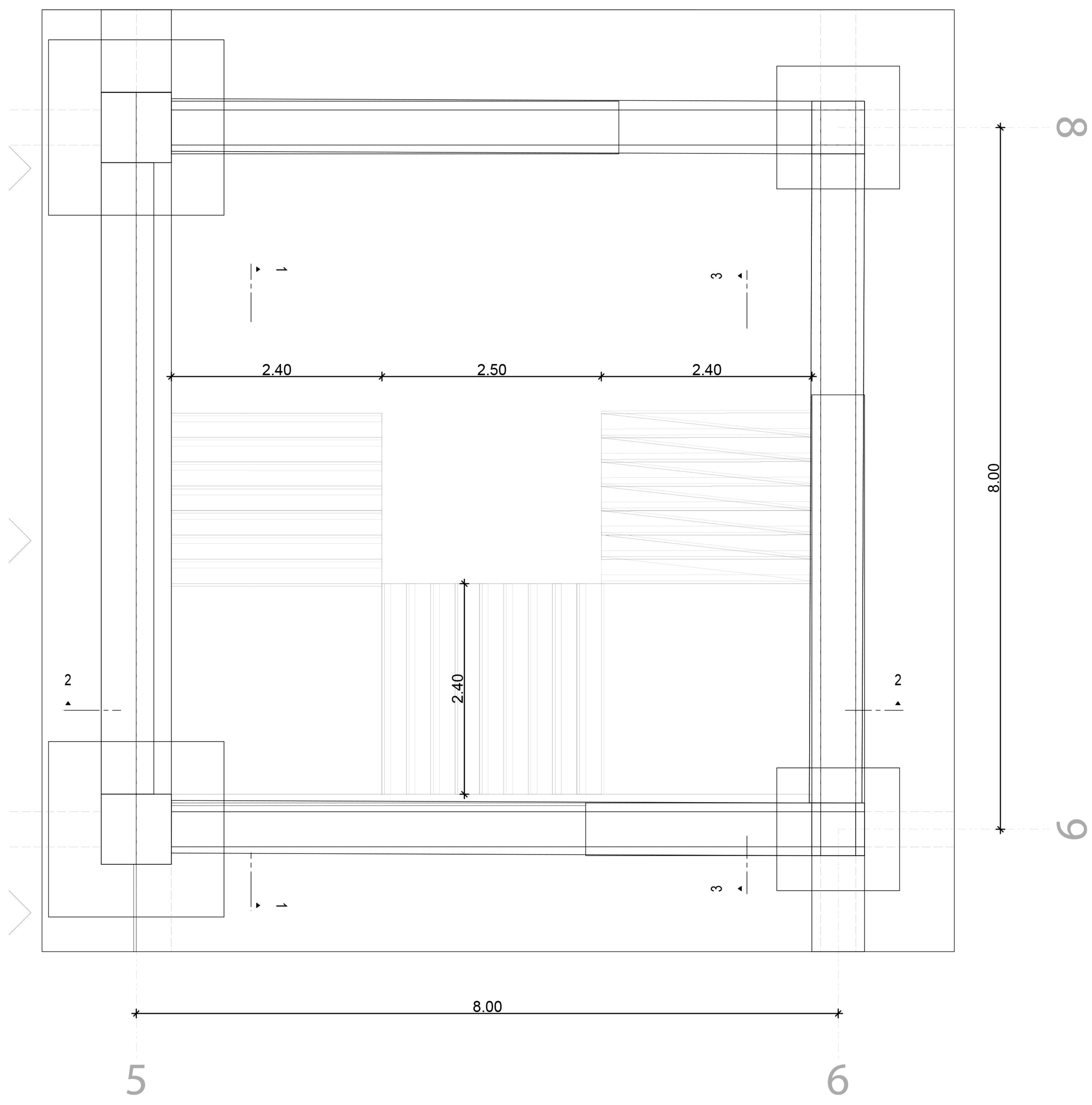
Staircase reinforcement detailing
Scale 1:50

Section 1 - 1
Scale 1:50

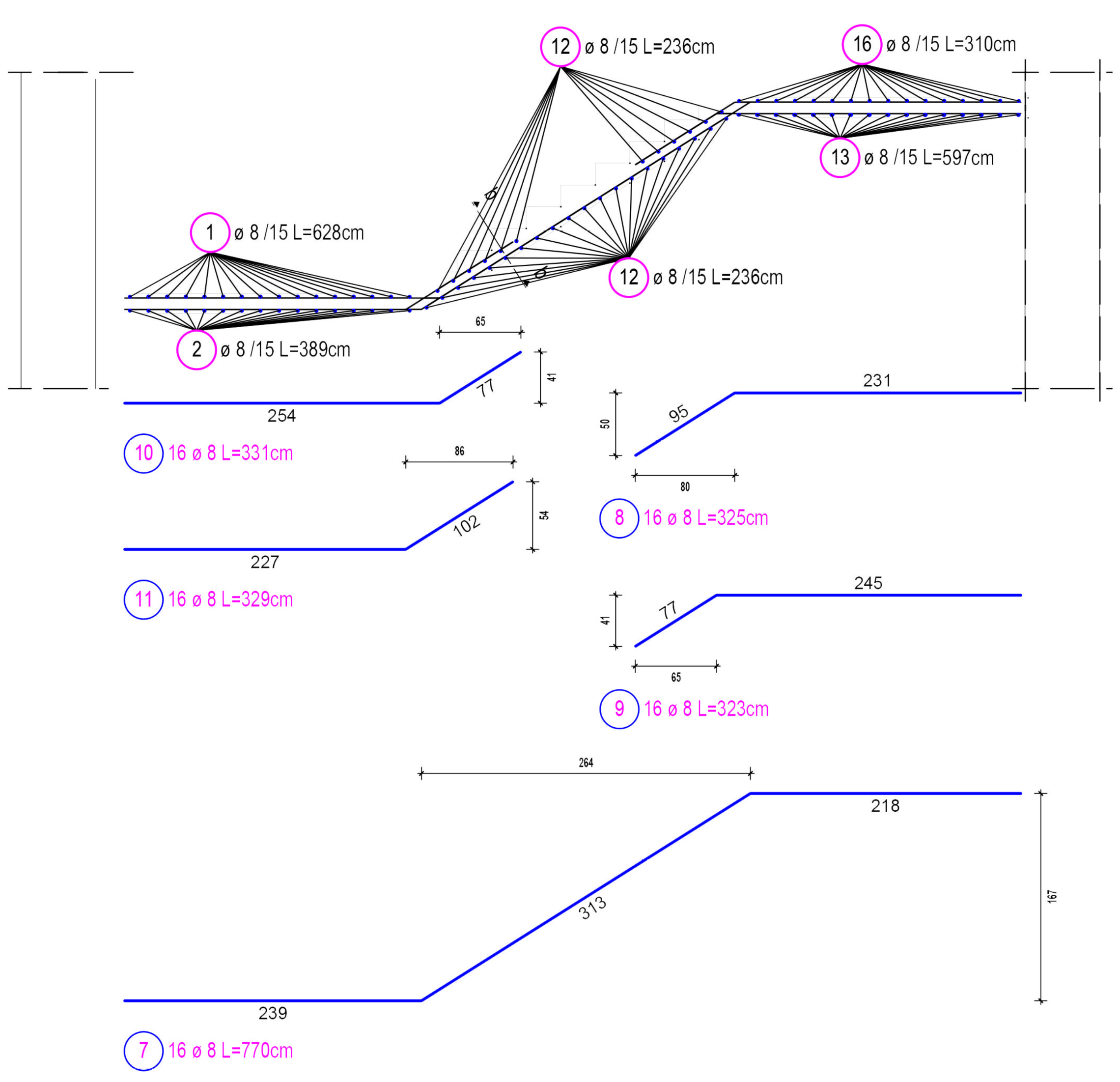


Section a - a

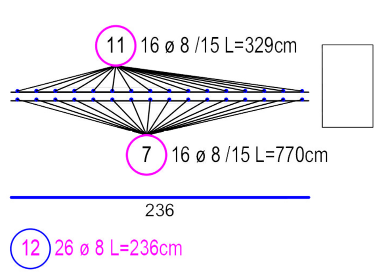




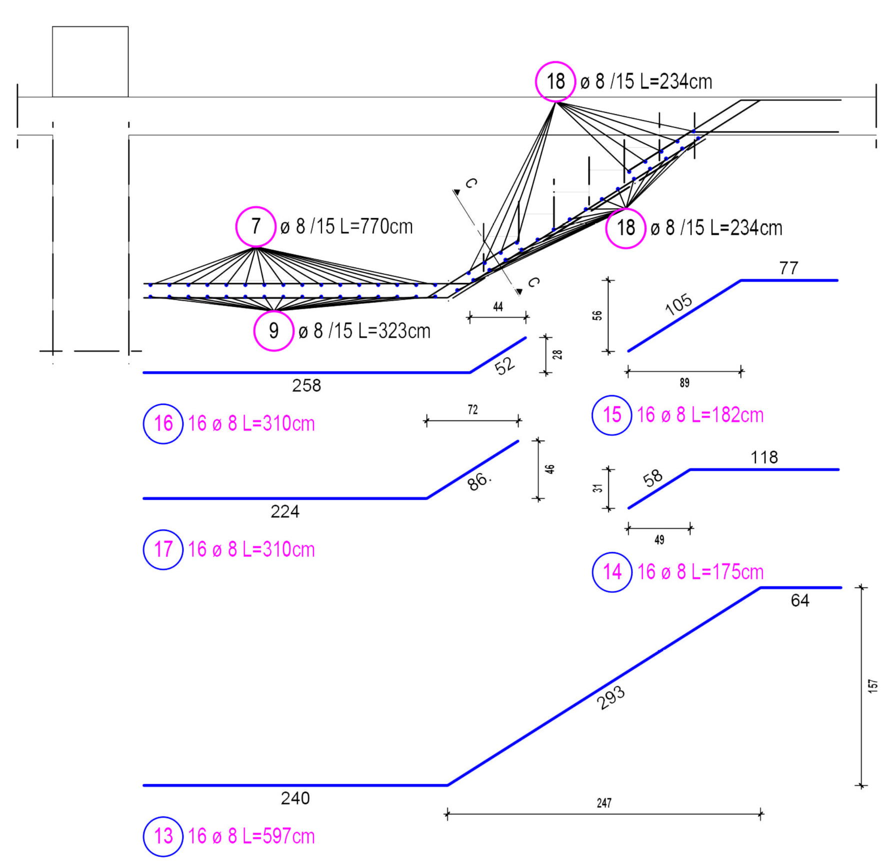
Section 2 - 2
Scale 1:50



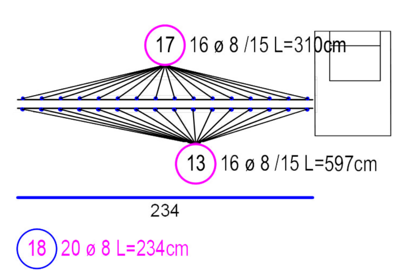
Section b - b



Section 3 - 3
Scale 1:50

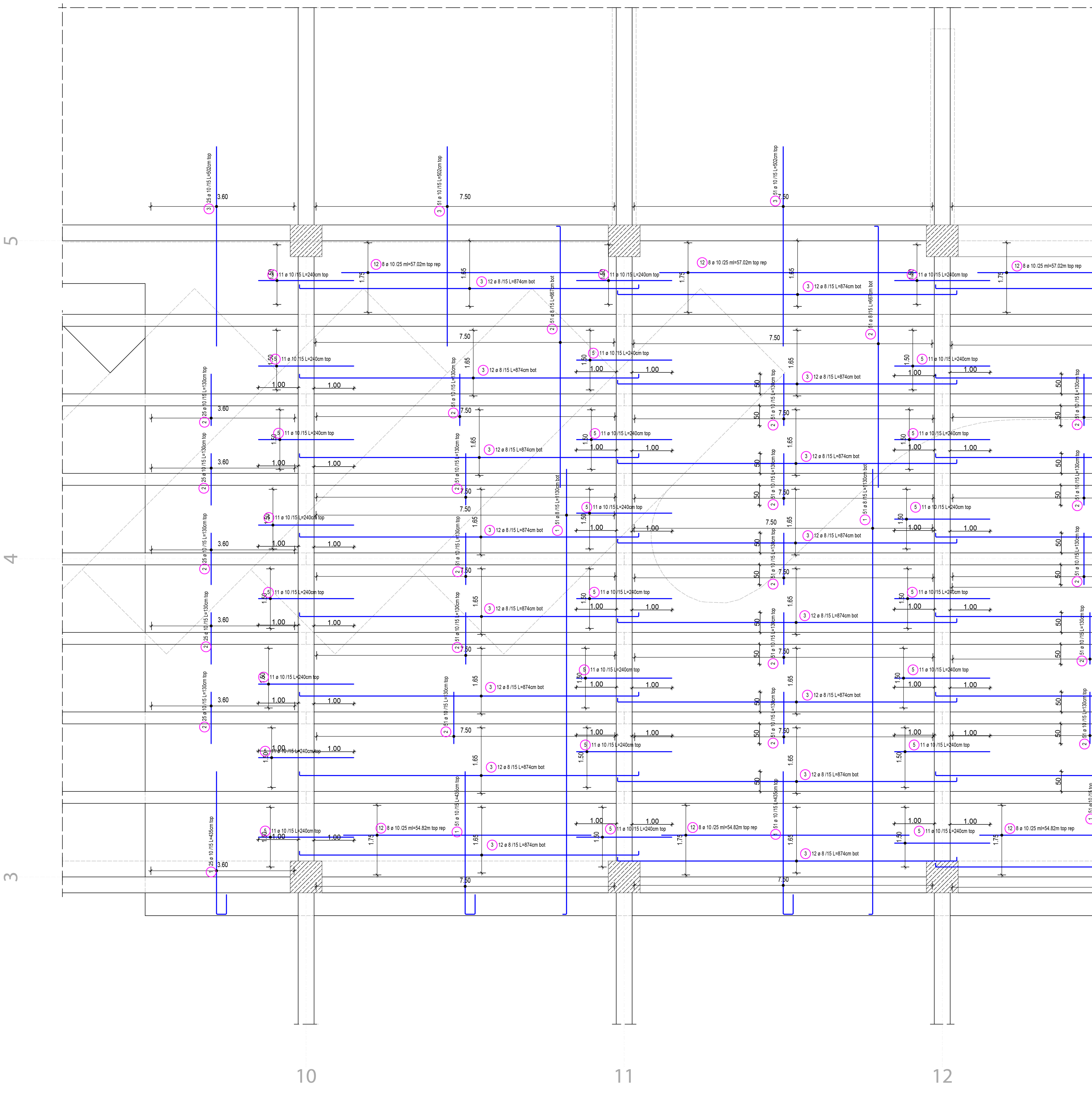


Section b - b



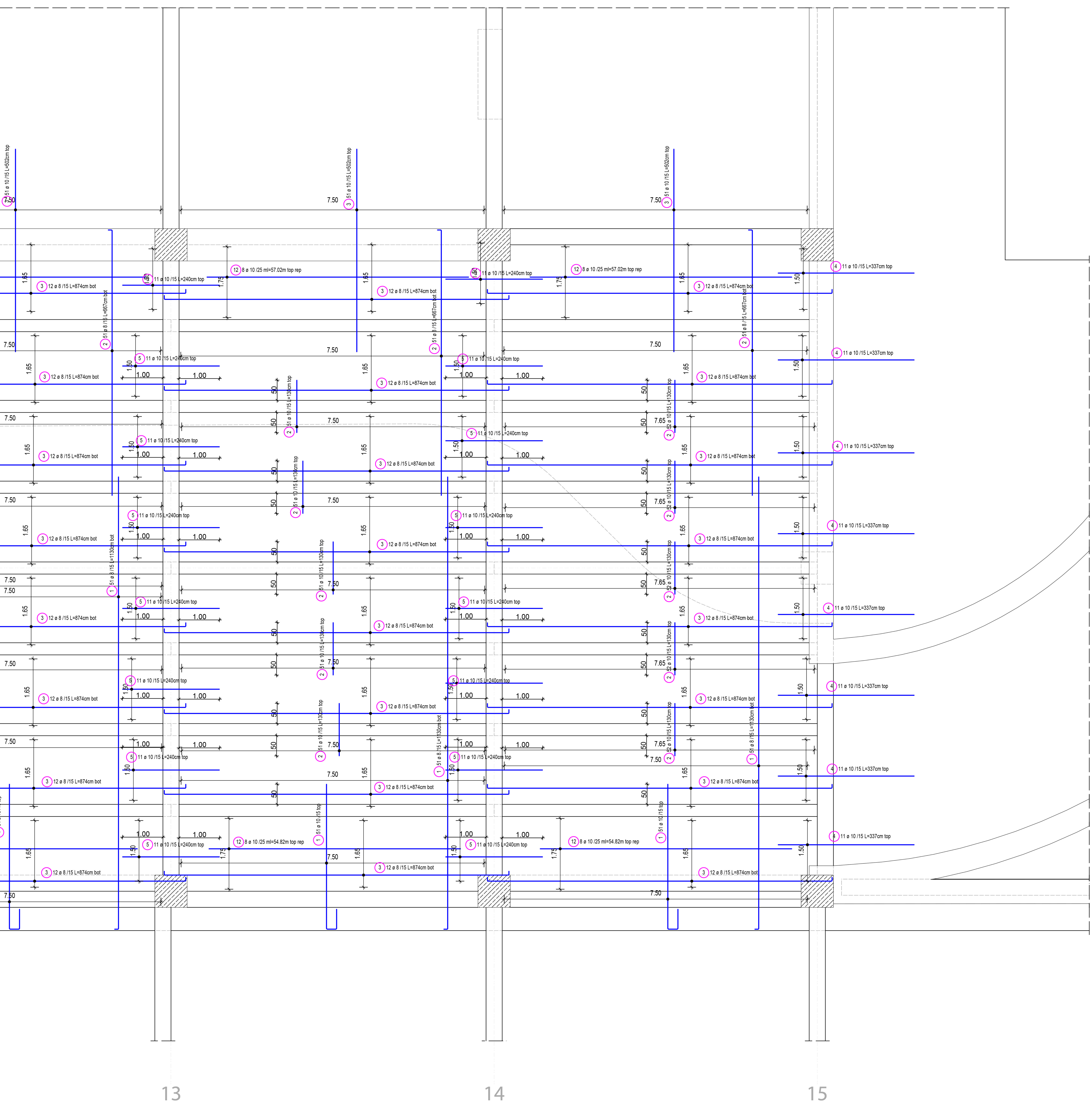
Slab reinforcment detailing

Scale 1:50

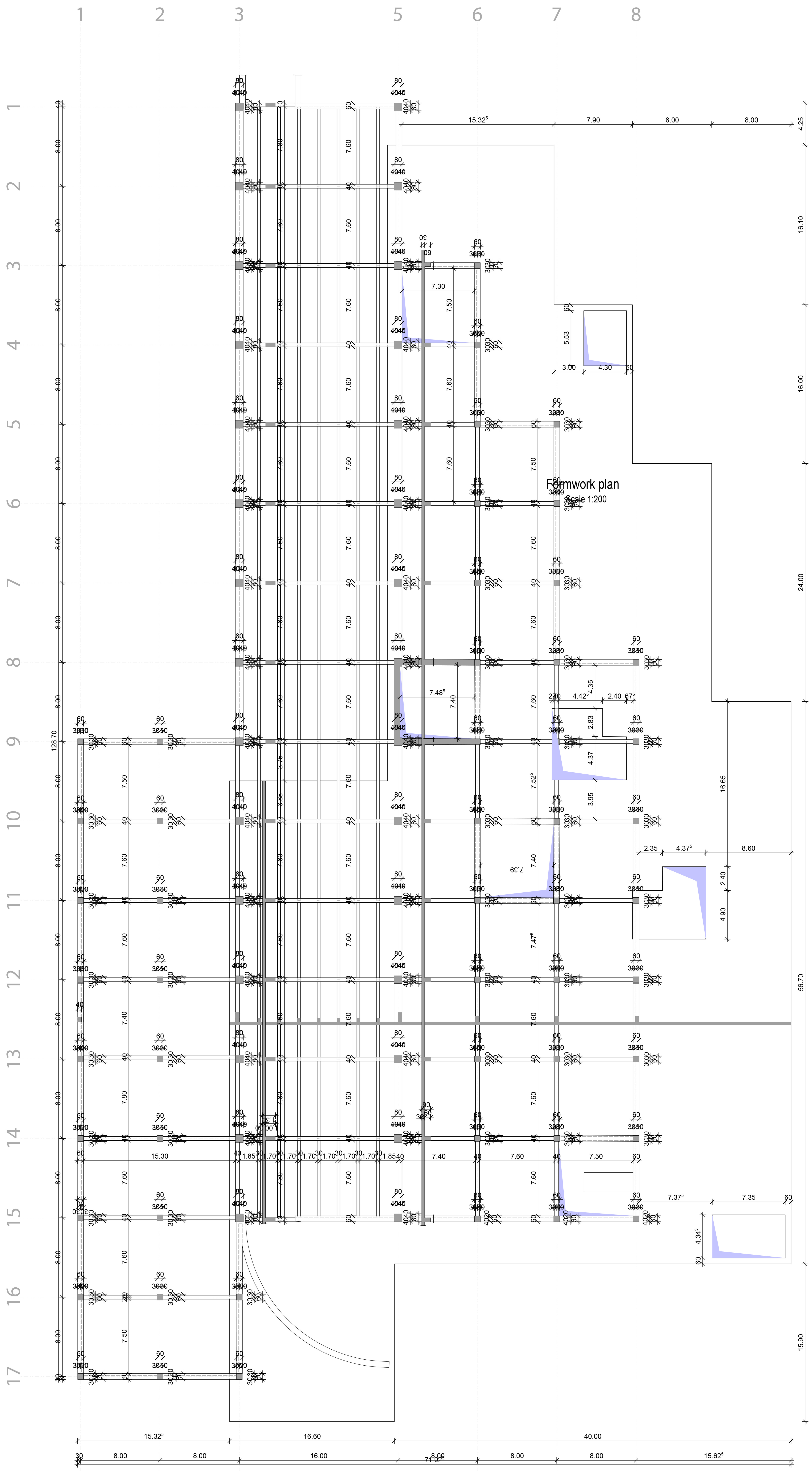


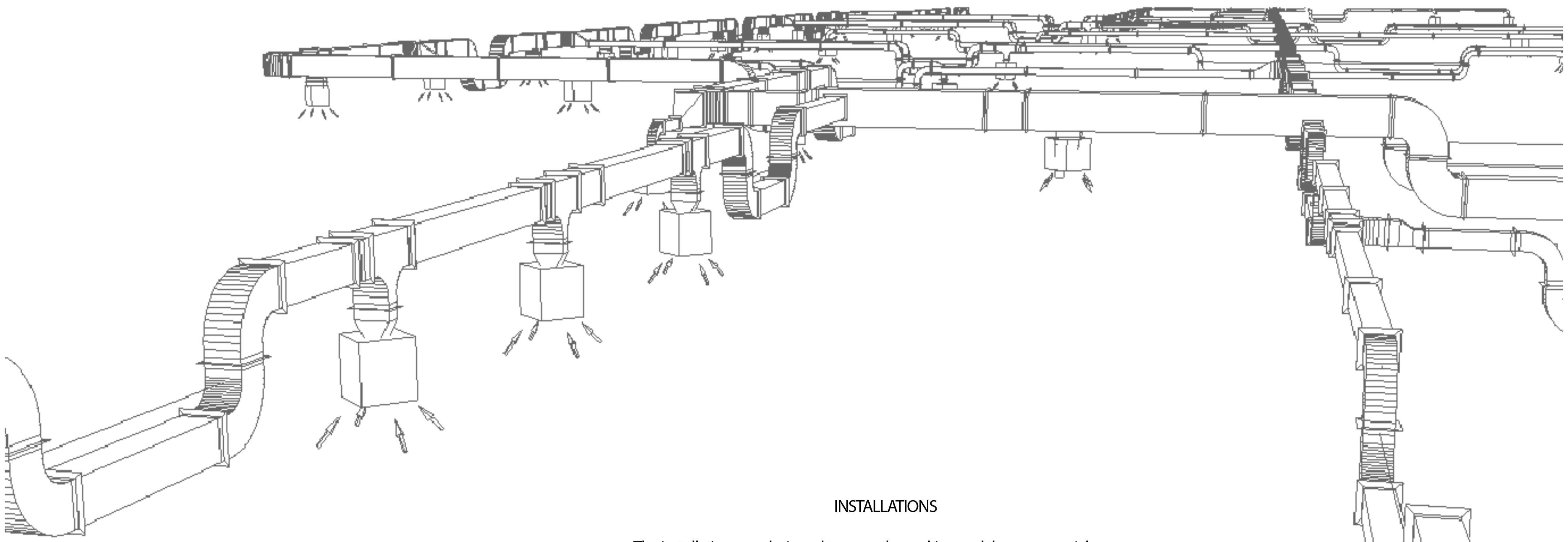
Slab reinforcment detailing

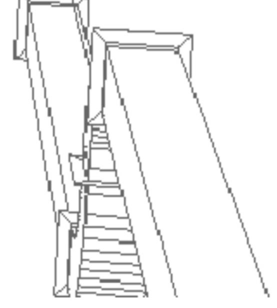
Scale 1:50



Formwork plan
Scale 1:200







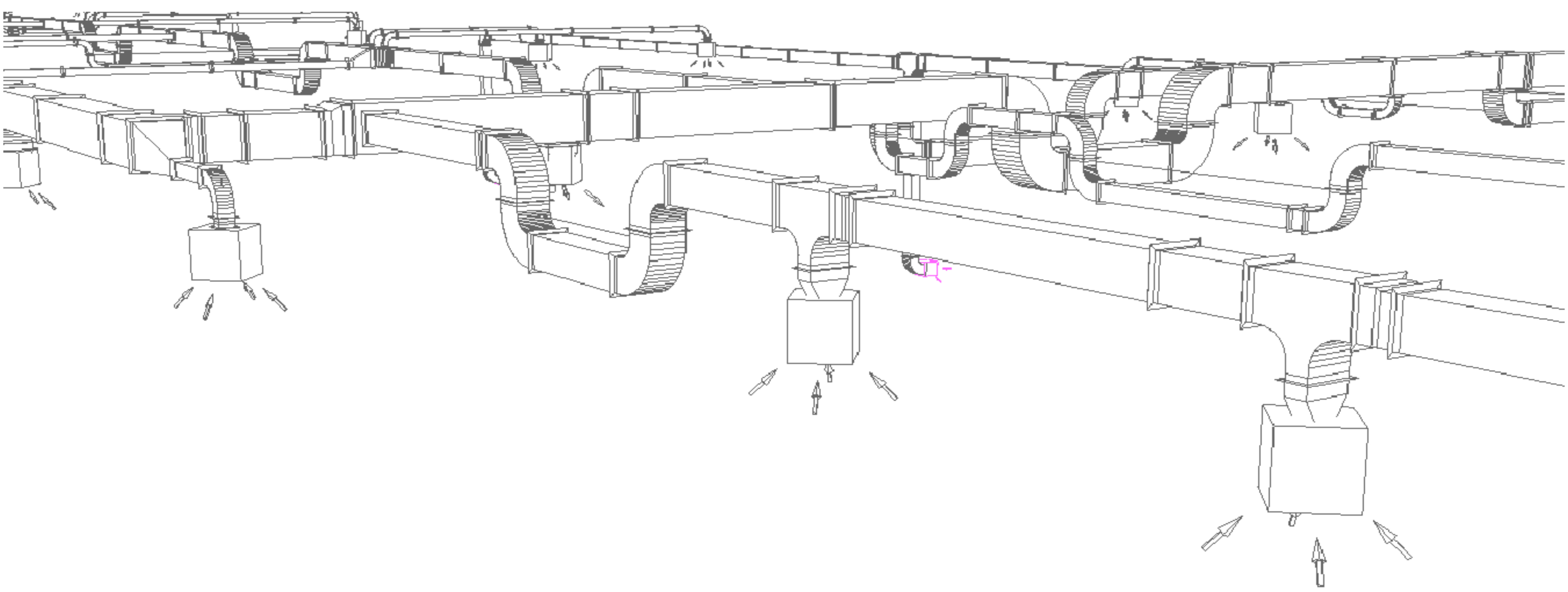
INSTALLATIONS

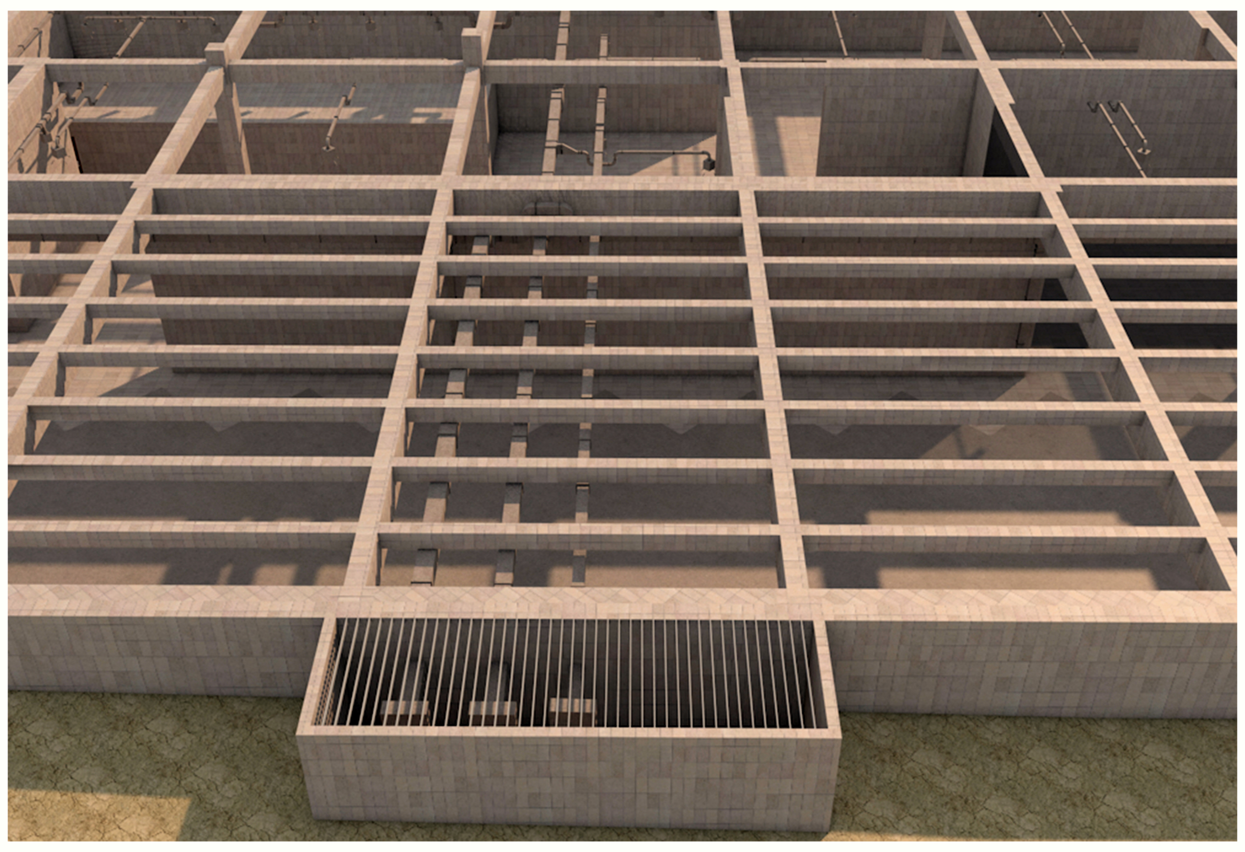
The installation was designed to serve the parking and the commercial spaces.

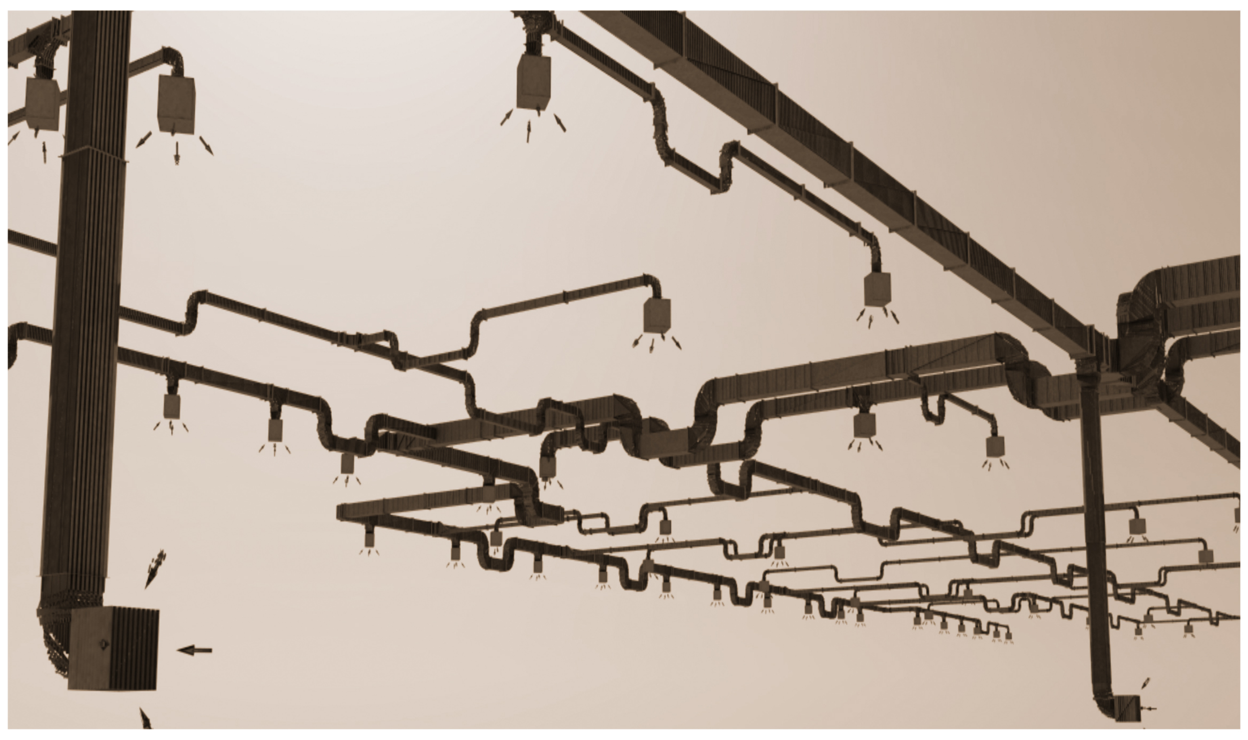
For the parking was chosen a ventilation system for the evacuation of the vicious air produced by cars. In choosing the position of the anemostats, it was chosen to distribute one anemostat on the area of 3 parking spaces, so there are five ADLQ-4-AK type anemostats in the parking area.

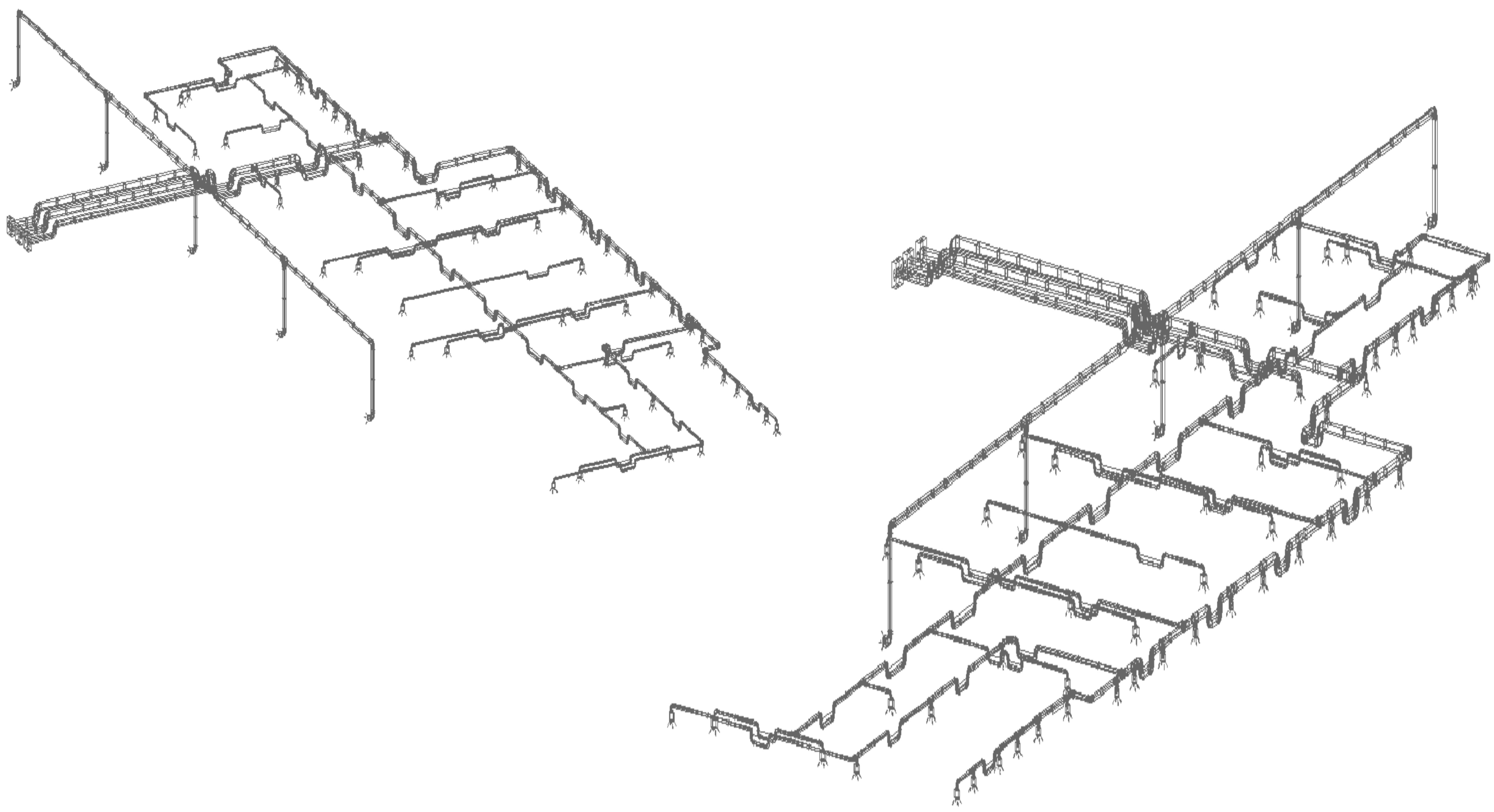
Comfort and air quality in the commercial area is provided by means of two circuits, one for fresh air supply that is fed through the ADLQ-4-AK type anemostats, and a circuit for evacuating vapors sucked by means of the ADLQ- 4-AK.

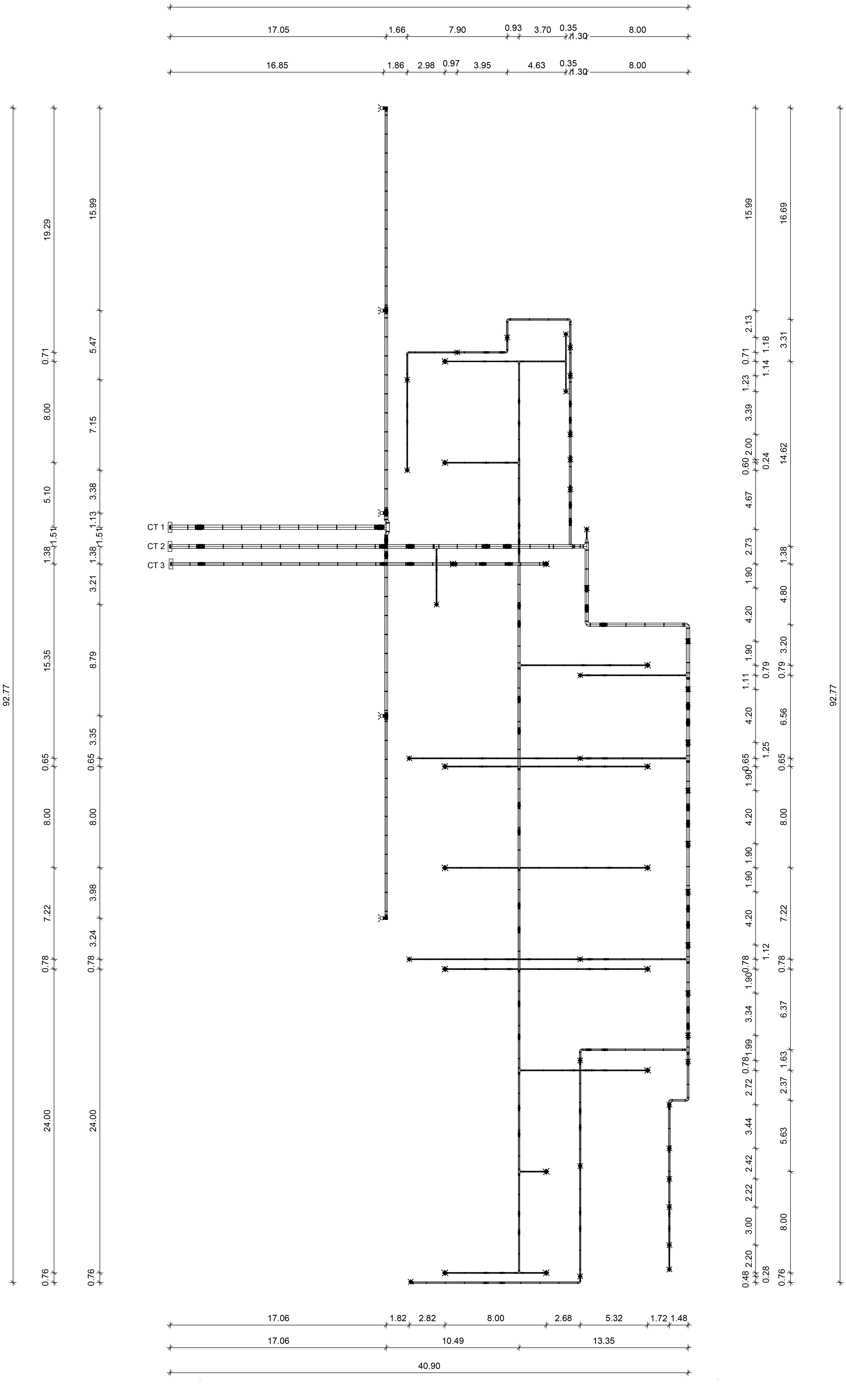
The tubing is apparently mounted. In order to maintain the height of the floor and to not affect its dimension, a route was chosen as the majority of the piping was disposed in parallel with the resistance beams, and even at a higher height than these to not interfere with the bus terminal and parking.
- CT 1 - central for evacuating vicious air
- CT 2 - central for fresh air supply
- CT 3 - central for evacuating vicious air







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7.90
0.93
3.70
0.35
1.30
8.00
16.85
1.86
2.98
0.97
3.95
4.63
CT 1
CT 2
CT 3
92.77
19.29
15.99
16.69
17.06
1.82
2.82
2.68
5.32
1.72
1.48
10.49
13.35
40.90