

# The neighbourhood

The future southern neighbourhood and  
co-housing at Godsbanearalerne







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and co-housing at Godsbanearealerne

Urban Architecture, Aalborg University  
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## Special thanks to

I wish to thank my supervisor Tina Vestermann Olsen who has played an important role in the project's development. The excellent supervision, support, and positive energy throughout the entire project were invaluable.

I also wish to thank Thor Vingolf Nielsen from Insitut for (X) for great insight into the site, Silje Erøy Sollien who is an architectural researcher at Vandkunsten for a conversation about co-living, and the residents from Bofællesskabet i Gug for an understanding of the needs and wishes of potential residents.

This thesis project has been a challenging experience for me. I could not have done it without my boyfriend, family, and friends who have supported me a lot. Their great interest has motivated me to do my best and keep going until the end of the project.





A handwritten signature in black ink, which appears to be 'Cecilie Overvad'.

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### **Motivation**

The motivation for doing this thesis project comes from my large interest in the social aspect as more people experience loneliness and in how to develop better cities for people. I have an interest in design good well-functioning, social, and safe urban environments with the use of local and natural resources to provide more value, create the quality of life, promote health, social meetings, and community. It is my conviction that good physical neighbourhood environments and including functions and activities can promote space for community and social interaction to combat loneliness internally in the individual structure and externally in relation to the local community.

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# Abstract

The neighbourhood is a design-oriented project that addresses a current low-lying transformation area at Godsbanearealerne in Aarhus. The chosen site at the southern part of Godsbanearealerne is located on the border between the quiet landscape Ådalen and the vibrant city and will be developed from an old industrial area into a new dense neighbourhood with diversity and social community. The project sees great potential in the site's location, the area's recreational qualities, experimental character, existing resident Institut for (X), and the vibrant city very close by. Together, these factors help create a unique location and an opportunity for a design proposal for a new way of living in the dense city with the concept of building communities (byggefællesskaber) and an urban co-housing (bofællesskab) as catalysts for more community, coexistence, and urban life from the beginning. Moreover, this project has the main aim to meet some of today's and future societal and social tendencies and challenges regarding urbanization, climate changes, increased loneliness, more singles, elderly people, and changing family patterns. Loneliness is a growing problem and this is due to several reasons, and one of them might be based on the notion, the blasé attitude, which the individual takes on in large urban spaces. The problem of loneliness is relatively new and still very unknown but gets increased attention in recent years. But how to reduce the feeling of loneliness? Architecture and planning can be seen as a tool to embrace and solve these challenges. Therefore, the tendencies and challenges will in a way be translated into some design parameters that ensure togetherness and social interaction. Moreover, the focus of this project is to use the existing landscape and turn the climate challenges into local advantages and use visible stormwater in a recreational way to provide more value and promote health but also to create the framework for meeting spaces of quality for the city, local citizens, and residents. This should encourage social community and social interaction between, as well as beyond, the residents' next-door neighbours.

## Reading guide

This thesis report presents an urban-oriented design proposal in the city of Aarhus. The report is divided into seven different main chapters; Introduction, State of the Art, Co-living, Analysis, Presentation, Evaluation, and Appendix. Each chapter consists of relevant text, illustrations, and pictures to present the final design proposal. In addition, all map diagrams in the report are north-facing. The sources are cited by using the Harvard method and supplementary material is given as appendices along and is placed at the end of the report.





# Introduction





## Why this study?

The main purpose of this thesis project is to develop a design proposal for a future neighbourhood at the low-lying and old industrial southern area of Godsbanearealerne located in between the landscape Ådalen and the urban city in Aarhus that proposes and exposes a new agenda and new way of living in the city focusing on co-living that is adapted to the life that modern people live with inspiration in building communities (byggefællesskaber) which the last 15 years have been known as urban Baugruppen with locations in the German cities Tübingen, Freiburg, and Berlin (Sim, 2020). Furthermore, the project also proposes an urban co-housing which today is seen in the historical context back in the 70's as a well-functioning form of housing that is mainly located in the rural areas and suburbs, but there are fewer examples in the cities (Larsen & Jakobsen, 2018).

The urbanization will continue and Denmark will experience population growth, where people move from the countryside towards the cities. Today, 50% of the world's population lives in the cities, and it is estimated that up to ¾ of the world's population will live in urban areas by 2050. This is expected to increase the demand for housing in the cities (Bygningsarv, 2016). At the same time as an increased density in the city is bigger than the current forms of housing can offer, the thesis also strives to meet some societal tendencies and challenges of today and the future based on;

### The urban city conditions

- Urbanization and increased demand for more housing
- The recent years the focus has been on designing large urban spaces
- People desire much space

### Social conditions

- Increasing loneliness
- More singles and elderly people
- Changing family patterns and 37 new family types

### Environmental conditions

- Climate challenges as stormwater
- Reduced biodiversity

(Hansen, 2018, Realdania, 2018, Elsäe et al., 2019)

The population of today has become more and more differentiated, both in terms of family composition, age and lifestyle, while the majority of housing offers are based on the ideals of the past where people live on much space (Elsäe et al., 2019). It can be emphasized from the above that we are becoming more people in the city, loneliness is a growing problem, there are more singles and elderly people, and more people live in dynamic families. This in itself calls for new housing needs, types of housings, and ways of creating space

for the community as a crucial factor to reduce loneliness. Therefore, there is a need to rethink our forms of housing and communities in the dense city, which is what the project wants to develop.

In recent years, efforts have been made to develop large flexible, diverse, and multicultural urban spaces in the cities (Erhvervsstyrelsen, 2015). But do our urban spaces need to accommodate everyone? City people must be able to adapt to the cities' changes and many impressions which the urban scholar, Georg Simmel, already since 1903 where he wrote the essay "The Metropolis and Mental Life", was concerned about, but today, the pace and impressions of the cities have increased even more. Simmel argues that people in the city take on a protective, blasé attitude to protect their individuality which "enables them to react rationally instead of emotionally to stimuli in the environment". This might be one of the reasons for the increasing loneliness because people protect themselves and are becoming introverted. This leads to the need for more places for smaller communities where the individual is not exposed to many impressions and can engage in "depths of personality" (Simmel, 1950).

Climate change is a threat we cannot avoid but it must be handled with the aim of preventing catastrophic consequences of flooding that harm human living conditions and health (Realdania, 2018). "The cityscape and landscape were once clearly separated, but today the city has broken its walls to subsume and homogenize its surrounding landscape...". Landscape Urbanism brings together two previously unconnected terms and proposes an interplay between the landscape and the urban city, where nature, including biodiversity, creates the foundation of the city's development (Waldheim, 2006). The value of nature in the city can, in addition to creating added value to urban life, also alleviate climate problems that the globe faces. Therefore, it is essential to explore the urban challenges depending on extreme rainwater events in the low-lying site and how it can be used in a recreational way to create a resilient, climate adaptive, and liveable area that attracts and brings people together.

The thesis project will propose how the design solutions can unfold in a future neighbourhood design to accommodate the several societal tendencies and challenges such as e.g. loneliness and stormwater challenges internally in a co-housing and externally in the entire neighbourhood. The thesis believes that our living neighbourhoods have an impact on whether one feels socially connected or isolated. Therefore, this thesis will create the framework for good physical environments with a green character and recreational water that creates urban life, promotes mental health, and provides a good place to live for the diversity of people as well as animals, and encourages social interaction and strengthens the residents' belonging.

## **Problem statement**

**How can a transformation of the southern part of Godsbanearne with new urban dense living meet the societal tendencies and challenges? And how can urban landscape and visible recreational stormwater solutions be turned into a potential value to create the framework for attractive meeting places for different communities?**

**How to design an urban co-housing that invites social interaction in all seasons through functions and urban common areas which at the same time consider the individual, and how can the co-housing contribute with community to the entire neighbourhood?**

## Vision

The overall vision for The neighbourhood at the southern part of Godsbanearealerne is to transform the area into a new liveable, diverse, and experimenting district with high living quality, where community and nature can grow. The district shall create the framework for new ways of living in the dense city based on building communities (byggefællesskaber) and different forms of housing. The project must relate to its context and work as a link between the landscape Ådalen and the urban city. In general, nature will become a natural part of the neighbourhood. The main aim is to provide new urban dense living that meets the societal tendencies and challenges. But also turn the stormwater challenges and natural resources in the low-lying area into local advantages to create the physical frameworks for a good everyday life. The attractive meeting places shall contain recreational water and nature that brings more value, quality of life, provide mental health, and creates better city life and a good place to live for people, animals, and plants. The neighbourhood will be structured so that it especially creates good conditions for more social community and shared everyday life and thereby secure a feeling of community and social interaction to meet the increasing loneliness. Furthermore, a combination of both green areas, connected recreational stormwater management, housing, culture, institutions, commercial, and small micro shops will be established on the site to provide a liveable and diverse neighbourhood. Lastly, the district will accommodate good qualities from both the rural areas' single-family houses as well as the city's block structure, where it is possible for the residents to give their home a personal touch, talk to neighbours over the hedge and on the streets, and grow green areas and plants in an urban social housing typology.

In the scale of a selected building plot, the vision is to create a modern and urban co-housing across generations and interests that challenges and rethinks the traditional geography at its location at Godsbanearealerne in Aarhus. The co-housing must be a catalyst and contribute to more social life and coexistence in an urban city and at Godsbanearealerne where more people live alone and experience loneliness. In general, the co-housing must help to fulfill the vision of Aarhus K with enthusiasts who want to improve the social life among citizens and improve the relationship with the local area. These people are seen as needed in the area, where more people live alone in private homes. Moreover, the aim is to minimize the private homes to increase some common-based areas, and create and place functions, facilities, and activities so that they support community and social interactions in the form of formal and informal meetings. Besides that, the co-housing must be open for both large and small communities, invite the residents to stays and generally let them enter into social relationships based on common interests.

## Methodology

In the recent years, many changes have taken place and this can be seen in our today's cities, e.g. our cities are being densified and contain more buildings, people, and unique green areas have been transformed into parking spaces. This project is dealing with densifying an old industrial area but in a way that makes room for green recreational spaces for residents and the city's citizens. But some of the changes that the project is dealing with like the focus on increasing community and social interaction are not visible to the individual and take place in a partly indirect way. I do believe that social challenges such as more singles, and loneliness, can be alleviated by making it easier to achieve a sense of community, which has been worked on through the design process (see appendix 1 - the design process). The project connects my personal interests and urban architectural competencies obtained through the study, practical work, literature studies, theoretical insights, analysis, and hydrological solutions in the attempt to come up with design ideas that meet the societal challenges in a design of a neighbourhood and to develop a new form of housing in the dense city of Aarhus. Planning to ensure social community is difficult as a community takes time to build. In the project, an aim has been made to create the best framework for the community to emerge, but to do so, the understanding of the social challenges we face has turned to physical design parameters that can be seen in the design of the neighbourhood and the co-housing (see appendix 1 - the design process, phase 2).

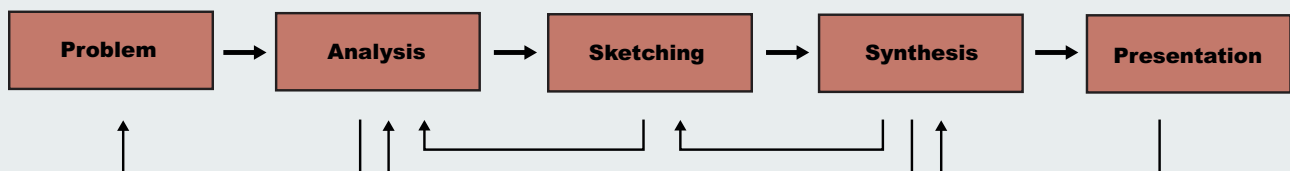
### The process

The Integrated Design Process, IDP by Mary-Ann Knudstrup (Knudstrup, 2004) has been applied throughout the thesis project as an iterative approach and is managed through five various phases as seen in ill. 02. The different phases interact with each other. It is possible to go back and forth in order to explore and acquire new needed knowledge. The design will integrate knowledge from urban design and technical knowledge from hydrology and hydraulics which therefore will create a holistic design proposal.

At the beginning of the project, a project site was chosen. Afterward the design development began with the formulation of a problem to serve as a starting point. Through research and investigation of the problem, a design proposal to comprehend the problem is proposed based on the theoretical framework and empirical knowledge.

### Literature studies

Literature studies have been used to gain knowledge about specific related topics such as societal tendencies and problems, the need of urban communities, and theory about good urban community life. In addition, I have also gained insight in what building communities and co-housings are. This gives the reader an understanding of the focus points in the thesis. The literature has also been the aid for the thesis project's analysis and design process. It has provided an understanding of aspects to analyses and an understanding of the most important themes to consider for the design proposal to achieve a successful and desired result. A mixture of different literature sources, both academic and non-academic are sought to develop a general knowledge within the field.



### Case studies

In relation to literature studies, case studies are used to discover and learn about existing co-housing projects. The case studies are tools to give myself and the reader a picture of what co-housing is and what it is characterized by. This is a methodological approach which is based on visual analyses and observations of the meeting between inside and outside and how community and social connections are created. One of the projects, Lange Eng, was observed during a site visit to Copenhagen in September 2016. Here, I saw the common house, the courtyard, and one apartment. Whereas the other three have been analysed based on plans, sections, and pictures. Furthermore, the case studies help to provide some guidelines for the further design of the site, including the physical design of the co-housings and the general design of the urban spaces.

### Site observation

Comprehensive site observations at the southern part of Godsbanearealerne will help me to get a general understanding of the site area and the surrounding context. Moreover, on the basis of the vision for the current and future Godsbanearealerne from Aarhus Municipality, it will also help to give me the general idea of the entire area and chosen southern site. The cartographic analysis method, "The Agency of Mapping" by the landscape architect James Corner is a quantitative method and is used to obtain and improve the knowledge about the project site, its elements, and the surrounding environment. Corner introduces the notion 'Tracing' which is overall map illustrations that uncover the urban contexts and relationships such as accessibility, functions, height, and microclimate conditions, etc. which were useful for the design process (Corner, 1999). A phenomenological approach with inspiration in the method 'Serial Vision' by Gordon Cullen combined with 'Urban Tomography' by Martin H. Krieger are applied to gain a sensory feeling and understanding of the site and its unique character on a human scale. The observations are based on my own visual experiences during a walk and are atmospheric illustrations of selected viewpoints by pictures (Cullen, 1961, Krieger, 2011).

### Expert interview with Silje Erøy Sollien

An expert interview with Silje Erøy Sollien who is an architectural researcher (post doc.) at Vandkunsten is conducted to gain a personal perspective and an understanding of alternative forms of housing such as co-housing and benefits of building communities (appendix 3). Sollien works on a daily basis with the development of new alternative forms of housing with a focus on social sustainability and architectural qualities. In addition, she has worked on a work paper, that provides the knowledge base and an action plan for a Danish model for more modern co-housings. The semi-structured interview makes it possible to add more questions in relation to the answers which were given. Moreover, the informal style of interview gave a relaxing conversation and an insight into the residents' needs and what they are willing to share, the importance of urban areas, and what is important for the co-housings to work well. In the end, the interview focused on how Sollien sees the co-housings in the future. The knowledge gained is applied in chapter 03 – co-living and in chapter 04 – analysis, potential user groups.

### Written interview with an existing co-housing

These interviews were meant to have been physical or online, but due to some misunderstandings, the questions I had given the board of directors were sent directly out to the co-housing's residents, and three residents answered me on my e-mail. It became a written interview and I gained a deeper personal insight in how their co-housing works, their life when living in co-housing, and their needs and wishes for a new co-housing (appendix 4). This knowledge has been crucial for me to be able to meet the demands of a modern individual's life and common spaces. In this way, the social and physical needs of potential residents will be taken further and incorporated into the design.

### Unstructured conversation

This method is used in chapter 04 – analysis about Institut for (X). An unstructured conversation was held with the respondent Thor Vingolf Nielsen, Dream designer at Institut for (X), and all statements and quotations are approved with him. Reference is made by using this parentheses; (Vingolf, 17.02.21).





# State of the Art

In this chapter, the most important topics and theories behind this thesis project will be introduced and the themes are;

- **The dense city and its tendencies and challenges**
- **A need for urban communities**
- **Good urban community life**

## The dense city and its tendencies and challenges

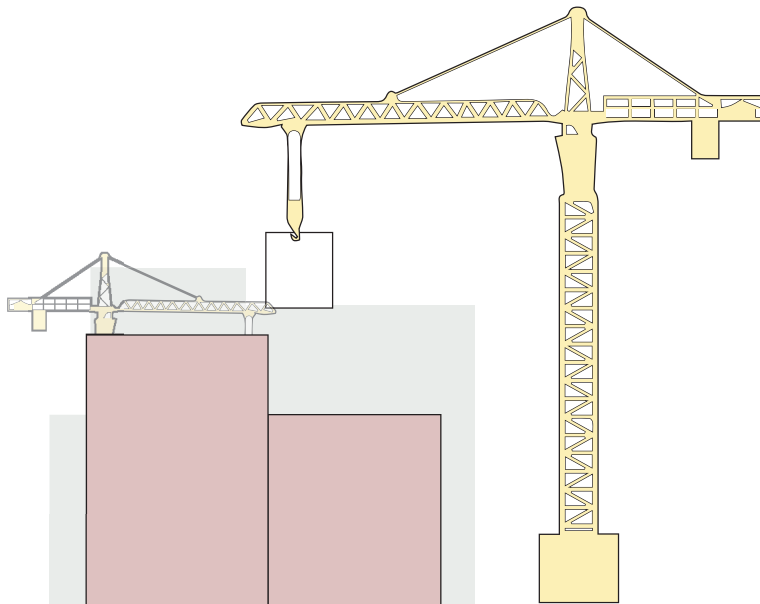
In the World Happiness Report (2020), Denmark holds on to its longstanding position among the world's happiest countries. In 2020, Danes came second as the happiest people in the world, whereas Aarhus comes second in the world's happiest cities, even despite Covid-19. Furthermore, the city of Aarhus is also known as The City of Smiles (Smilets By) (Skinbjerg, 2018). This poses the question about whether we are as happy as we seem to be?

The city is characterized as a living entity that is constantly changing and capable of learning (Pearson, 2007). The vibrant city has a very fast pace, urban life, high density, and rich opportunities within walking distances, but people are not always directly connected by social affiliations, even though they are surrounded by people. Paradoxically, the large city contains the most lonely people, but in general, the people do not necessarily have interaction with people they walk-by or hear on a daily basis in the city's urban spaces (Storbykultur, n.d.). But still, there is face-to-face contact according to Wirth (1995) and Simmel (1950). In addition, it can more be defined as secondary contact rather than primary social contact because people in the urban city take on a protective blase attitude to protect their individuality which enable them to interact without emotions. Thus, in a large city, one can easily experience anonymity and being lonely in the crowd due to the lack of social interaction with other people (Storbykultur, n.d.).

There is something behind the facade of smiling which is explained in several statistics and analyses. The dense city faces both societal tendencies and challenges such as **urbanization, increasing loneliness, changing family patterns, more singles, elderly, and climate change**. Lastly, the trend of **Landscape Ecological Urbanism** will be presented.

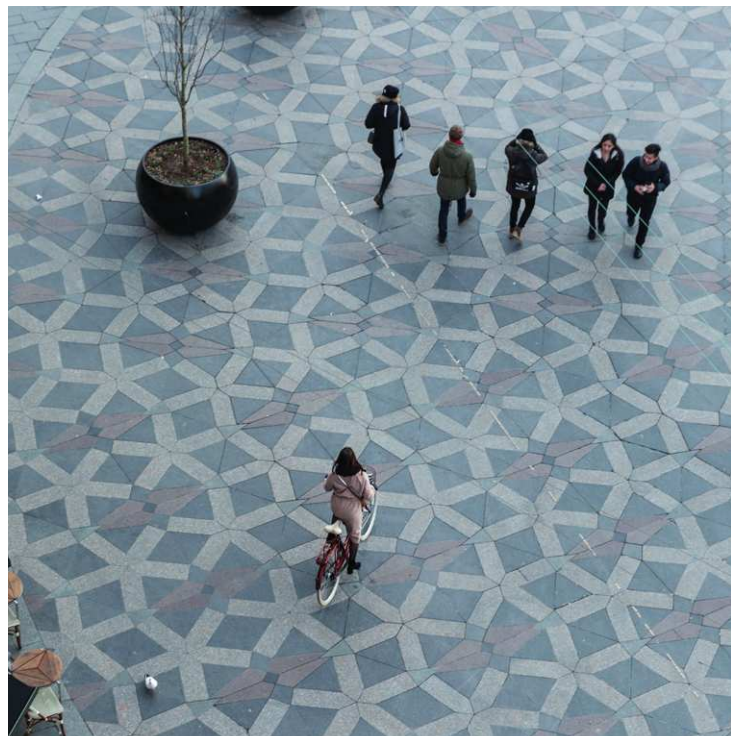
### Urbanization

Urbanization is a global tendency. The cities grow bigger and denser due to the increasing population and people today move from the rural areas towards the cities due to job opportunities and offers. Today, 50% of the world's population live in cities, and it is estimated that up to  $\frac{3}{4}$  of the world's population will live in urban areas by 2050 (Bygningsarv, 2016). It is characterized by the fact that the city is getting denser in structure, and we have to live closer to each other due to housing needs and increasing demand. Urbanization also means increased pressure on the infrastructure, high housing prices that not everyone can afford, larger areas that are being covered by buildings and roads, and green areas are being reduced. A study also shows that many singles live in 2-3 room apartments and have an extra room. Thus, people have a lot of space and a larger housing than they need which is a challenge along with urbanization (Erhvervsindsigt, 2019).



← *Urbanization means that  
the city is growing denser*

03. Own illustration / urbanization



04. Picture / a public space



*Very little social interaction  
in large public spaces*



05. Picture / loneliness

**“Loneliness and isolation are feelings that can touch us at any age and any stage of our life. From a young person moving away to university to an older person caring for a loved one”**

**The Deputy Minister for Health and Social Services, Julie Morgan**  
(Welsh Government, 2020)

### Increasing loneliness

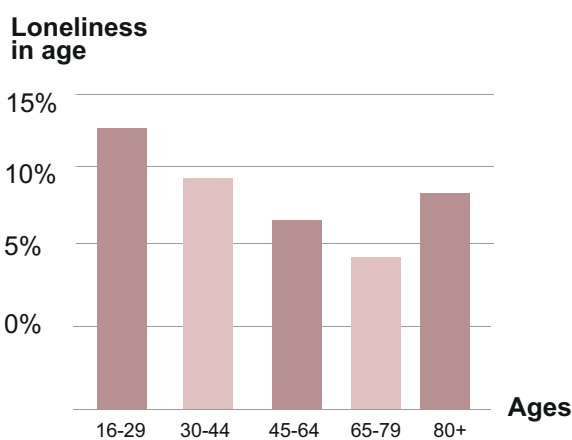
The city attracts many single people with social, cultural, and educational offers. Moreover, it is estimated that in the future more people will choose to live alone, and research shows that it can have major societal consequences (Danmark Statistik, 2016). An increasing number of singles can lead to isolation and loneliness, as loneliness is remedied through relations and social interaction (Ventilen Danmark, n.d.-b).

Loneliness and social isolation are growing problems that are often considered to be issues that affect the elderly, but they are increasingly becoming issues that affect people across all age groups (Welsh Government, 2020). Statistics illustrated on ill. 06 show that the incidence of loneliness is highest in the age groups between 16-29 years, 30-44 years, and 80+ years, whereas 12% between 16-29 years and 8% of the whole population are feeling lonely (Region Midtjylland, 2020).

But why do people become lonely or what causes the feeling of loneliness? According to Aarhus Municipality, the primary reasons for severe loneliness are that people live alone, suffering from illness, unemployment, living in a rural area, or not having transportation that keeps one from accessing benefits (Region Midtjylland, 2017). In general, loneliness is caused by a lack of social relationships and can also occur in relation to special changes in

life as when people are leaving home or moving to a new city to study or work, if parents are divorced, or because of technical developments with social media. New technology has made communication easier, which means that people no longer have to leave their homes, for good or bad, but it can, in some cases amplify the feeling of loneliness (Ventilen Danmark, n.d.-a, Ventilen Danmark, n.d.-b).

Moreover, long-term loneliness can have great consequences for the individual and it is harmful to the health (Ventilen Danmark, n.d.-a). Several studies show that feeling lonely can have a huge effect on people's physical and mental health (Welsh Government, 2020). Being lonely for a long time can lead to an unhealthy life and increases the risk of stress, depression, anxiety, high blood pressure, cardiovascular disease, sleep problems, suicidal thoughts, and pain (Cacioppo & Patrick, 2009). Loneliness and social isolation caused by less social contact have an impact on well-being and can lead to consequences. Therefore, it can be argued that loneliness is a significant and growing public health problem because it is costly for the individual and society. Even before the Covid-19 pandemic, loneliness cost the Danish society over 8 billion kr. annually (Hansen, 2018). This indicates that the consequences of loneliness have an impact on the Danish health system when loneliness leads to poor mental and physical health (Aldresagen, n.d.).



06. Own illustration / loneliness in age

### Changing family patterns, more singles and elderly people

In Denmark, we have a strong welfare system that supports us throughout life. Different generations are no longer as dependent of each other as in the old days, and in recent decades the population has become more and more differentiated, both in terms of change in family composition and in terms of age and lifestyle.

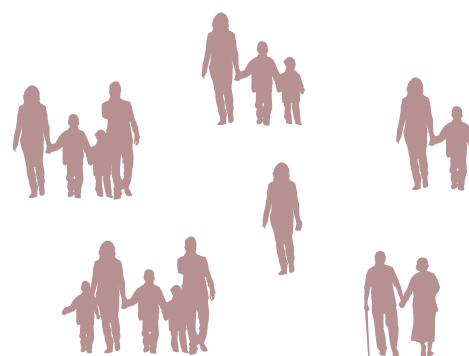
The demographic trends have changed and involve a larger proportion of older people. It means that there will be more of the 65-79 year olds. We live longer, and the life expectancy will increase further, but this does not have to mean growing lonelier (Hansen, 2018).

Moreover, new family compositions have emerged while more and more people are living alone (Danmarks Statistik, 2021). Today, there are a total of 37 diverse family types. In many cases, divorces and new marriages result in housing conditions being arranged with mine, your, and

our children (Hansen, 2018). In addition, as previously mentioned, there are larger families, a lot more single, and older people, but the majority of housing offers are based on the ideals of the past, which creates demand for new housing needs.

In a survey from Danmark Statistik (2016), it is shown that in 2016 there were 1.6 million singles, which is equivalent to 37% of all adults in Denmark. Of these, adults under 30 years and older-aged 60+ are at the top of the list at the same time as 65+ are getting older (Aeldresagen, 2020). It is especially these two age groups where most often are single, however, this does not mean that they live alone, but sometimes together with others. The proportion of single parents with children has also increased by 9% over the last 5 years as a consequence of the welfare system (Bollerslev, 2019).

*New family compositions,  
more singles and elderly*

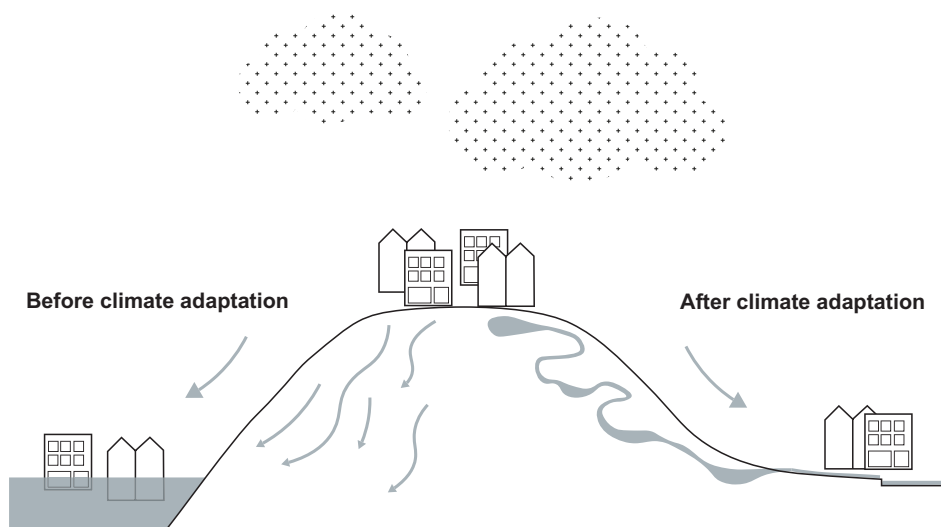


07. Own illustration / some of society's tendencies and challenges

### Challenges of climate changes

The world is facing climate changes that are a global threat and mean higher temperatures, more rain, and generally more extreme weather events (Realdania, 2018). Many urban areas consist of non-permeable hard surfaces, which makes them particularly vulnerable to extreme rain events. In particular, the low-lying areas will be at greater risk of flooding in relation to heavy rainfall. The overall health effects of a changing climate are very negative. Extreme rain and storm floods can cause serious health consequences and cost society a lot in reconstruction if we do not react (Hansen, 2019; Klima-, Energi- og Forsyningsministeriet, 2017). We need to adapt to the future climate situation to avoid uncertainty and economic challenges. In general, climate change is something we have to live with. It has an impact on our future living and should be met in the future planning of our cities.

*Climate change affects  
the low-lying areas*



### **Landscape Ecological Urbanism as a tendency**

The city is growing and still many people's everyday landscape. For the past hundred years, we have always had a life close to nature, but society constantly has high demands on the citizens of the city with a fast pace, more traffic, noise, dense urban areas, while the greenery has disappeared more (Stigsdottir et al. 2007; Skov & landskab, 2008).

The urbanization means that larger areas are covered by buildings and roads, and agriculture and forest areas are being reduced. It is no longer the case that the city's citizens have access to green areas, 'urban nature' in their everyday life, although there is a desire and need. Several research results show that the closer we live to nature, the better we feel as individuals (Skov & landskab, 2008). The urban landscape firm SLA states that nature improves the quality of life and makes us happier and creates a sense of place and belonging to a particular neighbourhood (SLA, 2016). Therefore, it is essential to think about the green spaces of the city, and especially to enable stays in nature to help people who experience the feeling of loneliness, as it promotes human mental health, physical activity, and supports community connection.

In an urban study, it has been shown that open spaces that offer opportunities for connection with nature and people strengthen community and combat loneliness. Moreover, also that people who live with a view and experience of nature feel less lonely and stressed (Future Spaces Foundation, 2019; Thompson, 2013). Furthermore, our ecosystem and biodiversity are threatened by urbanization, agriculture, and climate change. All of this makes it difficult for species to adapt and survive. "When natural areas are divided by paved areas, biodiversity finds it difficult to move and spread" (Meltotte, 2012).

Due to the challenges of both climate changes, threatened ecosystems, biodiversity, and the impact of urbanization it is seen as a necessity to think of city and landscape together as a symbiosis, where nature can stand partly untouched and grow. Landscape urbanism is a theory of landscape architecture and urban design which argues that the best way to develop cities is through the design of the city's landscape, to redefine what the landscape is, and that landscapes together make up both the overgrown landscape and the built areas that will define the new dense cities. The discussion about nature in the cities is not a new phenomenon. Several urban architects and planners have for many years tried to find solutions to create a connection between nature and the city, and are still trying today. This discussion has also changed, once it was large and bright green areas, but in recent years, there has been an increased focus on nature and its ecosystem with good living conditions for animals and plants (Turner, 2015). Frederick Steiner (2011) has introduced "Landscape Ecological Urbanism" as an approach that includes urban ecology. Steiner thought about ecological urban nature as a combination of two concepts, Landscape Urbanism by James Corner and Urban Ecology by Richard Forman and Michel Godron (Corner, 2006, Godron & T. Forman, 1986). This is an important and necessary approach in the organization of the cities of the future, where the soft landscape forms the framework for the city's design. In traditional urbanism, it was the city's hard surfaces; buildings, and roads that were the foundation for the city's design, where the green areas were located in the city's unbuilt leftover spaces. Overall, Landscape Urbanism emphasizes the idea that green areas and natural nature should be an active part of urban planning. Urban Ecology deals with ecology in the landscape and the city. Thus, it includes the city's ecosystems, and the living conditions for living organisms in an urban context (Steiner, 2011).

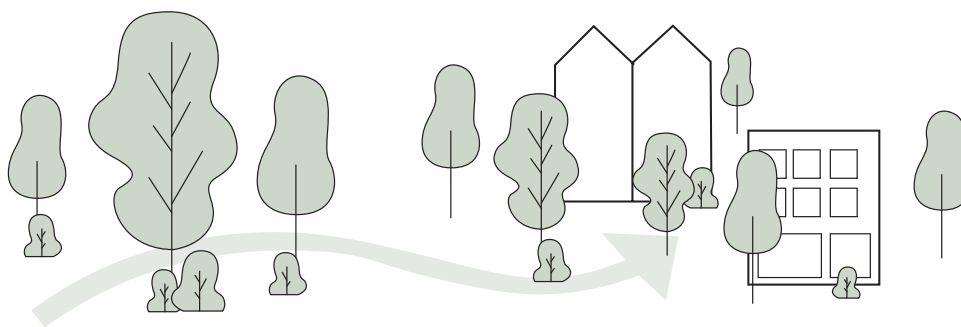


Steiner (2011) claims that “Urban ecology research indicates what should be obvious: people interact with other humans and with other species as well as their built and natural environment”. Designing with nature can improve the quality of cities for people, plants, and animals”. “Landscape Ecological Urbanism” enables new ways of designing and planning the cities of the future, so that they are for people, plants, and animals. This largely requires interdisciplinary collaboration to find good solutions.

The idea of “Landscape Ecological Urbanism” with nature areas in an extension of each other is seen as being the

solution to how nature and biodiversity are intergraded into the city, and this solves the challenges of the reduced ecosystem and secures cities against the threatening climate change for many years to come, and creates better liveability for not only humans but all living organisms (Steiner, 2011). In addition, benefits are seen in nature with its acoustic effect that absorbs and softens sounds and noise among the hard surfaces, cleans the air, protects private life, protects from wind and sun, and reduces the effect of heat islands caused by climate change in the dense city (Sim, 2020).

*Connected ecological nature  
from the rural areas to the  
urban city*



09. Own illustration / connected ecological nature

**”There’s no hard-and-fast rule that everyone needs to be involved with others all the time, but we tend to feel better when we’re with others, and we may feel worse if we’re often alone”**

The assistant professor of psychiatry at Harvard Medical School, Dr. Michael Craig Miller (Harvard Health Publishing, 2016)

## A need for urban communities

### Community to reduce loneliness

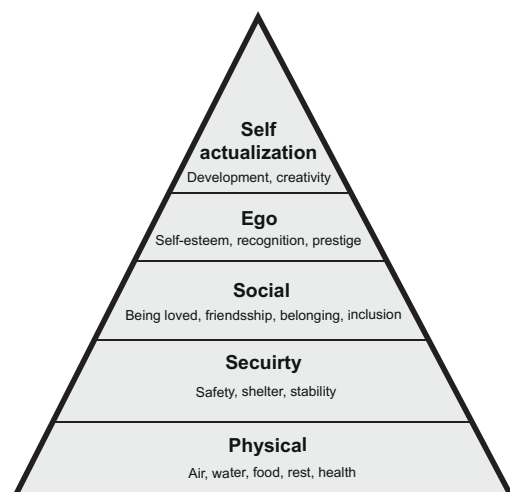
It can be seen that loneliness is a serious growing problem that requires action. When asked about what it means to be lonely David Vincent Nielsen, Social-humanitarian consultant from Aeldresagen, answers that loneliness is a feeling that “arises when the individual’s need for social and near relations is not being satisfied”. Overall, it is up to communities in form of social relations and especially close relationships to prevent and alleviate loneliness (Petersen, 2018). In the article by Petersen (2018) David argues “Once loneliness has arisen and settled and you have lost close relations, you need a helping hand from the community”

John T. Cacioppo, Professor of Psychology, Psychiatry, and Behavioural Neuroscience emphasizes based on studies that one needs social contact to be able to thrive and have good health (Cacioppo & Patrick, 2009). According to Maslow’s pyramid of needs, the social need connected with love and belonging is one of the five human needs (MasterClass, 2020). It can be concluded that we,

as individuals, need daily social relationships and interaction with others in the cities to meet the basic human needs to feel satisfied as human beings. Community is important for people and society to provide quality of life and joy. Overall, community and solidarity are some of the foundations for supporting our Danish society (Petersen, 2018).

### The urban city

But where to find community? The urban city can help shape the condition for bringing people together. But, when we are in the city’s public spaces, we are surrounded by each other, but not always directly watched and interacting with other people. Since 1903, the urban scholar Georg Simmel argued in his essay “The Metropolis and Mental Life”, that people cannot comprehend the city’s pace and the constant impressions. Therefore, people take on a protective ‘blasé attitude’ to protect their individuality and slow down impressions. This has only got worse, and as previously mentioned, it is difficult for people to obtain social relations in large public spaces (Simmel, 1950).



10. Own illustration / Maslow's pyramid of needs

### Urbanization potentials

Based on the urban city's public spaces, it can be difficult to achieve the near community and social interaction. Urbanization and its tendencies to urban dense living can be seen as a great potential to both establish a strong community, increase social interaction, and thus alleviate the loneliness that more people experience. Thus, it can be argued that social and near relationships can be found in more community-oriented neighbourhoods with smaller affordable housings, larger common areas, and by living together and sharing. Here, the people are not being exposed to too many impressions and can engage emotionally in "depths of personality" and be connected to a community (Simmel, 1950). It is not simply being near other people but feeling socially connected in a relationship with others that offers us a sense of belonging and well-being (Welsh Government, 2020). The organization, Psykiatrifonden (n.d.) argues that "it can sometimes be easier to create social relations attending informal communities, where contact and friendship itself are not the primary goals".

### Demand for communities

According to Mette Mechlenborg, senior researcher at Build at Aalborg University, today we are looking for "communities and social everyday relations. Here the focus is on everyday practical tasks and chores" (Mechlenborg, 2020).

Moreover, the number of people living in a housing with more than one family has increased by 20% since 2007. In addition, since 2017, even more people seek collectives and co-housing. This has become a popular form of housing with increasing demand (Gundersen, 2017). A survey conducted by KUBEN Management shows that 50% want to be part of a community next time they move (Tegnestuen Vandkunsten, 2020). According to Boligministeriets report Bygningsarv (2016), "Fremtidens bofællesskaber" 27 % of single parents are considering moving into co-housing to get closer relationships. From this, it can be deduced that people are social and seek togetherness and social interaction near others. Mechlenborg points out that it is not about eroding the family, but it is about creating other social relationships, as the family is no longer enough (Mechlenborg, 2020).

The association "Folkebevægelsen mod Ensomhed" argues that "No one can create communities alone" (Folkebevægelsen mod Ensomhed, n.d.). Therefore, the urban architects are seen as needed to make it easier to join meaningful communities, allow people to engage and feel needed. Moreover, the society needs to be open to changes and alternatives to ways of living, especially because more people live alone, which should be incorporated into the development of new urban areas.



← Communities at Institut for (X)

### Climate change and ecological nature as vital recreational resources to create community

There is a great need and not least potential in making our cities more resilient to the increasing climate and environmental challenges. Stormwater is not something we can avoid, but something we have to live with and it must be handled with the aim of preventing catastrophic consequences of the city's flooded sewer systems to ensure both living conditions and human health. There is a need to help and protect urban areas from floods and improving better ecological conditions, while at the same time nature and water can have a recreational multifunctional application where it is turned into a local potential to allow the city's local citizens and residents of the area to take advantage of the presence of the water (Hoffmann et al., 2015). However, a well-designed system can have several functions and act as a technical climate protection, aesthetic value, contribute to added value and quality of life, and give recreational solution that can create the framework for facilities, activities, and togetherness.

In the book, "Blød by" by David Sim, says, "The strongest sensory experiences are associated with water, especially water that moves, makes a sound and gives reflection" (Sim, 2020).

Furthermore, nature and stormwater solutions can to a large extent be turned into potentials for the senses and bring people together, as seen in the Danish context from e.g. the landscape architectural firm SLA. In the project, Skt. Kjelds Plads by SLA, the urban area combines the city with landscape and creates the framework for biodiversity. The project shows how we create the climate-adapted urban spaces of the future with more extreme and frequent rain, at the same time making an attractive place with recreational nature and water to enjoy. It is an urban space that connects wild nature and creates spaces where both humans and organisms can unfold on equal terms. The wild species and felled trees contribute to biodiversity and the ecosystem (Teknik- og Miljøforvaltningen, n.d.).



12. Visualization / recreational nature and water at Skt. Kjelds Plads



13. Picture / a place to humans, plants, and animals

## Sub-conclusion

Denmark and its cities are facing some societal tendencies and challenges. Denmark should imagine being the second happiest country in the world and Aarhus as the second happiest city, but this is not related to the increasing loneliness. On the basis of the literature, it can be concluded that loneliness is a serious problem for the individual and society. In relation to that, more people will also choose to live alone and more people are getting older which can affect a feeling of loneliness. These missing social needs will be met in the future development of the new urban neighbourhood.

The literature also shows that our cities are growing bigger and denser. But also the public spaces with a high pace and many impressions can lead to a lack of social interaction and a feeling of community, which decreases the quality of life. Thus, the public urban spaces do not create conditions for social relationships, and in that way, it can create a feeling of loneliness. The city's neighbourhoods are seen as a necessary effort to ensure oases and provide quality to the citizens. Hence, urban architects and planners need to rethink the future city's neighbourhood with a focus on creating the framework for community. In recent years, there has been a positive increasing demand for community-oriented ways of living and co-housings have become a popular housing form, and from this, it can be concluded that people are attracted by social conditions and near community. The impact of urbanization on a dense structure and living, is spatially concluded as a great potential to ensure close community-based neighbourhoods. These should accommodate areas of social interaction and togetherness that especially benefit singles. As Mechlenborg argues, the family is no longer enough, and people want to create other social relations, which is also what this project wants to meet and develop a proposal for. Moreover, urbanization also means that there is an increased demand for housing in the city, which increases the housing prices. But not everyone can afford the high price level. In addition, many singles live in more space than they need. Therefore, this project must contain smaller and more affordable housing with larger shared

spaces for communities. A tendency is also that there is a change in family patterns, but recently, the societal housings are based on the past and this creates the demand for diversity of both housing types, forms, and sizes, which this project will include.

Climate changes are global issues that have an impact on future living. There is a need and great possibility to adapt to the future climate situation and at the same time turn rainwater combined with nature into local potential for senses and creating meeting spaces for gathering to the residents and local citizens. It can be concluded that ecological landscape and water management are vital recreational resources to both add more value, provide quality of life and provide an experience of water and nature. Moreover, in the neighbourhood, efforts should be made to provide biodiversity with the best possible living conditions by creating space for nature in a new way. Further, the project will work on creating natural areas such as e.g. a green wedges and trees along the road, etc. in the extension of each other so that species can move. Thus, new synergies will be created between people and nature, while at the same time creating an area that inspires and informs people about new ways of living in between nature. Interacting with nature in the city is important from a social, climatic, and biodiversity point of view.

The project will work with and believes that a combination of dense living and good recreational meeting spaces, by living together and sharing can create a liveable and diverse neighbourhood. In particular, this can create a strong community across generations and interests, create good possibilities for social relations between the increased numbers of singles, the elderly, and alleviate the loneliness that more people experience. This is also a practical solution in relation to the urbanization impact and to minimize the climate challenges.

## Good urban community life

The urban spaces around our neighbourhoods are a big part of our everyday life. It is here, the residents and citizens, interact with each other and stay. These urban spaces can have different purposes, functions, and facilities with varying characteristics, features, and qualities that form the framework for the formal and informal meetings between people.

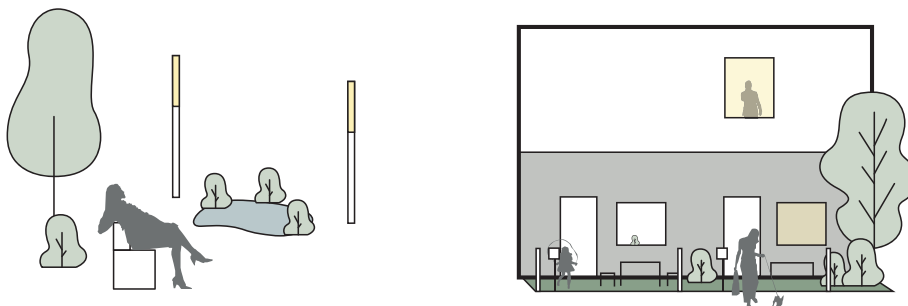
The well-known Danish architect and urbanist, Jan Gehl focuses on the good life for people in the cities. Gehl emphasizes the creation of the best conditions for people and expresses that “a more vibrant city is also healthier, safer, more sustainable and attractive” (Gehl, 2010).

### The good and safe urban space

In the book “Cities for people”, Jan Gehl investigates the concept of safety in cities. In order to create a good urban area, Gehl claims that feeling safe and comfortable are crucial prerequisites for how much the urban spaces are used. Gehl argues that the importance of human scale in the design of the urban environment in front of the buildings in the form of elements, furniture, materials, planting, and lighting has great significance for the experienced space and influence on the use. Gehl names this ‘soft edges’ (kantzoner) (Gehl, 2010).

The ‘soft edges’ of urban space are what shape and define space. These are semi-private frontages in the buildings’ lowest floors between the actual transition zones of the public and the private spaces, where life inside and outside meet. Gehl states that “the city’s active, open, and vibrant “soft edges” signal courtesy and make the city feel affordable, comfortable, and safe”. Overall, the ‘soft edges’ can act as a physical space of great importance for supporting life in the streets, while at the same time enhancing the experience of ownership. In the ‘soft edges’ many things can happen, like children playing and parents sitting, reading, or knitting just behind the hedge. Gehl found that children prefer to play in the streets and near the front door instead of playgrounds far away. The reason for this is the lack of visual contact with people and the feeling of safety. He also mentions that narrow units with many doors (14-20 doors per 100 meters) containing front gardens of furniture and plants activate much more life than long boring and clean facades (Gehl, 2010).

The diagrams below show what influences the design of good urban spaces.



14. Own illustrations / safety, human scale and liveable spaces



Gehl's ideas correlate with Jane Jacob's theory of street safety (Jacobs, 1961). They both argue that a liveable neighbourhood for soft traffic and meeting places give a feeling that one is not alone and this increases the personal feeling of security (Gehl, 2010). But to maintain that overview, it is also important that there are not too many people sharing the same space. This is especially about the ability to recognize neighbours (Newman, 1972). Gehl's studies show that housing groups of 15-30 units have shown to work best for communities and their social processes, both in the individual housing group and in the neighbourhood (Gehl, 2011). When the "soft edges" and the urban space are established, Gehl predicts that urban life will be strengthened and more people will move and stay. In order for the spaces to be experienced as comfortable and safe, they must, in addition to being used during the day, also in the evening express life. It can be done with open functions, parked bicycles, lighting in the streets, and left toys, which together with the radiation of light from the housing show human activity and signal to potential criminals who can so easily recognize that the area they are entering is actively used by residents of the neighbourhood (Gehl, 2010). This creates value and safety for the residents and passers-by as well as preventing the risk of crime and vandalism. It is mainly due to the presence of other people and their "Eyes on the street", by "monitoring the city life" from windows and balconies, which expresses

to others that it is a safe and good area to move around in. The increase in "Eyes on the street" leads to more "Eyes on the street", because it will be interesting for residents to follow people in the urban area. Thus, the overall security is increased and there is an accelerating effect of both security and people (Gehl 2010, Juul I Frost Arkitekter, 2009).

### Human scale

Moreover, Gehl argues that in the creation of a vibrant neighbourhood, the human scale should be the starting point for the planning of urban spaces. In "Blød by" by David Sim, it is said that "the human scale should be considered in eye-level experiences", with varying sense experiences, and smaller spaces that humans can relate to (Sim, 2020). According to Jan Gehl, there is good visual communication between the ground floor and the first two floors. Here it is possible to be a part of and follow life in the city's spaces; "talk, yell, and body language can be perceived". This is to a lesser extent possible from the third and fourth floor, but upwards it becomes difficult. In addition, people in tall buildings are less likely to get down to the urban spaces than those living in the lower five floors. David Sim says "the human scale promotes social interaction" (Sim, 2020). "The building height should not exceed six floors, preferably four or five, as anything higher than this will reduce the visual connection to the street level" (Gehl, 2010).

### Activities

In order to design a neighbourhood and its urban areas that create the framework for meetings and social interaction between residents, Gehl's theory of outdoor activities has been considered (Gehl, 2010). People engage in three different activities in the outdoor spaces which are described as; the necessary activities, the optional activities, and the social activities.

**The necessary activities** are the activities that make people's everyday life work. These are everyday chores that are managed regardless of the weather, such as leaving to and from work and go to the supermarket, etc.

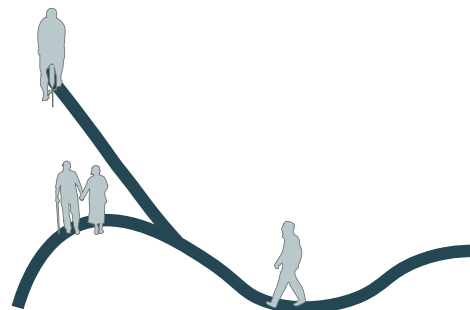
**The optional activities** are to a much greater extent dependent on good urban space's qualities and weather conditions, which are a prerequisite for them to exist. They depend on whether they are invited to optional activities, and not least whether the people want to stay, play, go for a walk or just be present and enjoy life. The common rooms must create a platform, for the optional activities can arise as the residents want.

**The social activities** often arise from the necessary and optional activities. When there are good conditions for these, the social activities between people are strengthened. The activities often come as a result of good urban areas and take place when people are present in the common spaces which can be neighbours talking over the hedge and children playing on the street.

People are drawn to activities and the presence of others, and often new activities begin near existing. It is the people's use of spaces that help to determine urban life and the qualities of spaces. The connection between the necessary and optional activities must be considered in different levels in order to encourage social meetings and the common life in the urban area. There must be something to see and experience, and the urban space must contain meeting places that signal an expression that invites social activities. Gehl argues that if there are practical tasks and common care, and maintenance in the urban spaces, the residents are more likely to use the spaces between the houses (Gehl, 2010). This can act as an increasing factor of social connection. Moreover, planning activities that encourage social activities can be used to prevent empty and lifeless places and facilitate and increase life. (Gehl, 2011).

### Accessibility and slow pace

Both Gehl and Jacobs agree that the infrastructure in an area is important for the success and life of the neighbourhood. This creates the need for a street and urban environment with connected paths to ensure the urban area is not closed and distanced from the rest of the context. It is important to invite people to move comfortably and safely on foot and by bicycle, where traffic takes place on the premises of the pedestrians. "The slow pace of movement of people in an attractive flow and short walking distances will support a greater chance of human interaction, informal encounters, and ensure an active and safe area" (Gehl, 2011).



15. Own illustration / outdoor activities



## Sub-conclusion

The neighbourhood's spaces and streets have an impact on our everyday lives and on whether residents have social interaction with neighbours and want to stay and use the outdoor activities. The theory of a good urban neighbourhood has also taught me that formal and informal meetings and social interaction in the urban spaces between residents are created by designing spaces that are in human scale, liveable, safe, and comfortable as it has influence on the use. This will be incorporated in the design proposal to create social meetings and communities that e.g. particularly consider the singles, the elderly that are at home, and the ones who are feeling lonely. Sim states that "the human scale promotes social interaction" and this is useful to reduce loneliness and social isolation (Sim, 2020). Social interaction should in the project be created by varying functions during the day and evenings, in eye-level, and in experiences, and smaller relatable spaces.

Moreover, to ensure "Eyes on the street" and visual communication, the building will be oriented towards the community and max be 5 floors. The notion of 'soft edges' containing a semi-private space is rewarding for social community and to achieve life. This is a principle that will be incorporated in the design to make the neighbourhood feel affordable, comfortable, and even safe. In addition, this will attract people to use the outdoor spaces and, in that way, have social interaction with neighbours. It means a strengthened urban life with more people and security provide a feeling of one not being alone. Furthermore, Gehl mentions that 15-30 connected housing units are working best for community, which will be considered in the design in e.g. not design to large area and make smaller spaces for some residents. As previously mentioned, to encourage social meetings, there will be worked on how

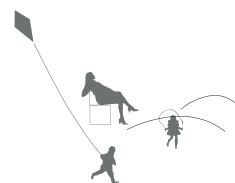
the three activities can be incorporated. The necessary and optional activities can support to bring the residents together and this is an important parameter to take further in the design of the outdoor areas and connections, as these create the conditions for social activities between people. The common areas should contain possibilities for long visits with social activities and common interests in e.g. community gardens and playgrounds that are placed close to the path. In addition, few connected paths and streets as well as the location of activities should also encourage to optional and social activities. Through continuous interaction in connection with the necessary activities, the residents will develop social relationships and thereby common interests and other social activities. It highlights the importance of prioritizing and inviting people to move on the premises of soft travellers.

Thus, with the aim of encouraging to social relations and ensuring life between the buildings, it can be concluded that to reduce loneliness, it requires social community which can be occurred in the creation of good spatial programming and placement of common indoor and outdoor rooms in connection with the daily necessary and optional activities to encourage to a common life in the neighbourhood. E.g. the integration of several practical necessities such as bicycle parking, waste sorting, post boxes, passages for pedestrians and cyclists, and outdoor seating can be placed to create more life and increase the meetings between the residents. An idea is also to place some of the functions you need for living outside of the private housings as common kitchen, laundry room, gardens, cinemas, and even needed spaces that are better and larger than the ones in the private housing. In general, both the indoor and outdoor spaces should be affected by my design-related understanding as an urban architect.

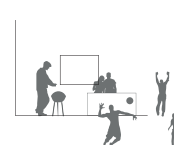
### Necessary activities



### Optional activities



### Social activities







## Co-housing through time

This chapter focuses on co-living. It describes what characterizes co-housing, its development, and establishment but also building communities. In the end, three case studies; a classic, modern and urban co-housing are presented and show how design answers have been given over time with the focus on community and social interaction.

### Characteristics of a co-housing

In a co-housing one has one's own home while being a part of a community and sharing larger common areas with others. Silje Sollien, architectural researcher (post doc.) at Vandkunsten, mentions in an interview that "the residents minimize their own home with a smaller kitchen, toilets, family room, and living room to the advantages of large common areas with space for dining areas and relaxation" (appendix 3). The homes are private but are in a way extended into the common rooms.

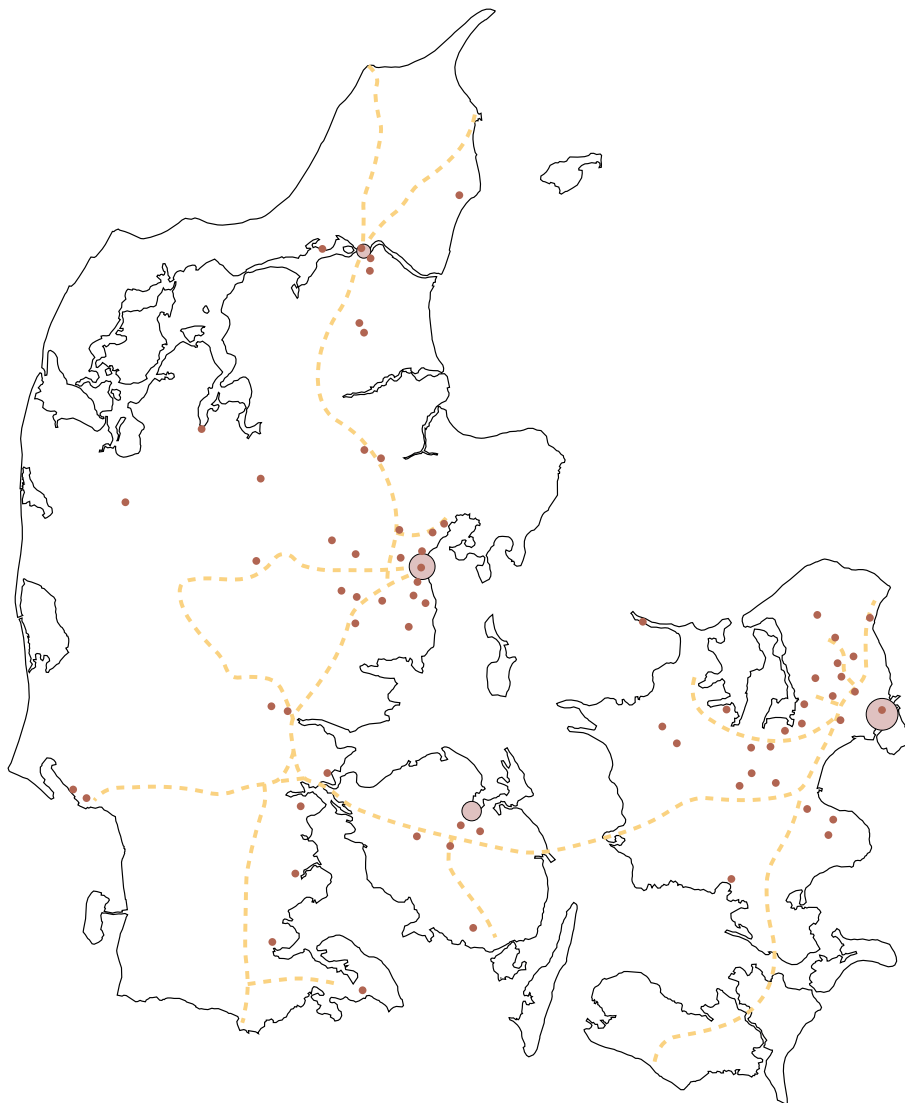
Co-housings were developed in Denmark in the 70s' as dense and low buildings gathered around a common area. Since then, the concept has spread globally. Today, the co-housings in Denmark exist in many variations, both in terms of organization and in architecture. Sollien mentions the older co-housing, Jystrup Savværk designed by Vandkunsten in the early 80s' as a good example. Jystrup Savværk consists of approx. 20 housings which create a street and become a common square with a common house (see case study on page 42) (appendix 3). The smaller co-housings can in some cases seem like a big family, where everyone knows each other. The functions of co-housings can vary and consist of a large living room with a kitchen, a smaller common room at the residents' disposal, multi-rooms, workshops, guest rooms, and outdoor areas, etc. (Beck, 2019a, appendix 3). In co-housings, the physical framework has been created, which creates different degrees of both private and common zoning. This enables the co-housing to be used in different ways, both in the form of large and small meetings between residents, outside and inside. In most co-housings, communal dining is the most important activity, especially for families with children, Sollien emphasizes. Whereas in other co-housings, it can be coffee meetings, clubs, and common work days. The outdoor and common areas are of great importance. The meetings between the residents during the day, where you say hello to your neighbours,

are seen as important factors for the co-housing to function well. Sollien mentioned that it is important to have good arrival areas, both outside and inside, a common house, and playgrounds so that you meet each other (appendix 3).

### Creation of co-housing

Traditionally, the creation of co-housings is often by 'self-organized groups', who have a vision of living in a different way than other types of housing and typologies can offer. But they were also established as a way to bring the family together and bring a quality of life as both parents worked outside the home (Beck, 2019a). Sollien mentions, in the old days, the residents were mostly academics and it required good income to live in co-housing (appendix 3). These were characterized by 'self-grown co-housings which started as building communities (byggefællesskaber) and later became co-housing. They were established as 'bottom-up' initiatives, where private and passionate people came together and created a collaboration with the municipality and professional actors (aktører). They are typically planned, owned, and operated by the residents themselves (Beck, 2019b). In many cases, there is a desire for sustainable living which can be made easier by living together (Beck, 2019a). In particular, the community can help to support the use of environmentally sustainable approaches and sharing schemes in everyday life. Moreover, most co-housings in Denmark have, until recently, been building communities (byggefællesskaber) (Tegnesteuen Vandkunsten, 2020).

Co-housings have again become popular in Denmark and there is a growing demand. Today there are 252 registered co-housings, all with different kinds of organizations, rules, combinations of residents, and activities (Bofællesskab. dk, n.d.). Common to all of them is that the residents have chosen to live in a community that encourages interaction between neighbours. Most co-housings in Denmark are mostly located in the rural areas outside the large cities. In these areas, there is space for dense low buildings and large outdoor areas. There are fewer examples in dense cities, and here this space is not available. Therefore, there is a need for re-evaluating these co-housings in a new urban context (see ill. 17).



*There are 252 registered co-housings. They are all different in form, activities, and people*

### ‘Bottom-up’ and ‘top-down’

There are different types of co-housings, and they are either developed as ‘bottom-up’ or ‘top-down’ initiatives. Through ‘bottom-up’ as mentioned earlier, it is the future group of residents who in collaboration with professionals actors help to start the project. Today, the ‘top-down’ initiative is also established which is without self-organized groups in advance. The project is initiated by professionals often with the goal of profit and with a little influence (Beck, 2019b).

The co-housings of today embrace different groups of people, life forms, and new ways of arranging their family life. There are many co-housings where it is not necessary to meet as often during the process and after. Senior co-housings are very popular today, and it is seen that they increase the quality of life probably due to good social relations (Beck, 2019b).

The co-housing Eco Village in Lejre is located outside Roskilde, and here, half of the residents consist of single parents with children. The co-housing will be able to offer a good alternative to living alone by accommodating the practical and social community, as families are guaranteed and what many has been lost in the more anonymous life of the larger cities (appendix 3).

Sollien sees the city’s future co-housing as an integrated part of a new neighbourhood. She mentions co-housings in Germany which have facilities that are accessible to the local community. Here, there are common areas with open workshops and rooms for rent etc. Moreover, the German car-sharing system in Tübingen was also mentioned, which Sollien argues could be included so that we can

avoid many cars in the city. Besides, she mentions that it is essential to think about home workplaces as we have become more flexible in this time of technological development (appendix 3).

### The concept of building communities in the dense city

There are also other types of housing communities than the Danish co-housings which are also called building communities (byggefællesskaber). The phenomenon has for the last 15 years been known as the German Baugruppen model, which is located in a more urban context in the German cities, Tübingen, Freiburg, and Berlin (Sim, 2020). Here are examples of good streets, access areas, courtyards, and other spaces for everyday meetings. This is a high priority in contrast to other housing association (Tegnstuen Vandkunsten, 2020). In Germany, they have systems where the municipality supports community groups, schedules, and advises teams that help so that they can build. It takes a little longer than a normal building (appendix 3). In Denmark, the phenomenon is less widespread, and therefore, it makes great demands on the organization and the process from the beginning to the final co-housing (Køge Kyst, 2019).

**”Building communities form varied and long-lasting neighbourhoods, where engaged citizens are responsible for developing their own housing in close collaboration with the municipality and other actors”**

(Tegnstuen Vandkunsten, 2020)

*As in Tübingen in Germany, the buildings are built next to each other on individual plots and are diverse and of high quality.*



18. Picture / Tübingen in Germany

In these projects, the residents are allowed to become developers themselves and participate in the construction of their housing but without a commercial developer. Because there is no profit for the developer, there can be savings of more than 20% which can contribute to the construction of affordable and a more personal housing. In building communities, there is a neighbours' spirit from the start of the project, as the residents have chosen to be each other's neighbours. They often choose long-lasting sustainable solutions, as the residents have entered the project intending to live there for a long time. This also results in buildings that are better adapted to the residents' needs and wishes, as well as the residents are more likely to maintain and care for, and get a connection to the place (Tegnestuen Vandkunsten, 2020). Sollien emphasizes that "the main motivation for establishing building communities is that they do not only offer benefits for the future residents. The 'resident-driven community projects' are also seen as a benefit to the local area, as they can help strengthen urban life and ensure social diversity in an urban area" (appendix 3). Some residents take on social and cultural tasks that benefit local life in the surrounding local community.

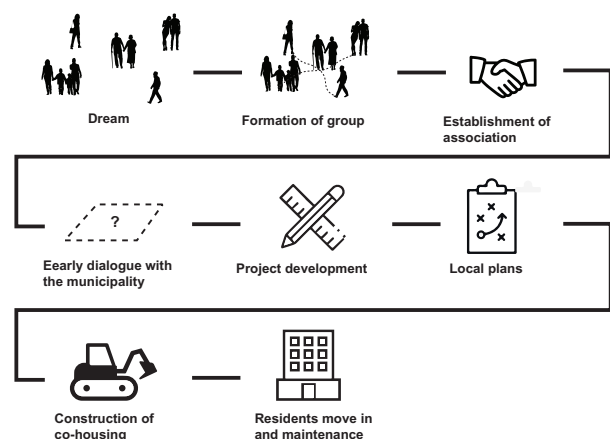
Co-ownership in housing development is seen as very beneficial, as one does not have full personal ownership, which for some single people can be an advantage. Not least, in relation to urbanization, it is seen as a potential to

share common areas and transport options in the future, which are both practical and create social contact as well as support social contact in the dense city. The building-communities do not only give good social opportunities, but it is also common sense to share the tasks, the joy, and at the same time limit the consumption of resources (Bygningsarv, 2016).

### From dream to reality

It is important in establishing a co-housing across generations that there are clear visions and good core values. In general, it is important to have guidelines, as it may differ how much community is desired and how environmentally conscious people are (appendix 3). In the preparation of co-housings, it is important to define which functions are needed and desired, and which ones should be either common or private. A closer community can be achieved with more common functions and facilities.

The process from having a dream of a new co-housing to living in one can seem both long and complicated. In ill. 19 eight steps are shown and must be reviewed in the establishment of a co-housing between a group of 'private developers' who put form and action into their common dreams of living together. However, there is no process that is the same, as one can encounter issues in the establishment of a new co-housing (Roskilde Kommune, 2019).



19. Own illustration / Process for self-grown co-housings

## Case studies

The case studies will look at different types of co-housings over time; a classic, a modern, and an urban co-housing. Prior to the visual analysis lies a literature basis, which provides the general understanding of what co-housings are. This study will provide a clear definition of how co-housings can vary with a focus on the private and common functions and activities, architectural design and qualities, and its location. This is followed by how design features create and support social contact and community (see also appendix 1 – the design process, phase 2). By doing so, there have been looked at the architectural and spatial elements and used plan, sections, and pictures have been looked at to produce the sections and facades of the three different case studies.

In common for all of them are that they all have private homes that are connected to common rooms and facilities as well as larger and smaller recreational areas. Moreover, common to them is also that they are located in car-free zones and with parking in the outskirts that accommodate slow movement, support informal meetings, and where children can play freely. In the various studies, the residents have their ideas and desires for a community reflected. Based on this, they have created their personal framework around the functions and activities they believe are important for the existence of the community. In that way, the residents have ownership because of their involvement during the design and construction phase.

### Jystrup Savværk/ The classic co-housing

**Architects:** Vandkunsten

**Year:** 1983

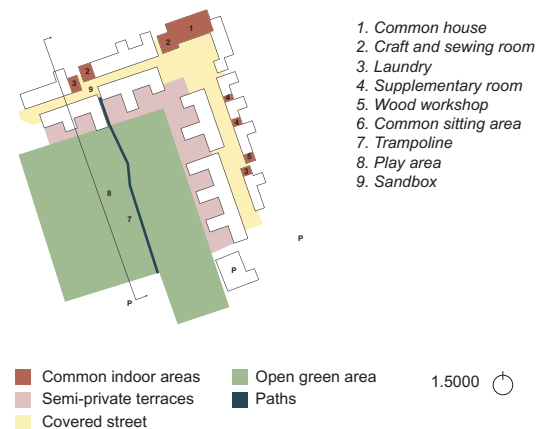
**Location:** Jystrup, Denmark

**Housing:** 21

Jystrup Savværk is designed by Vandkunsten, founded and constructed by the residents themselves. Vandkunsten is well-known for its low-density typologies and its strives to create good social spaces between the buildings. In this co-housing, the social semi-private covered street ties all common and private functions together, so that most informal meetings occur. It is also offering the residents a street with space for play and enjoyment as well as the feeling of being outside while the weather conditions might not allow for it (Teknik- og Miljøforvaltningen, 2019). In the small map in ill. 20, it is seen that the common rooms are spread out on to the street and that the large common house is arranged at a central position (Jystrupsavvaerk.dk, 2021). The front door of the housing and the most public rooms such as kitchens face the inner street, whereas bedrooms and bathrooms are facing away. From the street, it is possible to look into the residents' kitchens, so that one in a way never feels alone (appendix 3). The co-housing also has a large partially unprogrammed garden, where the homes facing this have a smaller front garden which seems sheltered by high vegetation which creates much privacy.

#### Unique features

- Front door and kitchen face out and create an attractive street life
- The residents have both neighbors and opposite neighbors
- The common house is centrally located and is easily accessible
- A covered area that allows stays all year round





## Lange Eng/ The modern co-housing

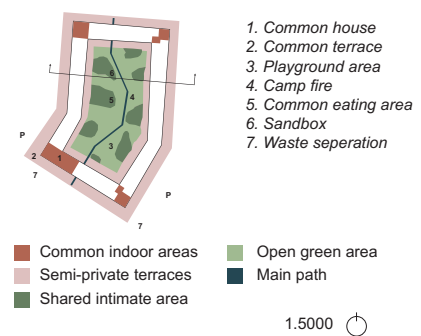
**Architects:** Dorte Mandrup Architects

**Year:** 2008

**Location:** Albertslund, Denmark

**Housing:** 54

Lange Eng is a modern co-housing located in the suburb of Albertslund west of Copenhagen, designed by Dorte Mandrup Architects together with the future residents. At Lange Eng the social aspect is one of the main drives and therefore there are many common spaces and a green open area, and facilities for children. Lange Eng is a connected unit which houses all functions and is composed of housing units. All housings have their own entrance and are facing a large courtyard garden. It allows all homes a view of the green area and equal direct access to the area, with terraces and balconies along the facades that are bringing life from inside into the common space. The facades and terraces are very open which minimizes private life. In the garden, there are also shared intimate pockets for a smaller group of residents. The garden also has access through two passage openings in the block that are connected to the only path through the green garden that is located near activities. In the co-housing there are shared facilities like a 600 m<sup>2</sup> common house in two floors with kitchen, living and dining area, multi-room, workshop spaces, small cinema, play area, and outdoor urban gardens. The communal indoor areas are located in every corner of the rectangle. The housings are in various sizes from; 71 m<sup>2</sup>, 95 m<sup>2</sup>, 115 m<sup>2</sup>, and 128 m<sup>2</sup>. All homes are two levels except the homes of 71 m<sup>2</sup>. Lange Eng has two parking spaces, which are located east and west of the building. There is plenty of space outside the co-housing for all vehicles, including a shared car, which creates an area where children can move safely (Arvinus + Orfeus Publishing, 2018).



### Unique features

- Open front gardens, terraces and balconies
- All housing units are facing, have a view, and direct access to the courtyard garden
- Common house are close to the entrances and parking
- Courtyard garden with smaller spaces for few residents
- Urban gardening where resident can connect over a common interest



21. Own illustration / section - 1.500

## River Spreefeld/ The urban co-housing

**Architects:** BARarchitekten, Carpaneto Architekten, Fatkoehl Architekten

**Year:** 2013

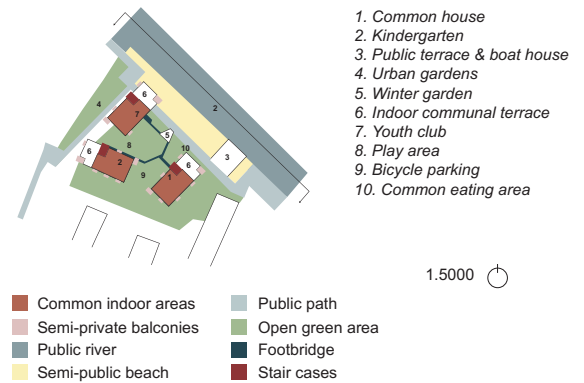
**Location:** Berlin, Germany

**Housing:** 63

River Spreefeld is a co-housing in an urban context. It is three seven-floors single buildings which house all functions and are connected by a wide garden. The co-housing is located along the River Spree in the middle of a district in the centre of Berlin. Besides the apartments, the residents share ownership and communal facilities like a common room with kitchen, laundry, fitness facilities, guestrooms, winter garden, rooftop terraces, and music, and youth room. The ground floor and its green areas are bordering on to the river and offering spaces, a public path, and functions for the public to gather. It includes a boathouse, workshop room, catering kitchen, kindergarten, urban gardening, and a co-working space (ArchDaily, 2019). But the areas along the river are belonging to the residents in the co-housing. The majority of the green open spaces are unprogrammed and consist of large areas that are ready for change and can change function along the way. In the co-housing they have common roof gardens only to the residents and guests (Spreefeld Co-Housing, 2021). The entrances to the housings are through the open and light internal vertical staircases located close to bicycle parking, post boxes, trash cans, and common areas. Here, the social interactions can take place beyond the common areas. The balconies are semi-private with a transparent grid, which ensures interaction across levels.

### Unique features

- Located in an urban area with open public functions
- Due to a very public ground floor, roof-gardens are great to social interaction
- Urban gardening where resident can connect over a common interest
- Open and light common staircases to the apartments ensure informal meetings
- Necessary activities are placed close to the common entrance
- Semi-open private balconies which ensure interaction across levels



## Sub-conclusion

By analysing and comparing the three different co-housing projects, and also looking at many other projects followed by reflecting on the literature about co-housings, it can be seen that there are many common characteristics in architectural design and in its features repeated. A common feature is to minimize the private homes to increase the common areas which is an urban architectural solution that encourages a certain community and social interaction. It can be discussed if the housing sizes in for example Lange Eng is too large, but still, it is observed that they have a great community. In an urban context, there is not enough space for this. Some common features are also reflected in the indoor and outdoor common areas. In all of them, there is a common house with a kitchen, which is the heart of the co-housings. However, it can be discussed whether the common features are clear enough compared to other housing types, but it cannot least be argued that in a co-housing it is not only about architecture, activities, the number of housings and residents, but it is about the concept, the process in creating a community of people with shared values and interests, ownerships, and in general the common-oriented community behind the co-housings which is the strongest bond and make the co-housing different from other types of housing. A very common structure is that all of them are located in car-free zones and with parking in the outskirts. This supports slow movement, which is seen as a big quality and will be taken further to ensure safe places to meet, stay, and play. In addition, in the co-housings, the common functions are centrally located and near the arrival area, so that it becomes natural to drop by. This will also be met.

In the urban River Spreefeld with apartments, the entrances to the staircases are common and placed in relation to performing the everyday chores. Here, the conditions for informal meetings are high. This is also the case, but just in a different way in Lange Eng which is dense and has low buildings, where the residents have their own private entrances from the street path. In this case, the housings e.g. have their own post box and are meeting the neighbours next door. It means that all the social interaction between the rest of the co-housing must happen actively in the courtyard garden. At the same time, trash bins and common rooms with terraces are located near the parking. Both in the urban and modern co-housing the architectural design provides a possibility for informal social meetings between the residents. In Jystrup Savværk it is the opposite of Lange Eng because all social interaction happens in the covered street. The community is turned towards the co-housing's street, which from the outside seems very closed. I instead want to turn some of the community out and bring life to the neighbourhood's streets with inspiration in Lange Eng. In addition, the residents live opposite each other

with practical chores on a safe street. It is something that will be taken further to ensure that the residents both have neighbours and opposite neighbours, because it is seen as a good potential to ensure good playful streets and more social relationships. Most of the green areas in both Jystrup Savværk and River Spreefeld are unprogrammed and adaptable. This will be applied in the project proposal to ensure open spaces to gathering.

In all the projects, the green open spaces are surrounded by housings in different ways with, e.g. front gardens and balconies. In Lange Eng the facades and terraces are very open and thus they appear as a social element for the residents in between. It is very interesting how Lange Eng has worked with small areas outside and inside the yard, to ensure life on both sides. Furthermore, it is a quality that the kitchens are placed next to the common spaces, which can thereby become an extension of the homes. In the same way, bedrooms should be located further away so that the residents can have the opportunity to retire. In Lange Eng, a potential that will be taken further is the small pockets for a smaller group of residents to ensure near relationships. Based on having analysed the case studies, the notion 'soft edges' (kantzoner) can be seen as being a great tool to create a good framework for how the housings and its residents meet and come out into the common areas, as well as it enables stays and informal meetings that especially help to create life outside the homes in a dense urban context. As mentioned, Lange Eng has open 'soft edges' which minimize the private life, whereas in Jystrup Savværk, there are more closed facades and high vegetation that shields and create privacy. There is a quality in both and a balance between open and closed will provide the opportunity to socialize as well as being private. It should be possible to be in one's own housing or its outside without neighbours coming by every time.

In River Spreefeld, it is seen as a quality that the co-housing is sharing facilities like; workshops and co-working spaces with the public as the available areas within the cities are limited, but also to ensure even more community and inspire other people. This will be taken further. Due to the urban context and a very open structure, the common roof gardens and smaller spaces for some residents are seen as important features as the ground floor is shared with the public. All the co-housings consist almost of the same typology that might attract the same type of people. In order to accommodate several different people, the proposed co-housing should accommodate various typologies. In general, the three case studies have given me insight and will help to inform the design proposal.



# Analysis

## The project site

Godsbanearnealerne is a centrally located area, in the heart of Aarhus and in the middle of the city's "cultural axis", which connects a number of cultural areas and functions. The area is about 130,000 m<sup>2</sup> located between Skovgaardsgade and Ringgadebroen and is seen as being the last piece in the puzzle, which should create a cohesive city structure in the area. (Teknik og miljø, 2017). Moreover, it is also characterized by its location between the city and Ådalen, the place where the urban city and the landscape Ådalen meet. Most people know the area as Godsbanearnealerne, but Aarhus Municipality has given it a vision name Aarhus K. Through the centuries, Godsbanearnealerne has been shaped by human activity and is still today undergoing rapid change from an old and raw freight industrial area, a backside with industry and transport, to a new and open district with housing, shops, commercial and insitutions, and where culture and creativity sprout. In the last 10 years, the organization, Institut for (X) has been the generator for urban life, cultural events, and places for community with its central platform for "creativity within culture, business and education" (Institut for (X), n.d.). In general, Institut for (X) is experimenting and gives Godsbanearnealerne an experimental character. The

area is constantly changing where the area of tomorrow will look different than today. A planned green wedge will in the future extends from The Cultural Production Center Godsbanen along the active tracks that DSB still uses to Ringgadebroen, where the edge is connected to Ådalen's path system.

The northern part of Godsbanearnealerne is largely disposed and ongoing, while Institut for (X) is still located in the area for many years (Vingolf, 17.02.21). The area constitutes the central point of Godsbanearnealerne which are connected in the larger cultural axis. In addition, with the area's future educational institutions such as Aarhus Arkitektsskole and Aarhus Produktionsskole, the area will be a part of a combined educational area close to VIA in Ceresbyen which is an area with education and youth apartments adding life, and also close to Aarhus Musiksskole near AROS. This together with housing and business, will perpetuate the diversity that characterizes the area of today. But now the time has come for the planning of the southern part which has not yet started, so that it can become a connected part of the rest of Godsbanearnealerne and Trekantskvarteret in the north.

### Site location

- The site
- Godsbanearnealerne
- Culture axis
- Nature



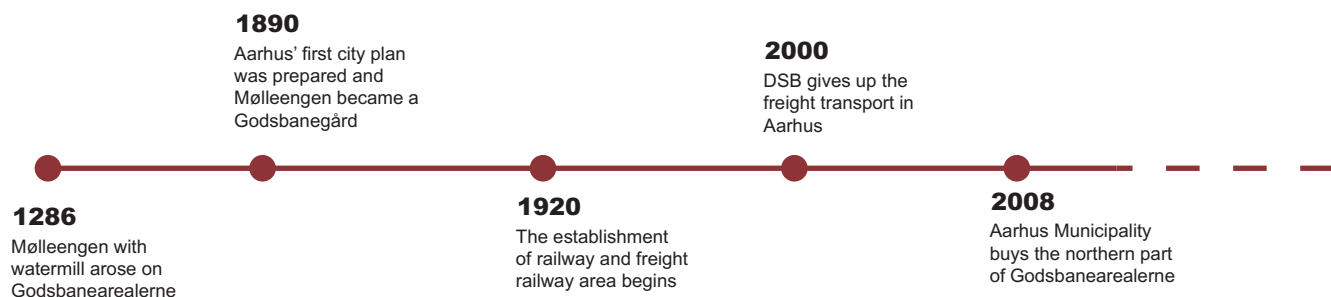
23. Own illustration / the location of the site in Aarhus



## The history

Godsbanearnealerne was once located on the outskirts of Aarhus as an important part of the city's development. Now the area consists of a central part of the history of Aarhus city. Mølleengen with watermills was originated in 1286 on the site near Aarhus River (Aarhus Å) and today forms Godsbanearnealerne. The area was flooded every autumn as water flow in Aarhus Å was prevented. This was done to make use of the water power. In relation to the industrialization in the mid-1800s, the railways operations were established. Since the 1920s, Godsbanearnealerne and its large flat area at the bottom of Ådalen have been used for railway and freight railway area (Jernbane- og

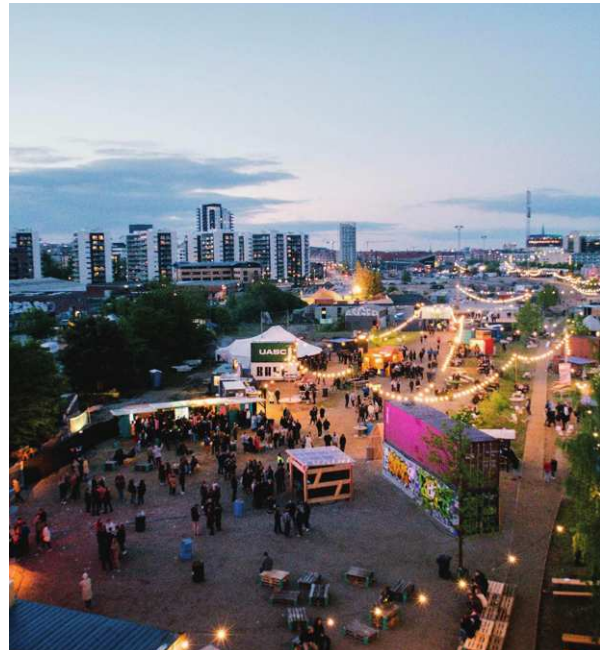
godsbanearneal). In 2006, DSB left the area and the majority of the areas has been vacant. In 2008, Aarhus Municipality bought the area with the intention of creating a new neighbourhood in the dense city in close connection to the city center. The area has been debated in Aarhus' development for centuries, and after DSB left the area, there are still cultural and industrial features in old buildings, train rails, lamp posts, and a diversity of species. However, the area has become more covered by hard surfaces where wild species grow in between the cracks (Teknik og miljø, 2017).







26. Picture / Godsbanearealet seen from Ringgadebroen in 1938



27. Picture / Temporary event under Ringgadebroen by Aarhus Volume

## 2012

The cultural production center 'Godsbanken' opens and Aarhus Municipality takes over the southern part of Godsbanearealet from DSB

## 2021

The northern part of Godsbanearealerne is on-going and many of the buildings at the southern part will be completed by 2022. Institut for (X) has planned urban life projects along the green wedge on the southern part to generate life in the minimum of 2025

## 2009

Institut for (X) and their temporary activities begin

## 2017

The new urban area Godsbanearealerne or Aarhus K is beginning to be planned, where development plans and quality programs are prepared

## Municipality plans

In recent years as well as the years to come, Godsbanearealerne have great importance for both Aarhus Municipality, residents and citizens of the area, its surroundings, and Aarhus. "The vision for Godsbanearealerne is to create a new vibrant district that wants to experiment and develop" (Aarhus Kommune, 2019b). An overall aim is that the district must be diverse and contribute to the city of Aarhus with more new culture, housing, education, and business. Moreover, with a diversity of functions, Godsbanearealerne should be its own new district, but still merge into the existing city in relation to its cultural axis and educational areas and not least be an integrated part of the new large Brokvarter which extends from Godsbanen over Ringgaden, along Søren Frichs Vej to Åby Skole. The aim is that it should be a district in the city with proximity to nature (Aarhus Kommune, 2017). Already today the area is a creative node in Aarhus, which is planned to be strengthened in the urban environment.

The vision for the new district is the development of Aarhus K, where K stands for the Danish words; kultur, kreativitet, kulturhistorie, and 'knudepunkt for byliv og subkultur';

### Culture

Variation of cultural purposes that are constantly changing

### Creativity

Opportunity to unfold one's creativity and create something new

### Cultural history

Preserve the cultural historical values from the past

### Nodes

More nodes for urban life, experiences, and curiosity

(Teknik og Miljø, 2020)

### The green wedge

A recreational green wedge extended from the landscape Ådalen has the purpose to connect Aarhus K with a number of temporary and future cultural nodes with urban life activities located along from west to east (see page 60 about Institut for (X)). The old train rails are transformed to a train path that runs from Godsbanen and out underneath Ringgadebroen where it connects to Brabrandstien (Aarhus Kommune, 2019). The path invites to be used by future residents, users of the area, and also functions as a walk through the area.

There are two phases in the development of the area which will be explained below:

### The northern part

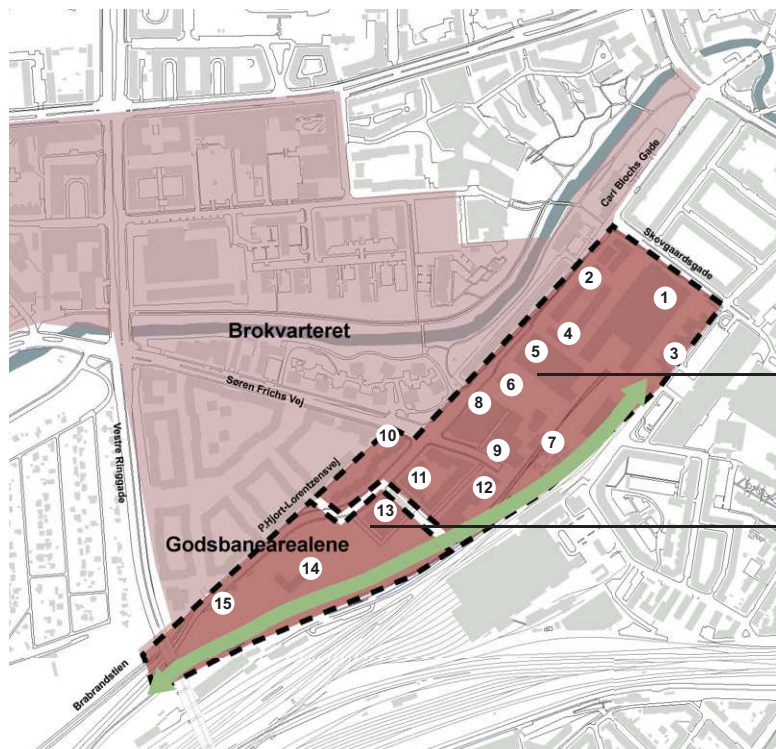
The northern part is the first phase and is already planned and being transformed now. This part is characterized by a cultural, creative, and vibrant city life which both Institut for (X) and The Cultural Production Center 'Godsbanen' are responsible for. This makes the area flow together and become part of the surrounding cultural axis. "In the coming years, the northern part will again change character with the establishment of Arkitektskolen, Produktionsskolen, Ringgårdens, ABB's and Kollegiekontorets buildings, residential buildings along Sonnesgade and in the former Æggepakkeriet as well as new commercial buildings" (Aarhus Kommune, 2017). While existing activities are taking place, new ones will emerge.

### The southern part

Just as the northern part is connected to the city's cultural axis, the southern part is the second phase and seen in the context of the northern part of Godsbanearealerne and Trekantskvarteret. In general, this area should be an integrated part of the large Brokvarter and is expected to be used for housing and business with opportunities for culture and temporary activities (Aarhus Kommune, 2017).

## ”Aarhus K skal summe af liv”

(Aarhus Kommune, 2017)



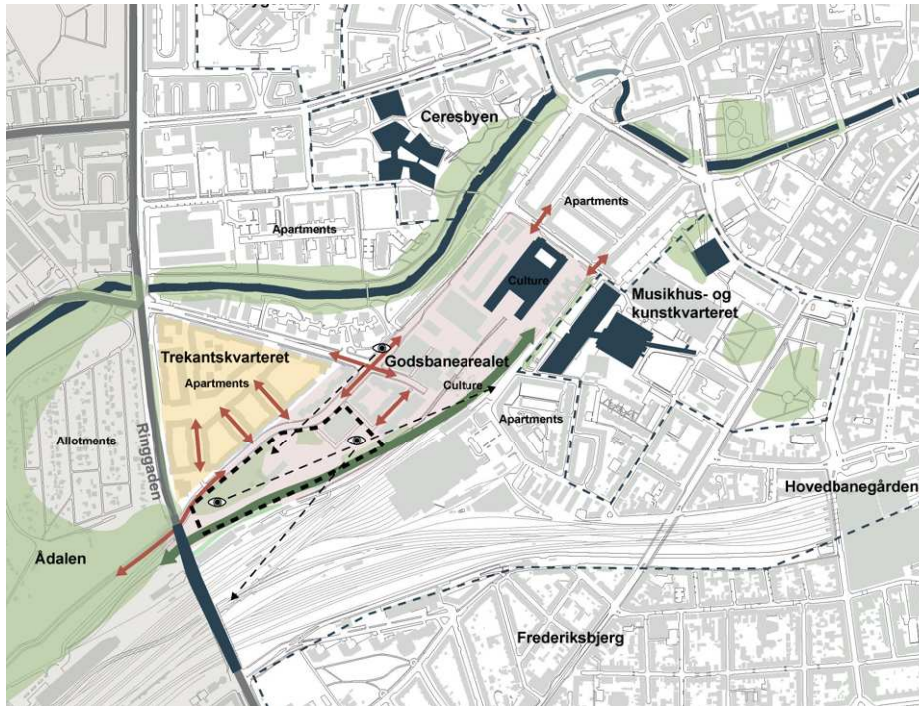
Phase 1  
The northern part

Phase 2  
The southern part

28. Own illustration / two phases, the wedge, and future functions

- |                                         |                                                 |
|-----------------------------------------|-------------------------------------------------|
| 1. Kulturproduktionscenter Godsbanen    | 8. Lidl head office and concept store           |
| 2. Æggepakkeriet – housing and business | 9. The northern parking house                   |
| 3. ZigZag – housing and business        | 10. Ringgården - housing                        |
| 4. Housing and business                 | 11. Godsbaneakademiet                           |
| 5. Aarhus Arkitektskole                 | 12. Aarhus Produktionsskole                     |
| 6. Business                             | 13. Planned parking house                       |
| 7. Institut for (X)                     | 14. Børnely / Kindergarten                      |
|                                         | 15. Sidesporet / Association for the vulnerable |

## Tracing



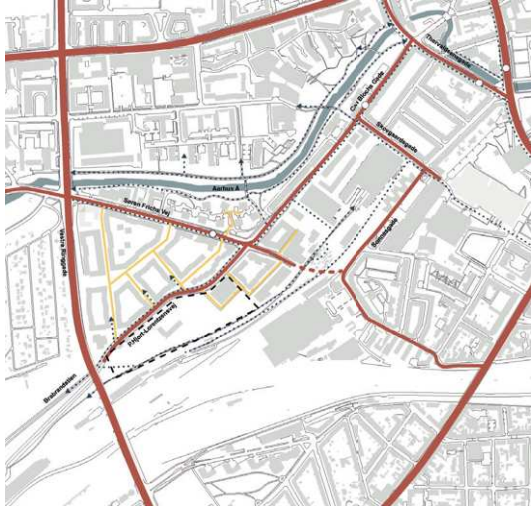
29. Own illustration / tracing

### Relations to the urban context

- |                                                                                                                                                                       |                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #e67e22; border: 1px solid black; margin-right: 5px;"></span> Godsbanearialet        | <span style="display: inline-block; width: 15px; height: 15px; background-color: #e67e22; border: 1px solid black; margin-right: 5px;"></span> Urban connections       |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #f1c40f; border: 1px solid black; margin-right: 5px;"></span> Trekantskvarteret      | <span style="display: inline-block; width: 15px; height: 15px; background-color: #27ae60; border: 1px solid black; margin-right: 5px;"></span> Recreational connection |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #27ae60; border: 1px solid black; margin-right: 5px;"></span> Recreational landscape | <span style="display: inline-block; width: 15px; height: 15px; border-top: 1px dashed black; margin-right: 5px;"></span> Open views                                    |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #2c3e50; border: 1px solid black; margin-right: 5px;"></span> Landmarks              |                                                                                                                                                                        |

The site is located in the southern part of Godsbanearialet and on the urban part of Aarhus. Moreover, the area Godsbanearialet together with Trekantskvarteret is the last piece in creating a connected city structure. Therefore, it is seen as important that the site relates to its existing and future planned structures and connections. Ringgaden and the site's central landmark Ringgadebroen emphasizes the division between the urban city and the landscape Adalen. But also Adalen's green character in a meadow landscape and urban landscape which is connected with the green wedge. The location by the landscape Adalen and in connection with the public recreational path Brabrandstien for soft commuters can also offer exercise. This can be advantageously be extended into the site to create good urban meeting places for the residents of the new neighbourhood and the citizens of Aarhus. Most landmarks are located in the north-east of the site and contain different types of activities, studies, and cultural opportunities which help people navigate in the city. Therefore, the wedge must be kept open so that there is a view to the significant landmarks.



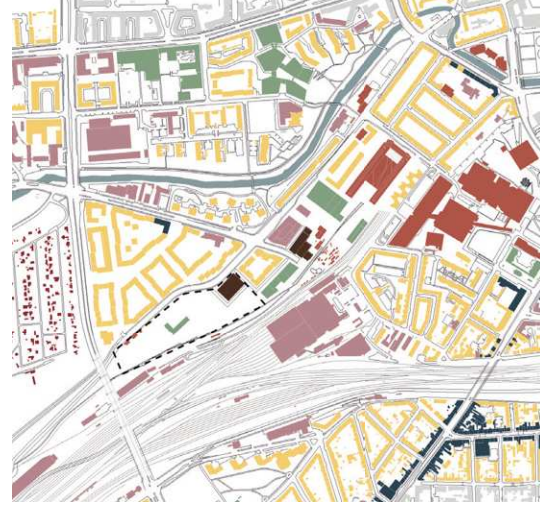


### Accessibility

30. Own illustration / accessibility

- Traffic roads
- Local streets
- - - Long-term traffic road
- · · · · Main paths
- Busstops

There are mainly two types of streets; traffic roads and local streets. The largest traffic roads surrounding the site are Søren Frichs Vej and Veste Ringgade, where the Ringgadebroen spans over the southern part of the site towards Ådalen. A main path originates from Brabrandstien as a recreational connection to and between the site, and further on to the city centre. In the surrounding context, local and city streets are connected to the quiet traffic roads P.Hjort-Lorentzensvej. These streets make space for urban life by limiting cars as much as possible. Moreover, the main path to soft traffic and public transport options are surrounding the site and connecting it well. The train path along the green wedge connects the area and attracts the context's citizens into the area.



### Functions

31. Own illustration / functions

- Residential
- Allotments
- Culture
- Commercial
- Parking houses
- Institutions
- Mix of residential and commercial

The area and its context have a variety of functions, from residential, cultural, commercial, to services, and institutions. It creates a multifunctional context and provides the users with the possibility to explore and be a part of different activities in the local community. The public functions are located in the north-east and are creating a lively area during the days and week-ends. Today, the chosen site consists of a kindergarten, culture in Bygning K, and an association for the vulnerable. In the future, a planned parking house will be located in the north-eastern corner and meet the future parking needs.

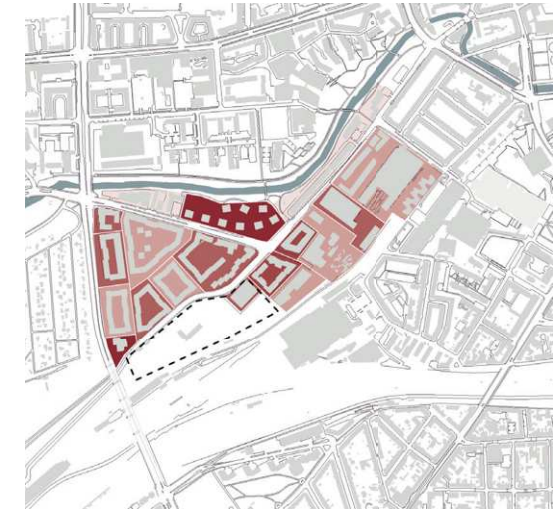


32. Own illustration / building heights

### Buildings heights

- 1-2 floors
- 3-4 floors
- 5-6 floors
- + 10 floors

The building heights are varying. Most buildings in the north are 5-6 floors and towards the green wedge and west, the buildings are 1-2 floors which creates good sun conditions. Only a few buildings are higher than + 10 floors. The context consists of several buildings worthy of preservation with industrial heritage and tells a story of the past.



33. Own illustration / building percentage

### Buildings percentage

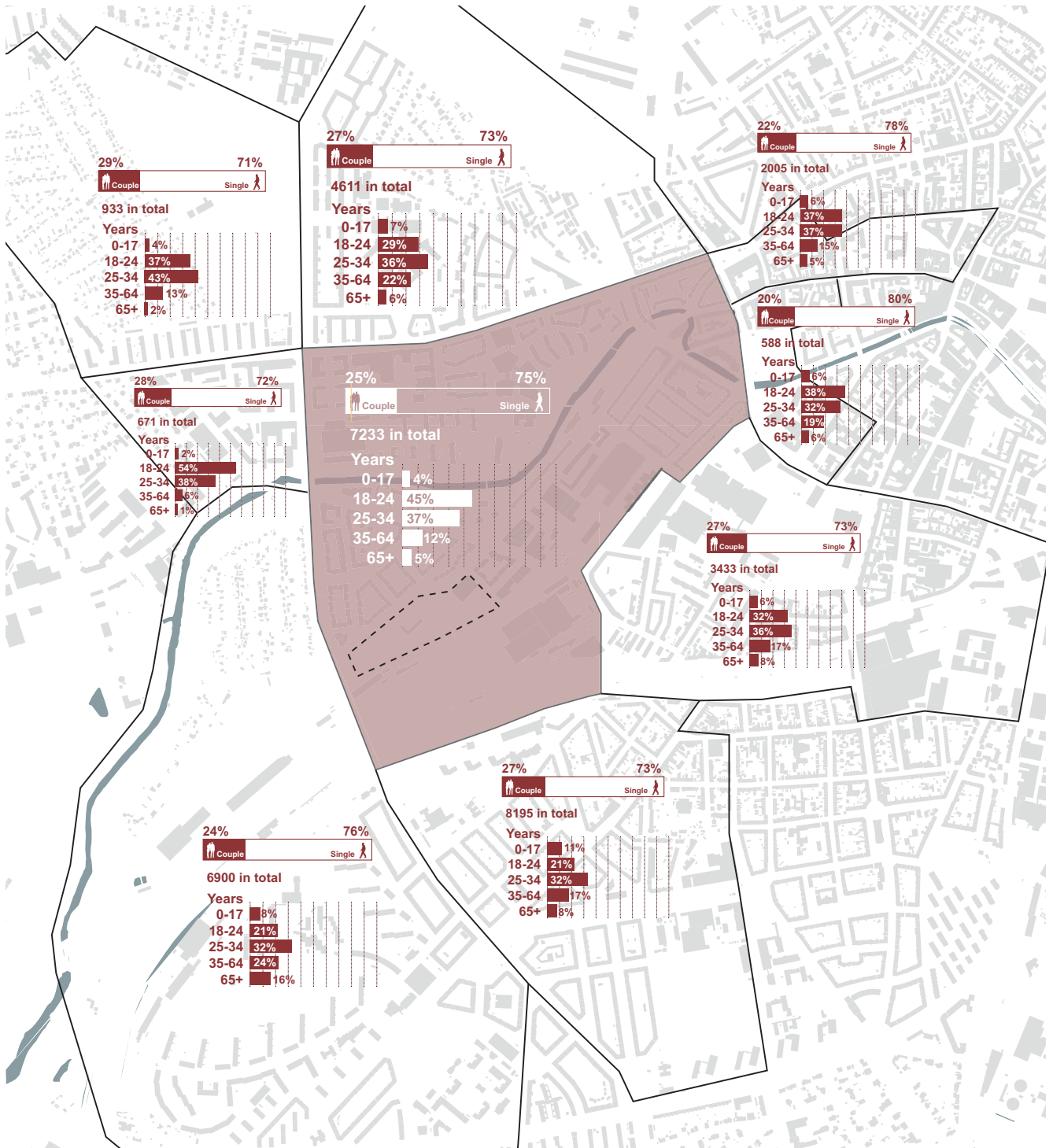
- 51-100%
- 201-300%
- > 400%
- 101-200%
- 301-400%

The building percentage is a measure of how much of a plot has been built. This gives an understanding of the density of the buildings in the context. To get an overall number of the percentage, the average is calculated to be approx. 250 percent which indicates a relatively dense surrounding area.

## Demography

The site is located between different areas and consists of many different apartment typologies, thus they consist of different types of residents. However, to the west there are allotment gardens. In the area and its surroundings, there are mostly ages between 18-34 years, which make up 71% of the people. This is typically students, so it is not very diverse. Aarhus' vision for Godsbanearealerne is that it must be an area for diversity (Aarhus Kommune, 2017). It means that the design proposal must contain of a diversity of activities, housing types, and forms that attract other

age groups, as e.g. families. In ill. 34 it is also seen that in the area on average 75% live alone. These people do not necessarily engage in daily social relationships. Based on the literature studies, I found that living alone can be isolating and become an expensive cost for the individual and society. This basis will be taken further in the development of the design proposal. To integrate community-based housing forms can accommodate an area of social interaction that especially benefits the singles in the area.



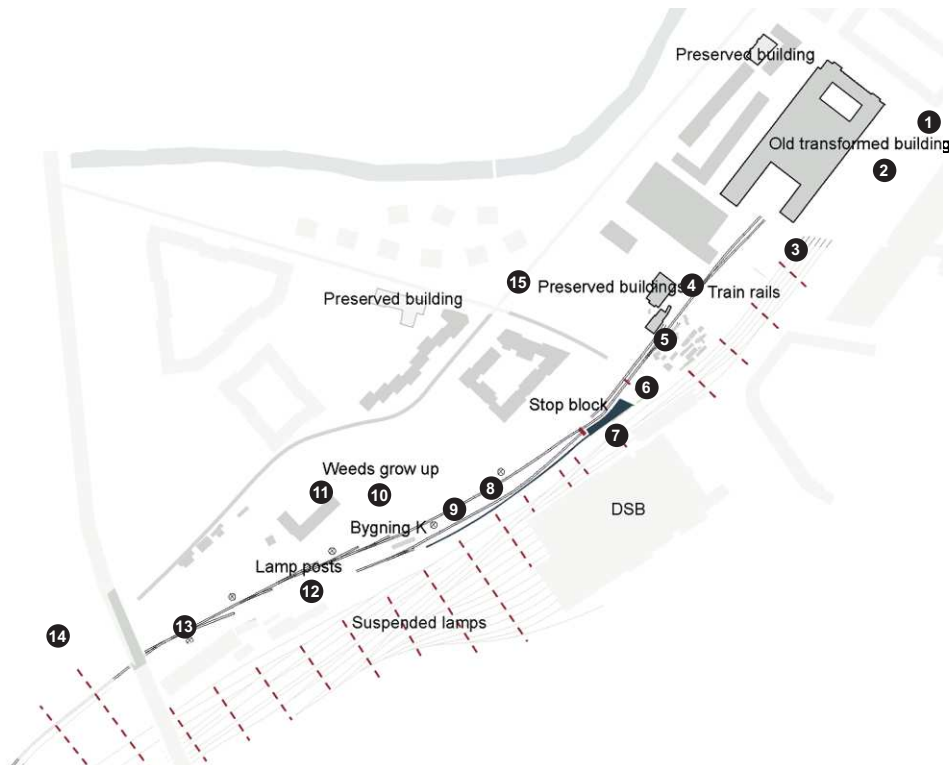
34. Own illustration / the demography map



## A walk at Godsbanearealerne

Currently, at Godsbanearealerne there is a lot of empty area that is covered by hard surfaces. The southern part is almost unused, except that some of the area serves as free parking and contains a temporary kindergarten in light construction. Buildings that are marked in grey on ill. 35 are either old or under construction. Some of these buildings can also be seen in the collage on the right page. The old buildings that have been preserved or transformed have an industrial character. Besides that, Institut for (X) located in the northern part is a creative environment made of containers and self-built structures. In the area

of Institut for (X) are located two old buildings which are worth preserving in red bricks and red painted wood. In the green wedge, the old train tracks emerge, dividing the area, and giving direction. Based on the registration, it can be seen that two different landscapes meet, the green Ådalen meets the hard urban surface of Godsbanearealerne with self-grown nature. There are different types of plants such as trees and bushes with berries for the birds. Moreover, there are old lampposts, and materials are red bricks, steel, corten steel, concrete, wood, black roofing felt, cobblestones, raw and red painted wood.



35. Own illustration / a walk at Godsbanearealerne

### Materials and vegetation



36. Own pictures / materials and vegetation



Godsbanen



1. Godsbanen



2. The old freight hall

The new Aarhus  
School of Architecture

3. New and old buildings



4. Industrial buildings



5. Insitut for (X)



6. Skating area

Institut for (X)

Site



7. Gadekæret



8. Dog run with fence



9. Bygning K on the site



10. Covered surface



11. Kindergarten Børnely



12. Gravel train path

Train rail path

Old bridge

13. Ringgadebroen and  
tempory event elements14. Recreational path  
from Brabrand15. View from Carl  
Blochs Gade

Site

## Insitut for (X)

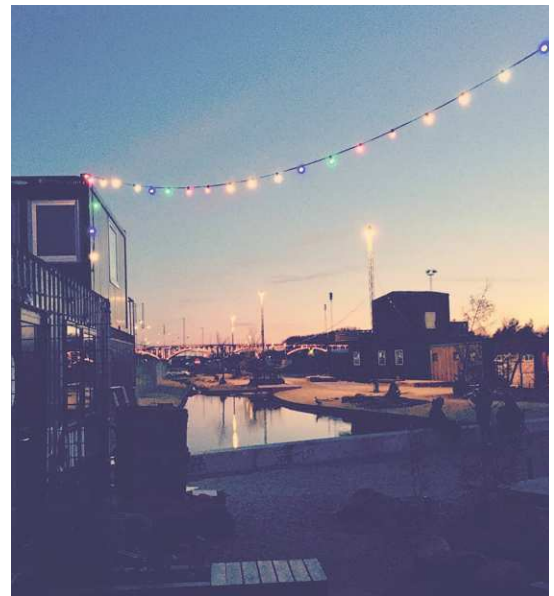
As previously mentioned, the organization Institut for (X) has existed for 10 years and is planned to stay for 10 years more, but is expected to become permanent, in the same location and environment of containers and self-built structures. Institut for (X) contains an entrepreneur collective and community of creativity, business, and education. But also cultural projects and a well-used sports association with 500 members (Vingolf, 17.02.21). Institut for (X) is the local urban life generator with cultural events and places for community (Institut for (X), n.d.). Before Covid19, Institut for (X) held between 4-7 different sized events per week (Vingolf, 17.02.21). The organization has

a very experimenting approach which makes the area constantly change from day to day. In 2021, Institut for (X) is creating three temporary inclusive urban life projects 'bylivsprojekter' for a minimum of 5 years for users and residents in the area; Gadekæret, Bygning K, and Under broen along the green wedge is to generate life, social interaction, and to experiment and test ideas (see ill. 38). The three urban spaces are going to consist of flexible and temporary activities. Here, citizens, business, and citizens' associations can perform activities and test what works and what there should be more permanent, perhaps in the future southern neighbourhood (Vingolf, 17.02.21).

*The three temporary inclusive urban life projects 'bylivsprojekter' for a minimum of 5 years*



38. Own illustration / the three urban life projects 'bylivsprojekter'



39. Picture / Gadekæret and the site in the background



40. Picture / temporary reuse event

## Summary

The site is the last puzzle in the city structure to ensure a connected city. Moreover, the site has a very good location in between landscape and urban structure in Aarhus with a lot of potential. Godsbanearealerne has many years ago been located on the outskirts of the city as an area for workers but after Aarhus Municipality bought the area it turned into an important part of the city's development, its future residents and citizens of the area. Aarhus Municipality has named the vision Aarhus K, and it is going to be its own and new vibrant district that merges into the existing city and future Brokvarter. It should also have proximity to nature. The area is already a creative node, which should be strengthened in the urban environment. The green wedge and train path from Ådalen are seen as a big potential to take further to connect Aarhus K and bring in urban life activities. In 2009, Institut for (X) started and with its events and community focus, it is considered as a unique existing resident of Godsbanearealerne and could be used to generate urban life during developing, constructing, and in the future neighbourhood together with the local residents. In addition, as Godsbanearealerne has an experimental character and is always changing provide the possibility to experimenting with a new way of living in the city in form of co-living. The northern part is already ongoing with diversity in functions and now it is time to develop the southern part as a liveable neighbourhood in connection to the surroundings. Furthermore, the industrial character on the site gives a reminder of the past with railways and the freight rail industry. A lot of the area contains hard surfaces, but nature is trying to break through and if it could, make it all green. The project sees a great potential in the location and the area's recreational qualities, proximity to nature, and the vibrant near city centre. Together, these elements help create a unique location and an opportunity to achieve an active life, where one can cultivate hobbies while being close to the city life.

The analysis creates a foundation for the design so that the southern part emerges and is a part of the connected city structure. To ensure that, it is important the area relates to its streets, paths, and scale of the surrounding context. The local streets in the context will be included in the preparation of the southern part to ensure urban life and social interaction between the housings. The analysis is also showing the buildings in the north are highest. Thus, the heights should be adapted and lowest towards

the green wedge and Ådalen and increase towards the northern part and Trekantskvarteret. This will offer good sun conditions in urban spaces as well as lighting conditions and optimized energy savings in the homes.

Ringgadebroen is a central landmark in between the landscape Ådalen and the urban city. The mapping is highlighting good access to nature through the public recreational path Brabrand-stien in the south-west and culture in the north-east. The area consists of two different landscapes; the meadow at Ådalen and the urban in relation to the green wedge where a connection between them must be ensured. It is seen as a potential to both extend and continue the path and green character into the city to create more value and meeting spaces. The proximity to Ådalen can advantageously be incorporated in the urban spaces so that they are designed green. In addition, there is great quality in the green wedge as a link in creating a connected Godsbaneareal. The wedge will be the connected urban space with activities and facilities to different sized communities between local citizens. The landmarks are used for navigating, and therefore, it is desirable that the wedge should be open to ensure views. Moreover, the tracing of the surrounding area showed a large variety of functions with diversity of people during the day. Furthermore, in the surrounding context 71% of the people are between 18-34 years old and 75% live alone. This will be considered in the further design to offer public community possibilities.

The analysis revealed Institut for (X) as a great existing resident at Godsbanearealerne to generate life beyond the co-housing. Institut for (X) should be involved in adaptation of the area with some of their functions, containers and self-built character, and contribute to life and play out in the neighbourhood. The large sports association should be relocated in the new southern part to ensure even more activity. In addition, the self-built character is also seen as a potential to create a neighbourhood with its own identity and to give future residents the opportunities to personalize their homes inside and outside. Institut for (X)'s community focus and their development of the urban project Bygning K as being the node in the green wedge will be taken further and strengthened to attract people and ensure urban life activities.

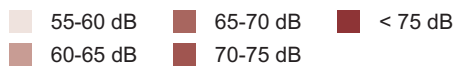


## Microclimate

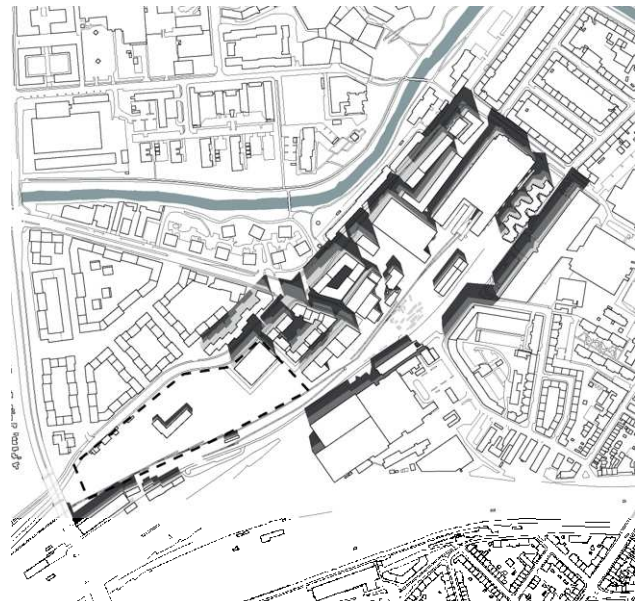
The microclimate study of the site is important to understand the climatic conditions in relation to noise, sun, and wind. It provides an understanding of how people feel in the area and in that way what should be considered in the design.



41. Own illustration / Noise map



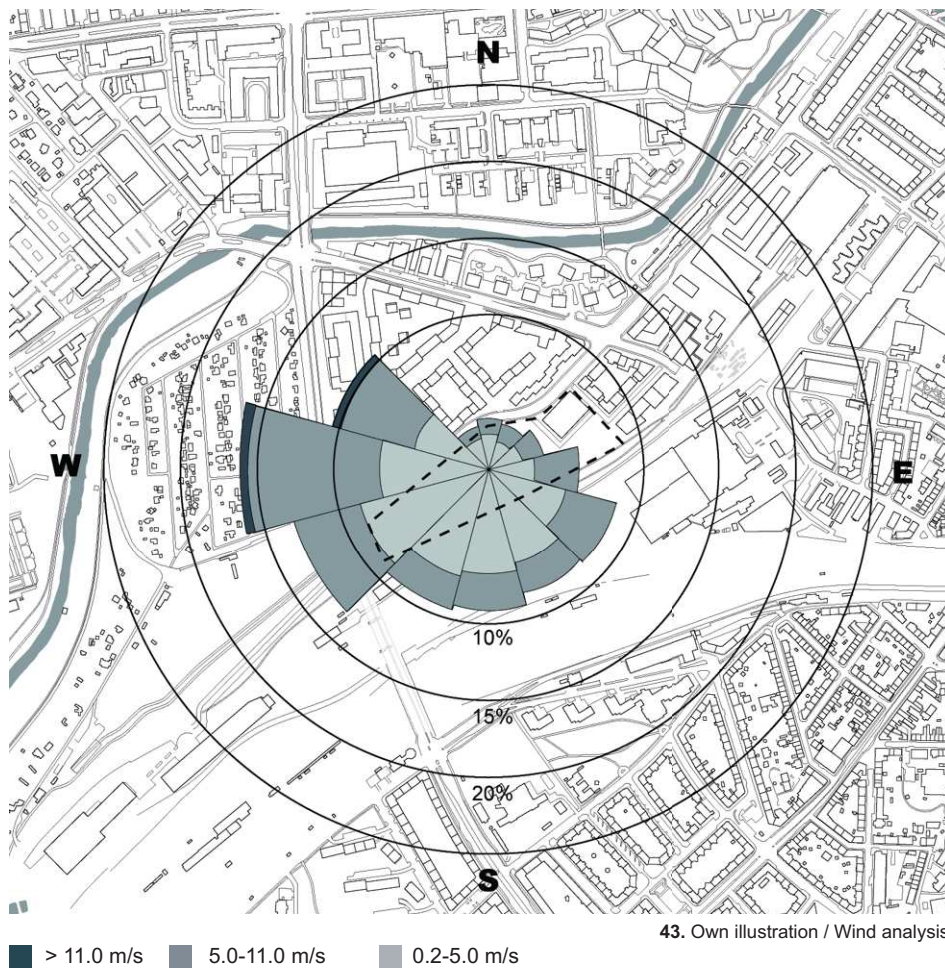
The traffic in the area is primary roads going around the site. But in relation to the site's location by the Ringgadebroen on the south-western part of Godsbanearnealerne, it is important to reduce the worst amount of noise. In most of the area, there is a noise level of 55-60 dB (Miljøstyrelsen, 2017). This problem can be reduced by the placement of buildings, nature, and green roofs which can be used as an advantage for noise-reducing elements.



42. Own illustration / Shadows - at 12 from December, March and June



The sun analysis presents the shadow intensity on the site and is based on summer, winter, and equinox at 12.00 PM. The analysis shows that the site will be fully exposed to the sun during the day (see appendix 1 for more process shadow analysis).



To understand the wind direction and forces in the location of the site, an analysis of wind based on a wind rose from Tirstrup outside Aarhus has been used (DMI.dk, n.d.). The analysis tells that the most dominating wind comes from the west and this will support the design to avoid too much wind in the urban spaces for gathering.





44. Own illustration / terrain and blue spots

## The local climate challenges

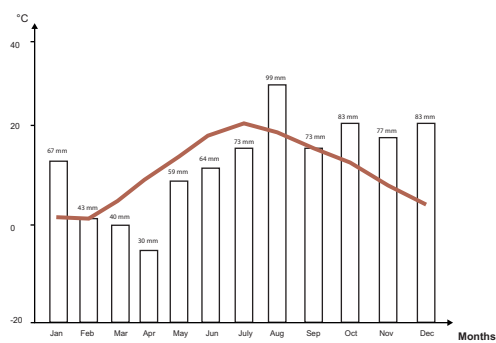
### The topography

The site is at risk of flooding, due to the low-lying location in the terrain and in relation to the context. Godsbanearnealene lies in Ådalen, which in a way divides the city into two parts and creates a local depression in the ice age landscape (Teknik og miljø, 2017). This makes the site exposed to climate change and its extreme and frequent rainfall perception. It means that the rainfall from the surrounding areas runs down and collects at Godsbanearnealene. The ill. 44 showing the terrain and blue spots (depressions without natural drains) clarify where the water gathers and where it is most critical (Scalگو, n.d.). The illustration shows that it is the northern part of Godsbanearnealene that is the most affected by deep depressions. But in general, it can cause major floods that will cost people and society. In addition, through an analysis in Scalگو Live, it can be seen that the groundwater is high, which is something that must be taken into account when considering rainwater solutions in design (Scalگو, n.d.).

### Geological conditions

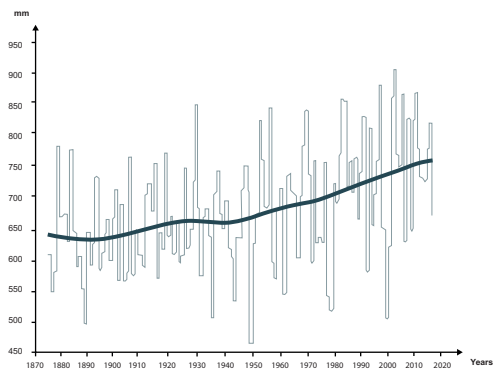
Stormwater flooding is also affected by geological conditions and surfaces. This means materials and what the ground consists of. An analysis shows that the soil contains marine sand and clay which are small particles, and most of the area is covered by impermeable hard surfaces which means that the impermeable is high and it takes time to infiltrate the soil (Geus, n.d., appendix 5). Based on this, it can be concluded that it is not beneficial to infiltrate a lot of rainwater on the site.

The analysis of the topography and geological conditions means that an adaptive rainwater solution is needed. This will be used to meet the existing conditions and its possibilities. A solution can take place in an integrated system of channels, delay basins, and rain beds with plants that can grow in water. These can all connect the water from e.g. roofs and other surfaces, etc. and create recreational added values in the urban spaces.



45. Own illustration / weather standards

The analysis illustrates the weather standards with rain and temperatures. In the summer period, the most dominating and frequent rainfall appears. In the summer, the average temperature also increases (DMI, 2020). It means that this period is at higher risk of flooding, at the same time as the application of the urban areas also are increasing.



46. Own illustration / yearly rain

The diagram shows that there is an increase in average amounts of rain intensity and duration in Denmark from 1970 to 2020 (DMI, 2020). Therefore, as mentioned the rainwater needs to be handled to ensure it is not flooding the area.

## Sub-conclusion

As previously mentioned in the report in the chapter; State of the Art, climate changes are a big challenge that requires attention because it is challenges we cannot escape. Therefore, urban architects and planners must consider and meet the challenges in terms of design to ensure adaptable and secure future cities. Due to the site location, it is essential to work with an integrated system to manage and control the rainwater in the low-lying area. As shown in ill. 45 and 46 there is an increase in rain intensity and durations, especially in the summer period where more people are outside. In this project, the rainwater should be collected and applied as a recreative more-value resource and be a recreational local advantage with nature to provide health and meeting spaces for residents and local citizens. In addition, the green wedge is seen as a useful element in the rainwater management of the area.

## Potential user group

Based on the literature studies, an expert interview, and a small study and a written interview with the residents of 'Bofællesskabet i Gug' located in Aalborg, I have got an insight into some needs and wishes of potential residents, as well as what connects the co-housing in Gug. To ensure diversity throughout the new neighbourhood, there should be different types of housing corresponding to the three types of personas, which will be attempted met in the design.



### Singles and couples

This group does not have any special needs for placement. But good outdoor areas such as a balcony or a small front garden that is a little private as well as spaces for community will be an advantage for them to get out and socialize to feel less isolated (Sim, 2020). For example, for some, it will be useful with training facilities to stay healthy and fit. Some also use the workshop or flexible spaces where there is opportunity to meet others (appendix 4).



### Family

For a family with children, it is practical and convenient to live on the ground floor. In addition, a small garden can act as a zone between the private and public street and be a valuable relaxing area and space where one can store toys, prams, bicycles, and where small children can play and neighbours talk (Sim, 2020). Thus, the families are seen as in need of a semi-private outdoor space where the family can have time together. Some families may need flexible solutions in relation to the family is changing. It could be renting a room for their home for the teenager or grandmother and maybe having flexible walls. Moreover, families would also like to have a play area and some want an indoor multiroom (appendix 3 and 4). A family also needs to live close to a day care and school facilities and have the possibility to use a car to get to visit family and friends.



### Elderly

Older people have a special need for easy accessibility (appendix 3). For an elderly person, it is practical to have access to the ground floor or through an elevator to the other floors. It is just important that the elderly can get in and out which makes it possible for them to have contact with the rest of the neighbourhood, but also ensures that they can stay outdoors and get fresh air, look at the surroundings and talk to passers-by (Sim, 2020).



## Small study of Bofællesskabet i Gug

The co-housing is located at the top of Gug in Aalborg and consists of 22 owned housings in three sizes and with 50 residents of all ages, especially many children. Common dinners and annual events are connecting the co-housing. They have New Year's party, Christmas days, and monthly work weekends. They also have common maintenance of the outdoor areas and buildings which strengthen the community (Bofællesskabet i Gug, n.d.). The housings are oriented in a U-shape that opens up to the south with outdoor areas and a view to the landscape. In the heart of the co-housing is a common house in three floors placed in relation to the common garden. In general, there is a good connection between the homes and the common outdoor area.

**"Det der holder sammen på vores bofællesskab er fællesspisning som for det meste er flere gange om ugen, arbejdsweekender, fælleshus, fælles vaskeri hvor vi mødes og snakker over vasketøjet, værkstedet, børnekælder hvor børnene mødes og leger"**

A women in her 40s lives with her boyfriend

**"Det der holder sammen på vores bofællesskab er det at vi bor i en hestesko, og vi på den måde bor lidt tæt og ofte ses"**

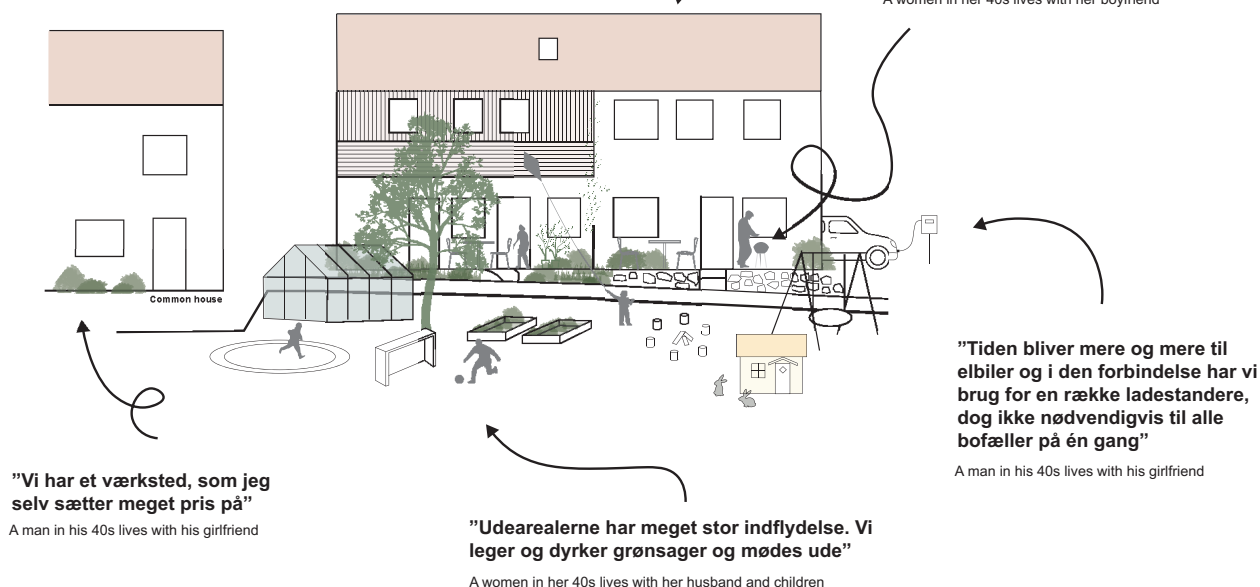
A women in her 40s lives with her boyfriend

**"Der er mange forskellige interessegrupper i bofællesskabet så som keramikarbejde, øl, og vinklub, bogklub, strikkeklub, bi-team, værksted, pølseklub"**

A man in his 40s lives with his girlfriend

**"Vi er så heldige at have en større forhave hvor vi kan sætte en hæk op så vi har en mere privat terrasse"**

A women in her 40s lives with her boyfriend



See the written interview in appendix 4



## Aarhus needs communities

A new southern neighbourhood at Godsbanearealerne in Aarhus consisting of different typologies, ownerships, and housing forms such as a co-housing must be seen as a principle that can help to realize Aarhus Municipality's vision that "Aarhus must be a good city for everyone, where there is space for differences and diversity" and their vision about new areas that focus on more spaces for community (Aarhus Kommune, 2019a). Moreover, the project must also meet the vision for Godsbanearealerne, to transform the old industrial area into its own urban and lively neighbourhood for the diversity that supports the name Aarhus K about culture, creativity, cultural history, and nodes. In addition, it is desired to develop an urban environment where there is space for experimentation and new solutions that reflect the experimental character of Godsbanearealerne today. In continuation of the municipality's visions, the project must also support the global work to promote the FN's global goals for sustainable development, especially goal number 11, which focuses on creating inclusive and sustainable local communities (Verdensmaalene, n.d.).

The project is intended as a neighbourhood created on the basis of building communities (byggefællesskaber), which is a less known phenomenon in Denmark today. Here, a diversity of engaged people, associations, and businesses are invited inside to develop their own housing and place in collaboration with the municipality and other actors. This will ensure a good community, neighbourliness, and liveability from the beginning. Based on Aarhus Municipality's vision about Godsbanearealerne it must be its own district, should be reflected by giving the future residents the opportunity to create their own personal homes and

neighbourhood together with their neighbours. Thus, the residents get their own touch from the idea generation, but also afterwards with the character of self-built structures. This creates a district with its very own identity and even more community.

A new urban co-housing must help to set a new innovative agenda and reveal new ways of living in the urban city. The co-housing must unfold, inspire, and function as a social generator together with Institut for (X) with functions that open up to the local community and invite citizens inside to events such as open communal dining, workshops, and reuse markets, etc. Thus, the co-housing will not only attract residents but also create a framework for even more community inside as well as outside the buildings. This will highly be a benefit for the local life in the southern part of Godsbanearealerne. In relation to the surrounding context where several people live alone, opportunities must be offered for them to 'come down' and become part of a community. It is not the intention to move them but to offer a sense of community and social interaction with different people and common interests. Based on having studied and analysed the site, I believe that this place has the right potential as well as municipality and site visions that can be realized in the creation of more urban communities. Not least, Aarhus as a city needs even more community-based functions and activities as loneliness and isolation are general problems and something need to change! The sites location in between nature and the urban city, but also the climate challenges with rainwater is seen as a big quality for creating spaces for gathering and community.

**"I support 'byggefællesskaber' and believe that it can help to fulfill the visions for Aarhus K".**

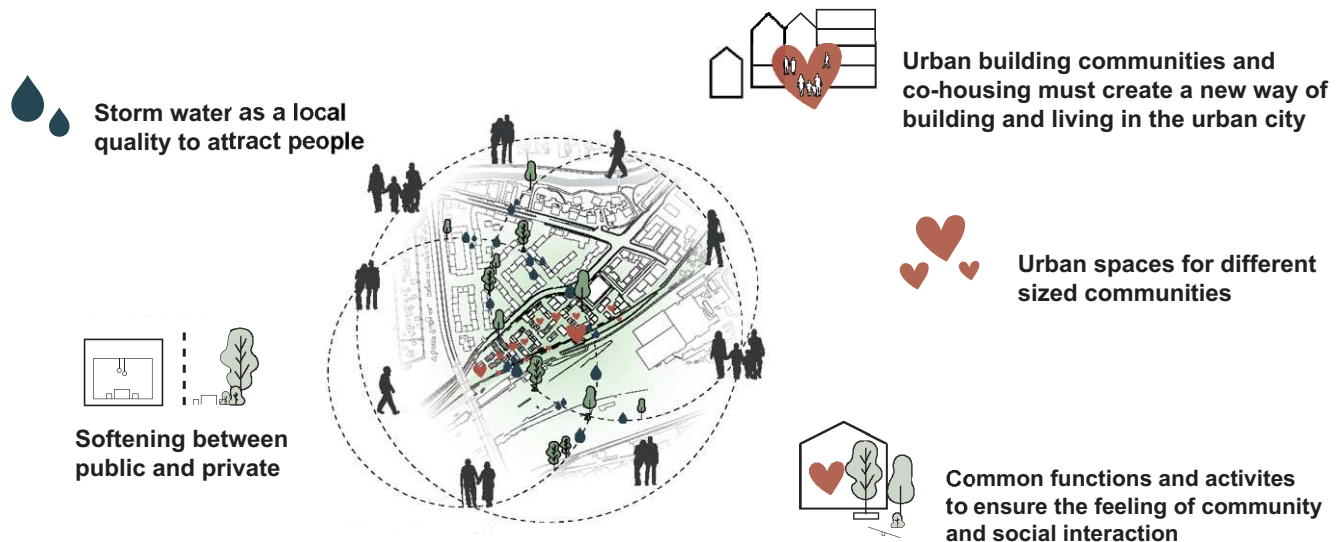
**Thor Vingolf Nielsen**

Dream designer / Institut for (X)



# Presentation

## Design concept



49. Own illustration / design concept

## The new southern neighborhood

The neighbourhood is a new modern, liveable, and experimenting district at the southern part of Godsbanearealerne in Aarhus in the form of variation in architecture, human scale, and with slow accessibility, but also diversity in housing, functions, activities, and facilities that are inclusive for both residents and the local area. The area ensures oases and shields off the everyday life and community. The individual and social interaction are highly valued and create quality of life for a diversity of people. The city and local citizens from the surrounding areas coming by foot and bicycle are either being led through the train rail path next to the recreational stream in the green wedge or with recreational water channels on the local streets down to the community-oriented public functions, activities, and facilities mostly placed in the south in good sun conditions. The focal point for the neighbourhood is the safe and car-free local streets for play and outdoor life with central values of nature, biodiversity, and water. The green wedge is the connected urban space that stretches from the dense city to the east towards the open landscape Ådalen to the west and organizes a sensuous landscape that encourages local citizens and different sized communities to take outdoor optional activities. The neighbourhood's square and house are also open for the local community with programs and activities. The residents are also encouraged to optional activities in the local streets, in the pocket spaces, in the common houses, courtyard gardens, and at the semi-private front gardens. In contrast to the large open and public spaces, the block structure embraces to form more private and wind-protected green areas intended for residents. Here, the residents can withdraw and meet with only their neighbours, take care of the neighbourliness and the area, its greenhouses that ensure community in all seasons. Thus, there are a lot of urban

spaces and social meeting places that are framed by water and nature, where some support the large communities and others more resident-oriented small communities.

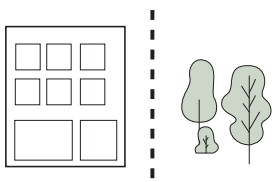
Moreover, the area proposes a new way of living in the urban city with good qualities from the rural areas' single-family houses and the city's block structure that unfold in form of different connected typologies, various ownerships, and forms of housings that meet the more diverse life forms of today and the future. The housings are smaller, but in different sizes and more affordable with large spaces for communities. The area contains homes for the whole life and for both owner and tenant. In addition, a large part will be established as building communities and one building plot as co-housing to provide the residents with large ownership, enable residents to influence one's own home, cultivate common green areas, and ensure community from the beginning between the future residents across generations and interests. The 'resident-driven community projects' will benefit the neighbourhood and help strengthen urban life and ensure social diversity in the area.

The neighbourhoods' active functions, like the neighbourhood house and diverse commercial, are located closest to the city, and more quiet residential towards Ådalen. With the location of the urban co-housing closest to the neighbourhood house and square, it will act as an urban life catalyst together with the existing resident Institut for (X) for more common-related programs and events to bring and inspire community to the entire neighbourhood.

# Design parameters

This project explores the societal tendencies and challenges which are translated into some design parameters that must ensure social community and interaction.

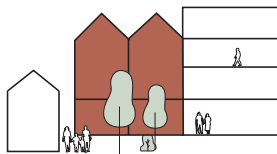
## Context



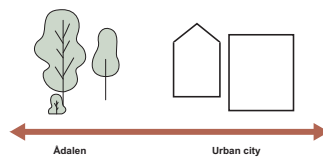
**01.** Reduce the boundary between city and nature, private and public as well as indoors and outdoors



**02.** Building heights are adapted to the context and are decreasing towards the green wedge

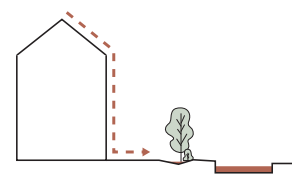


**03.** Wide composition of building typologies, mixed ownership, and forms of housing that meet more single, elderly people, and the varying family compositions and to create diversity of people

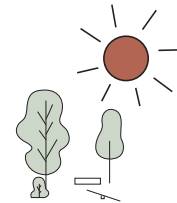


**04.** Connect the landscape Ådalen and the urban city

## Microclimate

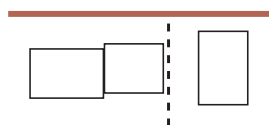


**05.** Rainwater management must, together with nature create added value and set the framework for recreational meeting places

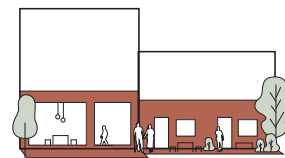


**06.** Outdoor common areas must be located in good sun conditions

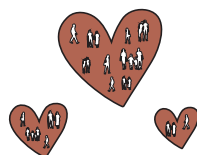
## Community



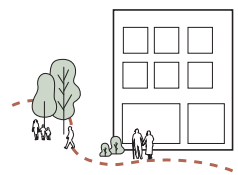
**07.** Few and broken-up block structure to increase the meeting, create safety, and clarity



**08.** Activate the ground floor to contribute to an active urban environment



**09.** Zones for different sized communities

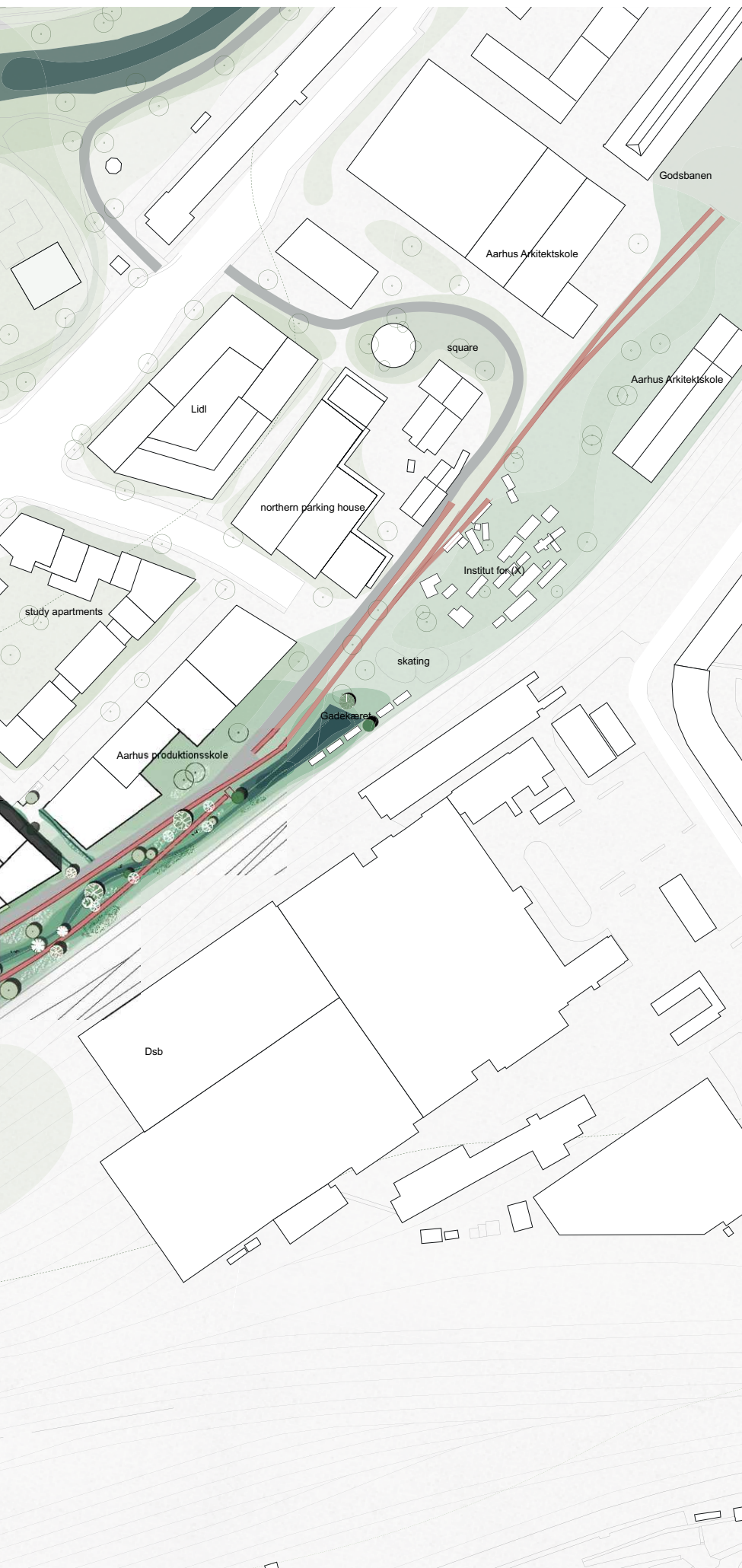


**10.** Common functions and activities are placed to ensure interaction through flow







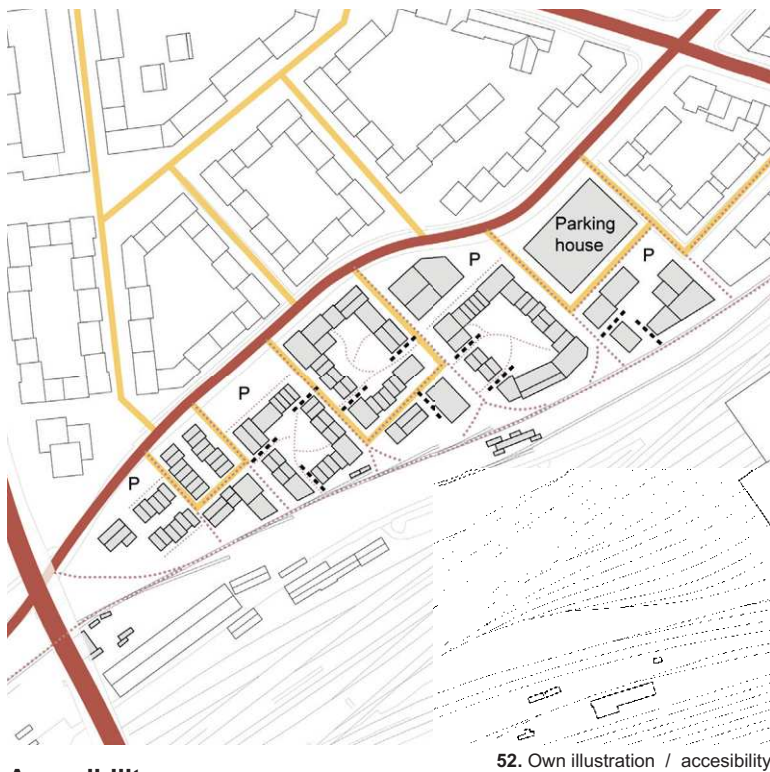


51. Own illustration / the neighbourhood plan

*The neighbourhood plan on the left shows a design proposal for 'The neighbourhood', its urban areas and buildings. The plan will be further elaborated on the following pages. On page 86, a more detailed proposal will be given on one of the building plots containing an urban co-housing with urban consideration of soft edges, common functions, and common facilities in the courtyard.*



## Principle diagrams



52. Own illustration / accessibility

### Accessibility

- Traffic street
- Green local streets / 15 km/h
- ... Soft traffic
- Breaking up the block structure

In the neighbourhood, there are streets and paths on the premises of soft traffic users that attract interested residents and make the area lively and exciting. It ensures safe places to meet, stay, and play. Limited local streets also called 'lege-og opholdsgader' that contain front gardens, greenery, and recreational urban spaces to slow down the speed are designed. The local streets and broken-up block structure make it possible to turn the community outside and bring everyday life to the neighbourhood, increase meetings, create safety, and to get an overview. The residents both have neighbours and opposite neighbours, and it is here they meet during the day. In addition, all entrances are from the streets to ensure more social meetings. The courtyard garden functions as more private and the small paths are mainly through to residents. Moreover, all building plots have openings between the buildings to ensure interaction between the public local streets and more private garden yards. The buildings open up to create experience-able facades so that the streets feel shorter. Furthermore, the train rail path in the green wedge is preserved as the main path that invites access from Brabrand to the city center.

All parking is located on the outskirts, but in relation to meet the parking norms on ½ parking space per. housing, the design has met the previous plans with a parking house on the north-east part of the site. Alone, the co-housing requires 31 parking spaces, which there is not enough space for in the area (appendix 2). The parking house is designed with green facades and with some active ground floors for commercial purposes so that it contributes to the urban environment.



53. Picture / the local street



54. Picture / the traffic streets





55. Own illustration / building heights

### Building heights

1 floors	4 floors
2 floors	5 floors
3 floors	

The building heights are in human scale and varying from one to five floors, and highest towards the Trekantskvarteret. The buildings in the block structure are lowest to the east and the west to create good sun condition, but also to ensure social communication between the floors and the urban space. To achieve variations in the facades, variations in the floors have been worked with, where some of the roofs can be used for rooftops for near communities.



56. Own illustration / typologies

### Typologies and building facades

Terrace houses	Mix of both
Apartments	

The majority of the site consists of semi-closed block structures and terrace houses. Each building plot consists of diversity in typology and architecture to meet a diversity of people and thereby different communities can occur. A mix of apartments, terrace houses, and a mix of apartments and terrace houses forms an urban social housing typology. The housings contain in addition to the diverse typologies also a mix of ownerships that ensures diversity in different levels. There are varying facade expressions based on self-built structure that provides the area its own identity and give the residents the opportunities to personalize their homes inside and outside. Materials used in the area are robust materials like bricks, steel, and wood.



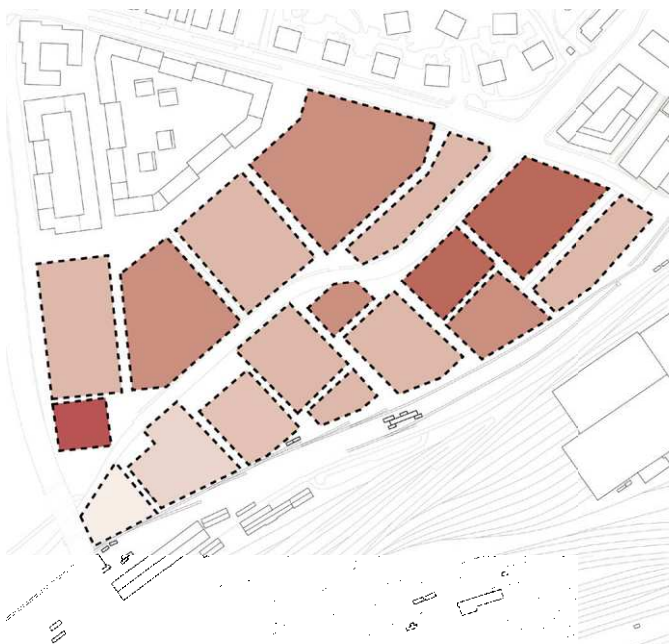
57. Picture / terrace houses



58. Picture / apartments



59. Picture / diversity



60. Own illustration / buildings percentage

### Buildings percentage

>50%	51-100%	101-200%
201-300%	301-400%	<400%

The percentage is declining from the north-east to Ådalen. The building plots are made smaller to increase the percentage compared to the context. Smaller green courtyards are seen as a quality to ensure more people, denser living, and so that the neighbours know each other.



61. Own illustration / functions

### Functions in ground floor

Co-housing	Supermarket	Neighborhood house + Bygning K
Housing	Institution	Aarhus Volume /music universe
Common houses	Parking house	Rentable guest and teenage room
Commercial	Multiroom /co-housing	
Microshops	Sports association	

In addition to a mixed diversity of people, the neighbourhood consists of various functions that create a lively part of Aarhus K. The distances of functions and activities have been spared to get people out of the houses and into the streets. The most public functions are placed towards the city and a more quiet area towards Ådalén. The ground floors contain a neighbourhood house, small flexible micro shops, café, associations, commercial, supermarket, music place, and an institution. Many of these functions contribute to job possibilities in the area, which create activities to and from the area in the early morning and late afternoon. All block structures are connected by common houses on the pocket spaces, which are centrally located and near the arrival area so it becomes natural to drop by. The co-housing's neighbourhood house as well as Bygning K as node in the green wedge open up to the local community and invites residents and citizens inside to different programs, events, common dinners, and a reuse market and station where old things get a new life, etc. (see other functions on ill. 87 at page 87). This is seen as relevant to people who live alone and experience loneliness. The existing preserved Bygning K by Institut for (X) is in interaction with the neighbourhood square and contains lively public functions that bring life to the neighbourhood square.



62. Picture / active facades



63. Own picture / Bygning K





64. Own illustration / community zoning

### Community zoning

- |                                                                    |                                                           |
|--------------------------------------------------------------------|-----------------------------------------------------------|
| <span style="color: yellow;">■</span> The neighbourhood square     | <span style="color: lightgreen;">■</span> The green wedge |
| <span style="color: yellow;">■</span> The pocket spaces            | <span style="color: darkgreen;">■</span> The city garden  |
| <span style="color: pink;">■</span> Semi-public courtyards         | <span style="color: red;">■</span> Aarhus Volume area     |
| <span style="color: darkblue;">■</span> Semi-private front gardens | <span style="color: grey;">■</span> Multi-sport area      |

The urban spaces in the neighbourhood is a big part of the everyday life where residents, visitors, and passers-by move, integrate, and stay. The area is divided into seven zones; the neighbourhood square, the green wedge, the city park, Aarhus Volume area, and the multi-sport area, where smaller urban pocket spaces are for the neighbourhood, and the semi-public courtyard gardens are for the residents in the blocks. The semi-private front gardens the residents can use for their own furniture, etc. The neighbourhood square consists of an urban fountain for collecting rainwater and enabling a wide range of activities all year round such as; ice skating, markets, exhibitions, and temporary events. In general, the activity is highest in the south-east and activities are placed to ensure social interaction through flow. The neighbourhood square and the area 'Under broen' are less programmed so that the co-housing and Insitut for (X) use the area and contribute with life and play in the neighbourhood.



65. Own illustration / activity

### Activity

- Active facades
- High ■ Low



66. Picture / the urban fountain



67. Picture / semi-private front gardens



68. Picture / the stream



69. Picture / the city garden

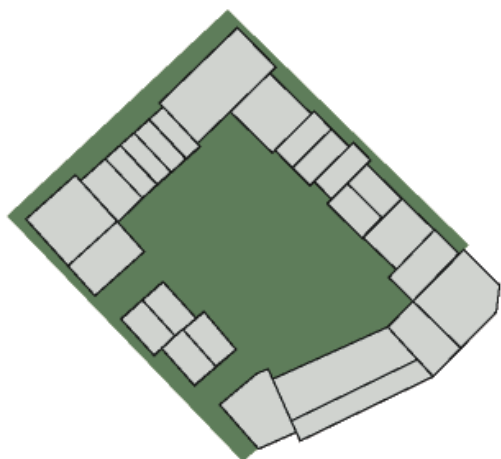


70. Own illustration / the landscape

### The landscape

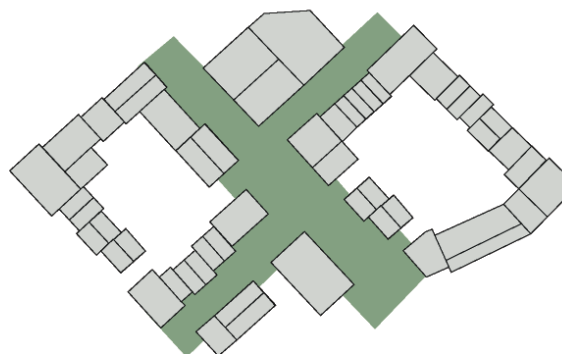
The neighbourhood connects the two different landscapes; the meadow at Adalen and the urban surface in relation to the green wedge. Moreover, the buildings are placed in the green landscape. Thus, a smooth transition occurs. Moreover, the courtyard garden's green area is connected with the local streets. The area also provides biodiversity and the best possible living conditions.

### The housing yard's social meeting places



71. Own illustration / the housing yard

### The local streets social meeting places



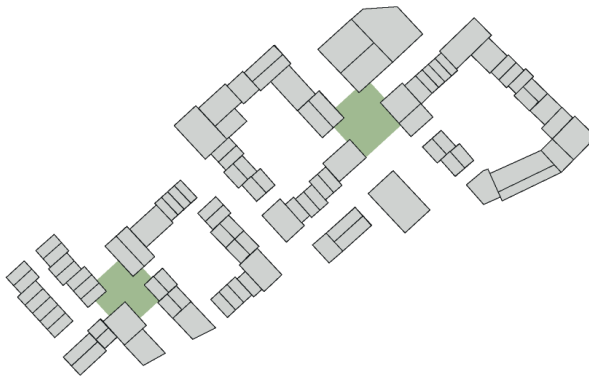
72. Own illustration / the local street



*Please be aware that the facade  
is organized on the streets.*

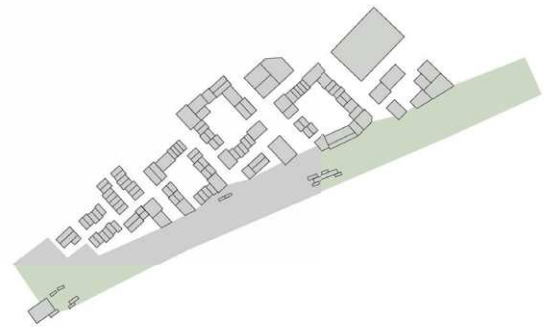


### The neighborhood's social meeting places



73. Own illustration / the neighborhood

### The city's social meeting places



74. Own illustration / the city



*The family meets in their living room, neighbours next door meet in their front gardens, housings meet in their common houses, the courtyard garden, and on rooftops, the neighbourhood meets in the local streets and pocket spaces, and the city and local area meet in the green wedge and at the neighbourhood house.*



1.1000

75. Own illustration / the south-east facade



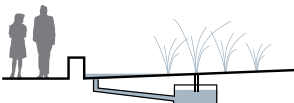



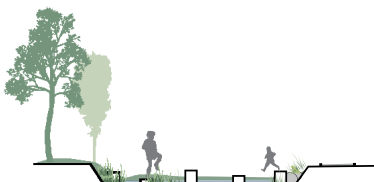


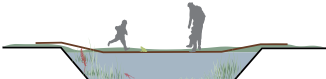








## Recreational water

The area is diverse in generations and interests, and this requires different urban spaces that can gather a variety of people. Throughout the neighbourhood, the free local and natural rainwater is used as a recreational value and power of attraction effect in meeting places to attract and bring people together, and stimulate the senses for different ages. The rainwater is both used as an aesthetics element, leading element, gathering element, and playing element where it is available to integrate. In the local

streets, rainwater channels are used as a leading element to guide. Often the channels are without water, but wild plants are growing and beautifying and guiding when it does not rain. Recreational rainwater can teach children and all ages about water so that they appreciate rainwater as it continues to be an increasing challenge. The collection of water is used in addition to a recreational value also to water plants, greenhouses, and for bicycle and car wash, etc. (see ill.85 on page 85).



76. Own illustration / recreational water map

	Everyday situation	Extreme situation
1. The urban fountains		
2. Multi sports area		
3. Stepping stones		
4. Garden bridge		
5. Sensory garden		
6. Guiding channels		
7. Water channels as a playing element		
8. Recreational ponds in courtyards		

## Water management flow

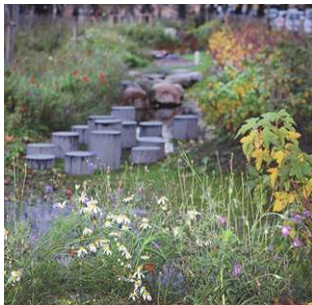
In the new neighbourhood, rainwater is allowed to be a part of the everyday life and is used as a local, active, and recreational resource that in relation with nature binds the area together, creates the framework for urban spaces, gives positive sensory experiences, but also biodiversity. The rainwater is a visible element and it contributes to the neighbourhood's expression and changes when e.g. ponds and rain beds contain rainwater after heavy rain events.

All rainwater in the neighbourhood is handled in local streets, courtyard gardens, and in the green wedge. Here, the rainwater is collected and delayed in ponds, channels, and rain beds, as the soil is not suitable for infiltration. Some of the buildings of the area are designed with green roofs that collect, use, and partially delay rainwater for evaporation, and excess water runs either down to the courtyard garden or to the local streets. The terrain has a small slope towards the green wedge that helps to ensure that the rainwater is led away from the buildings so that no damage occurs.

Principles that are used;

1. The rainwater in the courtyard garden is collected by rain beds and when they are saturated, it runs further to dry rain ponds and is used for recreational both in wet and dry periods and for watering.
2. The rainwater on the local streets is led to open, turning channels and rain beds in the sides that delay the water.
3. The rainwater from the courtyards is transported through underground pipes to the green wedge and rainwater stream. Some of the water in the open channels is connected to dry delay ponds, and others lead the rainwater directly to the green wedge.
4. The rainwater is controlled and led down to a local collection point at the location of Gadekæret and further to Aarhus Å.

**Recreational channels at pocket spaces**



78. Picture / recreational channels

**Channels along the streets**



79. Picture / channels

**Recreational yard ponds**



80. Picture / recreational ponds

**The park lake**



81. Picture / the lake

**The stream in the wedge**



82. Visualization / the stream

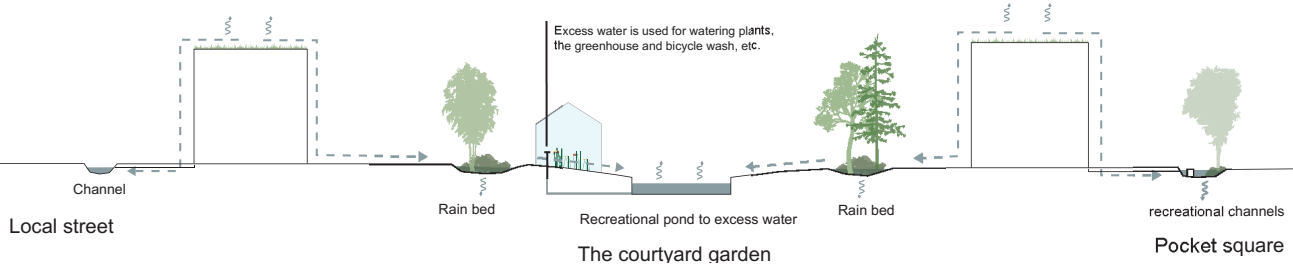
**Rain beds in courtyards**



83. Picture / rain beds



--- Stormwater flow  
 ~~~~~ Evaporation  
 ~~~~~ Infiltration



85. Own illustration / recreational water plan





## The urban co-housing

The urban co-housing is established on the basis of 'bottom-up' initiatives between the future residents. The co-housing supports communities and creates a good physical environment for a small group of people who can enjoy each other in everyday life across generations: singles, single parents and their children, couples, families, seniors, and elderly people. Moreover, the co-housing is characterized by an urban social housing typology between 2-5 floors and organized towards the community to ensure an open view and visual communication. The co-housing contains different typologies and ownerships that attract both singles and diverse families, etc. All housings are minimized and partially compact with small kitchens, bathrooms, and with a small front garden or access to a 'garden bridge' (havegang). As a part of the housings, guest and teenage rooms on the local street create flexibility and can be rented when it is needed (see ill. 61 on page 78). The co-housings private common areas are maximized and consist of a large common house with a laundry and cinema programmed by the residents with space for common dinners, parties, and a multiroom. They are both located in the building units' northern corners. Moreover, the co-housing also has a garden yard and a rooftop with space for small and large communities. In general, the common functions are centrally located so it becomes natural to drop by.

The neighbourhood house is located in the south-western corner and is part of the co-housing for residents and the local community. The co-housing is a social generator together with Institut for (X) and helps with functions that open up to community and invites local citizens inside to programs and events as well as open communal dining, workshop rooms, clubs, reuse station, shared working spaces, reuse market, etc. This should increase the local community. Furthermore, the semi-closed courtyard garden is broken by two large passages, which connect the yard with the local street, common house, and the neighbourhood house.

The openings function as bicycle parking which symbolizes the transition from public to more private area.

The courtyard garden consists of a connected path and a large and flat unprogrammed and adaptable grass area with space for activities and change. Here, residents can meet with their neighbours over a game. In the courtyard, smaller pocket terraces have been designed to create opportunities for community and thus close relationships for a small group of residents. Moreover, the courtyard also consists of three different zones; a food zone, a play zone, and a relaxation zone.

**The food zone** consists of urban gardens with communal vegetables and enables residents to meet in relation to common interests. Furthermore, the residents also have two large orangeries with space for living, relaxation, contemplation, and plants, and can be used in all seasons.

**The play zone** consists of activities for children and their families with a large sandbox, small hills, swings, a slide, and trampolines. This area is also filled with other shared playing elements bought by the residents. In general, it is a safe place to leave toys and other personal belongings outside at night.

**The relaxation zone** consists of a fire camp in a recreational rainwater pond which can also be used to e.g. play, etc. In this area, there are also hammocks to relax in between trees and vegetation.

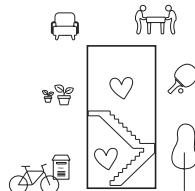
Both the local streets and the courtyard garden invites stay, and contribute to the everyday community. The co-housing provides a good framework for both necessary and optional activities, where social activities can arise and contribute to reducing loneliness.

### Common functions

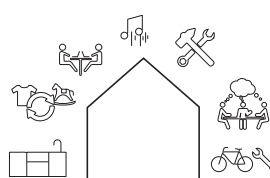
The icons below show the urban co-housing's common functions, which help to increase the feeling of community. The co-housing consists of 29 % common functions.



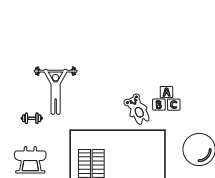
**Common house**  
420 m<sup>2</sup> (two floors)



**Common staircases**  
540 m<sup>2</sup> (incl. stairs)

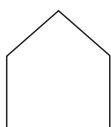


**Neighborhood house**  
650 m<sup>2</sup> (two floors)



**Multiroom**  
150 m<sup>2</sup>

### Housings



**61 housings**

- Apartments
- Terrace houses
- Mix of apartments and terrace houses

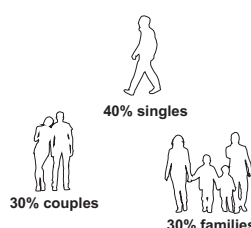


**45 / 75 / 100**

- 25 housings of 45 m<sup>2</sup>
- 20 housings of 75 m<sup>2</sup>
- 16 housings of 100 m<sup>2</sup>

(See appendix 2 for room disposition and calculations)

### Residents







88. Picture / community and natural wild nature



89. Picture / playground and toy



90. Picture / common terraces



91. Picture / terrain to stay



92. Picture / all season spaces



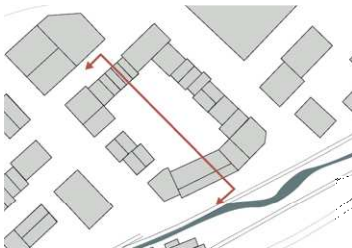
93. Picture / open unprogrammed



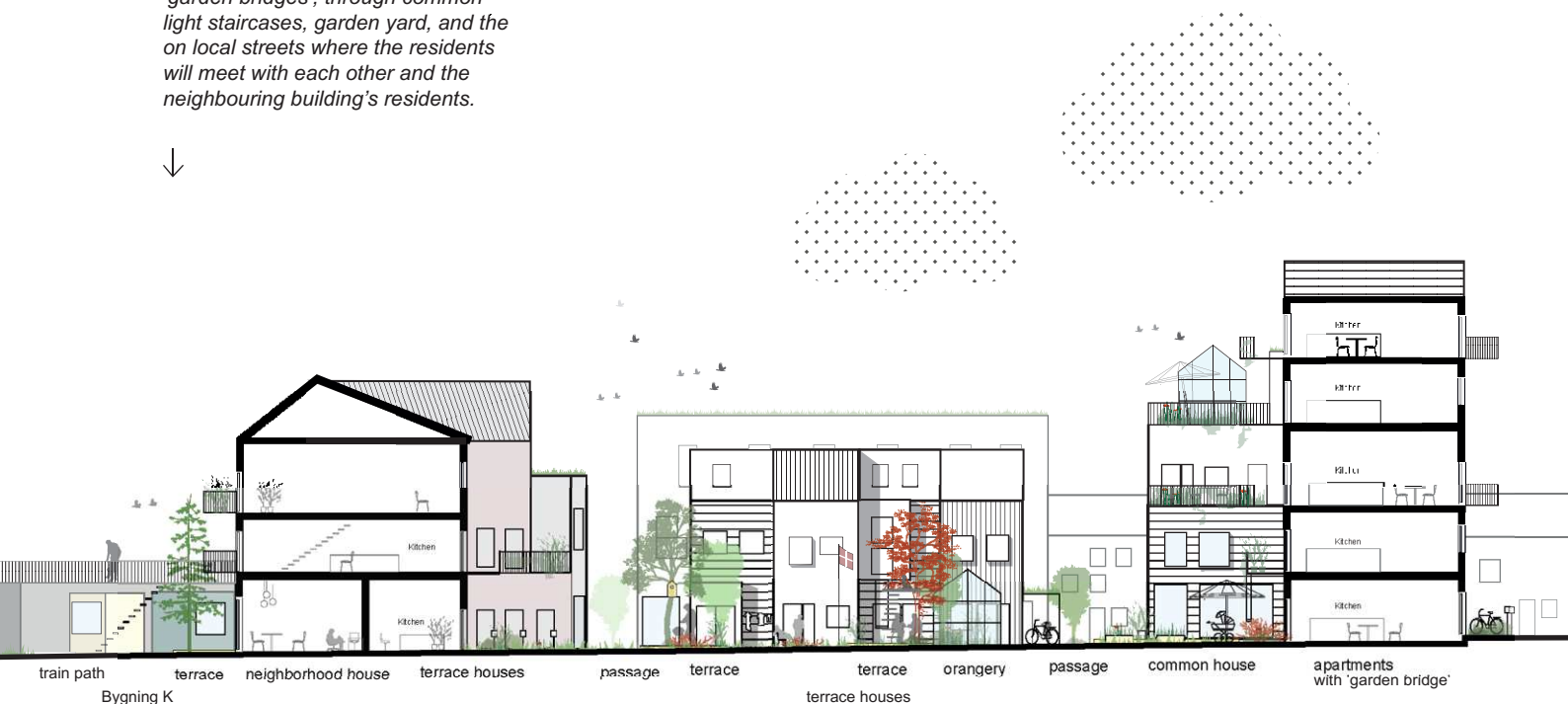
*The green areas and beds in the yard garden are common maintenance and allow the residents to grow green areas and plants, which further strengthens the community. Through common work, the residents meet and the residents create a sense of belonging and a sense of security which affects the use of the area and has an influence on how physically active people are.*



94. Picture / common maintenance in garden



*In connection with the necessary chores of everyday life, the residents will walk to and from their homes, on 'garden bridges', through common light staircases, garden yard, and the on local streets where the residents will meet with each other and the neighbouring building's residents.*



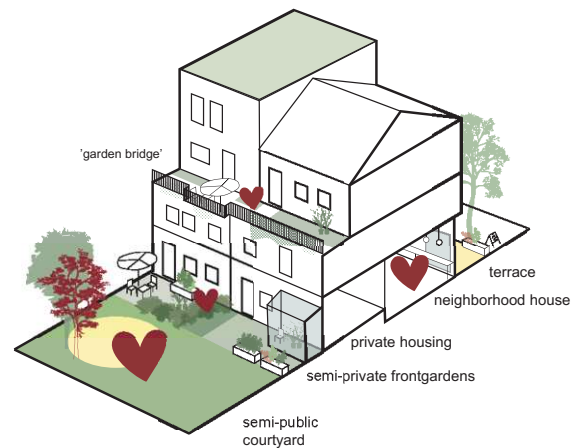
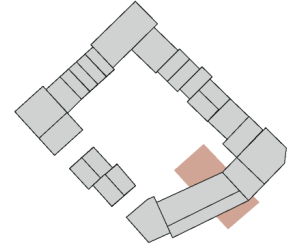
1.400

95. Own illustration / the south-west facade in the courtyard garden

## Soft edges

### The courtyard garden facade and neighbourhood house

The ground floors have a small front garden and the other floors have access to the green 'garden bridge' and it is here the neighbours meet for the necessary and optional activities. Green plants grow on and down the 'garden bridge' and this together with the green courtyard contributes to a green safe oasis. The soft edges are disposable, where it is the residents who decide what they should contain. Via plant beds and small hedges, a natural and easily readable transition zone arises between the terraces and the garden yard. Furthermore, the ground floor is seen as ideal for families with children with direct access to the yard. In general, there is easy access to the yard garden from all apartments. This makes people want to come down and be a part of the community and take ownership. In this co-housing proposal, the residents are enriched by each other by living close, living together, living in the city.



100. Own illustration / the common house and staircase



96. Picture / balcony



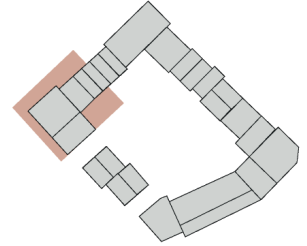
97. Own picture / edge with swing



98. Picture / soft edges

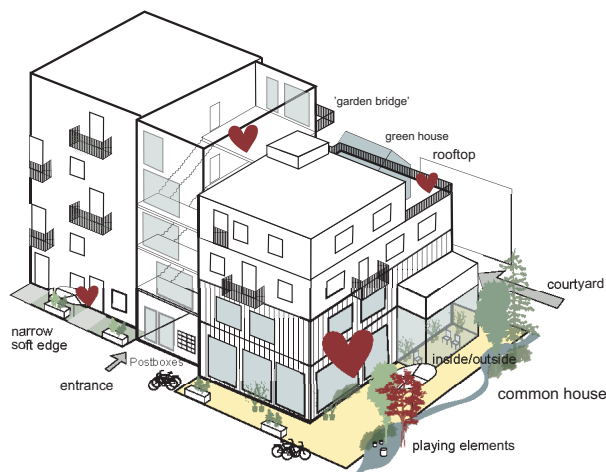


99. Picture / 'væksthuse'



### The common house and staircases

The location of the common functions and facilities like post boxes, trash bins, and bicycles are turning towards the local streets and help to increase the formal and informal meetings in relation to the necessary activities. In addition, almost all entrances to the housings are located on the local streets with short distances to create activity and ensure everyday meetings, and in that way strengthen the community and social relationships between the residents. The housings have either direct access from the ground floor or through light and inviting semi-private common staircases with space for games and activities. On the different levels, the staircases lead to 'garden bridges' facing the courtyard garden, where the housings have access to their own homes. This creates safety and social interaction between the residents across levels. Moreover, there is space for the community inside and in front of the common house, and a lot of light and nature are drawn into the common rooms, which in a way breaks down the transition between inside and outside.



101. Own illustration / the common house and staircase



102. Picture / inside and outside



103. Picture / narrow soft edges



104. Picture / 'garden bridge'



105. Picture / edge biodiversity



# Evaluation

## Conclusion

In the problem statement, the question was asked how a transformation of the southern part of Godsbanearne with new urban dense living can meet the societal tendencies and challenges and how urban landscape and visible recreational stormwater solutions can be turned into a potential value to create the framework for attractive meeting places for different communities.

### The aim of the project

Through literature studies and analyses, it was found that the society, Aarhus, and the chosen site at Godsbanearne are facing some tendencies and challenges such as urbanization, increasing loneliness, more singles and elderly people, changed family compositions, and stormwater challenges. Moreover, it can be concluded that living alone and loneliness are serious problems for the individual and society. The project aimed to meet these challenges in a design and in a way that transforms them into potentials. Urban planning and architecture that promote communities and more social interaction were also seen as the key to reduce and avoid loneliness.

### The unique site

Moreover, the analysis also shows that the chosen site has a unique location between the vibrant dense city and a quiet and open landscape, but also the challenges of local rainwater is seen as a big quality to attract, create life, and gathering points. The area also has a great existing resident Institut for (X), and desires to be its own district, which calls on its own functions and urban spaces. This provides an area with space for experimentation and new solutions that reflect the experimental character of Godsbanearne today. In addition, the vision for Godsbanearne is also that it should be a new and experimenting district. It brings more value and benefits the future residents and users of the area. This is taken a step further in the final design proposal of the new dense neighbourhood on the soft users' premises, as well as in functions and quiet urban spaces with activities and facilities at a slower pace and less impressions compared to the rest of the city.

### The neighbourhood

A new safe, lively, and human-scaled southern neighbourhood has been created where the design and the site's location have been a central part of the preparation of the design and resulted in the desire to use its unique location to connect the city and Ådalen's landscapes with a connected urban green wedge. In addition, the neighbourhood is based on the vision of an area where communities, social interaction, and nature grow. But also water as a everyday quality. There are designed diversity in functions that contribute to an active urban environment. Moreover, also few local streets and broken up the block structure to bring urban life to the neighbourhood, increase meetings, create safety, and to ensure people an overview. The design of the neighbourhood is constructed as building communities in self-built structures which creates its own identity, diversity in architecture, and allow residents to give their homes a personally touch. Moreover the area has ensured diversity in people in relation to different housing types, sizes, ownerships, and through a mix of apartments, terrace houses, and a mix of those that create urban social housing typologies. The building communities provides the residents a form of ownership that increases the community from the beginning and meets the challenges of loneliness. Thus, the project enables new urban dense living in the city but also with focus on co-living in a co-housing that all attract different people such as singles, elderly people, and different families, etc. The neighbourhoods' dense living will in addition to being turned into a potential to meet the impact of urbanization and the increased demands for housing also bring high living quality for a diversity of generations and interests, ensure more sharing, and people helping each other which is practical solutions to minimize the climate challenges.

Based on selected literature and theory, attempts have been made to encourage community through the design of the area and its meeting places e.g. in the design of the 'soft edges' with a lively transition between private and public areas.



It will allow and strengthen stays and informal meetings in relation with everyday activities and help to create life outside the homes. But there are also through common functions, activities, and facilities created space for different communities. Many of the functions like the neighbourhood house, common houses, music universe, and a sports association in the ground floors are open and have active facades and will benefit the local community and meet the problems that can occur when one lives alone, elderly people, and in general, when the feeling of loneliness arises.

#### **Rainwater and nature as local advantages**

In the project, the challenges of climate change with stormwater are turned into local advantages that benefits people. Moreover, ecological landscape and rainwater connect the area and are allowed to be part of the residents' and local citizens' everyday life. It is vital recreational resources that add value, provide quality of life and provide an experience of water and nature. There are, in the courtyards, designed recreational ponds, in the streets leading channels, and at the green wedge contains a green stream to both collect the stormwater and function as attractive social and sensory meeting places for gathering over optional activities for everyone across generations and life situations. This encourages to social community between as well as beyond the residents' next-door neighbours.

#### **The urban co-housing**

As a part of the neighbourhood, the question was how to design an urban co-housing that invites social interaction in all seasons through functions and urban common areas which at the same time consider the individual, and also how the co-housing can contribute with community to the entire neighbourhood.

The urban co-housing is a social housing that consists of enthusiasts who want to improve the social life and local area. Moreover, the co-housing is centrally located as a part of the public neighbourhood house and its programs and close to Bygning K. The co-housing will together with Institut for (X) be an urban catalyst for social life, play out in the area, and inspire people to community. This helps to fulfill the vision of Aarhus K. But the local area and the residents will also get the opportunity to socialize and create social relationships. The design of the co-housing is based on a sense of community, common maintenance, and happiness, which different people can gain from living closely together. The co-housing has individual homes and small semi-private 'soft edges' at the front door and yard garden where neighbours can talk and children can play. This create the best conditions for social meetings in connection with the residents' necessary chores, etc. Moreover, the co-housing has minimized the private homes and maximized the common functions and urban areas for different-sized communities. There are in the unit a common house, multiroom, play streets, and a common garden yard with unprogrammed spaces, and a rooftop. Again this is practical in the dense city. In the outdoor areas there are also covered areas to invite social interaction and common interests in all seasons to increase quality of life.

Finally, the project has created the framework for social environments and encourage to community and social interaction. This enables a new way of living in the city as a contrast to the existing context. The neighbourhood stands out and is an integrated part and gathering point on Godsbanearalerne.

## Reflection

At the start, the project had many visions and was striving for even better cities as well as good and living neighbourhoods for communities and social interaction in the future. The literature studies, theories, and several analyses have given a strong foundation value to inform the final design proposal.

A challenge during the project has been a high level of ambition to both create a new neighbourhood and a chosen building plot as a co-housing at the same time as meeting the societal tendencies and challenges with one design. Based on previous experience with projects in larger groups, it has been difficult to assess how much one person could achieve and handle in a few months. There were constantly several ideas, not much time for experimentation, and this has meant that quick decisions have been made towards a final design. This applies to e.g. an adaptive climate system. In general, there has been little time to test and develop various recreational solutions. Going forward, the project should work further with the clarification of whether the rainwater basins should be larger or smaller. In addition, this project cannot stand alone, and the area makes a small difference on the global scale. Climate adaptation should be considered as a large overall plan and strategy.

### Development and branding

In the project, the focus has been on a design proposal for the southern neighbourhood based on building communities and an urban co-housing, but the project has delimited from the development, from dream to finished district. However, there are many good approaches to the process, such as Realdania (Realdania By & Byg, 2019). In relation to branding and development of the neighbourhood, the area's urban life projects e.g. Bygning K by Institut for (X) could be used as an 'open pavilion'. Here, the interested and future residents can meet, discuss, and have workshops on the site. Hopefully, this can let the citizens of the city see the possibility and quality of building communities and co-living.

### Ensuring quality of life and urban life

When working with residential areas, it is about assessing how dense an area can actually be while at the same time considering high living qualities and the framework for community. The final average building percentage of the area's residential plots was approx. 160%. The buildings could have been higher and contained more apartments, but it is about finding a balance because higher buildings also mean more people and shadows in the urban spaces, and then it can be difficult to ensure that people come out and communities cross. The closest context has a higher percentage but contains larger building plots to ensure good sun conditions, but here, it might be more difficult to ensure community and social interaction. The project sees the human scale and smaller building plots as crucial to ensure good dense living, quality of life, and more urban life in the neighbourhood spaces, but it very much depends on the individual and how one wants to live.

### Creating the framework for community

The project focuses on creating community and social interaction through urban planning. But community cannot be created from the outside because it is up to the residents to use the

urban spaces and interact. I as an urban architect can only create the framework and physical environments to ensure social interaction and gathering, and influence people to be a part of communities. But the spaces cannot do it alone. To ensure activities and life for gathering in the neighbourhood, it can also be met through neighbourhood associations.

### More experimenting and sharing?

The dream scenario for the co-housing, is a place where everyone knows each other, shares a social life, looks after each other's children, and in general, helps each other. It could have been interesting to analyse how to avoid loneliness by the use of different housing solutions and typologies. Based on a personal assessment and interviews with Bofællesskabet i Gug and Silje Sollien, it was decided that the residents of the co-housing should have their own minimized housing with a small kitchen and an increased community area. But maybe loneliness could have been met by living even closer and sharing more rooms. In this case, the residents will be forced into community. In order to have gained a greater insight into this, it could have been relevant to have asked and been in dialogue with more potential co-housing residents. In the design proposal, smaller common areas are included, but the common house with a kitchen is still for all residents. One consideration could be to create smaller common areas with kitchens where residents can meet in smaller groups. It could have been relevant with more user participation and hearing what individual users need and desire in order to make well-functioning everyday life work. Here, it could have been interesting to observe how some live in compact spaces.

In the further design of the housings, the location of the indoor rooms in relation to the outdoor rooms must be considered, thus it can strengthen even more community, e.g. the kitchens could be placed close to the front door and view to green areas, and the bedrooms and bathrooms must be placed more privately.

The co-housings as a new way of living in the city can easily be expanded even more and be thought of in other contexts like for young people who are on the edge of society and for disabled people who can benefit from being part of a community.

### Security to ensure social interaction

In relation to increasing community, security is an important parameter. Safety makes people get out of their homes. Security in the evening can to a large extent be created by active facades. But also by using lighting, which has not been worked on in this project. Therefore, in future work, the project must integrate lightning in streets and urban spaces.

### Rainwater as a free resource

The neighbourhood takes advantage of stormwater as a free and natural resource. The rainwater is in the project collected for recreational use, watering gardens, and washing of bicycles and even cars, but after reflecting, of course, the water could also be used for other things such as water to laundry and toilets. This will create a more sustainable and cheaper way to live in the city.

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## Illustration list

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| III. 01    | Own picture                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| III. 02    | Own illustration with inspiration in The Integrated Design Process, IDP by Mary-Ann Knudstrup                                                                                                                                                                                                                                                                                                                                                                        |
| III. 03    | Own illustration                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| III. 04    | Picture from Copenhagen, Marten Bjork, <a href="https://unsplash.com/s/photos/human-denmark">https://unsplash.com/s/photos/human-denmark</a>                                                                                                                                                                                                                                                                                                                         |
| III. 05    | Henriksson, L. (2016). I Have It All—so Why Am I Not Happy? Greatist. <a href="https://greatist.com/live/why-am-i-not-happy-with-life#1">https://greatist.com/live/why-am-i-not-happy-with-life#1</a>                                                                                                                                                                                                                                                                |
| III. 06    | Own illustration with data from: Region Midtjylland. (2020). Ensomhed i Danmark - analyse af befolkningsdata fra 2017. Maryfonden. <a href="https://www.maryfonden.dk/files/Ensomhed%20i%20Danmark_pdf.pdf">https://www.maryfonden.dk/files/Ensomhed%20i%20Danmark_pdf.pdf</a>                                                                                                                                                                                       |
| III. 07-09 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| III. 10    | Own illustration with information from: MasterClass. (2020). A Guide to the 5 Levels of Maslow's Hierarchy of Needs. <a href="https://www.masterclass.com/articles/a-guide-to-the-5-levels-of-maslows-hierarchy-of-needs#what-is-maslows-hierarchy-of-needs">https://www.masterclass.com/articles/a-guide-to-the-5-levels-of-maslows-hierarchy-of-needs#what-is-maslows-hierarchy-of-needs</a>                                                                       |
| III. 11    | Picture by Institut for (X), Godsbanen, Aarhus - <a href="https://www.facebook.com/institutforx/photos/3638416556185304">https://www.facebook.com/institutforx/photos/3638416556185304</a>                                                                                                                                                                                                                                                                           |
| III. 12    | Visualization from Skt Kjelds Plads visualisering: © SLA <a href="https://www.sla.dk/en/projects/bryggervangen-sankt-kjelds-plads">https://www.sla.dk/en/projects/bryggervangen-sankt-kjelds-plads</a>                                                                                                                                                                                                                                                               |
| III. 13    | Picture from Skt. Kjelds Plads billede: © SLA / Mikkel Eye                                                                                                                                                                                                                                                                                                                                                                                                           |
| III. 14-17 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| III. 18    | Picture by Universitätsstadt Tübingen / <a href="https://politikenbyrum.dk/Debat/art6832686/Et-unikt-hjørne-af-København-giver-bud-på-en-alternativ-byudvikling">https://politikenbyrum.dk/Debat/art6832686/Et-unikt-hjørne-af-København-giver-bud-på-en-alternativ-byudvikling</a>                                                                                                                                                                                  |
| III. 19    | Own illustration with Inspiration in information from: <a href="https://roskilde.dk/sites/default/files/Roskilde_Kommune_-_Vejledning_til_selvgroede_bofaellesskaber_-_1._udgave_140219.pdf?fbclid=IwAR36aWmxBDqCLjtqleZUnZ86nS3EEYq7IdM8kyl7DpVlj51yircU8AC8Yk">https://roskilde.dk/sites/default/files/Roskilde_Kommune_-_Vejledning_til_selvgroede_bofaellesskaber_-_1._udgave_140219.pdf?fbclid=IwAR36aWmxBDqCLjtqleZUnZ86nS3EEYq7IdM8kyl7DpVlj51yircU8AC8Yk</a> |
| III. 20-25 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| III. 26    | Picture: Godsbanearaelet set fra Ringgadebroen. - <a href="https://www.aarhusarkivet.dk/records/000278673">https://www.aarhusarkivet.dk/records/000278673</a>                                                                                                                                                                                                                                                                                                        |
| III. 27    | Picture by Institut for (X), Godsbanen, Aarhus - <a href="https://www.facebook.com/institutforx/photos/4118615528165402">https://www.facebook.com/institutforx/photos/4118615528165402</a>                                                                                                                                                                                                                                                                           |
| III. 28-35 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| III. 36-37 | Own pictures                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| III. 38    | Own illustration                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| III. 39    | Picture by Institut for (X), Godsbanen, Aarhus - <a href="https://www.facebook.com/institutforx/photos/3506054549421506">https://www.facebook.com/institutforx/photos/3506054549421506</a>                                                                                                                                                                                                                                                                           |
| III. 40    | Picture by Institut for (X), Godsbanen, Aarhus - <a href="https://www.facebook.com/institutforx/photos/2897846870242280">https://www.facebook.com/institutforx/photos/2897846870242280</a>                                                                                                                                                                                                                                                                           |
| III. 41-52 | Own illustrations / pictures                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| III. 53    | Picture from byhusene på Islands Brygge: Vandkunsten, <a href="https://vandkunsten.com/projects/byhusene-islands-brygge">https://vandkunsten.com/projects/byhusene-islands-brygge</a>                                                                                                                                                                                                                                                                                |
| III. 54    | Picture from Valby Maskinfabrik: Vandkunsten, <a href="https://vandkunsten.com/projects/valby-maskinfabrik">https://vandkunsten.com/projects/valby-maskinfabrik</a>                                                                                                                                                                                                                                                                                                  |
| III. 55-56 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| III. 57    | Picture from byhusene på Islands Brygge: Vandkunsten, <a href="https://vandkunsten.com/projects/byhusene-islands-brygge">https://vandkunsten.com/projects/byhusene-islands-brygge</a>                                                                                                                                                                                                                                                                                |
| III. 58    | Picture from Carl Jacobsens Vej: Vandkunsten, <a href="https://vandkunsten.com/projects/carl-jacobsens-vej">https://vandkunsten.com/projects/carl-jacobsens-vej</a>                                                                                                                                                                                                                                                                                                  |
| III. 59    | Picture by Universitätsstadt Tübingen / <a href="https://politikenbyrum.dk/Debat/art6832686/Et-unikt-hjørne-af-København-giver-bud-på-en-alternativ-byudvikling">https://politikenbyrum.dk/Debat/art6832686/Et-unikt-hjørne-af-København-giver-bud-på-en-alternativ-byudvikling</a>                                                                                                                                                                                  |
| III. 60-61 | Own illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

- III. 62 Picture from "Kantzoner i København - Administrationsgrundlag 2018", Københavns Kommune, Teknik- og Miljøforvaltningen (PDF)
- III. 63 Own picture
- III. 64-65 Own illustrations
- III. 66 Picture from Stasjonsallmenningen i Bjørvika: © SLA, <https://www.sla.dk/en/projects/bjorvika/>
- III. 67 Picture from Tinggården, Vandkunsten, <https://vandkunsten.com/projects/tinggaarden-ii>
- III. 68 Picture from Gellerup Bypark: © SLA / Rasmus Hjortshøj, <https://www.sla.dk/en/projects/gellerup/?fbclid=IwAR1nQ0i-4eHjMcv2KLgfd5DuJZ6qfxu6DQsrtxvAZKH1FmYG60TtLVUBxl>
- III. 69 Picture from Skt. Kjelds Plads: © SLA / Mikkel Eye, <https://sla.dk/dk/projects/bryggervangen-sankt-kjelds-plads?fbclid=IwAR0BhQT0dCPipEj7Itlm8FGD6WK1UICnWyafUXYrIDwpj-nok-nBSL0eE8JA>
- III. 70-77 Own illustrations
- III. 78 Picture from Lindevangsparken - klar til oversvømmelse: <https://www.frb-forsyning.dk/forside/kloak/klimatilpasning/lindevangsparken>
- III. 79 Picture from pdf of Fremtidens gårdhave ved Askøgade: [http://klimakvarter.dk/wp-content/uploads/2015/06/LAR-katalog\\_Askogade.pdf](http://klimakvarter.dk/wp-content/uploads/2015/06/LAR-katalog_Askogade.pdf)
- III. 80 Picture by Carsten Ingemann from Realdania, Vand på Sidelinjen, Gladsaxe: <https://realdania.dk/projekter/vand-paa-sidelinjen-gladsaxe>
- III. 81 Picture from Gellerup Bypark: © SLA / Rasmus Hjortshøj, <https://www.sla.dk/en/projects/gellerup/?fbclid=IwAR1nQ0i-4eHjMcv2KLgfd5DuJZ6qfxu6DQsrtxvAZKH1FmYG60TtLVUBxl>
- III. 82 Visualization from Hornemanns vænge: © SLA, [https://sla.dk/dk/projects/hornemanns-vaenge?fbclid=IwAR2zaXPfegtaJ93oZd-FPBdSQ62B5miG\\_CUkFTlczV6cFS17KIUL6r7oJOM](https://sla.dk/dk/projects/hornemanns-vaenge?fbclid=IwAR2zaXPfegtaJ93oZd-FPBdSQ62B5miG_CUkFTlczV6cFS17KIUL6r7oJOM)
- III. 83 Picture from Hothers Plads: Niels Lützen Landskabsarkitekter ApS, <https://www.nl-landskab.dk/hothers-plads>
- III. 84-87 Own illustrations
- III. 88 Picture from Tuinatelier Herman & Vermeulen, <https://hvtuinontwerp.nl/portfolio/collectieve-bewonerstuin-in-rotterdam/>
- III. 89 Picture from AJ Landskap / the photographer Kasper Dudzik, <http://www.aj-landskap.se/projekt/kv-garphyttan-norra-djurgardsstaden-stockholm/>
- III. 90-91 Pictures from Hothers Plads: Niels Lützen Landskabsarkitekter ApS, <https://www.nl-landskab.dk/hothers-plads>
- III. 92 Picture from Søholt - <https://m.soeholt.nu/orangeri>
- III. 93 Picture from Lange Eng: Dorte Mandrup A/S/ fotograf Laura Stamer, <https://www.dortemandrup.dk/work/lange-eng-cohousing-community-denmark>
- III. 94 Picture from Tuinatelier Herman & Vermeulen, <https://hvtuinontwerp.nl/portfolio/collectieve-bewonerstuin-in-rotterdam/>
- III. 95 Own illustration
- III. 96 Picture of balcony, <https://imgur.com/inrFzzV>
- III. 97 Own illustration
- III. 98 Picture from Lange Eng: Dorte Mandrup A/S/ fotograf Laura Stamer, <https://www.dortemandrup.dk/work/lange-eng-cohousing-community-denmark>
- III. 99 Picture from <https://havesektionen.dk/mini-drivhus-guide/>
- III. 100-101 Own illustrations
- III. 102 Picture from Jystrup Savværk, <https://vandkunsten.com/projects/bofaellesskab-jystrup>
- III. 103 Picture from "Kantzoner i København - Administrationsgrundlag 2018", Københavns Kommune, Teknik- og Miljøforvaltningen (PDF)
- III. 104 Picture from Skibet og bofællesskabet Broen: Vandkunsten, <https://vandkunsten.com/projects/skibet-og-broen>
- III. 105 Picture from Tuinatelier Herman & Vermeulen, <https://hvtuinontwerp.nl/portfolio/natuurlijke-tuin-rotterdam/>

