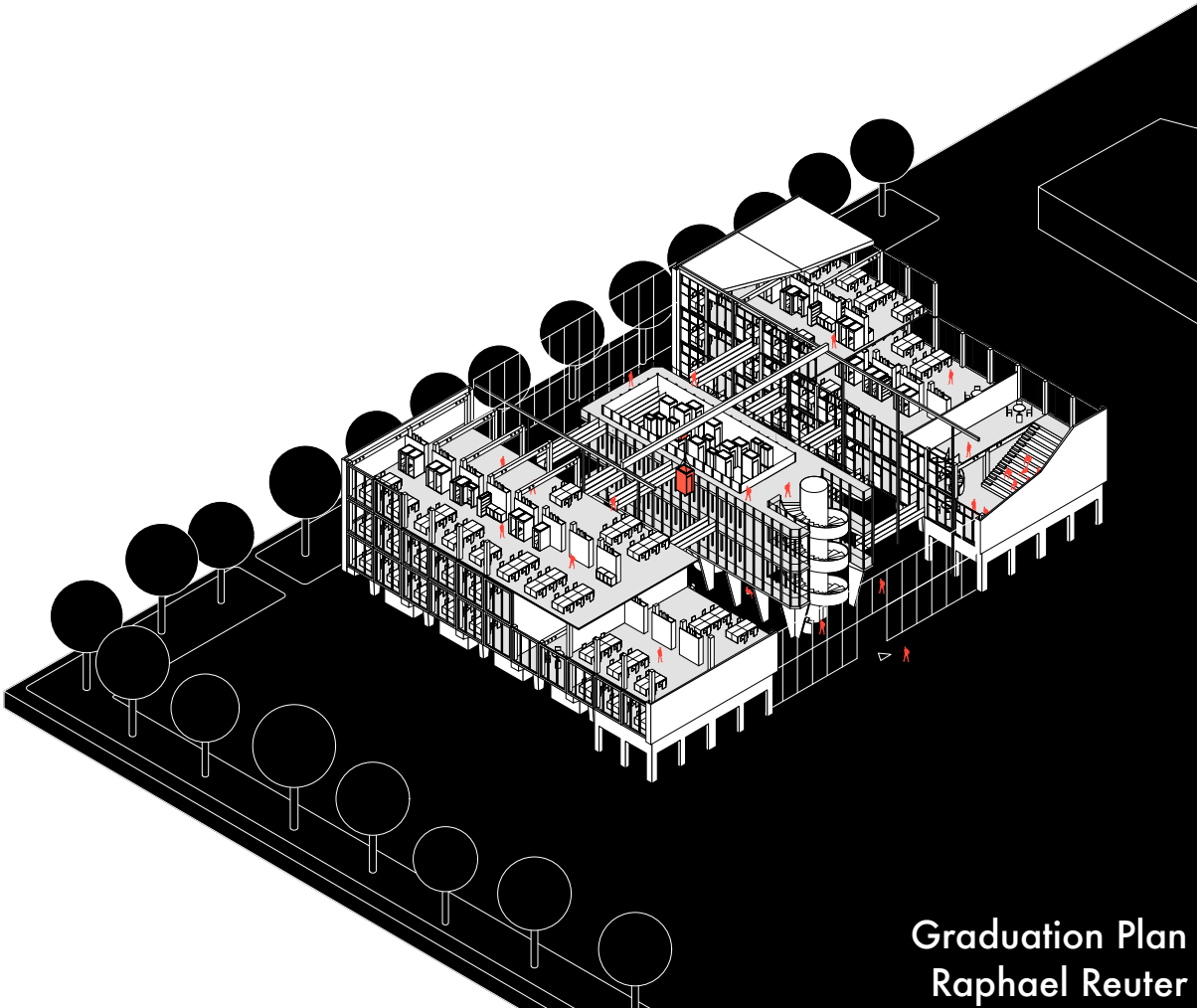


Transformation of a existing building into highly flexible office spaces by the use of transformable architecture



Graduation Plan
Raphael Reuter

Graduation Plan

Studio

Architectural Engineering

Title

Domus ex machina

Transformation of a existing building into highly flexible office spaces by the use of transformable architecture

Tutors

1st tutor: Annebregje Snijders

3rd tutor: Marcel Bilow

Personal Information

Raphael Reuter
4407695
Isaäk Hoornbeekstraat 49
2613HG Delft
0628199550
raphael.reuter15@gmail.com



Problem Statement

The biggest problem of modern cities is in my opinion the separation of functions, which cause the problems that parts of the city like industrial parks or commercial parts are only used during certain times and at other times they are just there but don't serve for any function. This problem is not only existing in an urban scale but also for the scale of a building. So is for instance an office building only used on weekdays at daytime. During the weekend and at night it stays empty.

The rents in the the inner cities are as high as never before. This causes that only a certain kind of wealthy people are able to live and work in the city centers. People with lower income, such as students, asylum seekers, entrepreneurs, artists and so on are not able or willing to pay the high rents and are forced to move to the suburbs where different ethnic groups often form their own neighborhoods.

The very dense city centers also don't allow much flexibility or adaptability, and transforming existing buildings is very expensive and difficult. So people that don't want to live or work like the norm do have to go away.

Objective

The Marineterrein is located very close to the city centre of Amsterdam, the quarter has to be completely redeveloped the coming years and the old structures have to be refurbished and transformed to host new uses after the military went away. This makes it an ideal playground to test new ideas for how a city can be improved.

Within the the structures of the old building stock I want to develop a highly flexible building system which should be able to host start up companies. Amsterdam is one of the biggest hubs for ICT start-ups in the world, but this companies are very unstable the size and number of employees are constantly changing, so they require office spaces that can adapt itself easily to changing needs and sizes of companies. As the employees are changing very quickly I want to enable the offices to be transformable into living spaces to host short time employees and to to create a synergy effect for the building in this way by using it at all day and night times.

Thematic Research Question

How can transformable architecture help to use space more efficient, especially in city centres?

Subquestions:

- what is transformable architecture?
- what are the reasons to make architecture transformable?
- which techniques are used to make transformations?
- which movements (sliding, rotating, etc.) are used in which case?
- when are the moving parts manually/mechanically transformed?

Overall design question

How to transform a old office building, into a highly flexible office building for the future?

Literature

Christian Schittich, *In detail: small structures*, (Birkhäuser, 2010)

Robert Kronenburg, *Flexible: architecture that responds to change* (Laurence King, 2007)

Arian Mostaedi, *Great spaces: flexible homes* (Carles Broto, 2006)

Joshua David Lee, *Adaptable, Kinetic, Responsive, and Transformable Architecture: An Alternative Approach to Sustainable Design* (University of Texas, 2012)

Michael Schumacher, Oliver Schaeffer, *Move: Architecture in motion, dynamic components and elements* (Birkhäuser, 2010)

Carolina De Marco Werner, *Transformable and transportable architecture: analysis of buildings components and strategies for project design* (Universidad Politècnica de Catalunya, 2013)

Hookway, Branden, Chris Perry, *Responsive systems/appliance architectures* (article in *Architectural Design*, no 76, 2006)