

Graduation plan

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Course: AR3AE015 Architectural Engineering Graduation Studio

Graduation Plan

Studio

Architectural Engineering Graduation
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Tutors:

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Studio motivation

After one year of study in TU delft by chose different kind of studios, I start to have a personal design and research proposal. I tend to work with building technology and real site situation and I like to solve architectural problem by logical analyze and technical ways rather than awkward concept. For me the most of architecture is more related to engineering than art, which make its user feel comfortable when they work or live inside.

These are the reasons why I chose Architectural Engineering as my graduation studio. This studio provides more knowledge and concept that close to my interest.

Graduation Project Information

Project title:

1+1=3: The exploration of space efficiency

An integrated design approach for a flexible-use construction

Problem Statement

Nowadays, central area of metropolis face with high rent price and low space supply.

The need of space has been a serious problem in metropolitan areas. The rent price in central area of New York, Tokyo or Hong Kong becomes extremely high. Even in Amsterdam, value of office buildings in Amsterdam increased the most of all cities in the world. In the third quarter of 2018 Amsterdam offices' value rose by 27.4 percent.

How to make full use of central area of these cities then becomes a valuable research question. For architect, this question means to increase space efficiency, which means in same time more space is provided or more people is using the space; or the space can be used in more time during a day.

Objective

All innovations need their land to grow. For exploration of space efficiency, the marineterrein are can be a suitable place for experiment. The location of this place is good: it is just near the city center and central train station, which means the land value is high enough to be used effectively.

Also, the site has an innovative atmosphere and future vision, and its function is suitable for space efficiency experiment. Now the site's main function is office, and the landlord specially chose innovative companies to work here, giving them good environment and basement to develop freely. For example, this place have new type of rental office, people can just rent a desk to be their flexible work place and they will also be provided a studio to make their idea come true. Many young and small groups chose this place to realize their dream.

Although the site has its ambition to create an innovation port of Amsterdam or

even in Netherland, they are facing with a problem of limited usable space. The marineterrrein area used to be fully controlled by navy. Changes have been happening during recent years. Part of the area now is public reign and can be used by citizen. But in early this year, the navy changes their minds and decides to stay in the marineterrrein area. This means that the size of usable space will remain in a longer term.

A new research and a new building, that not only explore new way of space efficiency to make cities better, but also provide more space for the context, can be a suitable vision.

Overall design question

How to create affordable architectural space with high space efficiency?

Research question

1. "What is space efficiency?"

Sub question:

"What way have already existed?"

"What are the merits and demerits of these ways?"

2."What can be still improved on the basement of these ways?"

3."How to make the result of research suitable for real space?"

Methodologies

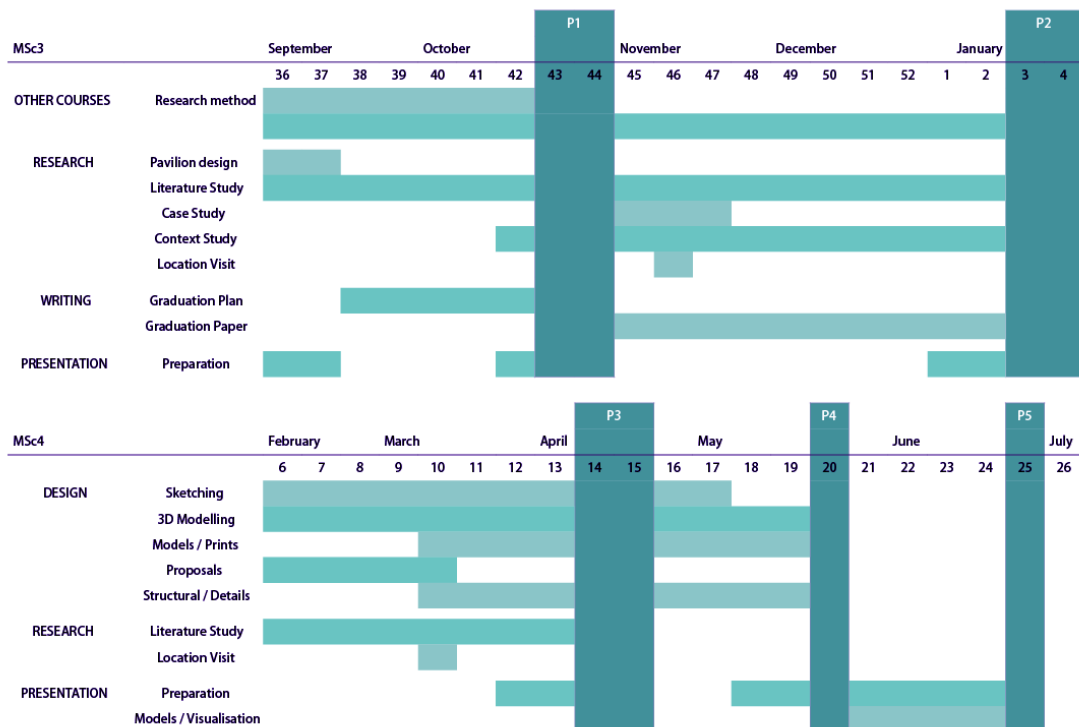
Context analysis: The context analysis is the basement of all other ways. The problem statement and objective then come out.

Reference analysis: From case studies different ways for space efficiency can be found. By analyze these examples a best proposal then is able to be made.

Literature study: The detailed data about space efficiency can be found by means of literature study. Also, the concepts in literature that explain how to make the building adapt to urban context is important.

Research by design: The design process is a good way to test the outputs of research. More details will be added by design.

Planning



Relevance

This project will provide new ways to make full use of space in architecture. Such outputs will not only be suitable for the building, the context but also for other places in other cities. For the context, the result of this graduation project will make it more active during the whole day, and such innovative building will also be a symbol of mariner terrain. The design project will attract more public attention, which will promote the process of this area's development.

Literature

McNeill, D. (2008). The hotel and the city. *Progress in Human Geography*, 32(3), 383–398.

Vilnai-Yavetz, I., Rafaeli, A., & Yaacov, C. S. (2005). Instrumentality, Aesthetics, and Symbolism of Office Design. *Environment and Behavior*, 37(4), 533–551.

MACDONALD, R. (2000). Urban Hotel: Evolution of a Hybrid Typology. *Built Environment* (1978-), 26(2), 142-151. Retrieved from

<http://www.jstor.org/stable/23288854>

Beorkrem, Christopher. 2013. Material Strategies in Digital Fabrication.

Hebel, Dirk. 2014. Building from Waste : Recovered Materials in Architecture and Construction. Ba: Birkhäuser.

Ruby, Ilka., Andreas. Ruby, Something Fantastic, and Jessica. 2010. Re-Inventing Construction. Berlin: Ruby.

Sandaker, Bjørn Normann. 2008. On Span and Space : Exploring Structures in Architecture. London: Routledge.

Sternberg, E. M. (2010). Healing spaces: The science of place and well-being. Cambridge, Massachusetts: Belknap Press of Harvard University Press.

Brennan, A., Chugh, J. S., & Kline, T. (2002). Traditional versus Open Office Design: A Longitudinal Field Study. Environment and Behavior, 34(3), 279–299.