

Graduation Plan

Personal Information

Name: Szymon Marciniak
Student number: 4929888
Address:
Postal code:
Place of residence:
Telephone number:
E-mail address:

Studio

Name of studio: Architectural Engineering
Teachers:
Design: Mo Smit
Research: Pieter Stoutjesdijk
Building Technology: Engbert van der Zaag

Argumentations of choice of the studio

Architectural Engineering studio emphasizes importance of innovations in the field of architecture to be able to tackle important issues present in society and build environment. I have very similar approach, and feel the need to look for technical and architectural solutions that might be a step further in the general industry development.

Moreover, I have finished bachelor that emphasised conceptual architectural design with the same level of attention as technical detailing or sustainability measures, therefore I have found AE Studio as a place to fulfil my interests within the profession.

In terms of thematic, proposed topics of 1 Million Homes and Valuable Neighbourhoods, provides the chance to reflect on the future of housing and ways of living in urban environments that are extremely interesting for me. Due to all of my personal and professional experiences I have realized that residential architecture is one the most conservative, lacking of innovation and simultaneously extremely important. This field is facing extreme challenges of housing unaffordability, questionable quality of life in average housing developments, unsustainable design etc. That evokes plenty of research and design questions that I find myself extremely interested on reflection in.

Problem Statement.

As the graduation studio thematic is focused on the future of residential architecture, the problem statement has been formed on the base of preliminary studies and reflection on contemporary Dutch housing stock conditions. It had been a well analysed and monitored sector, therefore the long-term statistics show clearly the trends.

Firstly, there is a significant problem of housing unaffordability. According to CECODNAS reports most of the medium income inhabitants, starters, young families has immense problem with acquiring first property[CECODNAS,2012].

Especially on Dutch housing market, those trends are clearly visible, increase of property value, price speculations, like for instance 33% price increase of average property within 4 years (2015-2019) in Netherlands [Centraal Bureau voor Statistiek,2019]. Those factors affects inhabitants with salaries over the social sector maximum, unable to either acquire a property and fulfill social housing requirements.

Secondly, the changing lifestyle and increasing dynamics of life are lowering the levels of social integration of the residents, especially the single households. Recent data from Central Statistics office of Netherlands show that number of single-households will increase significantly, by 431 000 till 2030. It requires re-thinking the way how the housing projects are developed, what are the typological solutions and effects on daily life of those one-person households. Simultaneously 1,8 million people in Netherlands is affected by syndrome of urban loneliness, consequently negatively affecting the mental health.

Finally, linear economy system that is present now worldwide means that most of what is being manufactured finish its lifecycle as a waste. Building industry is therefore responsible for tremendous CO2 emissions and material depletion. It is urgent to re-think the technical loop of the industry, especially that Dutch government is enforcing regulations to transform into circular economy till 2050. It is especially relevant for housing stock in front of the increasing demand for new constructions.

Objective

Research objectives.

As the problem statement consists of three different claims, that are connected to domains of spatial, social and technological challenges, the preliminary research phase was focused on finding an holistic approach with main notion that could provide a direction for housing design that respond to the problems.

The hypothesis claimed that “sharing” is the specific approach that might be relevant towards solving spatial, social and technological problems. The shared-economy application within residential architecture has been analyzed in thematic research paper basing on literature review, analyzes of existing case studies and futuristic housing concepts.

The main objective of the research was creation of design guidelines and rules that would help solving the beforementioned problems and would be a general framework for the graduation project design phase.

Research question.

What qualities, values can sharing on the scale of the neighborhood provide in social, spatial and technical domains for living environment?

Research sub-questions:

- What functions could be predicted for shared use?
- Which spaces and objects can be shared among residents?

- How does sharing oriented organizational model affect users participation in decision-making process?
- What are the economic and social values of sharing for the residential neighborhood?
- What can be shared in terms of building components and structures?
- How energy production & material flows can be shared by the residential development residents?

Design objectives.

The main objective of the project is reflection on where to develop new housing projects in Netherlands, as well as how to apply the thematic research strategies to achieve a future proof neighborhood design. A neighborhood that will be circular, socially resilient and affordable to face the challenges of the present and the future.

The approach is focused on transformation of a post-industrial site close to city center of Groningen (as a representation of generic, abandoned and meaningless spaces present in most of the Dutch cities) into vibrant mixed-use housing development. With an objective to reconnect the site with the city and provide an added value for the whole urban realm. Moreover it constitute of a strategy that prevents the urban sprawl, fulfill the city development vision and further densifies the urban fabric.

It would take form of an exploration of shared living environment project, examining the border conditions between possession and sharing or co-owning in circular future.

Design question:

How to transform isolated SuikerUnie Terrein site in Groningen into circular, vibrant and integral city district?

Design sub-questions:

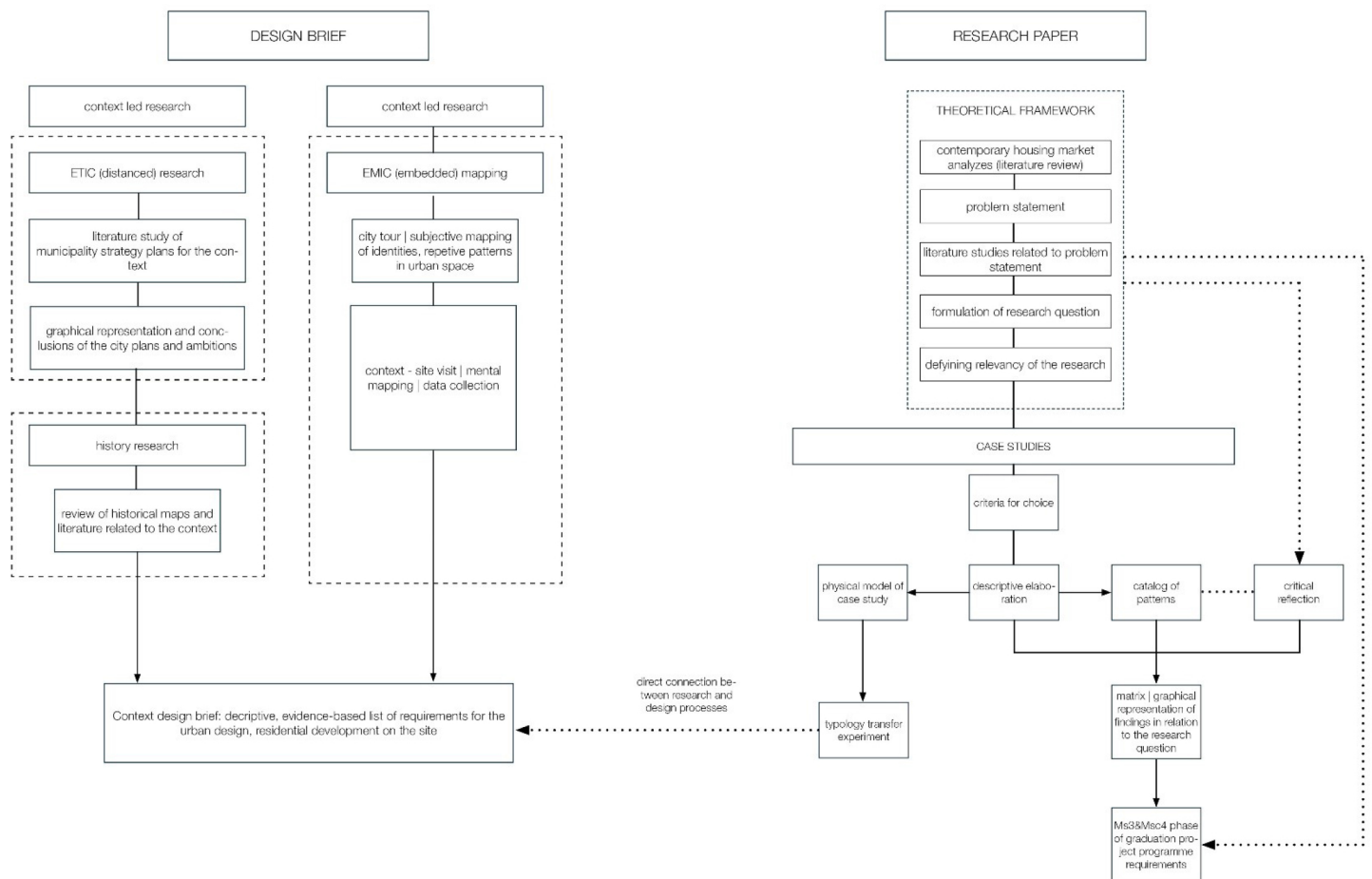
- How to reconnect the isolated site with the city?
- Which organizational model is the most appropriate for affordable and circular housing?
- Which architectural typology would provide sufficient level of flexibility suitable for shared-living environment?
- What is the most appropriate programme for the future-proof mixed-use housing development, what would be the balance between the housing and beyond-dwelling functions?
- Which target groups, therefore which dwelling units typologies should be applied within the project? How to provide typological flexibility of changes within the buildings as well as high levels of affordability?

Methodologies

Research had been conducted dually. Simultaneously the thematic research paper had been processed and the site analytical research had been conducted.

The thematic research constitutes of: literature review, case study analyzes, typology transfer experimentation [creation of physical models of analyzed projects placed on model of the graduation project site].

The graduation site analyzes combine the emic and etic analyzes: top-down - study of city strategy plan, urban mappings; bottom-up – site visits, “derive” walk examining the context identity, as well as “mind mapping” of the site via sketches and notes.



Research structure organization. Own work.

Relevance

This project will explore potential solutions for the contemporary housing stock problems, as well as reflect on the challenges and potentials of future-oriented living forms. This project will explore potential application of shared living schemes on the level of neighborhood, taking advantage of existing infrastructure, densifying one of the generic Dutch city post-industrial areas. It would constitute as a proposal to tackle the housing affordability

problem, by developing circular valuable neighborhood design that follows non-profit development models.

Proposed context is an actual question of the City of Groningen, how the SuikenUnieTerrein area can be redeveloped into sustainable housing, therefore proposal of co-housing hybrid models focused on community-building and implication of circular economy is not only going to fulfill city ambitions, but is taking several steps further to add values of flexibility, design for social interactions, therefore social sustainability and resiliency.

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Planning

