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:

<table>
<thead>
<tr>
<th>Personal information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Student number</td>
</tr>
<tr>
<td>Telephone number</td>
</tr>
<tr>
<td>Private e-mail address</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Studio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name / Theme</td>
</tr>
<tr>
<td>Teachers / tutors</td>
</tr>
<tr>
<td>Argumentation of choice of the studio</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graduation project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of the graduation project</td>
</tr>
<tr>
<td>Goal</td>
</tr>
<tr>
<td>Location:</td>
</tr>
<tr>
<td>The posed problem,</td>
</tr>
<tr>
<td>Research questions and</td>
</tr>
<tr>
<td>Design assignment in which these result.</td>
</tr>
</tbody>
</table>

Problems

The graduation project is focused on problems in demographic, space plan, structure
and skin.

Firstly, the neighborhood in Camera Obscuradreef is facing to problems caused by changed tenants groups. Currently, most of the tenants are temporary tenants, and a majority of them are students and young commuters. The unsettling tenancy results in lack of maintenance of not only their own but also the whole neighborhood. Other tenants in the neighborhood are immigrations from different countries. Also, there is a smaller size of households compared with 1960s and 1970s. The current lifestyle of different tenant groups are differs from residents 1960s, and the complex background of tenants results in variant lifestyles.

The current space plan, neighborhood design and other technical issues do not fit the new lifestyle of new households. A corridor that connects the every room separated by inner wall characterizes the arrangement of the floor plan. The service space such as kitchen, bathroom and toilet was designed with the same standard neglecting the size of different households. The location of the balcony next to bedroom turns out to be more private, thereby undermining its communal use.

Nevertheless, the structure is limiting the possibilities of changing. The apartments are separated by load bearing walls, which are interlocking with the floor slabs. The short span, which is 3.75m, makes it difficult to provide an open and free space plan. In addition, other structure elements designed for stability cannot be removed easily.

Problems on skin are mainly revealed in technical aspect and aesthetical aspect. Technically, the thermal bridges and the poor insulation are causing inefficient energy use and unsatisfying thermal comfort. Aesthetically, the visual strength of the concrete grid on the skin, which is the most typical characteristic of Intervam apartments, are weakened by not only poor maintenance of the grid itself but also condition of fragments filled into the frame.

Consequently, the Intervam flats in Camera Obscuradreef are not occupied in a satisfying condition. In Utrecht, there are more intervam flats, and they are also facing to problems discussed above, even the danger of being demolished.

**Research Questions**

**Main Question:**
1. How to design dwellings for a diverse neighborhood?
2. How to re-use the Intervam flats in order to make them fit current situation?

**Programme:**
1. What is the method of making Intervam flats suitable for different target groups?
2. How to design a flexible space plan within the rigid load-bearing structure.
Aesthetic:
1. How to strengthen the latent cultural value of the skin of Intervam flats.

Technical:
1. What can be adequate technique to solve the thermal bridge and insulation problems?

Design assignment

The aim of the design is to satisfy variant requirements of the complex resident groups. Different variations of Intervam flats will be designed and developed into a catalog that can be applied to the majority of Intervam flats. The re-designed flats are mainly for three target groups, which are students, young commuters and families. Not only the space plan, but also outdoor spaces in the neighborhood will be redesigned accordingly to serve variant space plan. Possible combination of variations will be tested, trying to enable communication between tenant groups while keep the privacy of each single household.

Accordingly, the skin of Intervam flats will be redesigned, strengthening the concrete grid and making it more dynamic. Technically, thermal behavior and energy efficiency will be considered. The main solution can be insulating the building, filling the thermal bridges and renovating the service system.

The ultimate goal of the project is to activating the old VAM system, making it suit the new focus point in daily-life, which has been transited from collective consciousness in 1960s to significance of personality nowadays, while contributing to create a diverse neighborhood.

Camera Obscuradreef is used as a laboratory to test every possible combination of different variants, relationship between space plan and outdoor space, re-design of skin and chances of profiting for housing cooperation. In the next stage, the renovation will be tested in other intervam flats with different locations and different typology. If possible, more target groups, for example the elderly, can be included.

Process

Method description

The project is dividing into research stage and design stage.

The research process was a stage of group work. The system and the site was researched in the framework of the architectural, cultural and technical analysis based on 6’s system of Steward Brand: site, structure, skin, service, space plan, stuff
Cultural value is one significant part in the research. Cultural value evaluation was assimilated into a matrix which is scaled on the y-axis according to the 7 S; and different heritage values designated on the x-axis: age, historical, artistic, commemorative, use, newness, conflict value of Alois Riegl’s theory. Technical analysis was integrated in one axonomatric drawing. In the meanwhile, the perception of quality of living was well developed during the course. Cases of transformation approaches were studied as well.

For the research, both primary and secondary sources were consulted, including relevant literature, archives, newspaper, magazines, websites, site visits and interviews of the residents.

The design is supported by the research. Values, limitations and possibilities was concluded from research and become the base of design. The variations are designed based on analysis of different requirement of specific tenant groups. Cultural value statement is also assisting the design approach. The current design stage is assisted by research result of cultural value assessment and analysis of the system. In next design stage, requirement of different tenant groups will be explored.

**Literature and general practical preference**

**Literature:**
- Van Elk en Priemus, 1970. Niet-traditionele woningbouwmethoden
- Alois Riegl, 1903. The Modern Cult of monuments. Its essence and development

**Design:**

**Reflection**

**Relevance**

The design can be regarded as an exploration on solutions for sustainable use of Intervam flats. The renovation may activate the Intervam flats and diversify their functions while keeping even strengthening their cultural value. Consequently, the design may lead to enhanced cultural value of the system, more financial benefits for housing cooperation as well as better quality of living for occupants. Moreover, the project may lead to a stable and diverse neighborhood. Thus, the design may also serve as reference for other renovation and re-use of social housing.

**Time planning**

P1 (Completed)
- Research on system
- Site Analysis
- Conceptual proposal for the project

**P2 (in progress)**

**Week1**
- Workshop: Re-design the Facade

**Week2**
- Developed Design Concept

**Week3**
- Draft design brief for Camera Obscuradreef
- Programme
- Draft site plan for Camera Obscuradreef
- Draft floor plans for all possible variations

**Week4**
- Developed floor plans for student dwellings
- Developed site plan
- Draft scheme for structure

**Week5**
- Developed floor plans for family apartments
- Draft Landscape design

**Week6**
- Developed floor plans
- Draft façade design

**Christmas Break:**
- Site Plan
- Elevation of each block
- Energy Scheme
- Draft construction detail

**Final Goal for P2:**
- Draft plan, section and elevation of all variations (1:100)
- Draft plan, section and elevation of each building blocks in Camera Obscuradreef (1:200)
- Site Plan(1:1000)
- Draft construction detail of façade fragments (1:50/1:20)
- Structural design
- Draft Energy Scheme

**P3**

**Week1&2**
- Reflection of P2 presentation
- Detailed research on requirement of different tenant groups.

**Week3-5**
- Research about other Intervam flats in different location and with different typology
- Plan, section and elevation of different variations for other Intervam flats.
Till the end of P3:
- Research and design on detail

Final Goal for P3:
- Developed plan, section and elevations of Variations for other Intervam flats (1:100)
- Developed plan, section and elevations of one building block for other Intervam flats (1:200)
- Ground Floor Plan 1:500
- Part of the building, plan and cross-cut (1:50)
- Façade fragment with hor. and vert. cross-cut (1: 20)
- Details (1:5)

P4
- Theoretic and thematic support of research and design
- Final reflection on architectonic and social relevance (see app. 3)
- Final site plan of Camera Obscuradreef (1:1000)
- Final Ground floor plan of Camera Obscuradreef and other Intervam flats (1:500)
- Plans elevations, sections of each variations (1:100)
- Plan, section and elevations of each building blocks of Camera Obscuradreef (1:200)
- Plan, section and elevations of one building blocks for other Intervam flats (1:200)
- Part of the building, plan and drawings 1:50
- Façade fragment with hor. and vert. cross-cut 1: 20
- Details 1:5

P5
Same as P4