

P5 Reflection paper

GARAGE

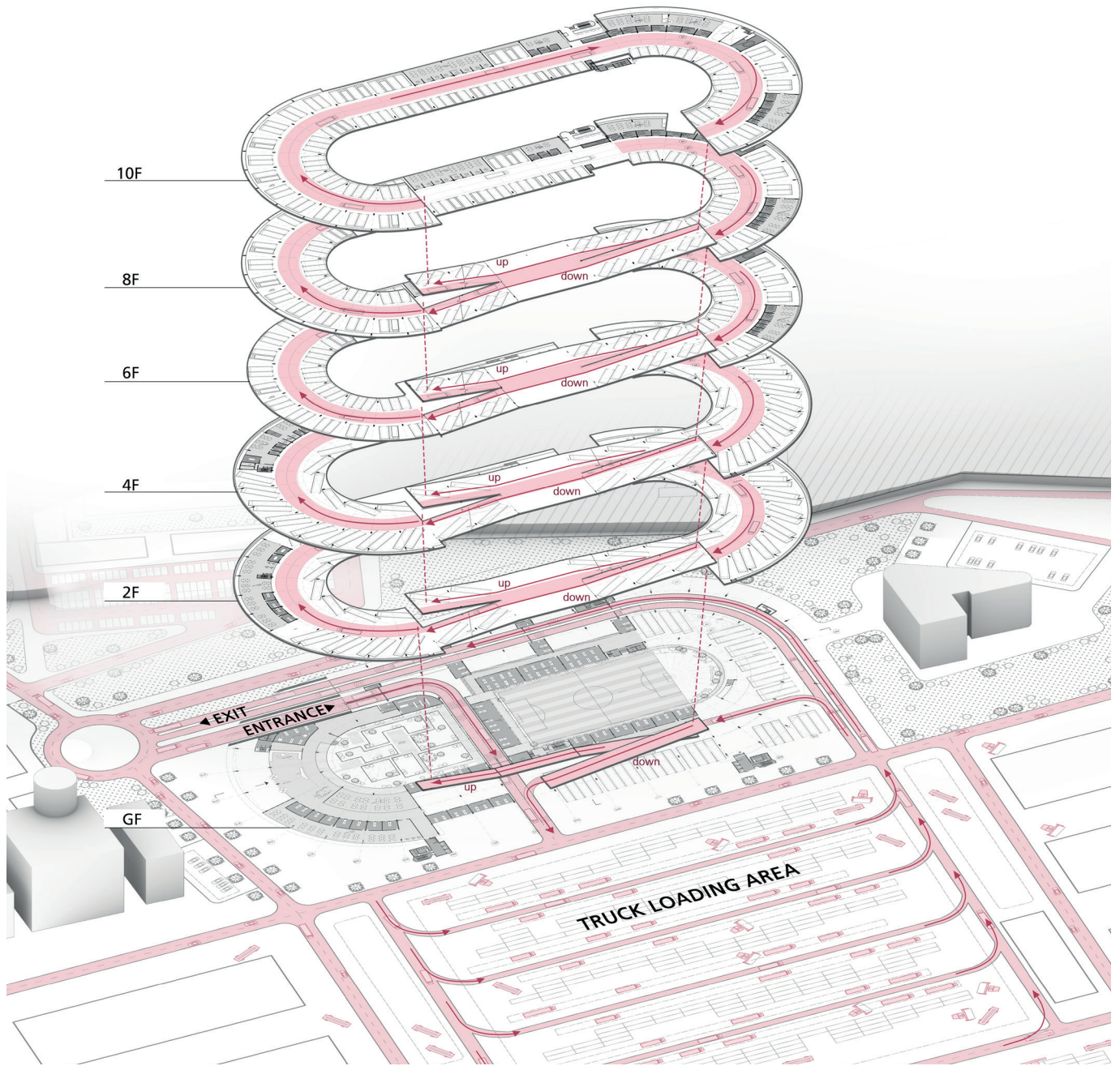
a concentrated parking facility for the Port of Beirut

*Proposing a condensed parking infrastructure to improve
the efficiency of import goods transit from the port to the hinterland.*

COMPLEX PROJECT

Dan Xie / 5275180

21/06/2025



PROJECT INTRODUCTION

Beirut, the capital of Lebanon, has a high number of vehicles. There is a lack of public rail and bus systems. People are extremely dependent on private cars, and even the logistics system of the port here is completely realized by trucks.

The port of Beirut is the most important port in Lebanon. However, the port explosion in 2020 severely disrupted the port's mobility. What followed was a worsening of port logistics efficiency. The port of Beirut is an important hub connecting the sea freight and the inland freight system. More than 80% of Lebanon's total imports pass through this port each year. However, the port has not had an efficient logistics system. Trucks are parked on both sides of the road toward the port and even occupying public spaces in surrounding communities. Trucks entering the port to loading/unloading goods also require significant waiting time. These problems have resulted in ports currently consuming more manpower and time than normal without achieving normal levels of logistics efficiency.

In the future, Beirut itself and large inland areas within Lebanon will need to strengthen logistic links with the port. The gap between the reality and the future is a parking and logistics hub that efficiently realize this connection. This facility will become an existence like the heart of the port, using its own pulse to drive the port to establish a stronger connection with the hinterland.

As a result, this project became a complex facility that integrates parking and logistics operation functions. It is a response to the current problems of the port: a multi-storey solution for complex parking and logistics functions; and a visual representation from architecture level: all parking spaces and internal structures are exposed to the outside. The program about function naturally shapes its interior and exterior. This project seeks to find a way of honestly expressing the architecture itself, honestly responding to the needs in the context, and honestly showing its own logic.

ASPECT. 1

The relationship between research and design

In the development of the graduation project throughout the year, the research of context has played a very important role. From the earlier survey on mobility in Beirut and the Greater Beirut area, the research topic of this project was gradually narrowed to the mobility of Beirut port and port logistics. After the site survey and background information research, the study figured out the role that Beirut Port played as the most important inland transshipment port to its country. And it also faced truck parking and logistics processes issues that urgently need to be improved. The final project design responds to these questions, concentrating on the functional requirements and naturally forming a centralized parking infrastructure.

The repeated research of the concept and ambition is also very helpful for the formation of this project. Through countless discussions and presentations, I discovered step by step the most critical technical and design issues in this complex project, which is how to make the entire building a centralized transit hub connecting the port and the city. They also became the feature this project wants to express in both interior and exterior quality.

ASPECT. 2

The relationship your graduation topic and studio topic

The studio's theme is to propose new urban design and architectural design for the post-explosion context of Beirut. The urban fragments selection of the overall studio includes many different areas. Through the development of urban strategies in different areas in the preliminary research, it was finally implemented in personal architectural projects. I think this workflow is very coherent and logical for the design of architecture projects. All decisions made during the design can be traced back to the larger scale urban context.

This garage project, for example, is one of six projects in the waterfront urban area. It improves the port's hinterland goods logistics mobility, which is its most important function today. In turn, the improvement of the logistics of imported goods in Lebanon and even the wider inland areas will also benefit. At the same time, it also improves the connectivity between urban and waterfront area. On mobility, the studio also has designs for terminal shipping, subway transportation and urban centralised transportation hubs. These projects respond to the different transportation systems within Beirut, ultimately improving urban mobility in the Beirut region in several different aspects.

ASPECT. 3

Research method and approach chosen by the student in relation to the graduation studio

The studio has a very clear approach to research and design. Through a lot of research and concept development, we have a very good foundation for our final design. During the whole year's design process, a large number of poster exhibitions and presentations gave us many opportunities to report and discuss. Personally, it would be more beneficial for my design work to have more individual time. But overall, the process is very inspiring and the constant feedback is very helpful in deepening the design.

I agree with this workflow in the studio based on exhaustive background checks and rational analysis. This method is very helpful for large-scale urban complex buildings. I also had the opportunity to try very large-scale architecture. In the end, the scale of this project was completely unimaginable to me before. But because of the guidance and help from the tutors, I also gradually became familiar with the design process of this complex building. "How to find determinants in complex contexts and respond to other relevant content at the same time" is a very important design skill I learned through this year.

ASPECT. 4

Relationship between the graduation project and the wider social, professional and scientific relevance

This project mainly focuses on the parking aspect under the topic of mobility, proposing to design a parking building with both high efficiency and spatial quality.

This topic was chosen not only because the Porte itself urgently needs to solve the shortage of parking spaces, but also because this problem is an important issue in today's urban development. The parking function occupies lots of building area but it is difficult to bring better space quality. In today's cities, which are constantly advocating "city shrinking" and "improving space efficiency", the problems of parking space itself are particularly obvious.

The solution to this problem is not easy to find. The parking building itself has many technical requirements. They are also closely related to the urban road network and the functions of surrounding buildings. This characteristic makes the connection between the parking building and the exterior also require very sufficient research and design. Last but not least, the large parking space inside the parking lot is difficult to produce a pleasant spatial experience at the same time. A lot of exhaust, noise and constantly passing vehicles make the space very uncomfortable.

In response to these questions, this project is an exploration of traditional parking buildings and the way they are combined with other functions. Based on the specific functional requirements of the Beirut port itself, this project has become a hub connecting the port and the

city road network in the port entrance area. Based on the parking requirements of trucks, the interior space design can meet the technical requirements and accommodate the parking of trucks of different sizes. This project also directly expresses the scale difference between the parking space and the office space through the building structure, and then through the structure, people within the two scales can perceive the existence of another activity. Modular office space can also be flexibly transformed in the future according to changes in actual needs. These attempts are all possibilities of this project for the future parking space in the city. By combining other functions, or increasing the density of its own space utilization, this project provides a possible development model for the parking problem.

ASPECT. 5

Ethical issues and dilemmas you may have encountered during graduation

Although the project has a clear functional response, the identity of the “truck parking building” still brings many questions to it. Because there is currently little precedent for the use of multi-story buildings for truck parking, many aspects of the design process were extremely challenging. Although I found a designed way to implement the function through research, it is difficult to predict whether this function will encounter problems in the real state.

Secondly, to meet its functional requirements, the building volume becomes very large, and its interior space is strongly controlled by the circulation of the trucks. This makes the building seem very dependent on technical data analysis and logistics space organization, thus sacrificing part of the design of the human-scale space. For example, the garage management and logistics management in the current project are far away inside the building and can only be distributed along both sides of the driveway. This is inconvenient compared to a centrally managed office space. This project is more like an attempt at the conceptual level, by combining these two functions to explore the possibility of future urban functions. However, compared with traditional office space, it is difficult to organize a centralized indoor atrium or a convenient circulation system in the office area.