

# SYMBIOSIS OF NECESSITY - BEIRUT FROM THE PORT TO THE CITY

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## BEIRUT CASE STUDY

The theme for this work was initially outlined at the beginning of the semester based on the application to the "Beirut Port Competition" (InspireLI Awards). It was the need to deeply intervene in the port of Beirut as a result of the devastation caused by the explosion on August 4, 2020 that determined the type and mode of intervention. The explosion also affected other areas of the city, but mainly affected the Karantina neighborhood located south of the container terminal.

The designation of the thesis arose from the need to expand the intervention area of the architecture project to this neighborhood. In this way, we sought to ensure that the projected solution would be beneficial for the city in several aspects: in the rehabilitation of a degraded area of the city with a history of ethnic/religious conflicts and with a sparse urban fabric, and thus also bringing the population closer to the margins from the river and the port, reformulate the road network, create green spaces, but fundamentally, facilitate the operation and access to the container terminal (Lebanon's main import/export point, which also serves as an entry point for other countries in the region such as Syria, Jordan, Iraq and even countries in the Persian Gulf). From this symbiosis of interventions came the name of the thesis.

The most significant contributions of the work are:

1. Design a new container terminal inspired by the main ports and the methodologies implemented there, adapted to the port of the city of Beirut with the main objective of improving the operation of the port, accesses and storage areas.
2. Design a multi-service structural building capable of responding to the needs of the port.
3. Include rail access to improve the flow of goods to and from the port.
4. Reformulate the road infrastructure around the port to facilitate road access to the port and also the secondary road network in Karantina.
5. Design and implement two new housing spaces and services in Karantina to respond to the need for new quality housing at reduced costs for the populations left homeless due to the explosion and to enhance integration between the various ethnic/religious communities residing there .
6. Design and implement new pedestrian corridors that facilitate the connection between the city, the port and the river and the new green areas and as a counterpoint to the urban barriers existing there such as the port, the walled areas existing in the neighborhood and with restricted access and the large infrastructure of the Charles Helou motorway.

With this map on the right I intend to show the impact of the events mentioned above in the city, more specifically in the urban fabric of the city's neighborhoods. In this map, the main access roads to the city were removed, facilitating the identification of the differences within the great road infrastructure of the city.

Removing the main access roads to the city, we were able to observe the great difference between the neighborhoods of the city of Beirut, this difference was generated by the natural growth of the city, but also by the war, by the culture of the people who live in these neighborhoods, by the religion practiced among others. factors.

The great difficulty in the reorganization of the city is the articulation between these spaces, walking through the differences of the neighborhoods.

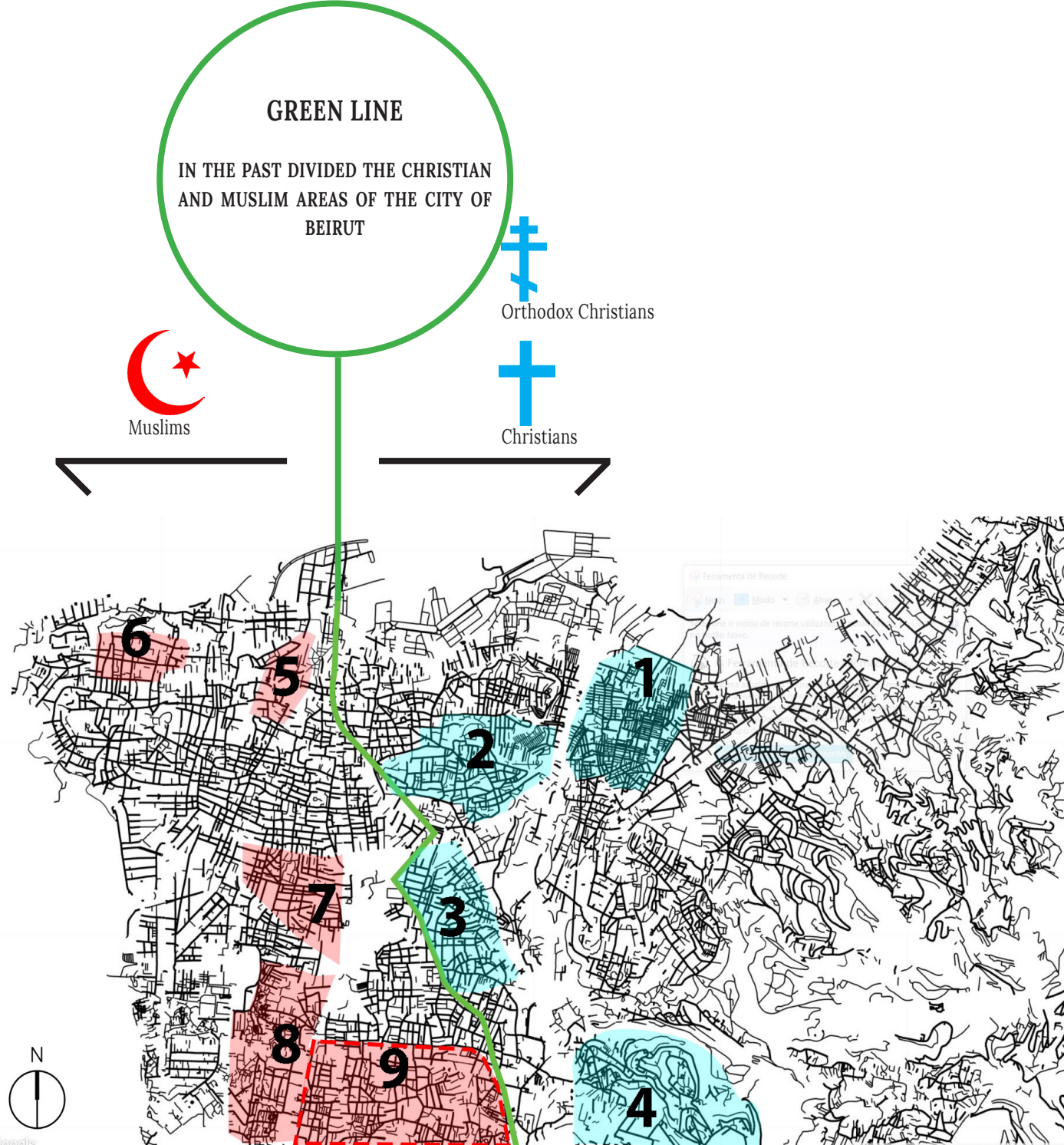
Then we can see a green line diving the city into **East Beirut** and **West Beirut**, diving the city by religion, Cristian maiority and mulsim maiority respectively.

There were many conflicts, but the Karantina Massacre is a demonstration that this line also existed within the neighborhoods within the city, and in the mesh that builds it, as a religious minority from the "wrong" side of the city can cause problems for the population.

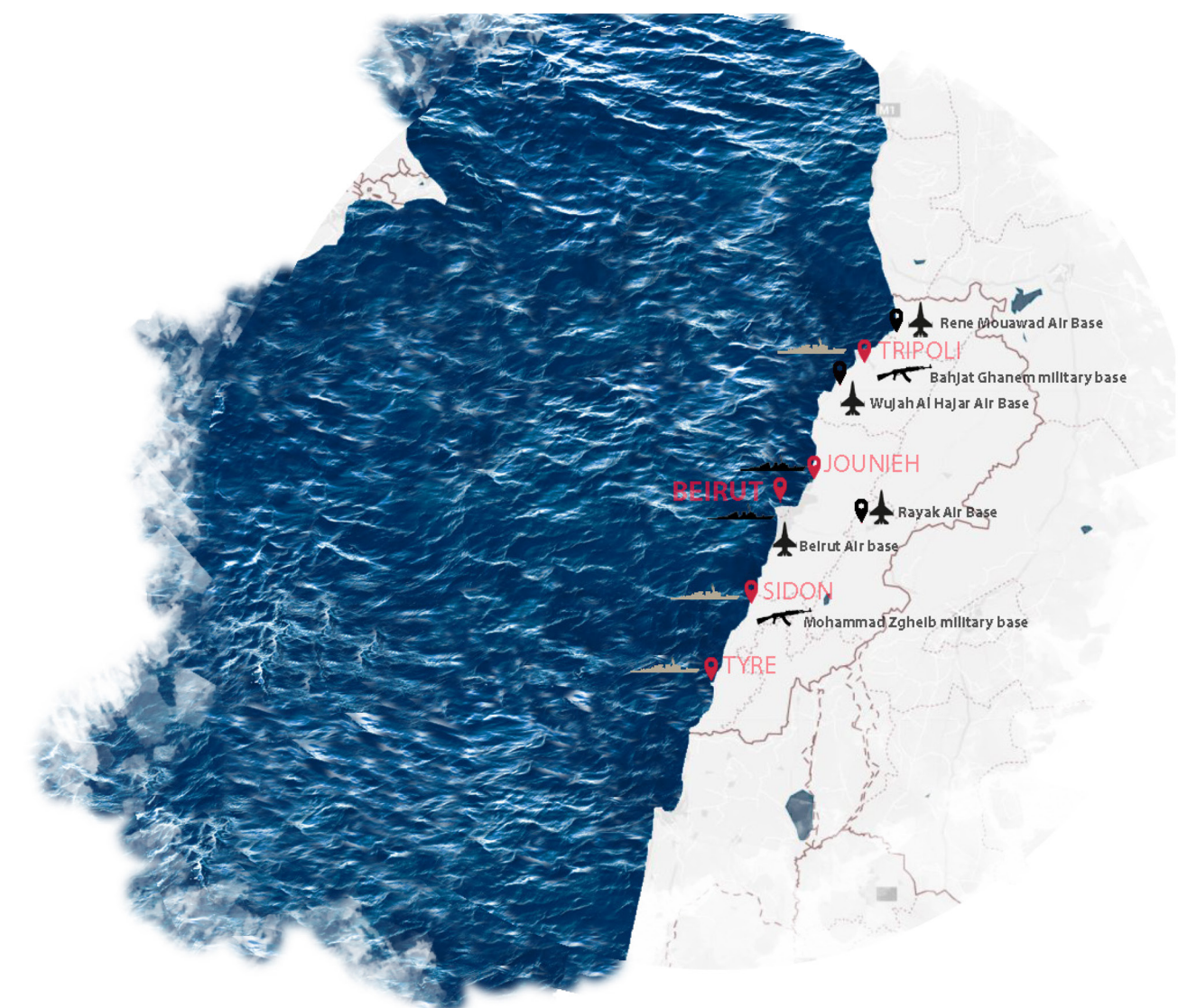
*"Many of those who lived on one side of the city never crossed this dividing line."*

(Aseel Sawalha wrote in Reconstructing Beirut: Memory and Space in a Postwar Arab City)

The **GREEN LINE** was the border of Beirut, Lebanon during the Lebanese Civil War from 1975 to 1990. It separated the predominantly Muslim faction of predominantly Muslim West Beirut from predominantly Christian East Beirut and was ruled by the Lebanese Front. However, as the civil war progressed, the Sunnis separated from the Shiites. When the civil war began, this division was not absolute, with some Muslims living east of the Green Line and some Christians living in West Beirut. But as the civil war continued, each sector became more even as minorities left the sectors they belonged to. Its name refers to the color of the leaves that grew because the space was uninhabited. It is most commonly referred to as the "green line", but is sometimes referred to as the "demarcation line". It stretched generally from north to south of Beirut, and the main street along the Green Line was Damascus Street.



Tristram, Pierre. "Timeline of the Lebanese Civil War From 1975 to 1990."



Map of Military Bases: Army, Air Force and Marine.



Steve McCurry (Beirut, 1982)

The neighborhoods:

- 1 Burj Hammud (Armenian)
- 2 Ashrafiyeh (Greek Orthodox Maronites)
- 3 Furn el Shebak (Christians)
- 4 Hazmiyeh (Christians)
- 5 Zokat (Shiite)
- 6 Hamra (Sunnii)
- 7 Tarik el Judieh (Sunnii)
- 8 Sabra and Shatila refugee camps (Sunnii Palestinians)
- 9 Dahiyeh (Shiite)





# SYMBIOSIS OF NECESSITY - BEIRUT FROM THE PORT TO THE CITY

## WALKING BEIRUT CONCEPT URBAN ANALYSIS

“The wars that have torn Lebanon apart in recent decades have had a major impact on the country's infrastructure and territories.”

(Ochsenwald, 2020)

We can see in the current design of the urban fabric of the city, where there is a large road that surrounds the most consolidated city, where the river and the old Green Line are important landmarks of connection within the city.

The urban fabric of the city has several peculiarities, namely the orientation of the roads, most of the flow of accesses is directed towards the sea (South-North), as well as those parallel to the sea (East-West). The main districts of the city are located at the crossroads between these two axes.

There are also other areas that could function as unifying hubs for cultural and outdoor activities. One of which is the Beirut River, currently transformed into a concrete channel through which all types of polluting waste are drained directly into the sea.

The spaces adjacent to the large motorway that works as a waterfront to the west and north act as a filter that separates what is public and private, the city and the port.

The neighborhood of Karantina consequently is positioned on the north bank of this great infrastructure, resulting in its natural exclusion from the city.

Approaching the Porto area, Karantina neighborhood, we can see how this area is not correctly articulated with the rest of the city, as it is an area clearly delimited by three barriers: the Beirut river (east limit), the container terminal ( north and northwest limit), and the Charles Helou motorway (southern limit).

These city limits like Charles Helou are infrastructures that help to consolidate the existing spaces, as well as the river that can help in the decongestion of the city with the creation of green spaces and contemplation on its banks. Due to the growth of the city, the river, which in the past was a natural boundary of the city, is now more centered in the urban fabric, thus enhancing the connection between the old and new urban fabrics. Although the river currently functions as a waste disposal channel, where no one plans walks, and where there are no green and leisure spaces, it represents a potential to be explored to rehabilitate the entire surrounding area and return the enjoyment of the river to the inhabitants of the city , which has a lack of public green spaces.

The proposal presented is based on the creation of a pedestrian path throughout the city, in which the creation of pedestrian green spaces is allowed, with the main objective of creating spaces for leisure and coexistence in areas where the urban fabric is considered dense. This proposal arises from the need for permeability, as such, this green space enters the port of the city through a light structure, which is assumed in three distinct moments: A walking path, as an integral part of the program and as a leisure and coexistence space. Additionally, this green space will create a link with the riverfront. The axes that enter the port are also part of the program inherent to it. The big objective was always to maintain the same structure and conceptual character, despite the program being developed in different ways. The same three moments are maintained, the path people follow to the program, the way in which the structure is integrated into the programmatic context and the final moment of connection with the sea front.

The structure appears as a light element, which will make the connection between the landmarks of the city and the sea front, overcoming the barrier that is established by the topography itself and the urban fabric of the city, providing a public place that until the moment is not accessible by the population.

In this conceptual diagram, it is intended to explain the intentions of the proposal, which include establishing connections between the city (urban mesh/residential area) and the port. Our process begins by highlighting some collective points of the city and working them in order to connect with the port and even with each other,

creating the **WALKING BEIRUT** proposal.



1-Terminal Intervention. 2-Karantina Intervention.

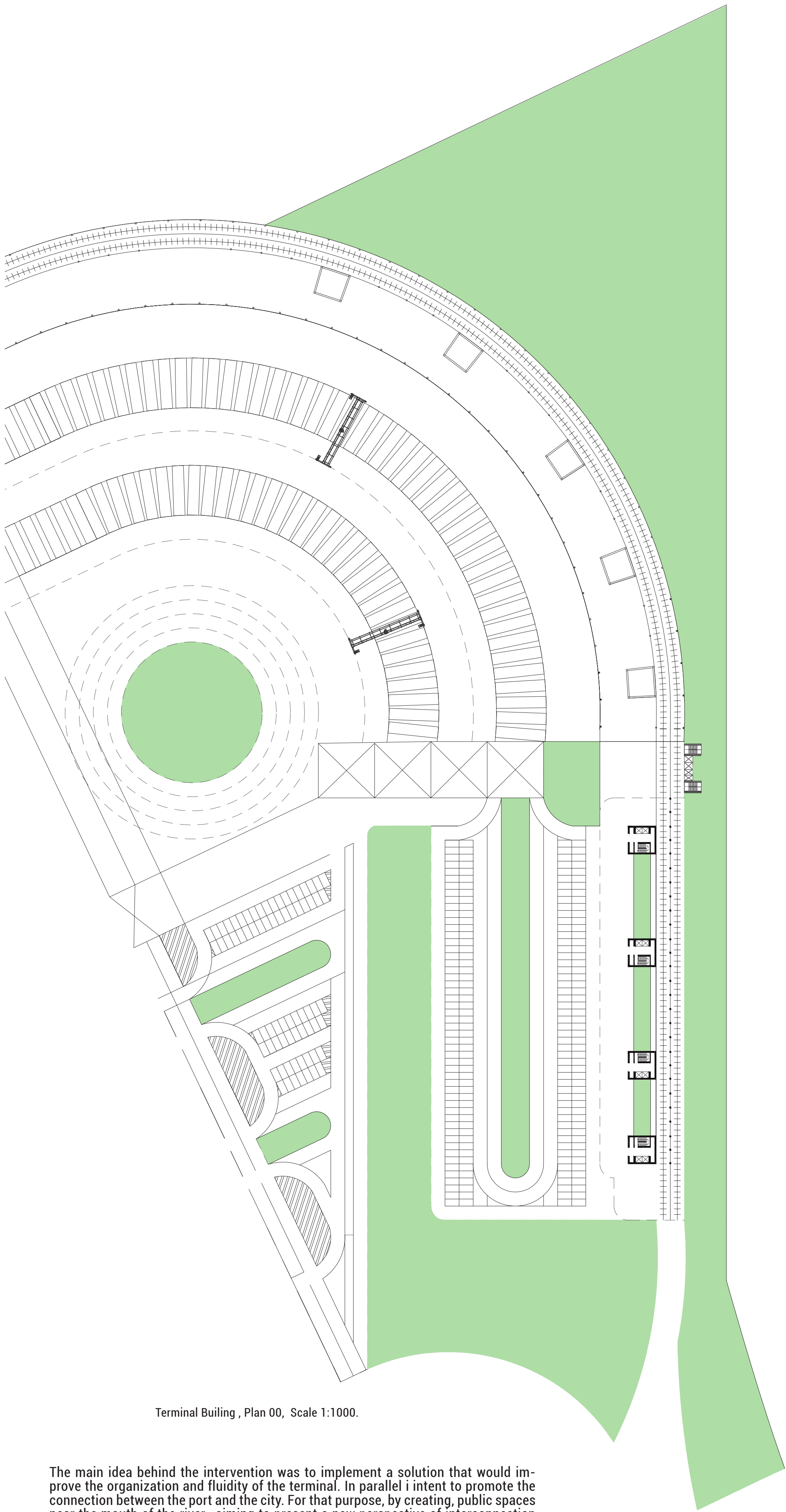
- Legend:
- |                      |                   |                       |               |                        |
|----------------------|-------------------|-----------------------|---------------|------------------------|
| Containers Terminal: | Warehouses:       | Administrative Area:  | Memorial:     | Hydroponic Production: |
| Cruises Terminal:    | Public Transport: | Economic Development: | Green Spaces: |                        |
| Cargo Handling:      | Rails Transport:  | Housing Area:         | Path:         |                        |





# PORT TERMINAL

## MULTI-PURPOSE BUILDING

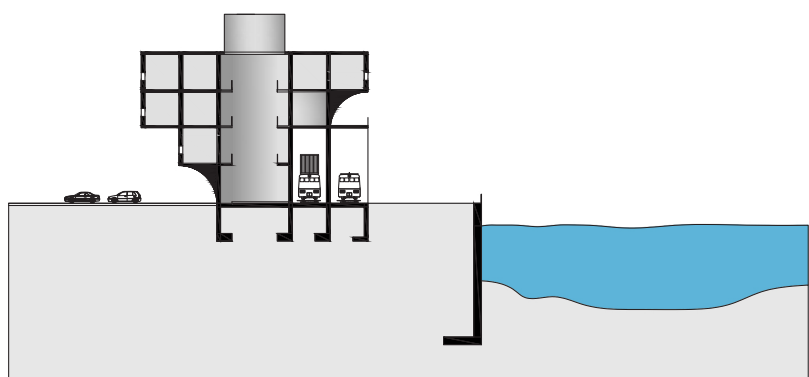


Terminal Building , Plan 00, Scale 1:1000.

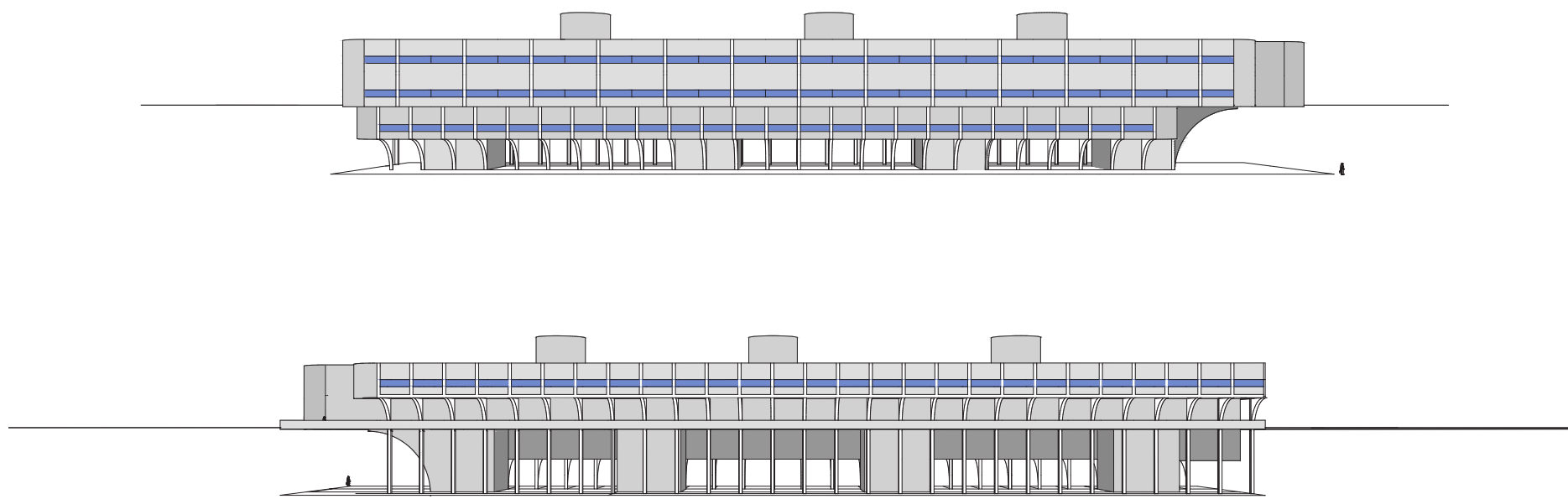
The main idea behind the intervention was to implement a solution that would improve the organization and fluidity of the terminal. In parallel i intent to promote the connection between the port and the city. For that purpose, by creating, public spaces near the mouth of the river., aiming to present a new perspective of interconnection between the private spaces of the port and the city, suitable to satisfy the needs of the population and the interests of the port. In this context the raised platform was an innovative solution to be used by the population, that together with the creation of a green corridor connected to the port of Beirut added new public spaces and support infrastructures to enhance how the population enjoy their city.

The new infrastructures created, we highlight the building that is the fundamental element of our proposal and that concentrates in a single location the main functionalities of the port. It is the starting point from which the connections with the different areas of the port are established.

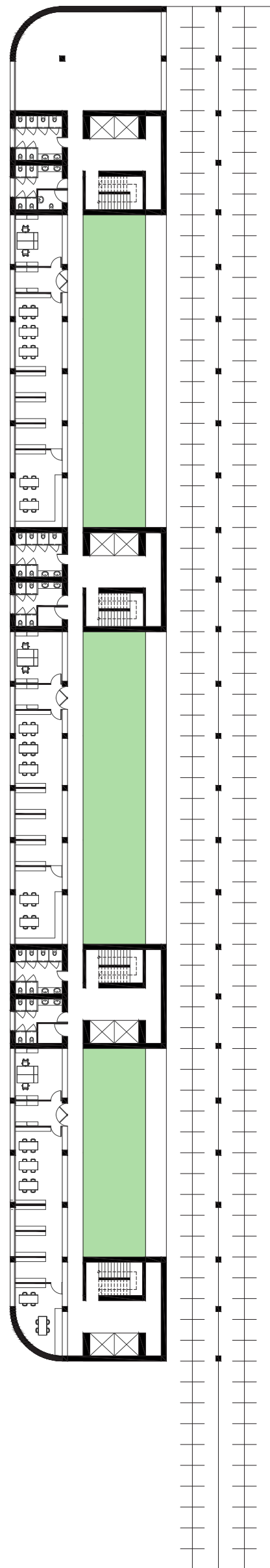
It is from here that a perimeter for parking container trucks is created, redesigning it to a more functional and productive position, the area adjacent to this perimeter is a platform erected under pilots that is intended for the enjoyment of the population, presenting a new perspective of the port, the idea of the "city of containers and infrastructure" and at the same time presenting a new vision of the river mouth, the city and its values. On the first floor below the platform it serves as a transit area for containers to and from the port. The loading of cargo is done by means of cranes placed there. There are also several 10x10 modules in the curved area of the platform to support truck drivers, with changing rooms and a social area.



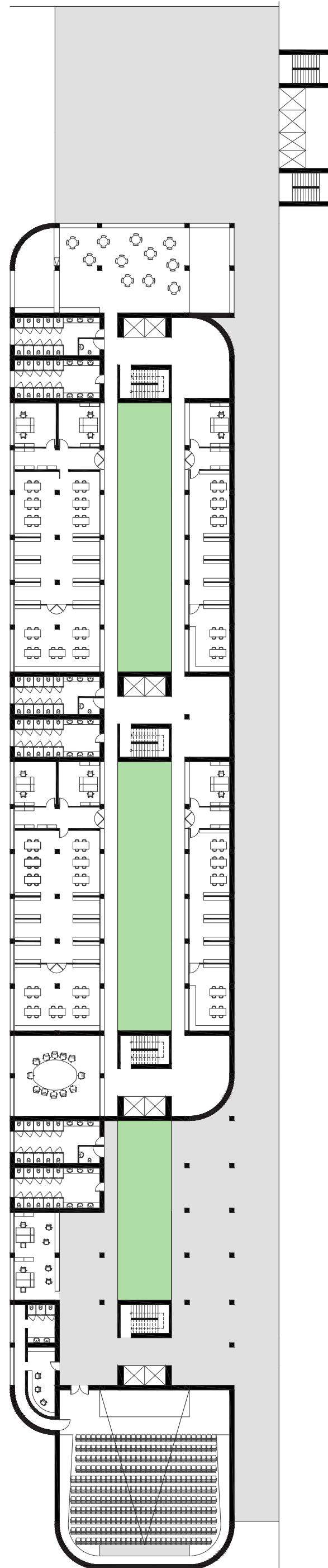
Terminal multiservice building, Section, Scale 1:1000.



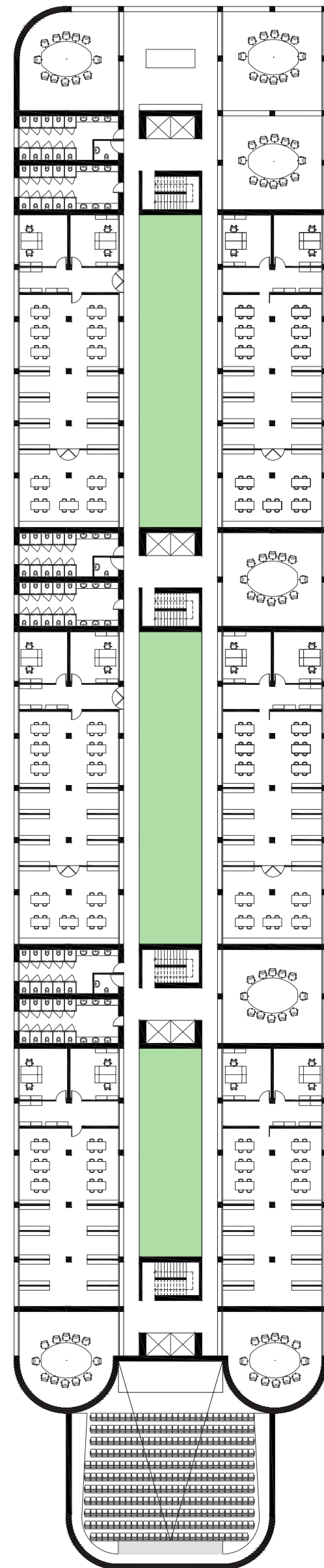
Terminal Building , Facade 01 and 02, Scale 1:1000.



Terminal Building , Floor Plan 01, Scale 1:500.



Terminal Building , Floor Plan 02, Scale 1:500.



Terminal Building , Floor Plan 03, Scale 1:500.

This building completes the entire structure and is the main entry point for port workers, the entrance and exit of trains, the passage of people from the city to the mouth of the river and even to the edge of the port where the public area of the city is extended.

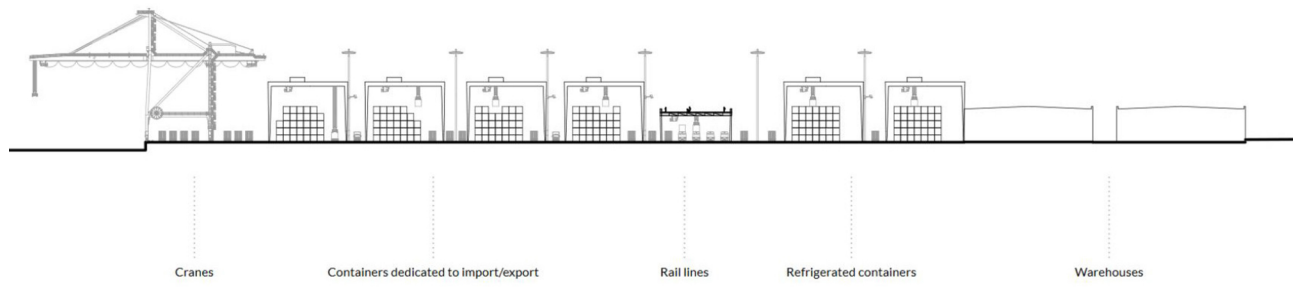
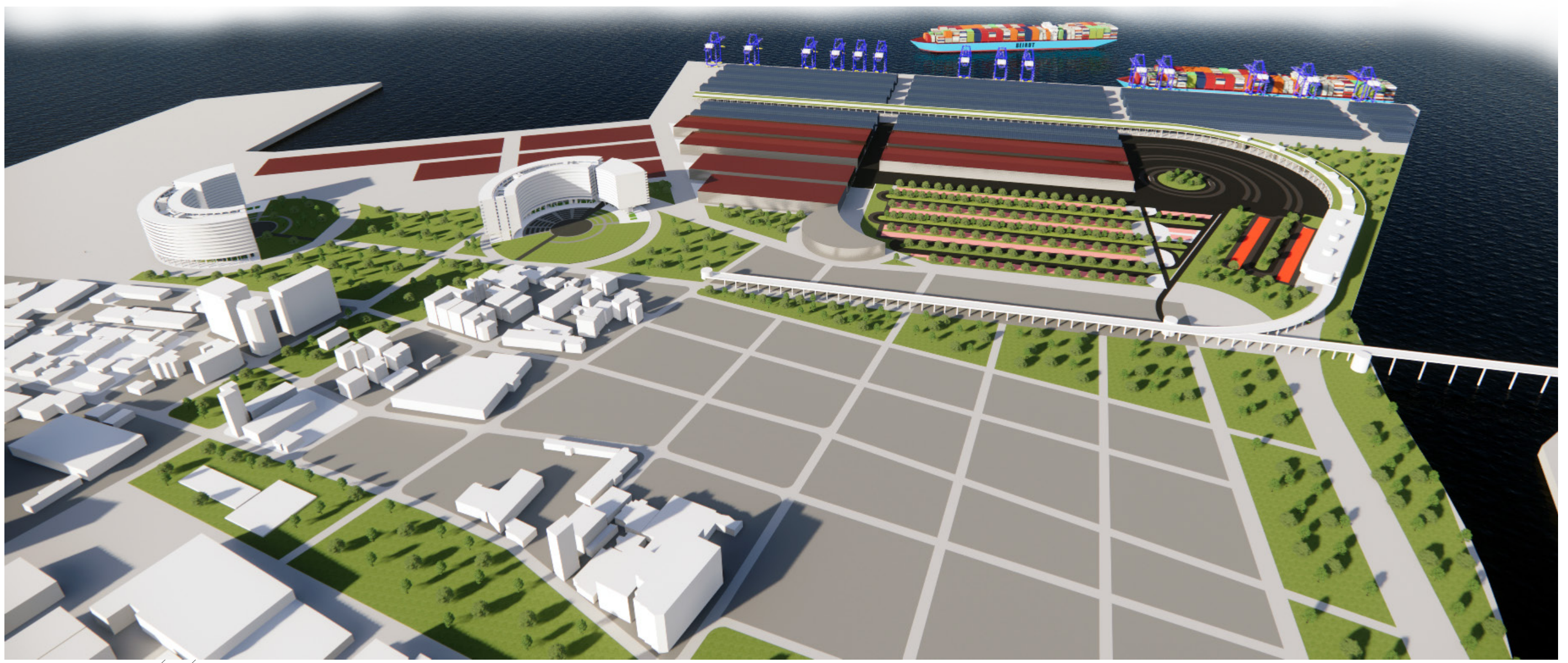
It also acts as an interface between the public and private part of the port, where various support infrastructures are established such as a social canteen for the port workers, offices of the companies based there such as MSC and CMA-CGM, and also with access to the general public through the upper platform.

The creation of a green corridor connecting to the redesigned river mouth associated with the reorganization of the port of Beirut allowed the creation of new public spaces in the city and support infrastructures that allow the population to enjoy the city.

The Project is based on a single building that belongs to the walking beirut route, strategically positioned on the east side of the terminal where it ends the river mouth area, and at the same time works as a barrier between what is public and private.

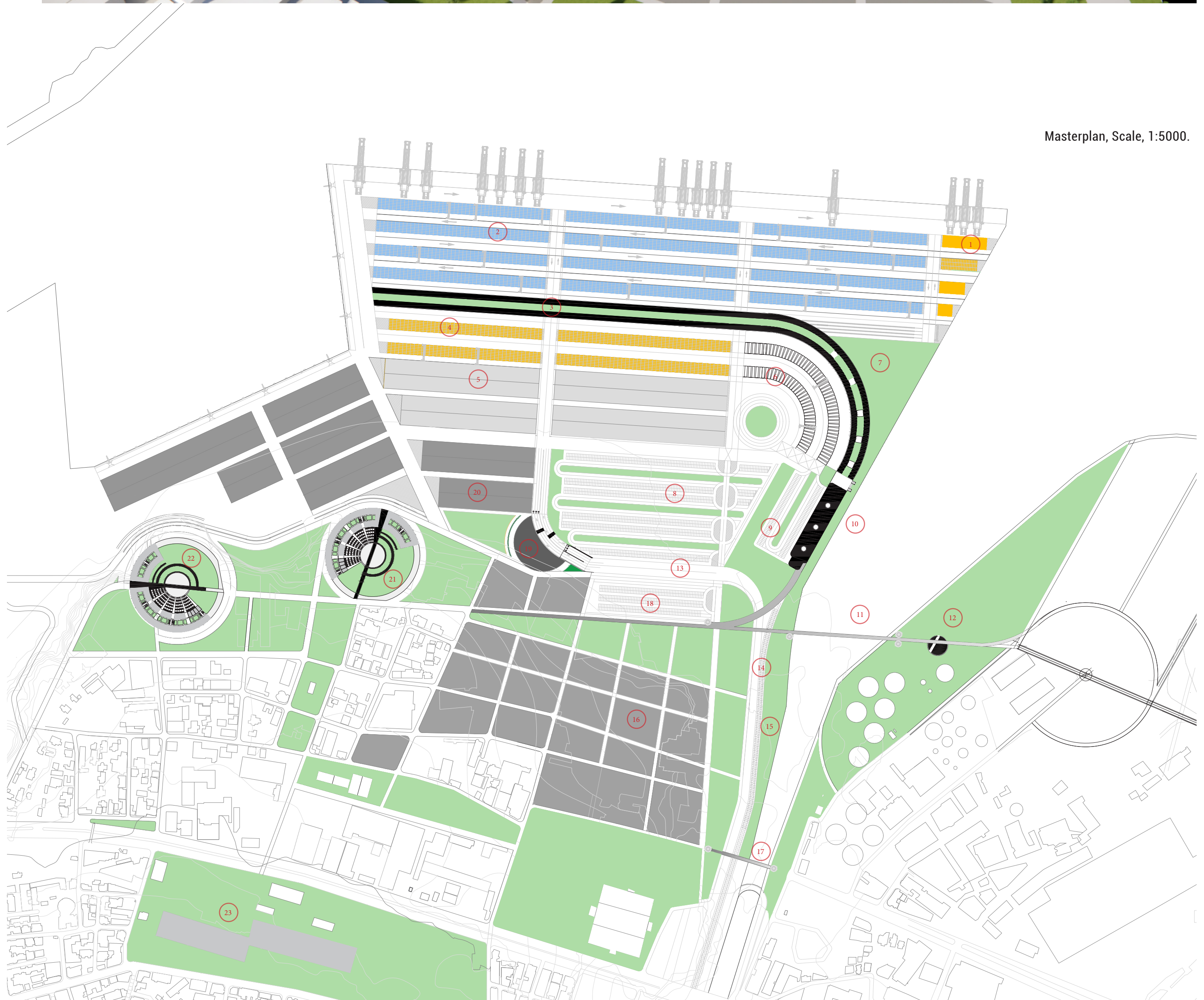
The building's program compiles public areas such as an auditorium and canteen, on the second floor, as well as office areas, meeting rooms, pantry, archives and work areas, which are intended for port workers. They are organized by modules, each company being able to purchase a module that has offices, individual rooms, archives and pantry.





Section of the terminal.

- 1 - Empty containers.
- 2 - Ship Containers import/export.
- 3 - Walkable path/infrastructure with a crane attached to support loading and taking containers off the trains.
- 4 - Import and export containers dedicated solely to transport trucks.
- 5 - Terminal warehouses.
- 6 - Truck parking, with cranes to remove and place containers exclusively from trucks.
- 7 - Terminal Garden (Public)
- 8 - Imported car parking.
- 9 - Private Parking.
- 10 - Port multiservice building.
- 11 - Pedestrian bridge 1.
- 12 - East bank of the Beirut river
- 13 - Access road to the terminal by trucks.
- 14 - 2 Rail lines.
- 15 - New green river bank.
- 16 - Urban proposal
- 17 - Pedestrian bridge 2.
- 18 - Karantina neighborhood public parking.
- 19 - Inspection and Security Gate.
- 20 - Warehouses dedicated to the wharf.
- 21 - Karantina Tower 1.
- 22 - Karantina Tower 2.
- 23 - Trainstation Mar Mikhael (Old Train Station).



Masterplan, Scale, 1:5000.



# KARNTINA TOWERS

## Refugee and Military Program

The project is based on two twin towers, the objective would be to accommodate refugees and at the same time support the military with a private office tower. The Towers are raised on stilts, thus creating great freedom and visual permeability at the ground floor level, they have a height of x meters where they would accommodate a T2 and T4 housing program, a school, office areas for work and two commercial areas, one of which is exterior (floor 0, market) and one is interior, also public and occupying the first two floors.

A dynamic interior of the towers is created, where there is a large void that separates the housing areas from the work areas (offices, school), with vertical accesses and connecting bridges between the two volumes.

The existing break in the towers goes back to the old Green-line, dividing the tower in two, one dedicated to refugees and the second to the military, and through this break, contemplation points are created at the end of a route, with sights of the old port silos as the container terminal.

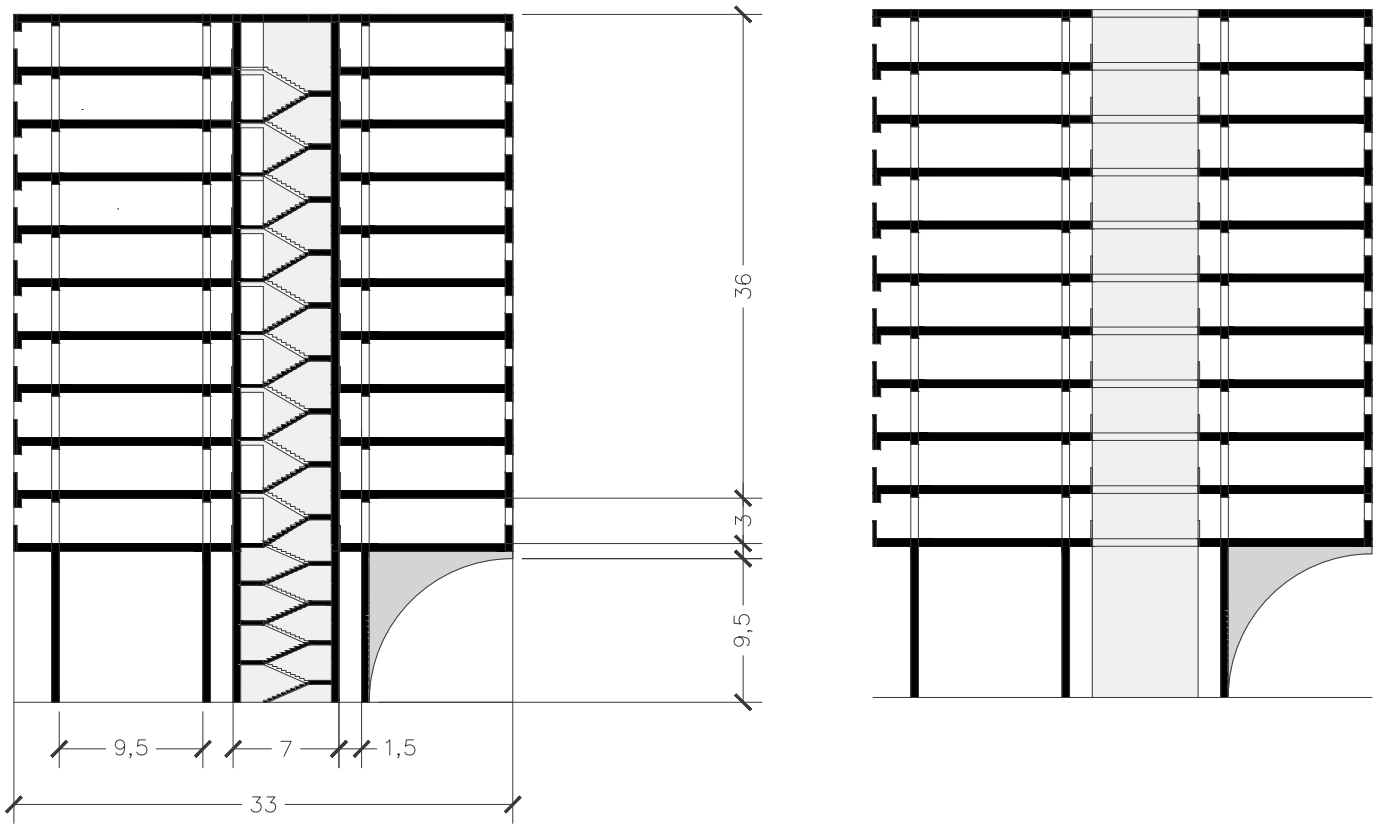
Floor plan 00 Karantina Tower, Scale 1:500

Program:

- Weast Karantina  
(Refugees) (Public)

-Outdoor market area, with an area covered by pilotis
- East Karantina  
(Military) (Public)

-public garden with area covered by pilotis



2 Sections, Scale 1:500.

Floor plan 01 Karantina Tower, Scale 1:500

Program:

- East Karantina  
(Military) (Private)

(2) offices for 4 people.

(8) offices for 4 people.

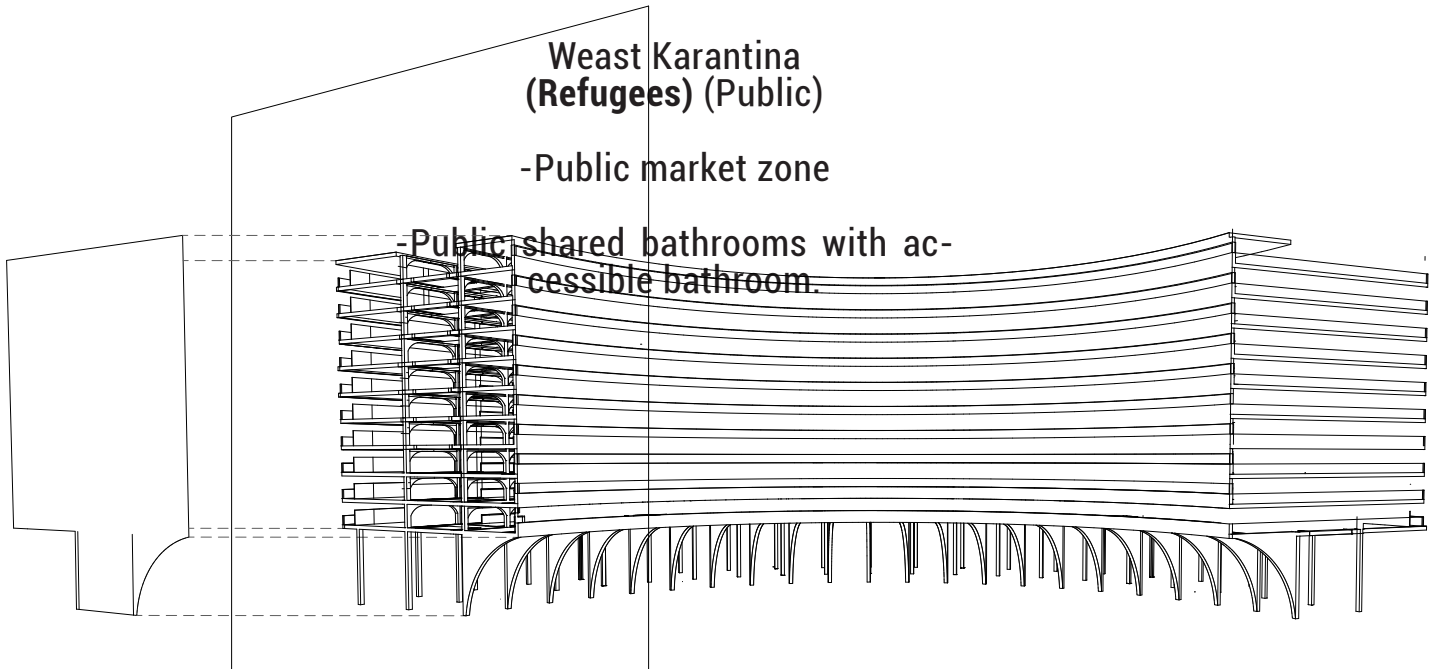
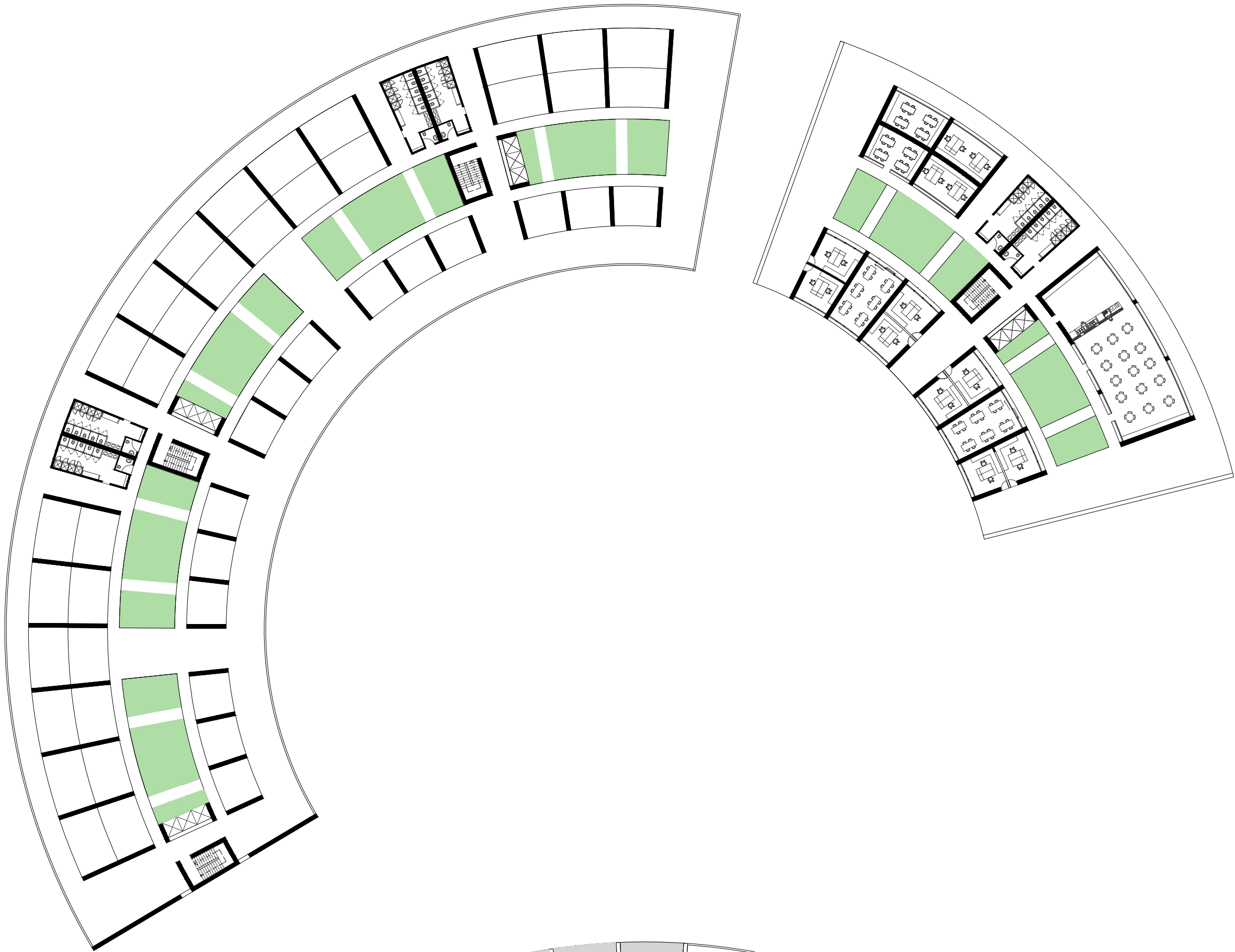
(2) work rooms for 16 people.

(2) workrooms for 24 people.

(2) Shared bathrooms equipped with individual showers.

(1) canteen

Wide multi-purpose area.



Exploded perspective.

Floor plan 02 Karantina Tower, Scale 1:500

Program:

- Weast Karantina  
(Refugees)(Private)

(15) T2 apartments with kitchen, living room, balcony and bathroom.

(6) Shared Bathrooms with individual showers.

(16) classrooms.

(5) Teachers rooms.
- East Karantina  
(Military)(Private)

(2) Offices for 4 people.

(8) Classrooms.

(2) Work rooms for 16 people.

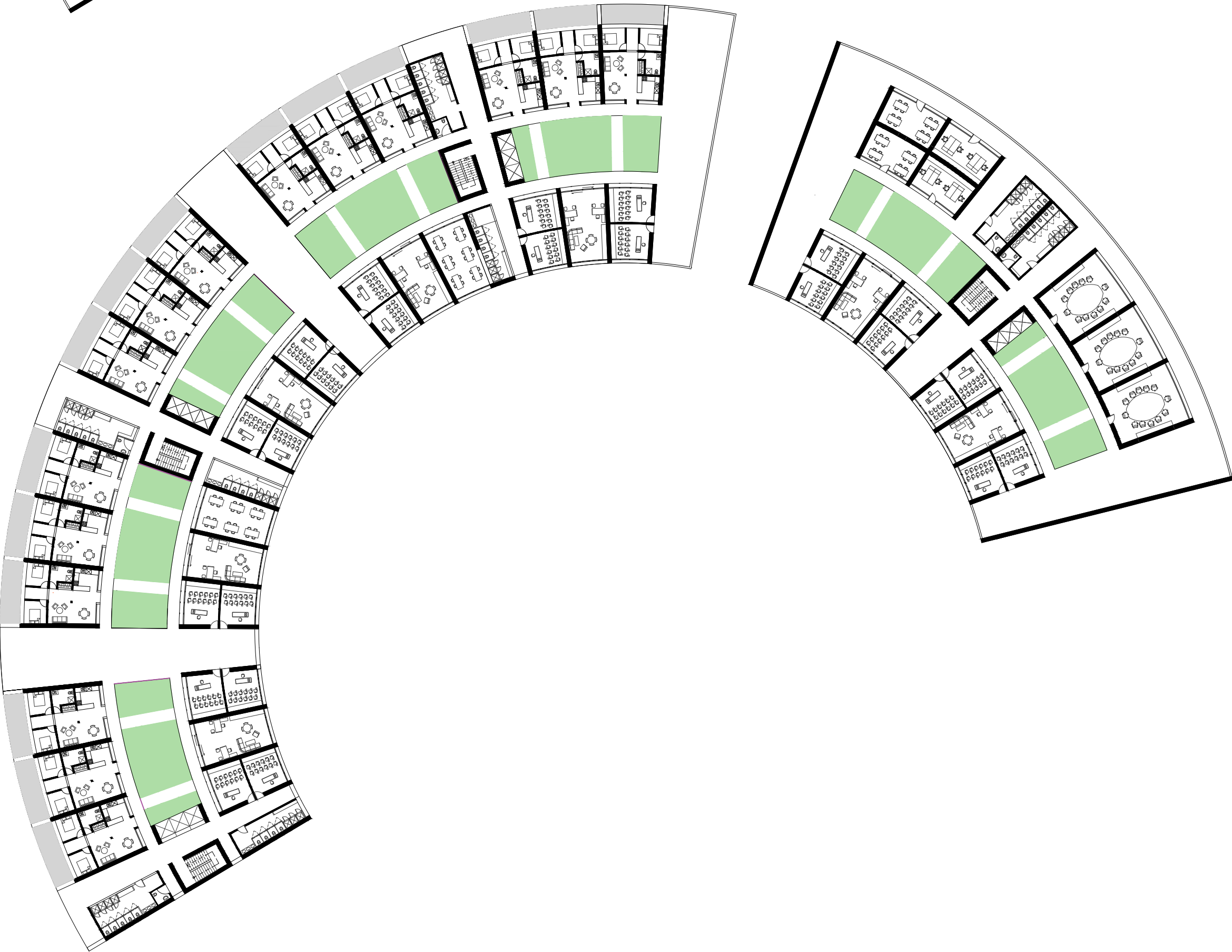
(2) Workrooms for 24 people.

(3) Meeting rooms,

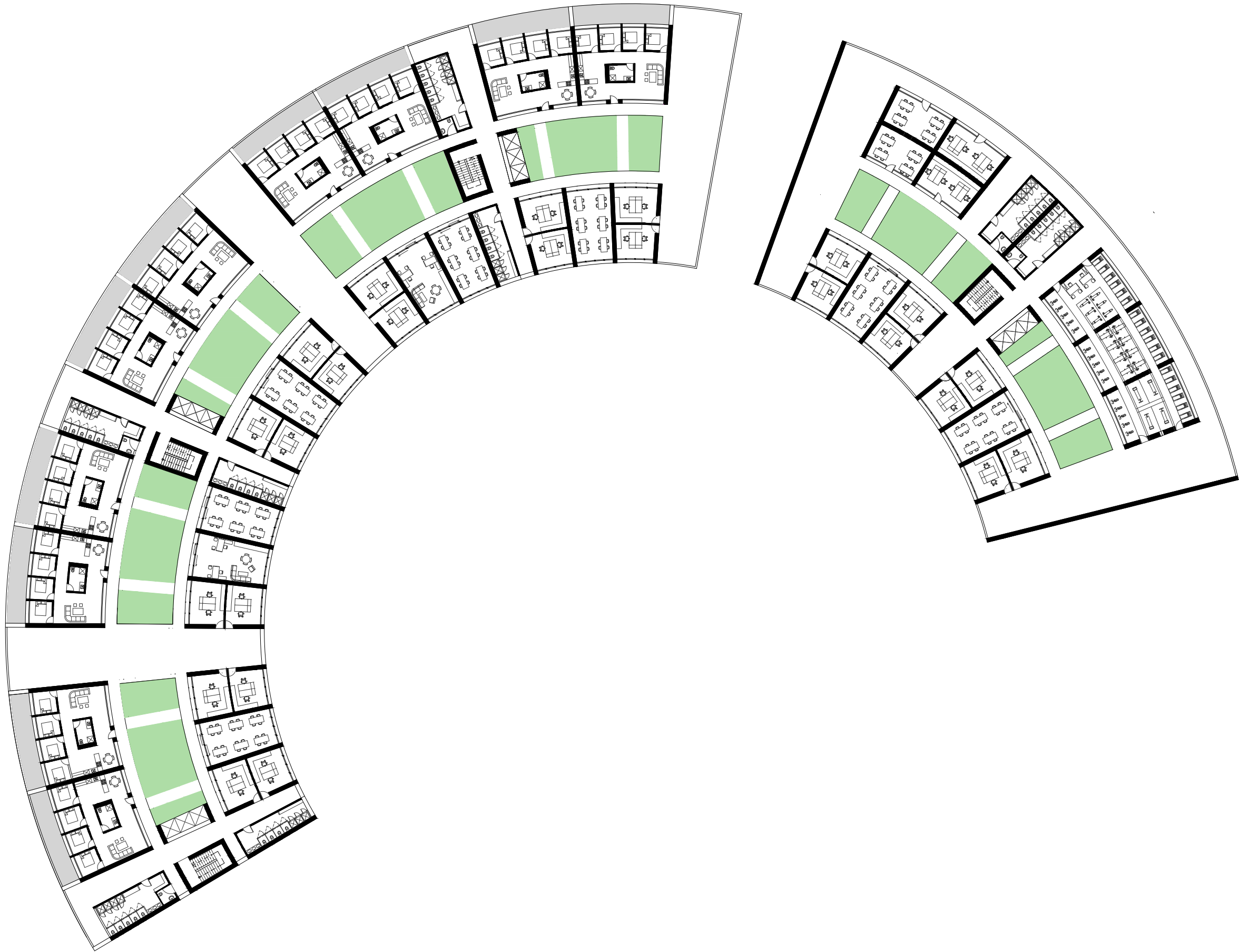
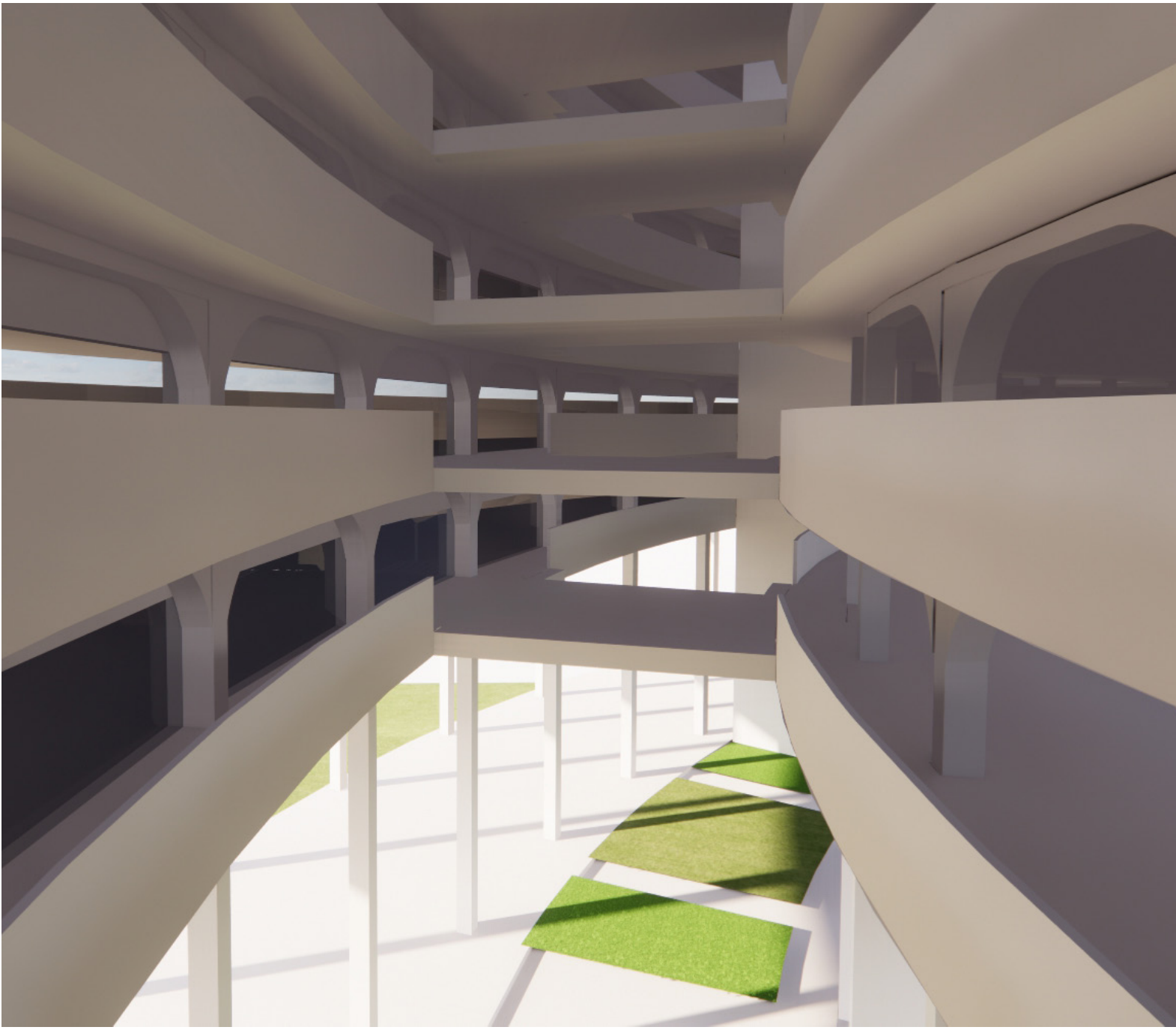
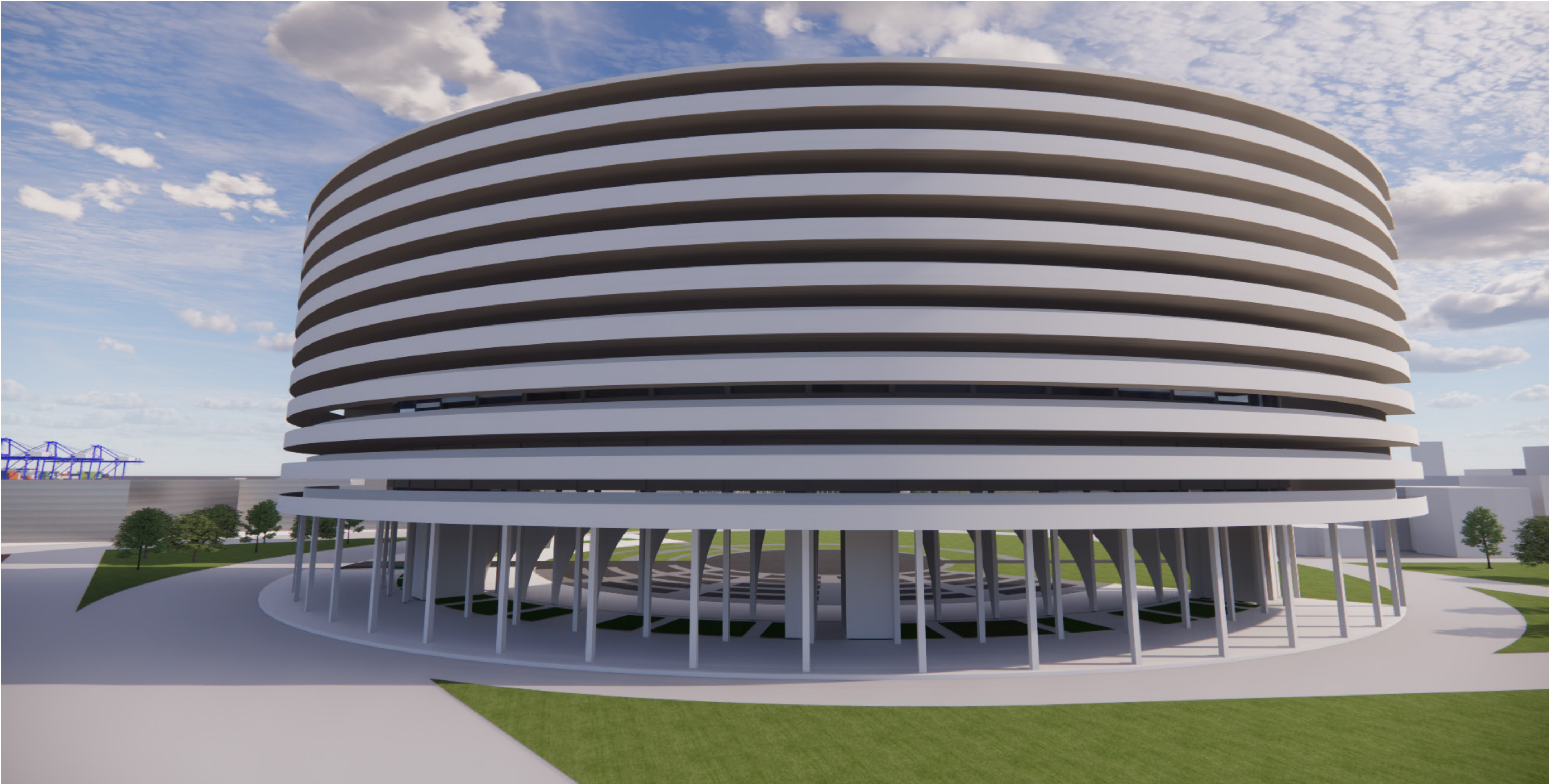
(2) Shared Bathrooms equipped with individual showers.

(2) Bathrooms.

Wide multi-purpose area.







Floor plan 03 Karantina Tower, Scale 1:500

Program:

- |                                                                    |                                                        |
|--------------------------------------------------------------------|--------------------------------------------------------|
| <b>Weast Karantina<br/>(Refugees)(Private)</b>                     | <b>East Karantina<br/>(Military)(Private)</b>          |
| (10)T5 apartments with kitchen, living room, balcony and bathroom. | (2) offices for 4 people.                              |
| (6) Shared Bathrooms with individual showers.                      | (8) offices for 4 people.                              |
| (16) classrooms.                                                   | (2) work rooms for 16 people.                          |
| (5) Teachers rooms.                                                | (2) workrooms for 24 people.                           |
| (6) Bathrooms.                                                     | (2) shared bathrooms equipped with individual showers. |
|                                                                    | (1) Gym.                                               |
|                                                                    | -Wide multi-purpose area.                              |