

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	Cheung Cheuk Ming
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Studio	
Name / Theme	The Why Factory: The Block maker
Teachers / tutors	Adrien Ravon and Arend van Waart
Argumentation of choice of the studio	The design methodology that combined design-based research and scenario-based analysis disclose a non-standard logic of design process to me. And The Why Factory's ambition of envisioning the future city allows me to explore beyond the architectural scale.

Graduation project	
Title of the graduation project	The Mutual Block (The Accessibility Maker)
Goal	
Location:	The Why Factory operates in scenario-based design where the design is treated as a theoretical model that could be applied in any location. Thus, the context information would contribute to the design parametrically.
The posed problem,	<p>With the continuous urbanization of our cities, the density of our living environment is drastically, inevitably increasing.</p> <p>However, the current designs cater the density by sacrificing spaces and qualities that define potentials of our wellbeing and health, especially the accessibility to the community, to people, and to nature.</p>

<p>research questions and</p>	<p>The qualities of access define potentials for the behavior to improve well-being and health take up spaces and were usually missed in a block. How many spaces do those qualities need? What if we could bring them all in a residential block while densifying the block?</p> <p>What if I would live in a Mutual Block?</p>
<p>design assignment in which these result.</p>	<p>The thesis investigates the notion of wellbeing in relation to accessibility under architectural design.</p> <p>The project explores the methodology to deconstruct a complex issue to construct a seemingly impossible solution - A block optimized based on the spatial configuration to maximizing accessibility and density.</p>

Process

Method description

The Why Factory's graduation studio operates on the exchange of collective work and individual exercises.

In the initial collective workshop focused on the world and the city scale trying to measure the world in different categories in data and numbers. After that, the studio has shifted the exploration to the human scale to develop an individual 'What if' scenario in a standard housing unit. Later, the studio has moved forward and scaled the framework up to the urban block, where the students work individually in parallel to the collective part. To finalize the collective work and continue with the individual work, we developed a theoretical software called The Block Maker. This software would serve a reference and benchmark of the individual project.

2.1 Collective Project: The Block Maker

The Block Maker is software that would explain the initiative notion of the studio's framework. One of the objectives of this parametric software is to be able to generate a city block based on different 'what if' scenarios and Floor area ratio. Through various Grasshopper scripts of geometry transformation, the software would generate a series of blocks, analyze and evaluate with potentials and limitations of daylight, views, and solar radiation.

Through the exploration of this collective work, it has evolved the studio's framework as well as the design methodology of the individual project. Therefore, eventually, the individual project could feedback and update this software.

2.2 Individual Project: The Accessibility Maker

The individual project starts with the proposed speculation "What if I would maximize accessibility and density in a housing block?" The first step is to define "accessibility." And the critical next question is "How is accessibility influenced by the built Environment?"

- Researching into a series of "What do we have?" "What do we need?" "What do we want?" topics in relation to "access" to collect data and setup references based on the generic standard (House 0, Block 0).
- Data collected are used to develop iterations of models under a matrix of scenarios - various means of circulation (ramp, stairs, elevator, 3D-elevator and pneumatic tube) under different accessibility mode (egoist, collective, public, etc.).
- Models from the matrix are then analyzed base on the performance in relation to accessibility (collectiveness, diversity, calories, density, efficiency, etc.) as well as general building performance (sun radiation, daylight, view, etc.) By comparing the performances with the Block 0 we would be able to evaluate the performances, limitation, and potential of different model.
- By combining qualities from various models, and further develop the programme distribution, building form, structure system, facade system, etc. We would be able to construct The Mutual Block - optimized to maximizing accessibility and density.

Literature and general practical preference

The why factory operates as an independent research studio of MVRDV. Therefore, many of the design methodologies from the publication from MVRDV and The Why Factory are a good source of references for this project. For instance, the KM3 (2005), FARMAX(2001) and the Vertical Village(2012) are illustrating future hypothesis of cities through speculations which dealt with potential and limitation of density, diversity, and porosity.

Reflection

Relevance

The discourse of the project is driven by the notion of 'what if' combining scientific research with science fiction of future scenarios. The project and the studio as a whole encourage architects to offer a new perspective based on data and information. The project informed by individual and collective studies to formulate an approach to urban design proposal.

Time planning

Week	Date	Remarks	Work Planning
0	18-19/01	P2	
0	23-27/01		Review comments from P2, Summary works from P2, Set up structure of design development schedule
1	13-17/02		Conceptual Development I
2	20-24/02		Design Development I
3	27-03/02		Design Development II
4	06-10/03		Design Development III
5	13-17/03		Design Development IV
6	20-24/03		Design Development V
7	27-31/03		Sum up and the conceptual design for P3 plans, facades, cross-cuts, 1:200 / 1:100
8	03-07/04		part of the building, plan and cross-cut 1:50
9	10-14/04		Facade fragment with horizontal and vertical Cross-Cut 1: 20 details 1:5
10	17-21/04		Preparation for P3 presentation: drawings, slides, digital media and physical model. Draft reflection
11	24-28/04	P3	Presentation P3
12	01-04/05		Refine conceptual development and building technology details and drawings
13	08-12/05		Refining Drawings to prepare for P4 Drawings: -site 1:5000 / 1:1000 · plan ground level 1:500 · plans elevations, sections 1:200 / 1:100 · part of the building, plan and drawings 1:50 · façade fragment with horizontal and vertical. cross-cut 1: 20 · details 1:5
14	15-19/05		Preparing theoretic and thematic support of research and design and finalize reflection on architectonic and social relevance. Final refining for drawings
15	22-24/05	P4	Presentation P4
16	29-02/06		Refining Drawings and minor conceptual design.
17	06-09/06		Refining P4 technical drawings, diagrams, and visualizations.
18	12-16/06		Refining P4 technical drawings, diagrams, and visualizations.
19	19-23/06		Animation and visualizations.
20	26-30/06		Prepare digital media for P5 presentation, reports, and Booklet
21	n/a	P5	Presentation P5