

# SUR DEN SIFI CA TION

part II



# CITY GATES

THE VERTICAL DENSIFICATION AS AN INTERFACE IN MONACO



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The Principality of Monaco is the country with the biggest density of population of the world. In fact, 38'400 inhabitants are confined on a small surface of 2,02 km<sup>2</sup>, imposed by the delimitation of its borders. Two thirds of the employees who work there are inhabitants of the border countries. Then, as an organ, the city has to deal with an important influx which doubles its population every day, which engenders congestion at the two main road accesses of the city. Forecasts envisage the reception of 15'000 workers and 3'000 inhabitants every 10 years, then 25'000 sqm should be realized over this period. Therefore, Monaco will have to deal with a permanent densification and a renewal of the buildings on a constrained territory.

Placing an iconic tower at each entrance of the city, provides additional surfaces of offices. The Southern tower, which embodies the vertical densification, acts as a kneecap and allows the junction of road and air infrastructures. It's formed by a massive basement welcoming the parking lots, a plaza, as a meeting space, and the station of the cable car. There are also two vertical elements above the plaza, containing the offices and the hotel. The latter are thought as free plans, planned for change of assignment. A fantastic setting is offered to employees, working by contemplating the mountain, having lunch by admiring the sea or swimming with the feeling of dominating the city.

The project has for ambition to work on the limits of Monaco without considering the periphery as synonym of sidelining.

## MONACO

2,02 km<sup>2</sup>

38'000 inhabitants

Density: 19'010 inhabitants/km<sup>2</sup>

52'000 employees

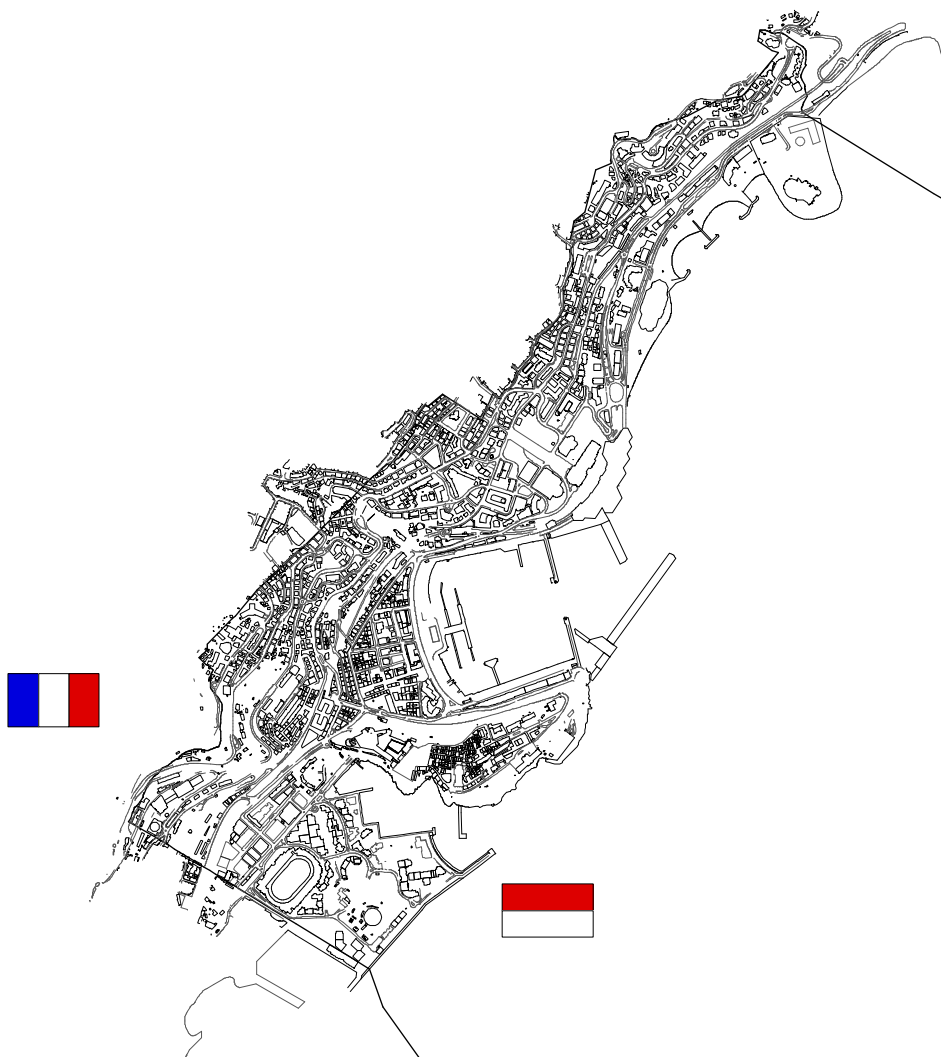
4'400 for the public sector

47'600 for the private sector

78% of employees live in France

8% in Italy

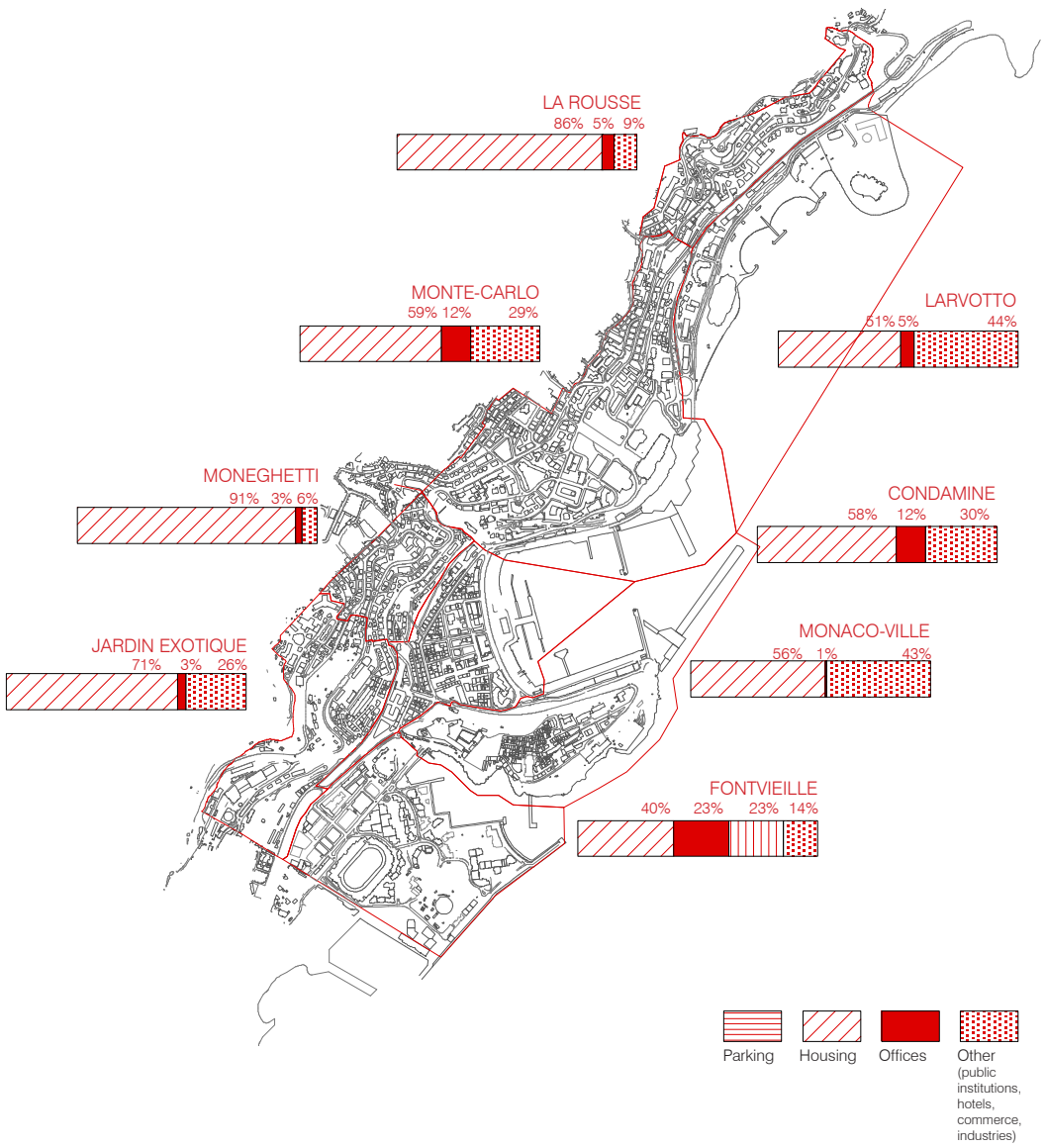
14% in Monaco



Nowadays, 61% of the surface of the city are housing and 11% are offices. There are 8 areas in Monaco. All the areas are mainly occupied by housing, excepting Fontvieille (95% are industries or services of Monaco and 42% are offices). The offices are dispersed in the city, so, when you arrive by car, you have to cross the city creating big problems of traffic jam.

# THE DISTRIBUTION OF THE TYPE OF ACTIVITY

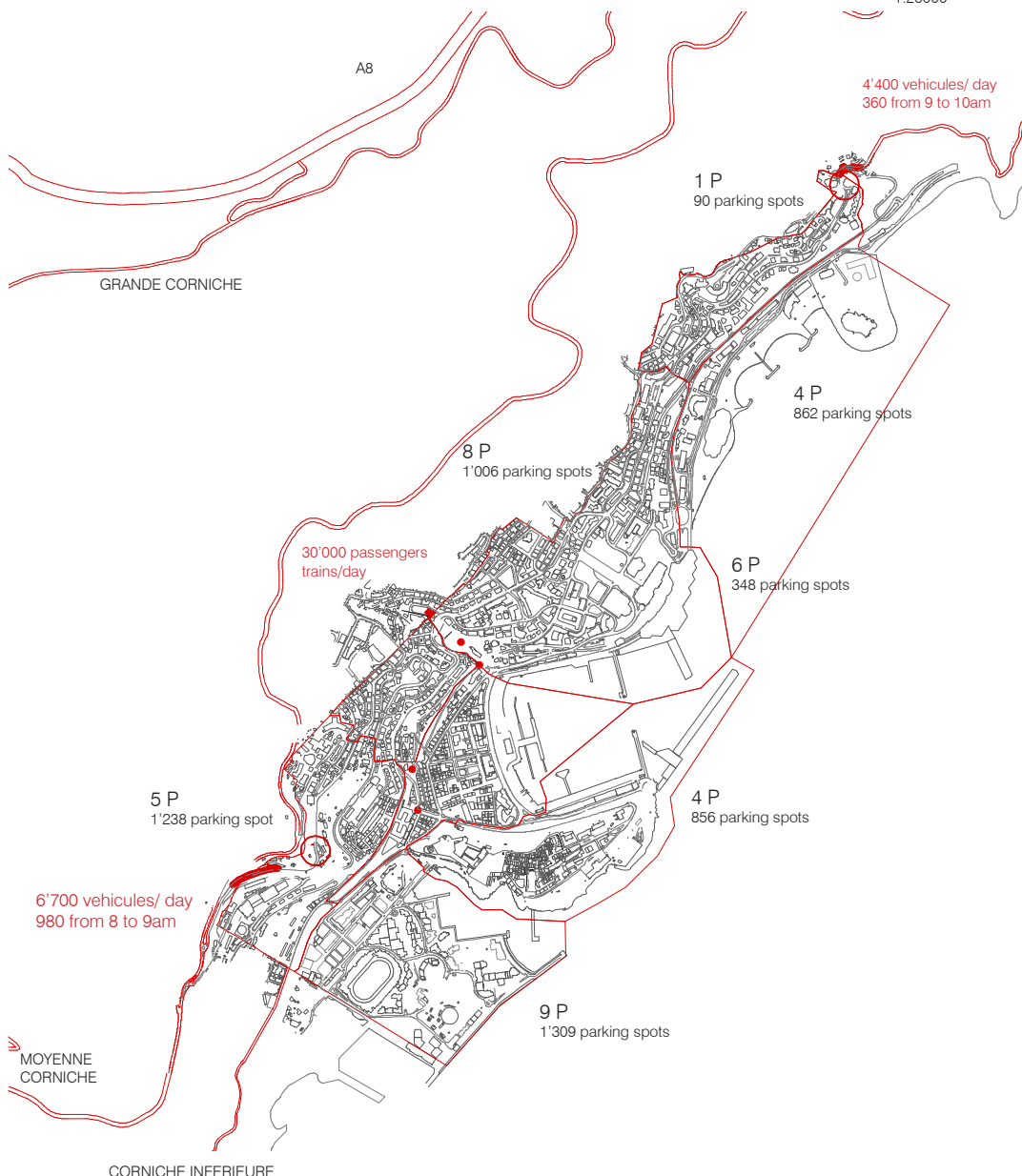
1:25000



There are two main entrances by car: the southern and the northern. The southern entrance is the most used in the rush hours by inhabitants from France because it's situated near the Moyenne Corniche (which pass next to Roquebrune/ La Turbie/ Eze/ Nice) and the connexion to the highway A8. There is also a train station serving the city, which is very used, and a cruise ship harbor for the tourists. Moreover, in each area there are some car park, mostly underground.

# INFRASTRUCTURES

1:25000



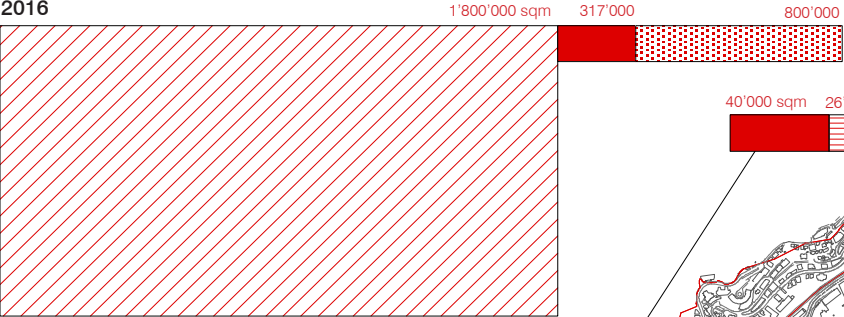
A forecast did by the city indicates that in 2030, there will be 3'000 additional residents and 15'000 additional employees. These studies require the creation of 400'000 sqm of surface in 20 years, but a ground deficit is planned for 2020. Let's remember that there are more housing than offices, so the most necessary is more space for offices than housing.

In order to gain surface for offices and parking, but also to reduce congestion of traffic in the city, the main idea is to group these functions in towers in the two main entrances of the city. With this strategy we can gain 40% of the needs quoted in the forecast for 2030.

To note that the particularity of this city is the constantly changing. In fact, at the moment, there are 42 construction sites in progress in the city.

PREDICTIONS OF 2030  
1:25000

2016



+

2030



P  
400 parking  
spots



P  
980 parking  
spots



Parking



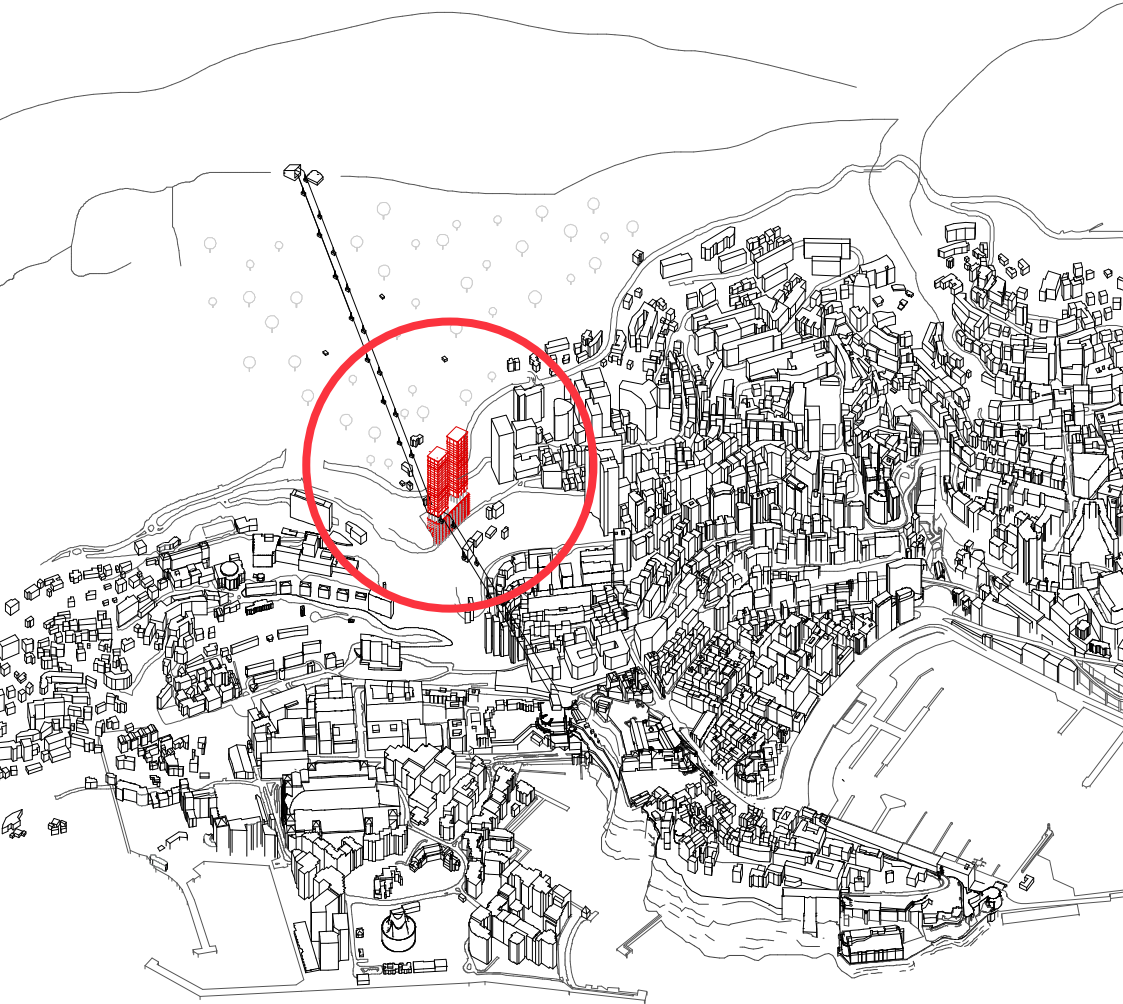
Housing



Offices



Other  
(public  
institutions,  
hotels,  
commerce,  
industries)







1 Access by car Bd du Jardin Exotique and police station



2 Bus station and entrance of the exotic garden



3 Exotic garden and Anthropology museum

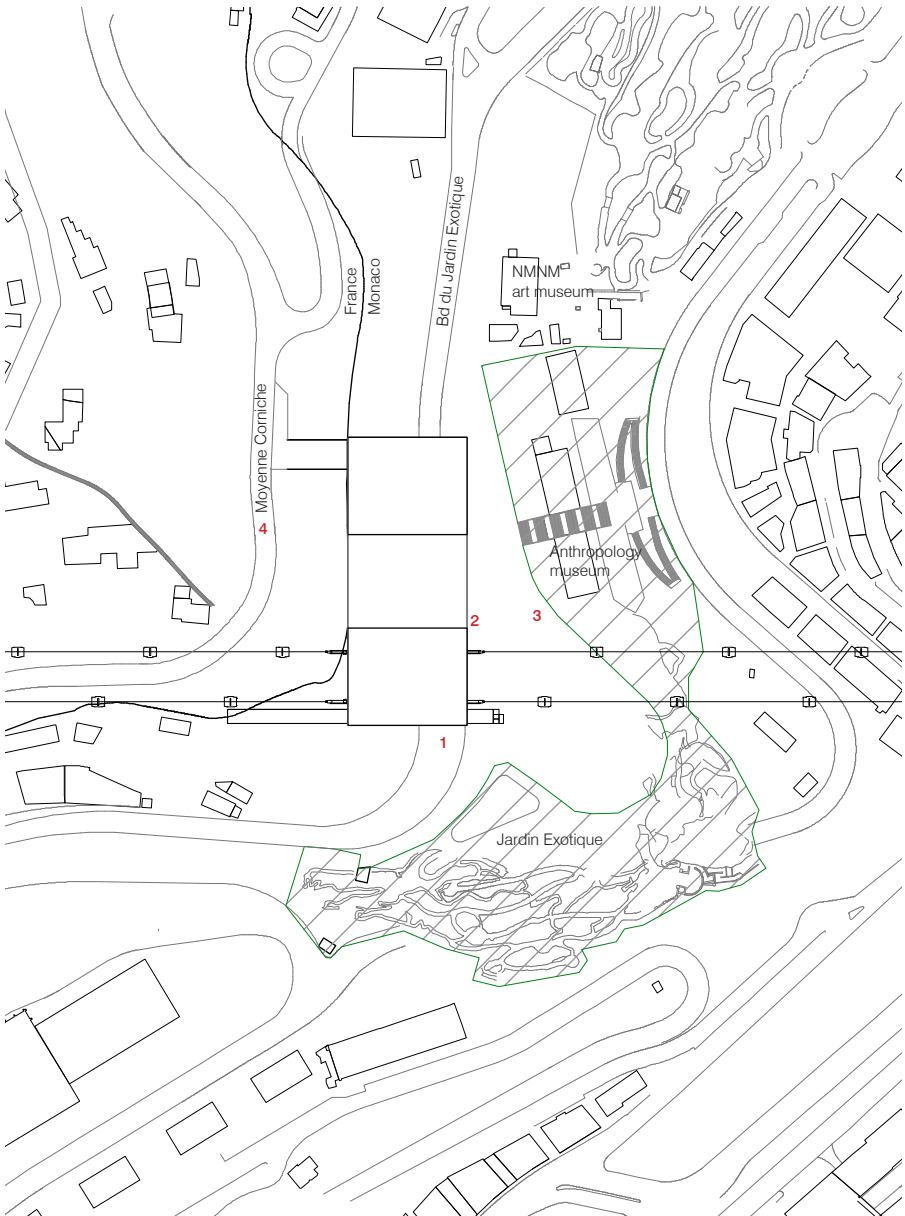


4 View from the Moyenne Corniche

The southern side of the city represents the conjunction between La Turbie, Monaco and the sea. In this location, there is a terminal city bus stop and a parking for the tourist bus which can't go inside the city. They have to pay a tax at the police station to park at the entrance of the city, then to take the city bus at the terminal stop. There is also an exotic garden and an anthropology museum to visit a prehistoric excavation below the site.

# SITE - JARDIN EXOTIQUE

1:2500



TOTAL SURFACE OF THE BUILDING: 77'120 sqm

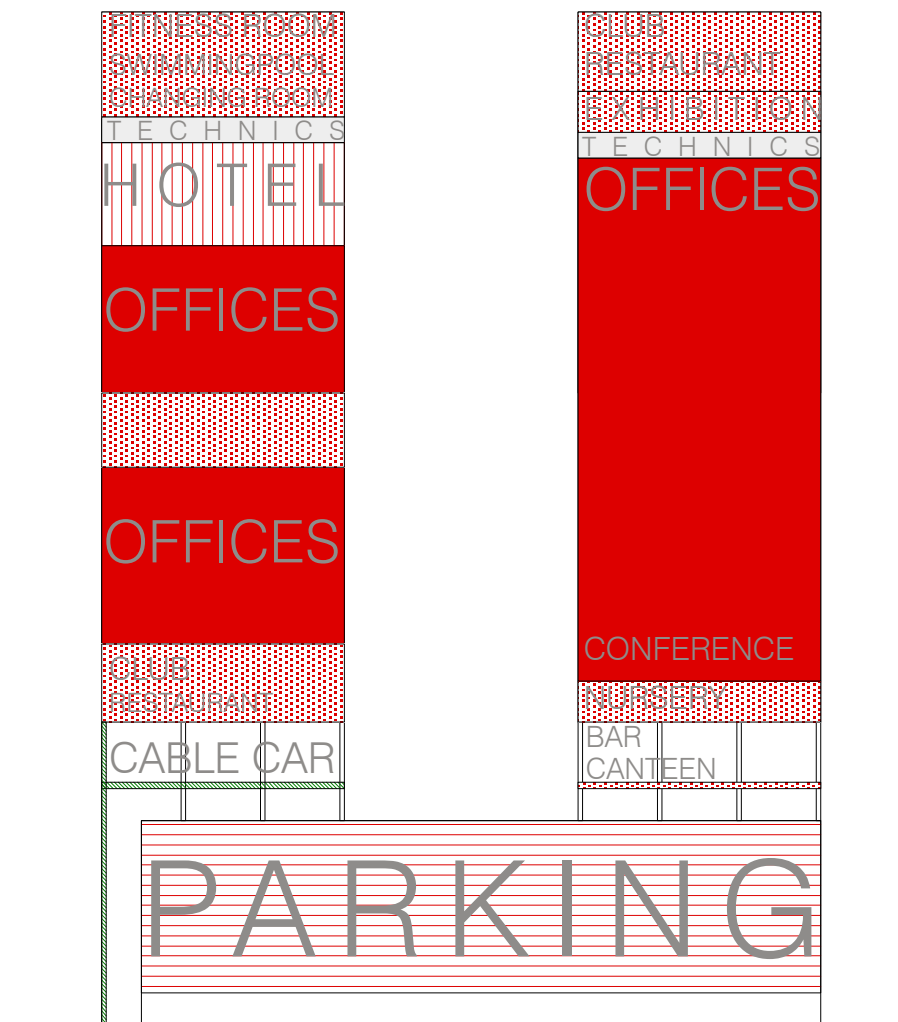
upper part: 45'340 sqm

plaza + cable car : 5'700 sqm

lower part: 26'080 sqm

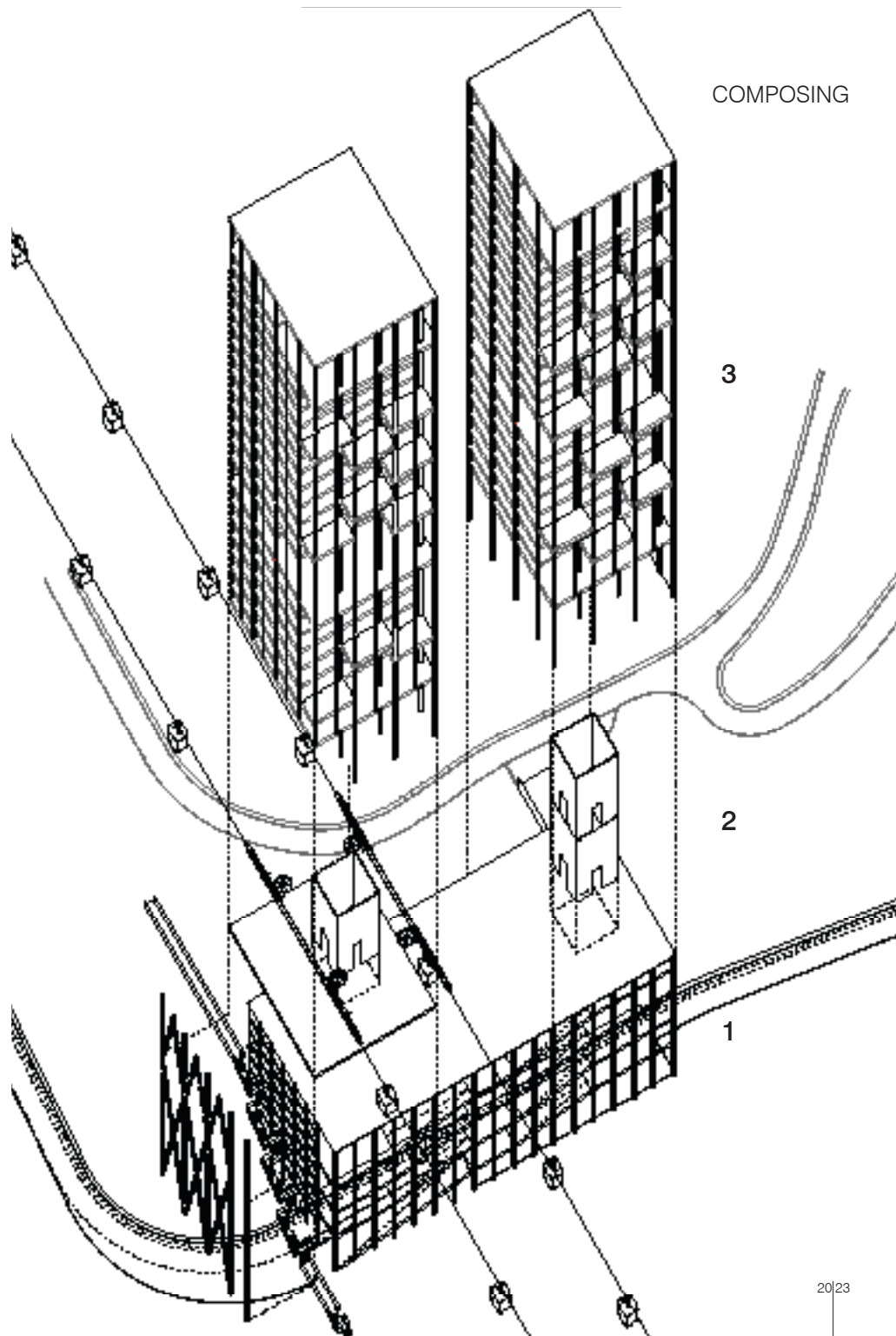
|         |                                 |                               |
|---------|---------------------------------|-------------------------------|
| Parking | 8 floors<br>930 vehicules spots | 26'080 sqm                    |
| Offices | 29 floors                       | 15% of 200'000<br>30'000 sqm  |
|         | Closed offices                  |                               |
|         | Open spaces                     |                               |
|         | Conference room                 |                               |
| Plaza   |                                 |                               |
|         | Free ext. space                 | 3'535 sqm                     |
|         | Cable car                       | 1 exterior floor<br>1'240 sqm |
|         | Bar                             | 1 exterior floor<br>930 sqm   |
| Hotel   | 4 floors                        |                               |
|         | 16 rooms 2 beds                 | 44 sqm                        |
|         | 24 rooms 1 bed                  | 108 sqm                       |
|         | 4x ext. common space            | 80 sqm                        |
| Leisure |                                 |                               |
|         | Swimming pool                   | 1'030 sqm                     |
|         | + ext. solarium                 | 233 sqm                       |
|         | + fitness room                  | 693 sqm                       |
|         | + changing rooms and technics   | 1'030 sqm                     |
|         | Nursery                         | 1'030 sqm + ext. 80           |
|         | Exposition zone                 | 1'030 sqm + ext. 80           |
|         | Restaurant                      | 1'030 sqm + ext. 156          |
|         | + Club                          | 690 sqm                       |
|         | Canteen                         | 1'030 sqm + ext. 233          |
|         | +bar                            | 690 sqm                       |

PROGRAM  
A MIXED-USE BUILDING  
1:1000



The strength of this building is its position, at the intersection among different infrastructures and programs. It's a meeting point between working, tourism and leisure. It's composed of three main elements: a massive basement with the parking, a plaza with the terminal of the cable car and two towers. Each element comes from a need of the city. Firstly, the parking and the cable car, which help to eliminate the traffic jam and to join the existing offices in the city. Secondly, the offices intended for 2030, according to the forecasts.

The structure is not the most important element of the towers because it's partly hidden by the elements on the front which highlight the complexity of the connections inside the building. Each facade has a specificity. On the western facade, there are the bridges for cars and pedestrians doing the connexion between the rock and the plaza. On the southern facade, there are more technical elements as the public staircase and the structure of the cable car. On the eastern facade, there are the parking ramps and the terraces facing the sea, enabling an exterior common space at each floor.



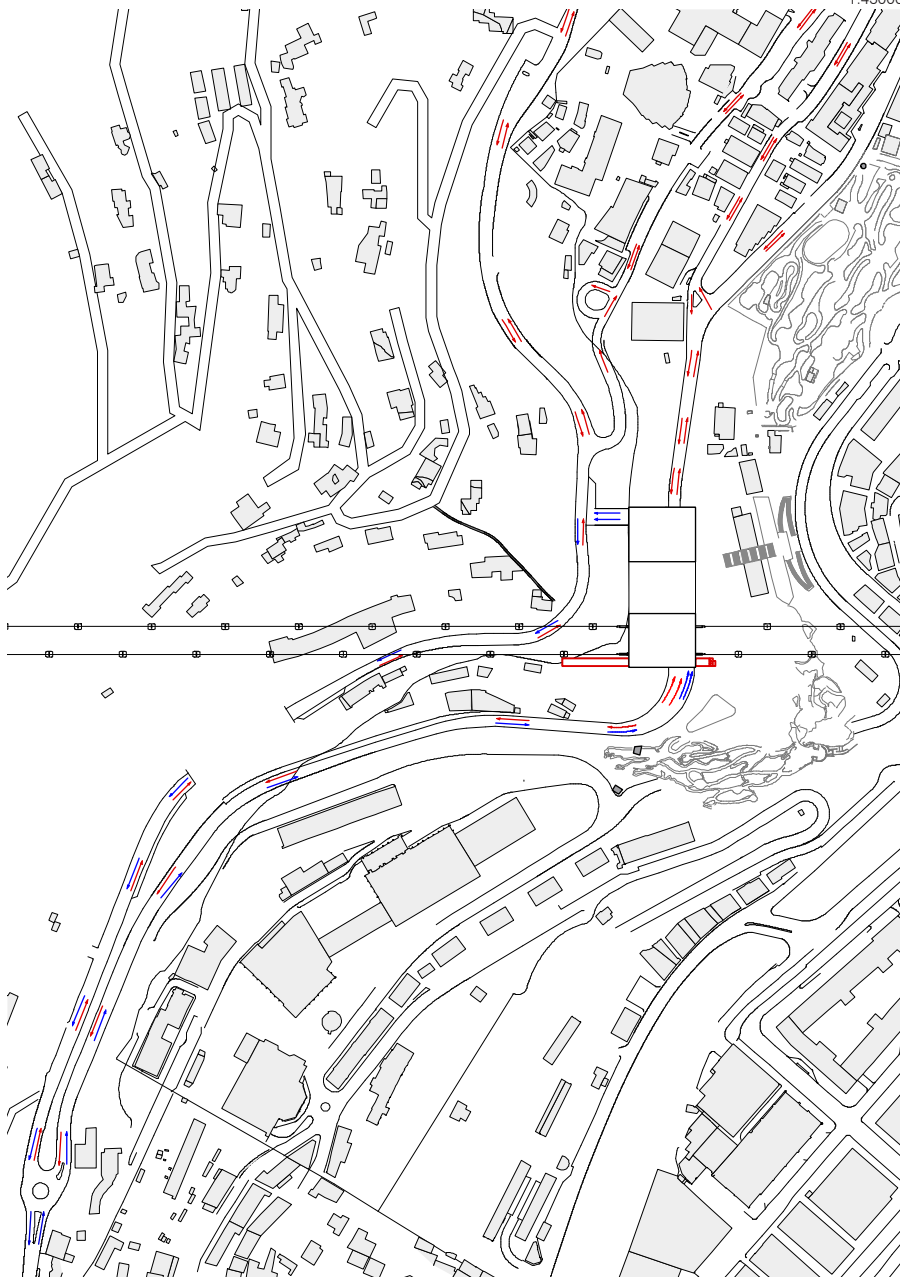
The position of the parking lot in relationship with the existing ground allows the connection between two roads. The entrance of the parking is on the Bd du Jardin Exotique, followed by a passage under the building and, 27 m higher, the exit of the parking on the Moyenne Corniche, which is the road in the direction of France. This creates a loop which constrains cars to not pass through the city.

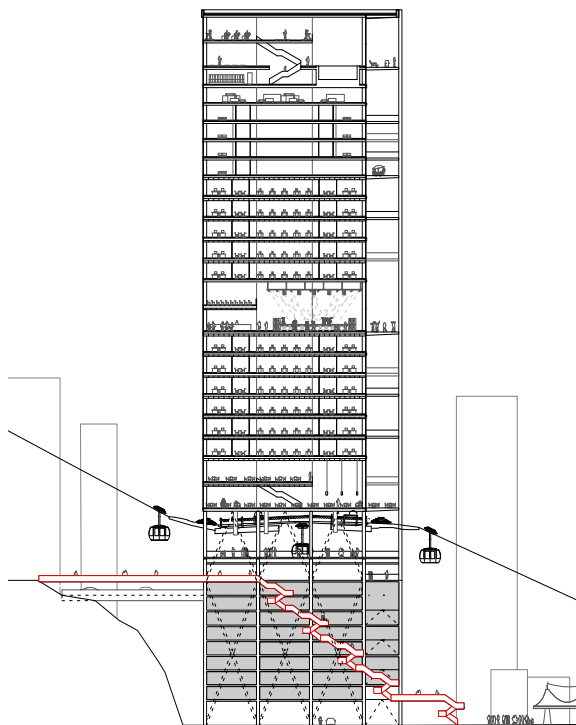
The new public staircase is connected to two existing staircases and permits to rejoin the Tête de chien, the top of the mountain with the observatoire of La Turbie, from the harbor of Monaco.

The cable car is the faster public transport to link La Turbie, in France, and Fontvieille, in Monaco. The latter is the area gathering the largest number of offices in the city. The intermediate terminal of the cable car, localized in the building, can be used by the inhabitants of both France and Monaco.

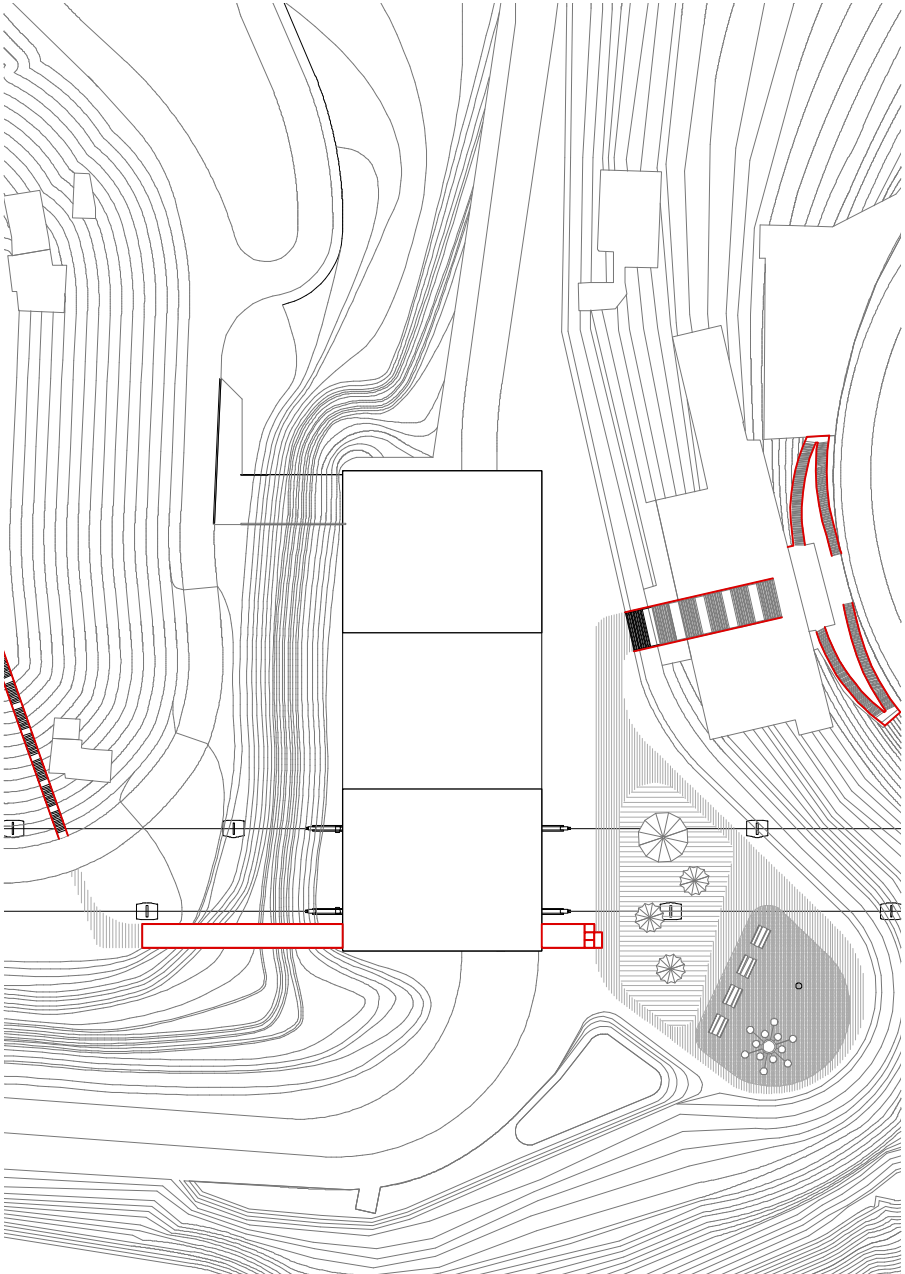
# ACCESS BY CAR

1:45000

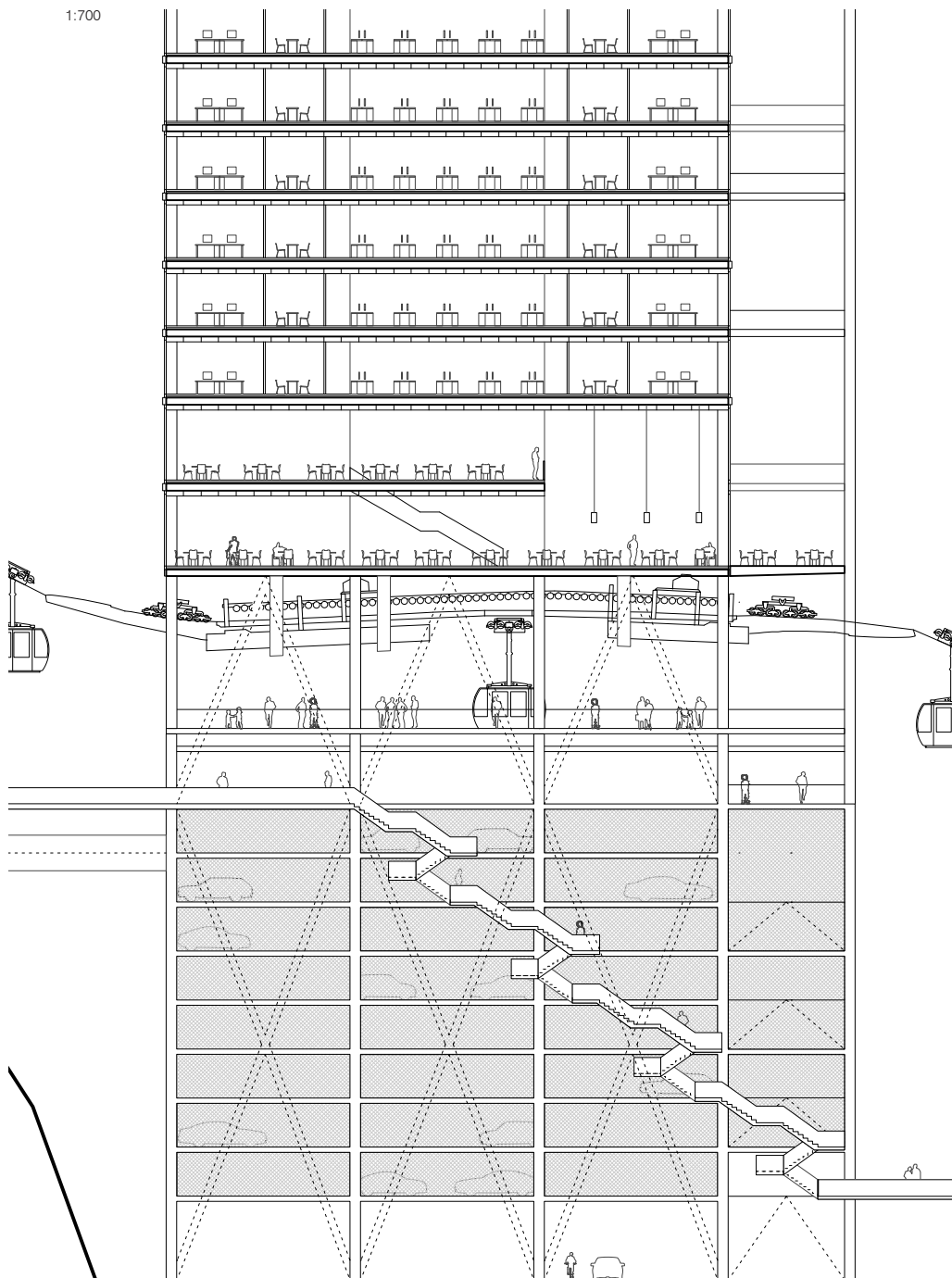




1:1500

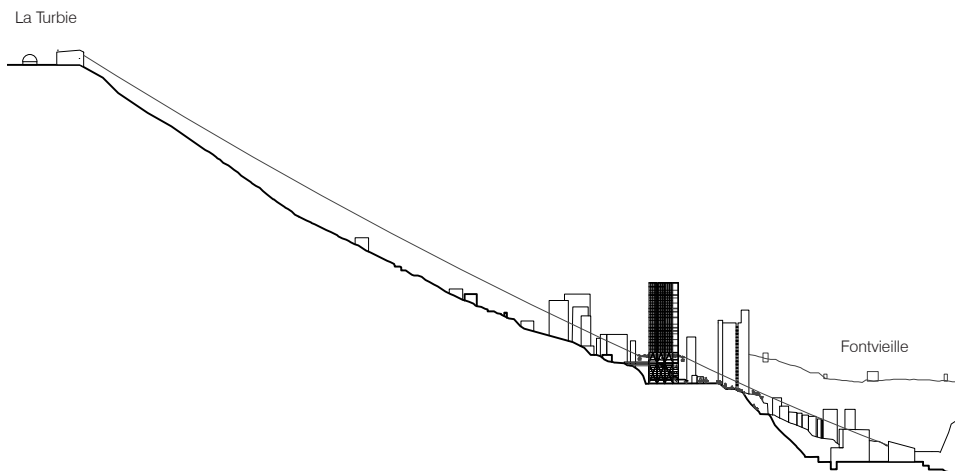


1:700



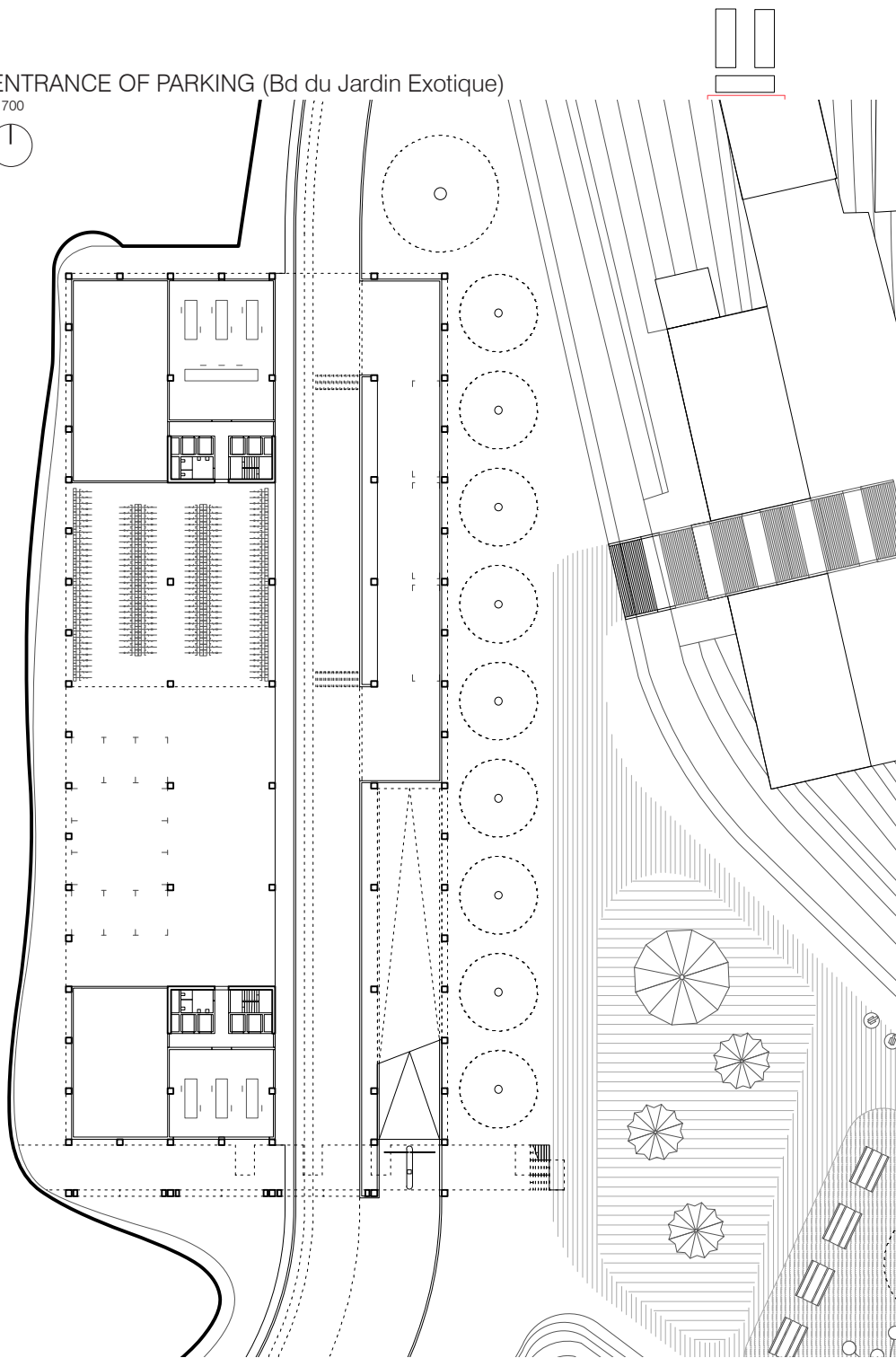
# ACCESS BY CABLE CAR

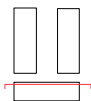
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# ENTRANCE OF PARKING (Bd du Jardin Exotique)

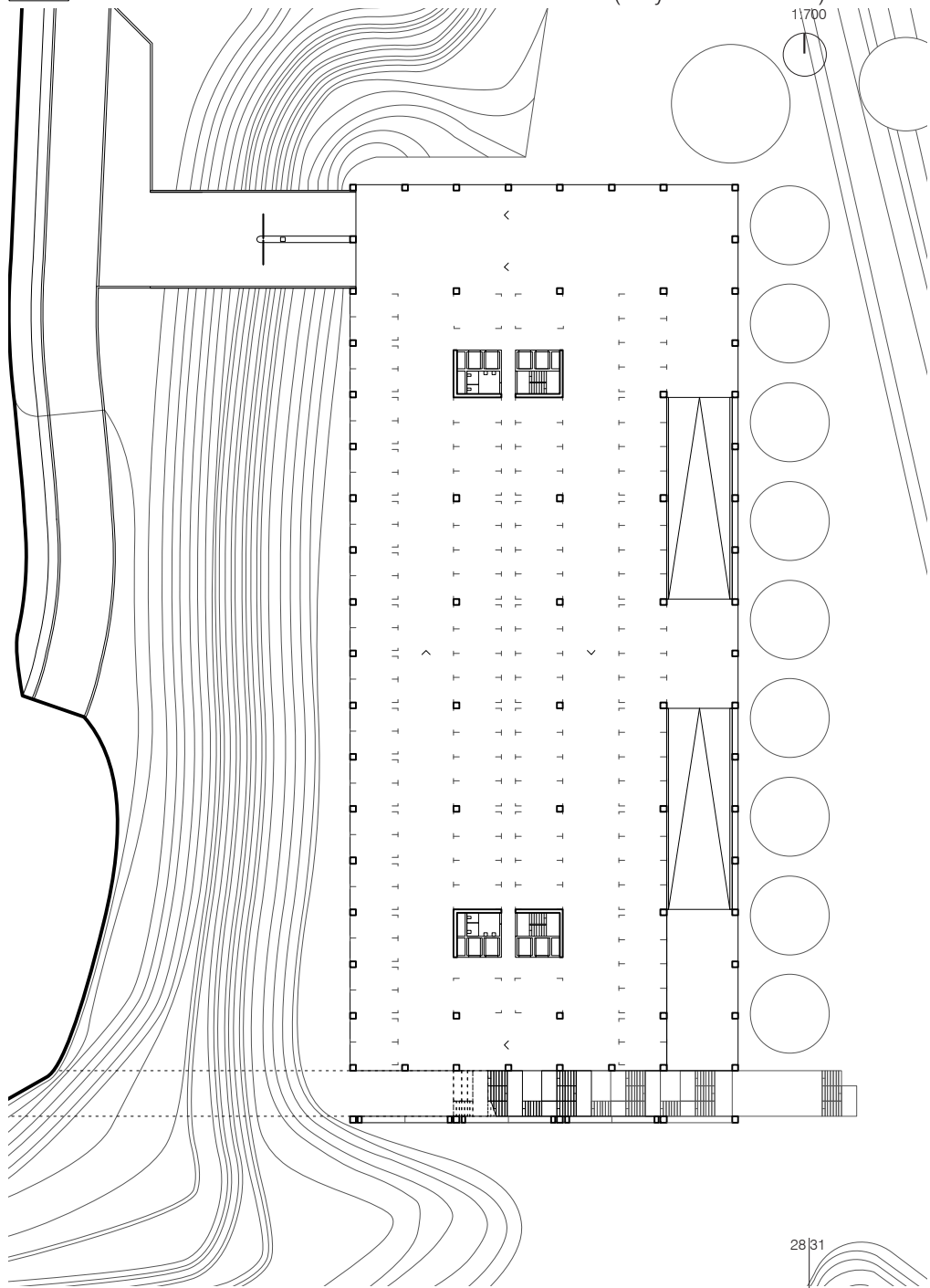
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# EXIT OF PARKING R+8 (Moyenne Corniche)

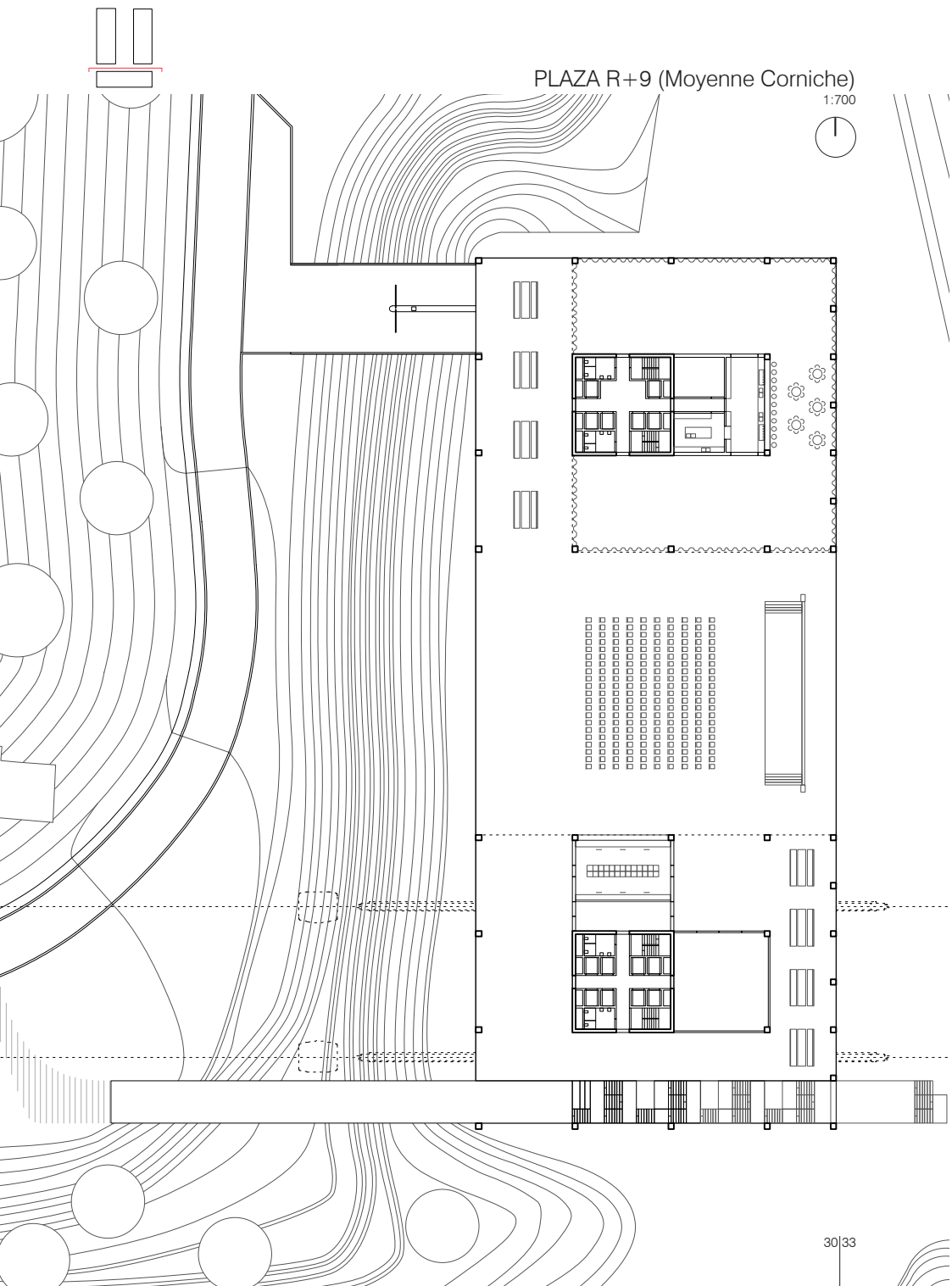
1/700



The plaza is the public space of the building where various activities can take place at different times of the day, the week or the year. For instance, it may become a market twice a week, an open air cinema in the summer and an ice rink in winter, or a theatre during the week-end.

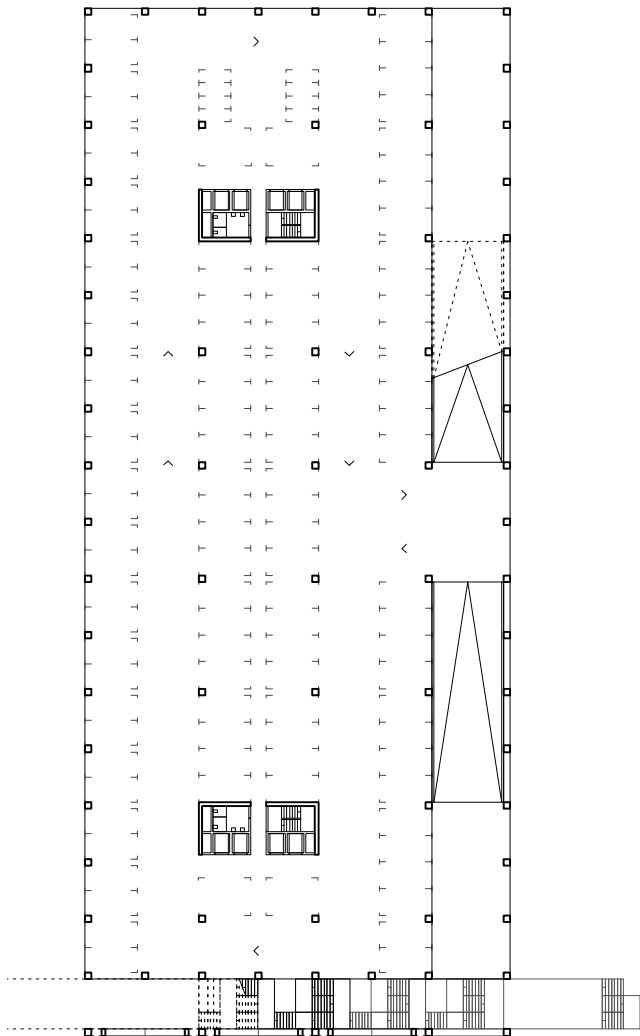
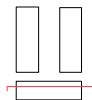
# PLAZA R+9 (Moyenne Corniche)

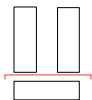
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PARKING R+7

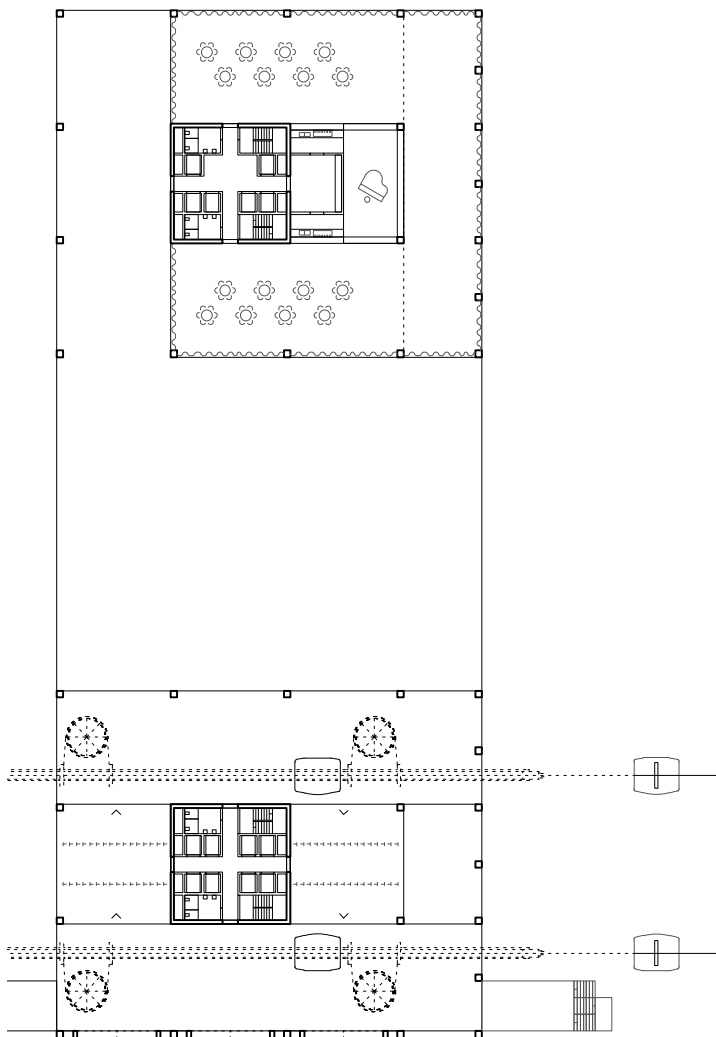
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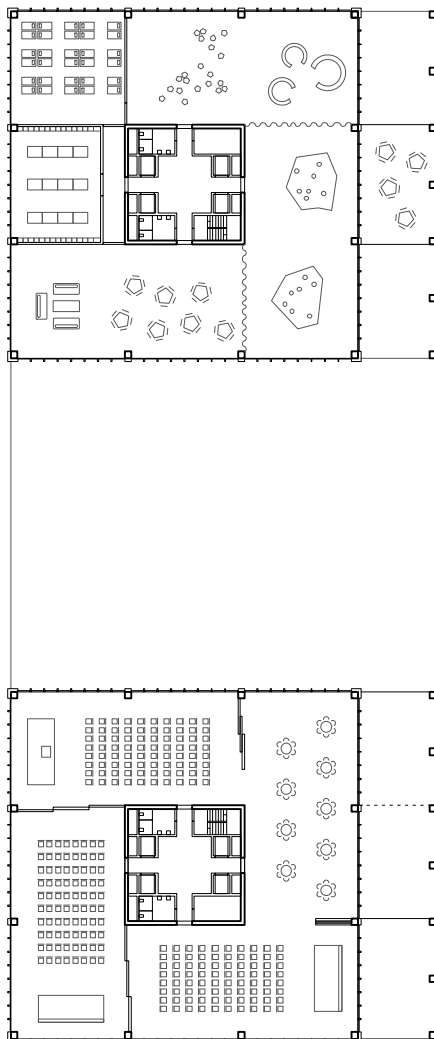
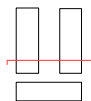
# BAR I TERMINAL CABLE CAR

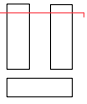
1:700



# MEETING ROOMS | NURSERY

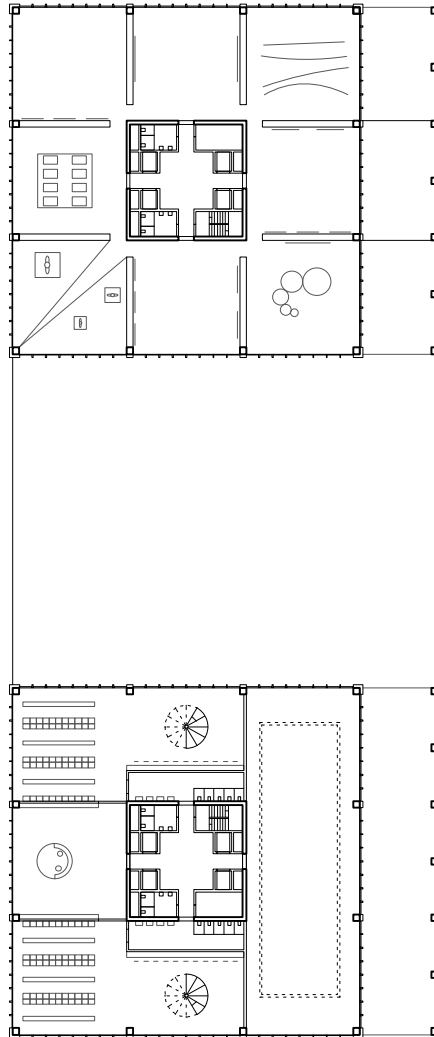
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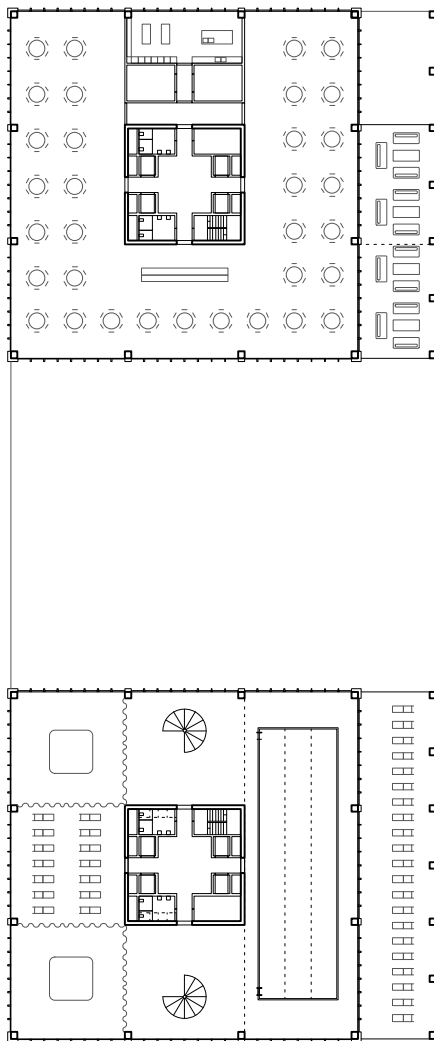
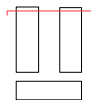
## CHANGING ROOM I EXPOSITION ZONE

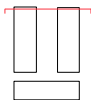
1:700



# SWIMMINGPOOL I RESTAURANT

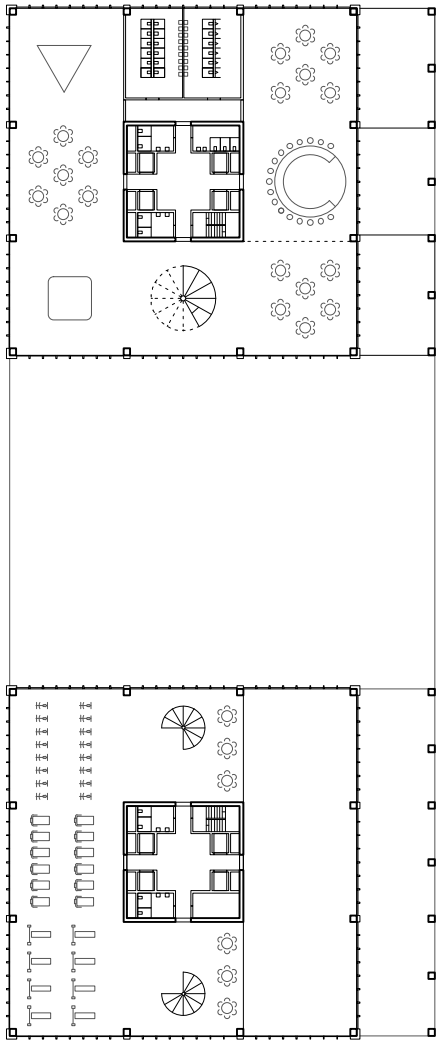
1:700





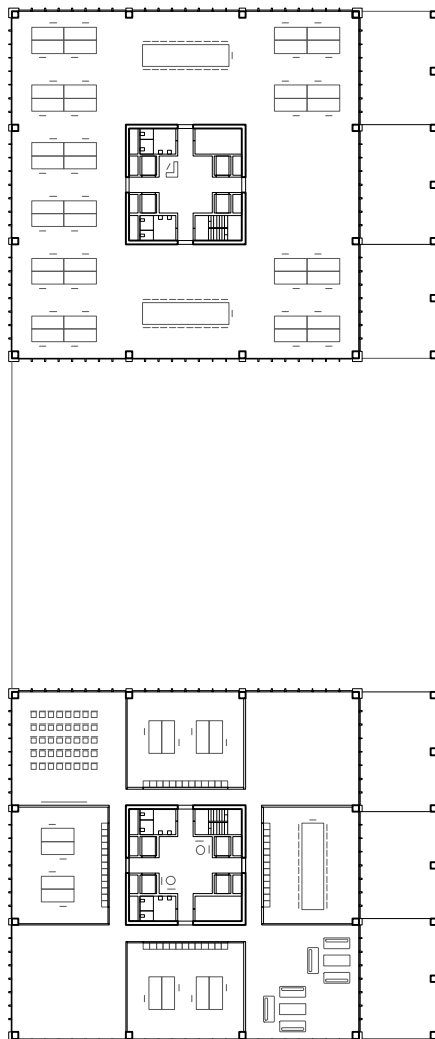
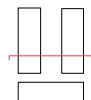
FITNESS ROOM I CLUB

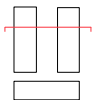
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# CLOSED OFFICES | OPEN SPACE

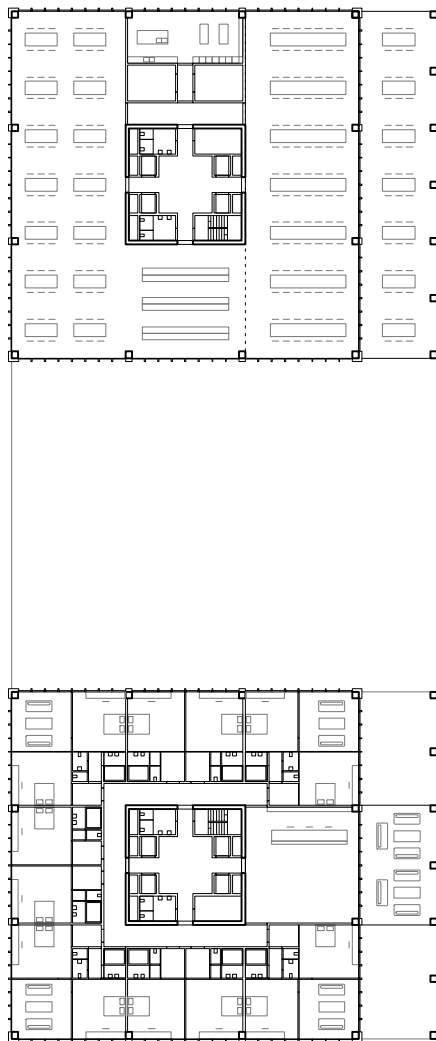
1:700





# HOTEL I CANTEEN

1:700



The main idea is that different kind of functions can take place in the same basic plan. Monaco is constantly changing and this building has to reflect this evolution. Old buildings are destroyed to build new ones because the city needs more spaces, but a basic plan can be a solution to adapt and transform a building without demolishing it. The main problem for the economy of Monaco is the lack of space for offices. Therefore, since this year, the teleworking has been settled down in Monaco. This system reduces space requirements because the employees work two-thirds of the time at home. It's also a solution to have less traffic jam and pollution in the city. Thus, it's important to have less specificities in the plans of new buildings and be more flexible to adapt it for new uses.

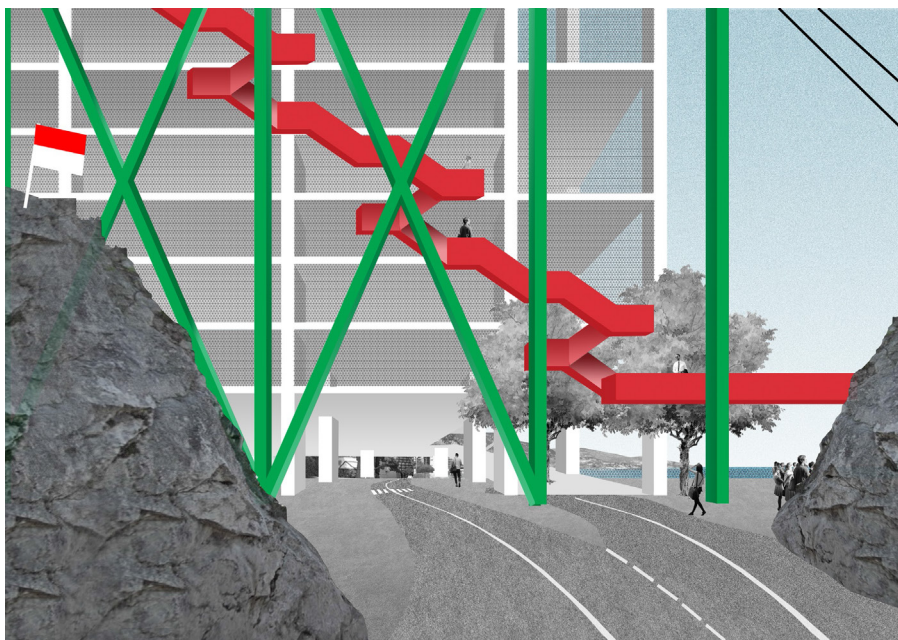
# HOUSING

1:700

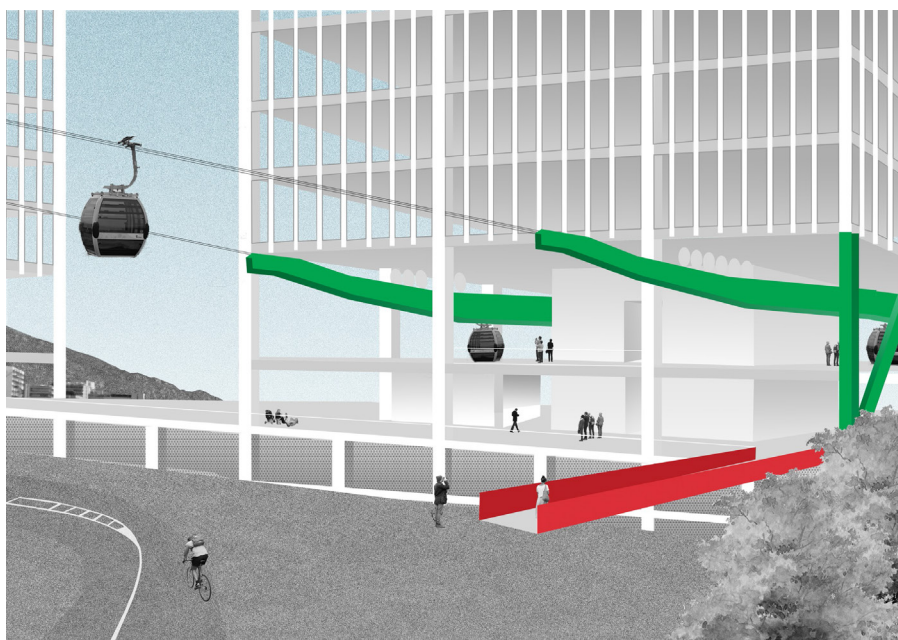




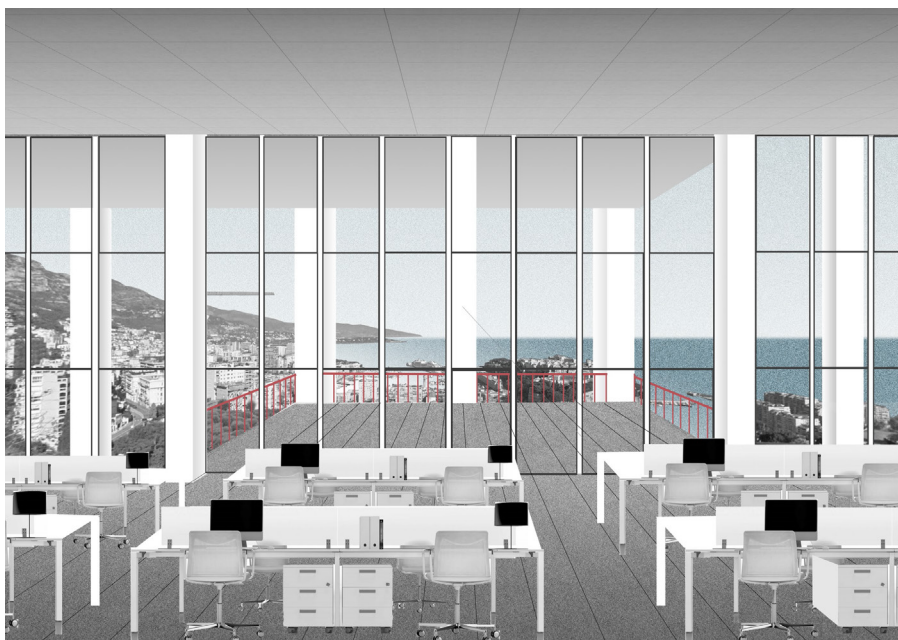
View from France



The entrance of Monaco



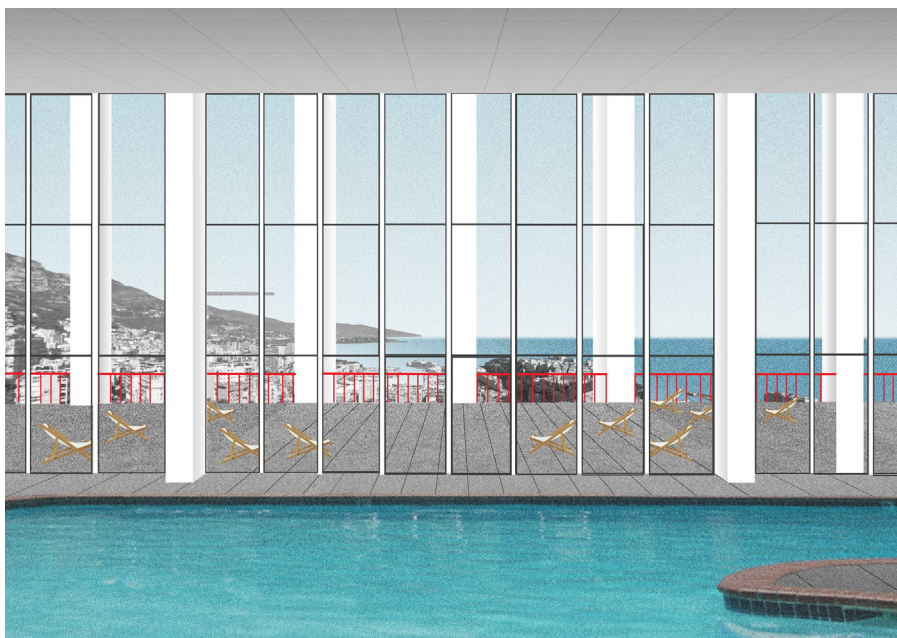
The pedestrians connections



The flexibility of the spaces: the open space



The flexibility of the spaces: the restaurant



The flexibility of the spaces: the swimming pool





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EPFL, Lausanne, July 2017