

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information		
Name	Dan Xie	
Student number	5275180	
Studio		
Name / Theme	AR3CP100 - Complex Projects Graduation Studio	
Main mentor	Henri van Bennekom	Architecture
Second mentor	Hubert van der Meel	Building Technology
Third mentor	Jelmer van Zalingen	Research
External examiner	C.H.E. van Ees	
Argumentation of choice of the studio	<p>The explosion in 2020 brought huge losses to Beirut, especially the port area. The explosion caused extensive damage to buildings and infrastructure in the city. The functioning of cities and the lives of people have suffered enormously. It is very important to look for solutions that can help the reconstruction of Beirut in a post-explosion context.</p> <p>Complex Project provides a chance to investigate the needs of Beirut and try to find an architecture response to it. It is very challenging but also interesting. This is the first reason I chose this studio. In addition, there already has many problems that existed in Beirut city before the explosion, such as environmental pollution, traffic congestion, disconnection between different areas and so on. The large amount of open space created by the explosion also provides opportunities for the development of new buildings to address these issues.</p>	

Graduation project	
Title of the graduation project	Garage_ A concentrated parking facility for the port of Beirut
Goal	
Location:	The Port of Beirut, Lebanon
The posed problem,	The port of Beirut is an important seaport hub. A large number of goods imported to Lebanon are transported through this port every year. The port plays an important role in regional connectivity. The impact of the explosion destroyed a large number of warehouses in the port, and also the original logistics system. After the explosion, the speed of the logistics system was greatly reduced. This has resulted in increased loading and transportation times for cargo, which in turn resulted in a large number of trucks congesting the main entrance area. This further deteriorates the mobility of the port logistics system. How to improve the logistics mobility of the port to the hinterland is an important question. Solving this problem will improve not only the port but also the space of the surrounding urban area.
research questions and	The main question is how to use parking facilities to serve the logistics system of the port. To answer this question, it is first necessary to understand the characteristics of the Beirut port itself: what role does it play in regional transport? What is its capacity? What is the process of cargo transfer? Supported with this basic information, it is possible to know how to engage this parking facility and improve the operation of the port's logistics system.
design assignment in which these result.	<p>The assignment for this project was to design a multi-layer car park in the port entrance area, absorbing the surrounding informal parking and providing a quick connection for trucks. In the urban context, this project is a key joint connecting the port to the urban road network. Therefore, the design of the project also needs to respond to urban research on a larger scale, including the road network and surrounding function. Functionally, the movement of freight trucks within the building has a major impact on the project, such as the garage circulation and the turning radius of the ramp. Research on this part will affect the massing of the project.</p> <p>In conclusion, the new garage project needs to integrate these complex elements and become a centralized parking facility, driving the port logistic system and further anchoring the port to the urban context of Beirut.</p>

Process

Method description

The method of this research is mainly based on literature research and case study. There are a lot of journals and reports used to understand the local culture of Beirut and the impact of the explosion. Meanwhile, the book "The Landscape of Infrastructure" is used to understand garage and infrastructure design in contemporary cities. In addition, garage cases in different regions were selected as references. The layout and spatial organization they adopted was a huge help in the design of this massing.

Literature and general practical preference

In summary, this research uses journals and reports to understand the local culture of Beirut; study several related cases to understand garage design and urban infrastructure design. These materials were used in the site study and subsequent design brief. For example, the investigation of different aspects in the site research became the constraints to be followed in the design brief; in the case study, the layout of the ramp and parking space in different cases became the guidance for the development of the massing design.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The subject of this project comes not only from individual research but also from the urban research of the entire Beirut studio. We were divided into four groups to study four urban segments in Beirut. Each group has different architecture topics, such as mobility, education, production, culture and so on. In this way, there will be co-working between different topics in each group. Through such research, each architecture project could be evaluated and developed on a larger view.

This project is the most complex in my master programme. This makes me feel more difficult, but also more opportunities. So I thought it was a very useful practice during my master years.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The professional practice of architects often has to deal with complex design conditions. It is very difficult to balance the elements from different aspects. The graduation project in the complex context of Beirut is a good exercise. The complex studio not only cultivates the professional ability of design but also the ability to analyze, abstract and respond. Such an approach can help us integrate the characteristics of cities and regions for design and find solutions suitable for different regions.