Architecture
Design
Conservation

Royal Danish Academy

THESIS PROGRAM

An alternative approach to housing

Urbanism &
Societal Change

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Content

PROJECT SUMMARY

This thesis project will investigate an alternative way of developing residential areas in cities. In today's situation of "climate-emergency", changing demographics, increasing housing prices and increasing loneliness, new approaches of providing housing are needed.

This project will explore how housing can be changed from today's focus on individualism and private consumption, towards strengthening social interaction and the sense of belonging to a community. The project will investigate how sharing more between the residents can have a positive influence on the social, the economic and the environmental challenges of today's urban neighbourhoods. While assuming that sharing more has potential, the project intends to be aware of the challenges connected to sharing and seeks to investigate what a good balance between privacy and communal living could be.

Furthermore, the project will explore how housing can be developed in a context sensitive way, as an alternative to the current tabula-rasa tendency. The site for the project is an old industrial area centrally located on Amager East in Copenhagen. Here the project will explore how the new and the old can coexist and mutually benefit from each other.

SOCIETAL CONTEXT

Challenges connected to today's housing

In Copenhagen, as in many other cities, increased urbanization has led to a lack of housing. Much of the housing debate has been narrowly focused on finding ways to build more homes. But rather than continuing to build more of the same, we need to put more consideration into *what* and *how* we build. To provide housing for the future we must consider the contemporary challenges connected to housing.

Lack of diversity of housing options

Changes in demographics and lifestyles have led to new demands on housing. The population is getting older and the average family is becoming smaller. People marry later, spend more time alone in between relationships and change between different family configurations more often than before. This results in more people living alone and a higher diversity of family configurations, among them single parents, patchwork families, LAT (living-apart-together couples) and DINKS (double income no kids couples) (1). In Denmark 44% of the population live in single-persons households, and it is thereby the most common type of household in the country (2). Despite the considerable increase of diversity of household types, housing build today is still almost exclusively designed to satisfy the need of the nuclear family. The result is that the type of housing available in Copenhagen does not correspond to the need of today's diversity of family configurations (3).

Global warming

The need to decrease carbon emissions means that we cannot continue to build in the same way we do today. The IPCC report 2022 warns that only the most drastic cuts in carbon emissions from now can prevent an environmental disaster (4). Buildings are currently responsible for 39% of global energy related carbon emissions (5). Although a lot can be improved by cutting the operational emissions of buildings and by changing to sustainable building materials, building less is a very efficient way to reduce CO2 emissions. But in relation to housing we see a steady increase in space consumption. In Denmark the average dwelling space per person has increased from 47m2 in 1992 to 53,6 m2 in 2022 (2, 6). One reason behind this trend is our rise of wealth and the ideal of "the bigger the better". Another reason is the increase of small households, and especially single households. The fewer people who live in a private dwelling, the less living space, equipment and energy use is shared. Furthermore, rather than replacing old buildings with new ones we need to take better care of the building stock we already have. But today, unless a building is considered to have a high historical value, most old areas in Copenhagen are transformed in a tabula-rasa manner, replacing all existing buildings with new ones. This is not only problematic from an environmental perspective, but also because it removes all existing identity, resulting in most new housing areas looking very similar. The Danish Architect Line Stougaard argues that we must also preserve the buildings we are still too immature to understand and see as valuable today (7).

Unaffordability

The housing build today is unaffordable for a large part of Copenhagen's residents. The high housing prices are leading to spatial segregation, as those with medium to low incomes cannot afford to live in central locations anymore. The trend of smaller households and the resulting increase of living space per person also leads to a rise of housing costs. This is especially problematic for single parents who just have one income to cover the expenses (8). Furthermore, new housing has become increasingly expensive because an overwhelming majority of new housing units is being built by private developers who seek to maximize profit. The decline of all other forms of housing development has given the private developers a monopoly of the sector, which to a high degree allows them to determine the housing prices (3).

Loneliness

In Denmark loneliness has become a big societal problem, estimated to a yearly cost of 7 billion Danish kroner (9). The elderly and those living alone are the people that are at the highest risk of experiencing loneliness. As these are the categories of the population, which is increasing the most in numbers, finding ways of developing new communities and strengthen social interaction is of high importance. But we also live in a time of individualism and appreciation of privacy. The modern city has made it easier than ever for individuals to retreat from neighbours and strangers. Although research shows that those knowing their neighbours feel a greater sense of trust and belonging, most new housing today is designed to maximize privacy (10). Rather than designing generous staircases and common rooms where residents have the possibility to meet and get to know each other, the focus is on maximizing the size of the private dwelling and securing the highest possible amount of privacy from neighbours.

SOCIETAL CONTEXT

Alternative approaches to housing

After having investigated the challenges connected to today's housing it has become clear that alternative approaches are needed and the question of how things can be done differently arises.

Sharing -potentials and challenges

One focus of this thesis project is to explore how sharing can be used as a tool to improve some of the contemporary challenges connected to housing. Can sharing more allow the private dwelling to be smaller, and thereby be more affordable and more environmental? Can sharing more strengthen the community and result in more social interaction among the residents? The project will explore what could be shared and who could benefit from sharing with whom.

While the project has a starting point of assuming that sharing more has potential, it also sees the importance of being aware of the challenges connected to sharing. Especially in relation to sharing living space it is important to not underestimate the importance of the home as a "backstage" that allows people to relax from the efforts of self-representation performed in other social settings. Research has shown that the wish to remain independent, to be able to continue one's own rhythm of life, and fear of conflict are the main reasons why people do not seriously consider sharing living space with non-relatives (11). The thesis project seeks to take these obstacles seriously, and to be careful to not have a too romanticised view of sharing.

After studying the potentials and challenges connected to different types of shared housing, from co-housing to big housing cooperatives, sharing on a bigger scale is here considered to have the highest potential to provide both privacy and community. Sharing on a bigger scale has also been found to be more inclusive, allowing sharing between people from different socioeconomic backgrounds. *Mehr als Wohnen* and *The Urban Village* are projects found to be of inspiration as they are working with sharing on the big scale (12). This thesis project will continue to explore the potentials found in sharing a big scale. Could an intermediate option between the maximation of privacy strived for in most housing today and the exclusive, closely knitted communities of co-housing be found? What could be a good balance between privacy and communal living, between autonomy and dependency?

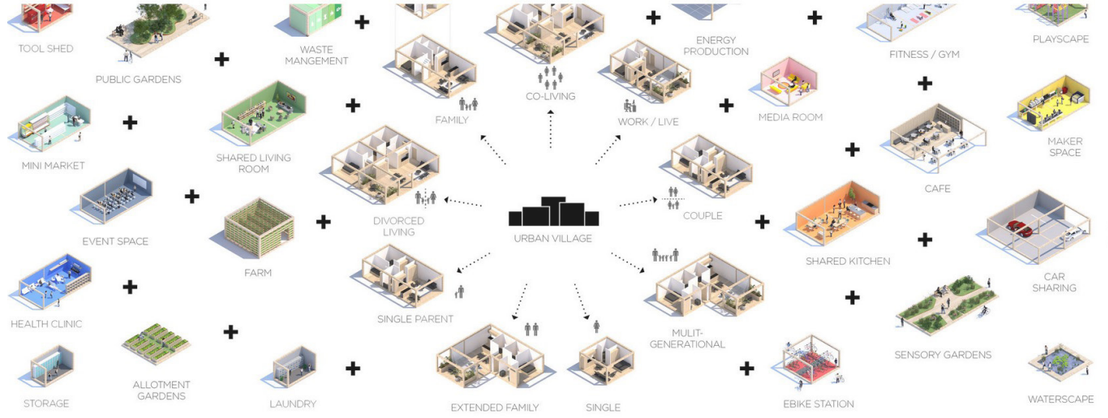

Figure 1: The Urban Village, Shared facilities

Figure 2: The Urban Village, Context-independent

Figure 3: Mehr als Wohnen, shared groundfloor

Figure 4: Mehr als Wohnen, main square

Counter approach to tabula-rasa

A further focus point of this thesis project is to investigate how a site with an existing building mass can be densified with housing without removing the existing context.

Currently there is a ongoing tendency of old industrial areas in Copenhagen becoming transformed into housing in a tabula-rasa manner. An example of this development can be seen on Ved Amagerbanen 17- 21 (figure 5). Here all existing buildings have been replaced by new residential blocks. This approach does not only result in the removal of physical building mass, but also in the elimination of historic and cultural layers as well as social functions.

Neither of the two projects referenced to earlier in relation to sharing on the bigger scale, are building on existing contexts. *Mehr als Wohnen* is built on a former industrial site in a tabula-rasa manner. *The Urban Village* makes a point out of being context independent as it is a modular system that can be adapted anywhere in the world (see figure 2.)

This thesis project, however, believes in the needs and the benefits of building onto an existing context. As a counter approach to the tabula-rasa tendency, this project will explore an alternative way of developing housing that can be both more environmental and provide a context based identity to new housing developments.

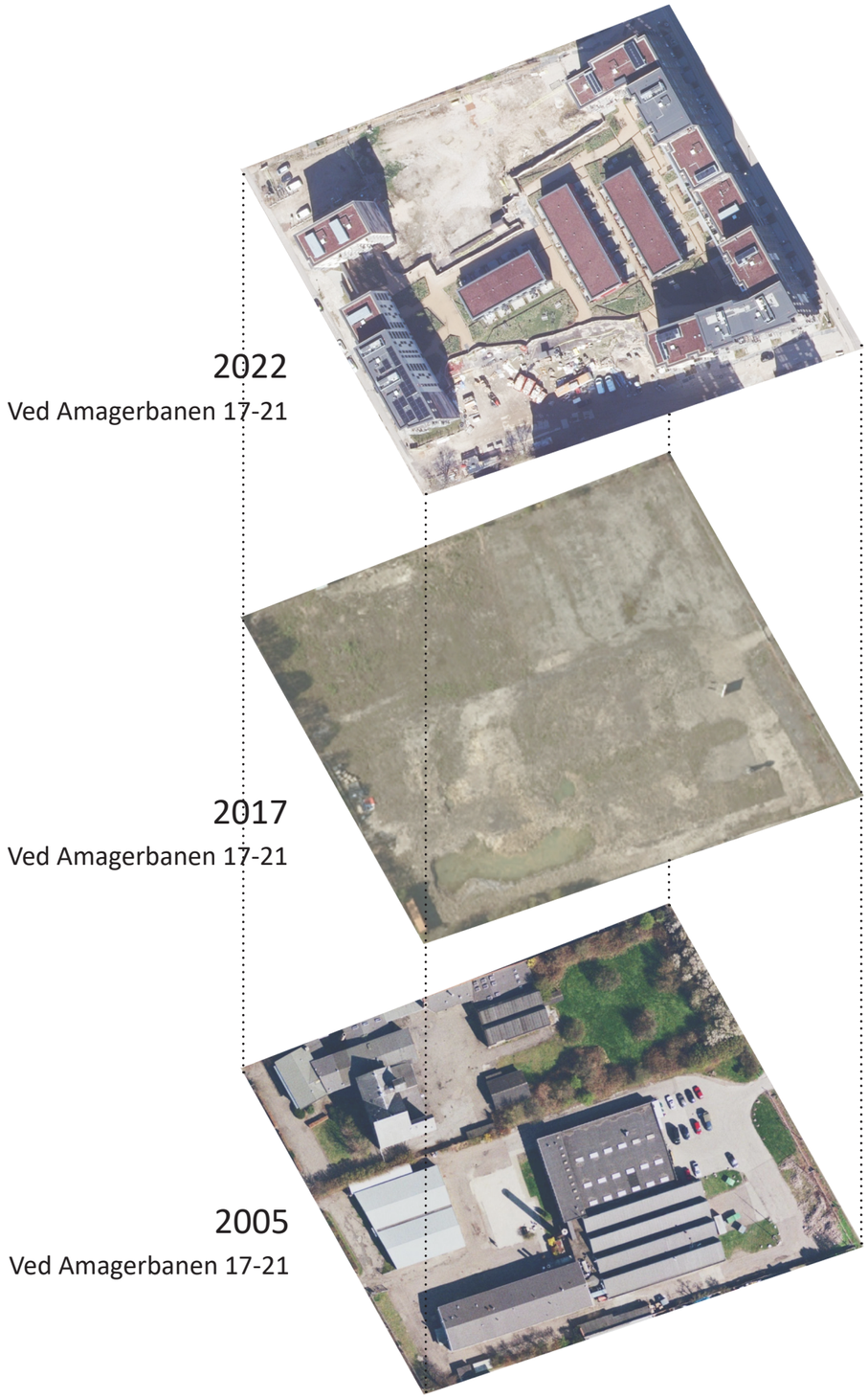

Figure 5: Tabula-rasa, Northeast Amager

SITE

North-east Amager, Copenhagen

The site of the thesis project is located in north-eastern Amager in Copenhagen. To the north the site is separated from the big green field of Kløvermarken by the busy road Uplandsgade. To the south the site borders to the quiet and green street Prags Boulevard, facing Amagers residential neighbourhood.

The site has historically been an industrial area and is densely covered with medium to low-rise buildings added at different time periods starting from the 1910`s to the late 1990`s. (An exception is found in the northwest of the site where some industrial buildings have been removed to give place to a kindergarten build in 2019.) Today the industrial buildings are used for a diverse mix of practical functions, such as car repair workshops, carpenters, art fabrication, storage, retail and office space (13).

The construction of the buildings varies from simple sheds to ornamented brick buildings of high quality. According to Copenhagen Municipality most of the buildings have low or no preservation value (13). Although the site might not have many outspoken materialistic qualities, it contains many layers of history. It is an area that has changed slowly over time to adapt to new needs. Today the site is a palimpsest of historic layers which is also able to host active everyday functions.

The diversity of users and functions on the site leads to ongoing activity during work hours. In the evenings and weekends however, the area is mostly empty and closed off. Crossing through the site is not possible as most of the cadastral boundaries are fenced off, only opening their gates towards the outer streets during workhours. Most of the site appears private, and it is not a place that one would typically enter without having a specific reason.

Several of the former industrial areas on northeast Amager have recently been transformed into dense residential neighbourhoods in a tabula-rasa manner. Currently there is no local plan to change the chosen industrial site into a residential area. But with the current demand for more housing, it is not unlikely that this will happen in the close future. In this thesis project it is therefore interesting to explore how the site could be densified with housing while keeping the existing buildings and functions, as an alternative to a tabula-rasa development.

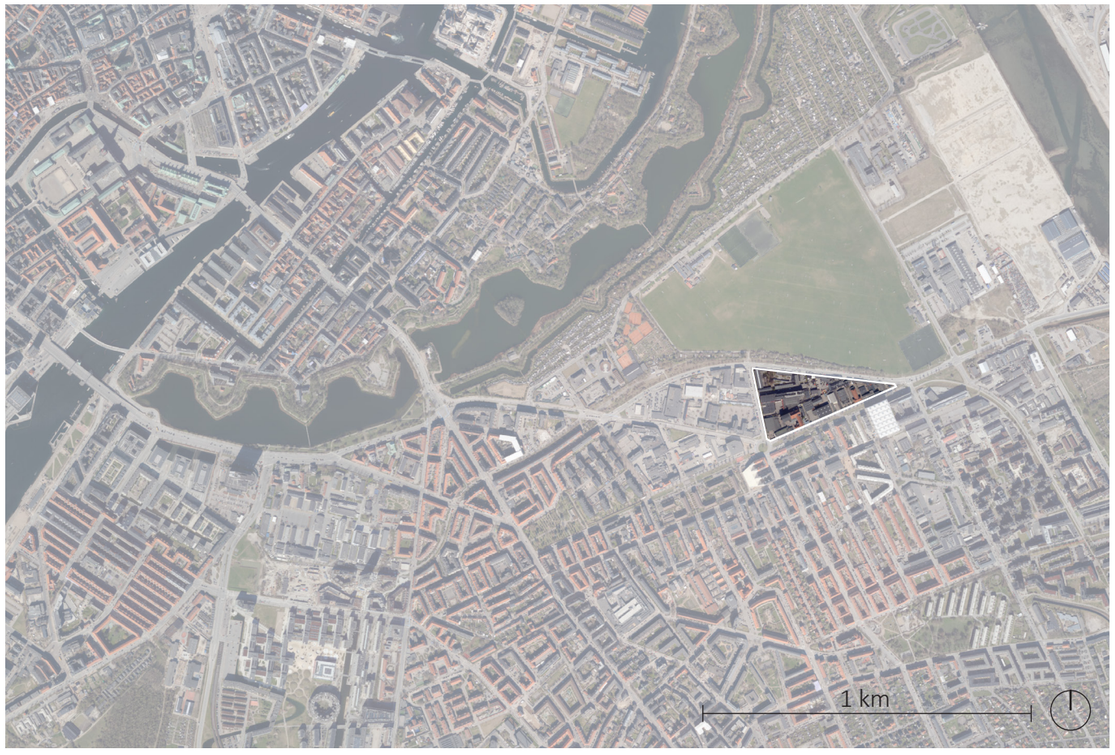

Figure 6: The site with the city centre to the South and Amager to the North

Figure 7: Zoom in on the site seen from the North

SITE

Functions today

the size of site:	48 000 m2
footprint of all buildings:	26000 m2
total floor area of all buildings:	48 000 m2
FAR:	1.00

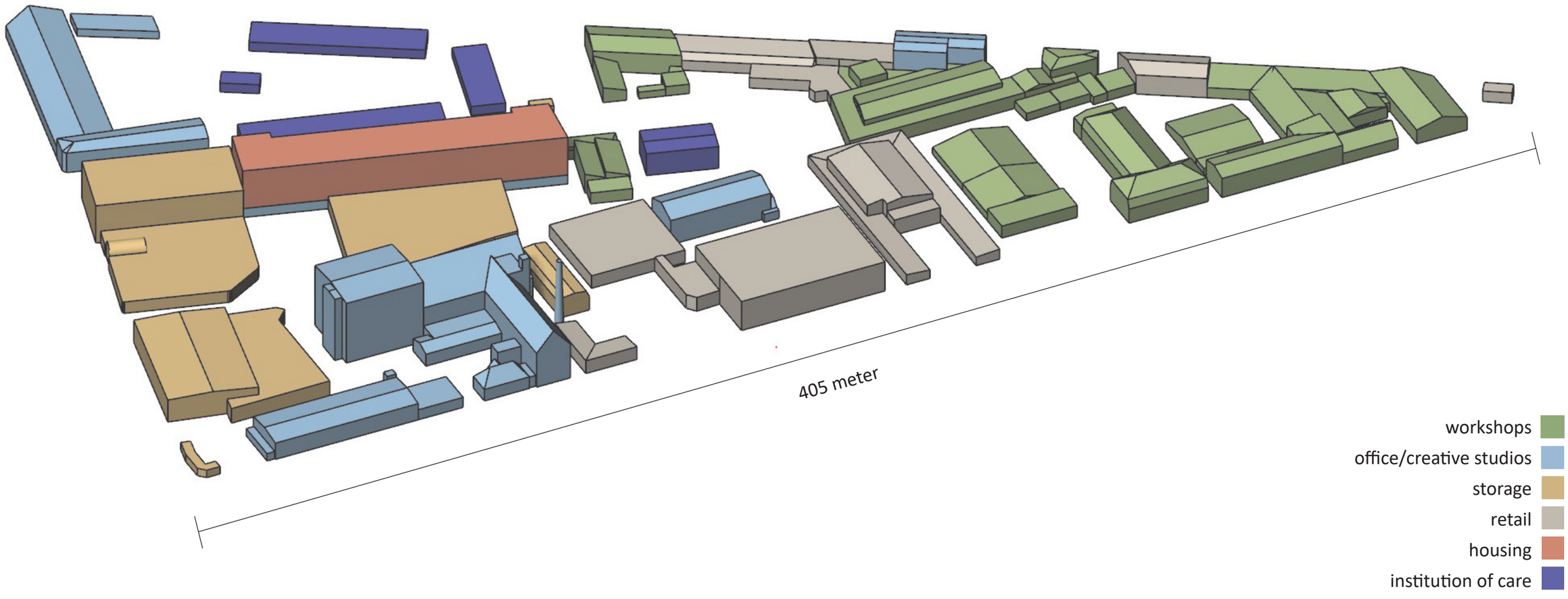

Figure 8: Isometric diagram of the different functions on the site

SITE

Pictures

Figure 9 : Site pictures

PROGRAM

Introducing housing to the site

The site will be transformed to become a mixed district allowing industry, retail and residents to co-exist. As the area already hosts a diverse mix of industry and retail, the main focus of the project is to create housing on the site.

Housing will be created both by adding new residential buildings and by reprogramming or transforming existing buildings into housing. As a starting point it is estimated that the existing FAR of 1.00* can be increased to 1.25. This means that the site can be densified with 12 000 m2 of housing in new construction. The project will further explore the amount of additional housing that can be created by transforming existing buildings. To secure that the site will still be an area of mixed functions, housing should at most make out 50% of the building mass once the site is transformed.

Today the site has a low-dense building mass. The existing building footprint of 26 000 m2 covers as much as 55% of the site. The intention is to limit the increase in building footprint with the construction of additional housing.

*All numbers are provisional proposals which may change based on further exploration and testing of its implications.

	EXISTING CONDITION	FUTURE SCENARIO
FAR	1.00*	≈ 1.25
footprint of all buildings	26000 m2	≈ 26000 m2
amount of housing vs other functions	12 % housing	≈ max 50 %
total floor area housing (including common facilities)	6000 m2	≈ max 30 000 m2
total floor area of all buildings	48 000 m2	≈ 60 000 m2
Housing in new construction	-	≈ 12 000 m2
Housing in transformed building mass	6000 m2	≈ max 18 000 m2

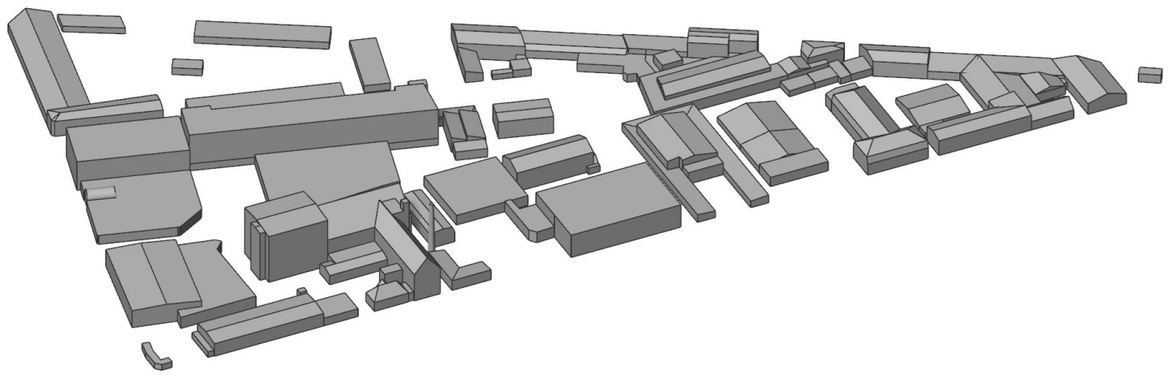

Figure 10: Existing building mass = 48 000 m2

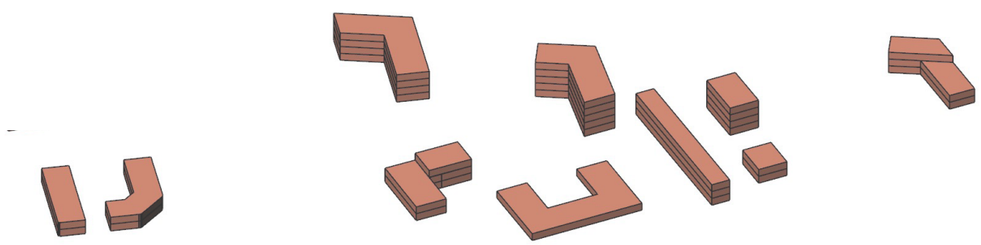

Figure 11: Diagramatic example of the volume of 12 000 m2 housing in new construction

PROGRAM

Design principles

for the transformation of the site into a mixed neighbourhood

SHARING AND COMMUNITY

Design for social interaction

• explore how sharing can enable more social interaction

• make sharing and community involvement the most attractive choice

Sharing is a choice

• allow the residents to choose the degree of social interaction they want (the housing should not only be attractive to those who are very social)

• respect the need for a private space as a place to relax and recharge

Community and sharing on different levels

• design for smaller communities within the big community of residents (rather grouping around interest and proximity than similar age and family type)

• include facilities that are shared with residents from the surrounding neighbourhood, to attract them to enter the site

A lively neighbourhood throughout the day

• in in addition to housing, add other functions that bring life to the area in the evenings and weekends (e.g. restaurants, bars and public facilities) as today the functions on the site are mostly in use during workhours

AFFORDABILITY AND INCLUSION

Affordability

• explore how sharing can make housing more affordable

• introduce an alternative economic model than the speculative developer model (e.g. cooperative ownership, CLT etc.)

• make it easy for residents to move within the same area if their family situation changes

Diversity of flat types

• provide a wide variety of housing options to give space to the diversity of family constellations

• explore how different types of households and age-groups benefit from sharing and living in proximity to each other

ENVIRONMENT AND CONSUMPTION

Environmental sustainability

• explore how sharing can decrease material consumption

• use sustainable building materials and reuse existing buildings and materials

• design to make the environmental choices the most attractive choices (by providing easy access to recycling, carsharing etc.)

Smaller private living space

• decrease private living space per person from the Danish average in multi dwelling units of 45 m2 to 35 m2

• introduce the rule that a family cannot live in an apartment with a higher number of bedrooms than family members

CONTEXT SENSITIVE

Preserve the cultural history

• new construction is to be built as extensions, parasite buildings or by recycling and transforming existing building elements

Co-existence with today's users

• facilitate for the coexistence and mutual gains between the residents and today's users

• rather than displacing todays users from the site, focus on how the new residents can interact with the existing users and with the existing workshops and industrial buildings

• preserve space for small businesses that need affordable rents (such as craftsmen, startups and retail)

DELIVERABLES

Program details

The thesis project will be developed through two different scales: The urban scale and the building scale.

The urban scale 1:500

The urban scale will explore the new organisation and connection between the functions and its users on the site. It will show the transformation of existing buildings and the addition of new volumes.

deliverables:

- siteplan
- model
- diagrams

The building scale 1:100 - 1:200

The building scale will zoom in on a specific area of the site to look into how an existing building can be transformed into housing and common facilities and to what degree existing functions can be kept. It will explore how the residents of the different type of households interact with each other and their surroundings.

deliverables:

- plans and sections
- model
- diagrams

CV

Work experience

Gehl Architects
Office of urbanism architecture
Copenhagen, DK
6/2020- 8/2021, part time

Atelier Oslo
Office of architecture, Oslo, NO
6/2020- 8/2021, full time

Ole Rasmus Nygaard
Freelance architect
Bergen, NO
4/2020- 6/2020, part time

Kaden und Lager
Office of architecture
Berlin, DE
8/2019- 1/2020, full time

*Fit*design Estudio de Arquitectura*
Office of architecture and interior design
Malaga, ES
2/2019- 6/2019, full time

Urban Rabbe Arkitekter
Office of architecture
Bergen, NO
1/2016- 2/2016, part time

Education

Master's program: Urbanism and societal Change
KADK- Institute of Architecture, Urbanism and Landscape
Copenhagen, DK
9/2021- today

Bachelor's program: Arkitekturens Anatomi og Fabrikation
KADK-Institute of Architecture and Technology
Copenhagen, DK
8/2016- 6/2019

Human geography 1. semester bachelor level
NTNU-Norwegian University of Science and Technology
Trondheim, NO
8/2015- 12/2015

High school
Steinerskolen i Bergen,
Bergen, NO
8/2011- 6/2014

BIBLIOGRAPHY

Litterature

(1) Schmid, Eberle, D., & Hugentobler, M. (2019). *A History of Collective Living: Forms of Shared Housing*. Basel: Birkhauser.

(2) Danmarks Statistik. (2022). *Husstande 1. januar efter husstandsstørrelse, område og tid.* Retrieved from https://www.statistikbanken.dk/statbank5a/selectvarval/saveselections.asp (19/02/23)

(3) Alvarez, Cacopardo, A., Gibbon, H., Irvine, B., Konrad, P., McCrae, J., & Vesterager, M. (2017). *The Right to Dwell : Manifesto for an affordable city.* Copenhagen: KADK.

4) IPCC, 2022: Climate Change 2022: *Impacts, Adaptation, and Vulnerability.* Retrieved from https://www.ipcc.ch/report/ar6/wg2/ (19/02/23)

5) World Green Building Council (2023). *Bringing carbon upfront.* Retrieved from https://worldgbc.org/advancing-net-zero/embodied-carbon/ (19/02/23)

6) Toft, Lasse (2018). *Udviklingen i den gennemsnitlig bolig-størrelse.* Retrived from https://www.google.com/search?client=firefox-b-d&q=boligst%C3%B8rrelse+utvikling (19/02/23)

7) Stougaard, Line (2022). *Vi skal også bevare det, som vi endnu er for umodne til at forstå og se værdien i«.* Byrummonitor. Retrived from https://byrummonitor.dk/Debat/art9022705/%C2%BBVi-skal-ogs%C3%A5-bevare-det-som-vi-endnu-er-for-umodne-til-at-forst%C3%A5-og-se-v%C3%A6rdien-i%C2%AB (19/02/23)

8) MorgenDAC. (2019). *Er billige boliger fortid?* [Audio podkast]. Retrived from https://open.spotify.com/episode/55JGMScioFqMTsGbTxu7YV?si=ee83b06e9d6546c6 (19/02/23)

9) RealDania. (2019) *Sociale renoveringer.* Retrived from https://realdania.dk/projekter/sociale-renoveringer (19/02/23)

10) Montgomery, C. (2013). *Happy city: transforming our lives through urban design.* London: Penguin books.

11) Put, B. & Pasteels, I. (2022). *Motivational Barriers to Shared Housing: The Importance of Meanings of "Home" in the Diffusion of Housing Innovations.* Housing, Theory, and Society, 39(3), 257–274. https://doi.org/10.1080/14036096.2021.1932580

12) Haverkamp, T (2023). *Shared living; potentials and challenges*

13) Københavnerkortet (2023) Retrieved from https://kbhkort.kk.dk/spatialmap (19/02/23)

Figures

Figure 1: The Urban Village, Shared facilities. Retrieved from https://www.effekt.dk/urbanvillage

Figure 2: The Urban Village, Context-independent. Retrieved from https://www.effekt.dk/urbanvillage

Figure 3: Mehr als Wohnen, shared groundfloor. Retrieved from https://www.dabonline.de/2019/02/23/andreas-hofer-urbane-mischung/

Figure 4: Mehr als Wohnen, main square. Retrieved from https://www.swiss-architects.com/de/duplex-architekten-zurich/project/mehr-als-wohnen/

Figure 5: Tabula-rasa, Northeast Amager. Diagram by author

Figure 6: The site with the city centre to the South and Amager to the North. Modified by author. Retrieved from https://kbhkort.kk.dk/spatialmap

Figure 7: Zoom in on the site seen from the North. Modified by author. Retrieved from https://kbhkort.kk.dk/spatialmap

Figure 8: Isometric diagram of the different functions on the site. Diagram by author

Figure 9: Site Pictures. Taken by author

Figure 10: Existing building mass = 48 000 m2. Diagram by author

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