BENEFIT OF THE COMMON

housing for the urban families

in Amsterdam, the Netherlands

05.2020 | MSc 3-4 | Dutch housing graduation studio
Marta Kaniuk | tutors: Pierijn van der Putt, Theo Kupers, Ferry Adema
Benefit of the collective housing for the urban families

Research report

TU DELFT
Faculty of Architecture & Build Environment
Master Architecture
Dwelling Graduation Studio 2019/20
Dutch Housing Studio

28th of May 2020

Tutors: T.H. Kupers; P.S. van der Putt, F. Adema
Student: M.M. Kaniuk
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In my thesis for the Dutch Dwelling Graduation Studio I am working on the affordable residential housing in soon-to-be post-industrial site of Minervahaven - port area in the northern part of Amsterdam West. The plan of the municipality of Amsterdam for this area is to move industrial activities outside the city, in the direction towards the sea, and create new attractive residential neighbourhood, including accessible transport connections to the city, work spaces, amenities, activities. The problem that inhabitants of Amsterdam are facing are very high rental prices, which make houses unreachable for the families. At the same time we can observe the lack of community feeling and the lack of strong social connections, and consequences i.a loneliness, weak ties between members of society, insecurity.

The target group, that I decided to focus on, are the urban families, not only due to the benefits that they bring to the city - such as diversity, strong social networks, improvement of economy, but also because to feel the benefit of living in the community requires a lot of time - that is the most profitable for the youngest generation, to have time to learn and grow up in the community.

In this research the goal is to find out what are the social personal circles and how the relations within change according to the number of members in particular groups. My focus is directed towards this research in order to learn how to create the design that provides the feeling of the community in groups that feel good living with each other and benefit from the collaboration. I will base the greatest part of my research on the studies or Robin Dunbar, who identified the number of members in personal circles, and I will try to verify his research on the co-living case study. In this research I want to emphasize the connection between the size of the community and the relations between its members. Another big part of my research that will support my studies my studies will be Richard Sennett, who analysed various cities and proposed principles for creating an open city. Both top-down and bottom-up approaches in those observations lead me to the hypothesis, that it is possible to influence social behaviours by supporting them through conscious design.

This research will look into the following questions:

**What is the optimum group size of the community?**

**What is the foundation of the community?**

**How the spaces transition from public to private?** (shared and collective functions, investigation on eye related perspective)

Those research questions will be supported by sub research questions to structure the research and make sure that the research is thorough:

- What are the architectural and design tools that encourage interactions between tenants?
- What are the shared and collective functions that support the feeling of the community?
- How tenants can benefit from living in the community?
- What is the foundation of the community nowadays?
- What is the suitable housing typology for the target groups?
- What is the relationship between the urban context and the building?
TOPIC RESEARCH

target group, literature research, related ideas
The research begun from a determination of the target group - their problems, needs and what they can offer to the city. Following that, will be presented a problem statement.

**The relations between social groups**

The aim is to propose architectural design, that will let inhabitants benefit to the fullest extent possible from the community without disturbing each other with their different lifestyles or interfering into each other’s private spaces. To promote the diversity and provide high urban environment, the target group will be clustered according to their lifestyles and appropriate community sizes that support closer relations.

The flexibility of the flats and common spaces will be achieved by the agreement with other members of the community. The ambition is to propose different transition zones that can be assigned to the common areas or to the individual units, which will result in various degrees of privacy. Depending on the target group and their needs, the clusters and common areas will differ.

Children are the fastest changing group. As research shows, the radius of the space where they live and explore is expanding every year: newborns and infants (0-2 years old) move only at home and around their parents / guardians. On further stages of early childhood this radius is increasing, therefore it is crucial to provide design that allows to increase those areas in matter of privacy zones, where children can be let outside to explore under the supervision of parents.

**Target group**

In the beginning of my research I wanted to provide housing for as diversified target group as possible. The habits and needs of young couples, young families and elderly, finally the possibilities to create coherent community. My research showed that the differences between those groups are too big and it would be very difficult to fulfill everyone’s needs and at the same time keep high quality of relations in the community. My special concern was about elderly, that have very specific needs. The rising number of housings dedicated for seniors, that dutch government invests into, help a lot to fight loneliness among elderly. My doubt lied in the specific requirement to provide rather special care with stable and quiet environment. Therefore I decided to limit my target group to young couples and families.

**Family life in the Netherlands**

Researchers say that despite the times of individualism, increased mobility and supposed indifference, the foundation of the familiar bond is primarily economic. The radius of 50% of children that move out from parents when they grow up remains within 10 kilometres. Therefore the family life can be easily supported during many years.

Dutch households are often based on the scheme of single family house with various levels, which then in a clear way divides household into two zones - living space with collective functions and private bedrooms. Important aspect typical for dutch houses is direct connection to the outdoor space. Especially families search for the houses with gardens, to let their children play outside in safe environment that can be supervised.
Research analysis

Problem statement

The context of Amsterdam

The Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS) shows that before 2012 the immigration number of people from abroad to Amsterdam equaled those emigrating out of Amsterdam. In the last few years, while the emigration number has remained the same, the number of immigration has risen dramatically. Resulting in the growth of Amsterdam by 11,000 people on average per year (last 5 years). In 2016: around 20,000 people left Amsterdam; while 30,000 people from abroad arrived in Amsterdam. In 2016 more people left than arrived (by 4,000). In 2015/2016: 9,000 27-40 years olds left the city with the same group of children (0-17 years olds; were replaced by the group of 22-27 (starters) along with 8,500 of 17-22 years olds (main purposes: work and study).

If we look closer to the migrating groups, it appears that immigrants are mostly young people: among them students and expats. The number of those who emmigrate is stable, but every year more young families are leaving the city, last 2 years more leaving than arriving (CBS, 2017/18). The problems and effects following those migrations are various. House prices of properties in Amsterdam, that don’t fall within budget, therefore more affordable houses are to be found outside the city. Primary schools experience lower enrolment figures due to families moving to sub-urban areas. Thus there is a need to provide more affordable and attractive places for the families, to invite them back to the city.

The dutch government has a vision of one million homes in the Netherlands, of which the great part will be built in Amsterdam. The current situation of the market in dutch biggest city is often organised that private owners rent rooms in family houses for students and expats, as then the rent for them is affordable for one room, but the collective rent for the whole house is impossible to be paid for the families with children. The demand of the single users created a market for single tenants (students and expats). This creates a problem, that is present in a lot of western societies: 60% of the population lives in one or two-person-households. This has increased feelings of loneliness and social isolation among many people.

The figures also show that it is mainly wealthy families that move; 38 percent of them disappeared from the city within four years of the birth of the first child (CBS, 2017). The last of the diagrams show that each year the number of families moving outside Amsterdam is increasing - particularly after the birth of the first child.

In the Netherlands the number of children in the family is nowadays 1.83 on average. Most of the parents decide on one child (48%), about one third has two children (35%), three or more are only in 17% of the families. Also not each family consists of both parents: one third of the households consist of single parents.

Families have a big influence on the quality of life in the city. They ensure more diversity and more capacity, are glue to the strong social networks, due to encounters between parents, at schools and additional activities of their children, like hobbies and sports. They made the society coherent and involved in the neighbourhood’s life. Economical aspect is important to mention, as families use shops, child-care, child’s activities. With that there are more options, the attractiveness of the city increases, and also employment. Cities must provide housing for each group from the population - in Amsterdam nowadays the population is more and more homogeneous.

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Social loneliness

Problem that is deepening, because of the overflow of solo dwellers in Amsterdam, is loneliness. Various studies made by researchers working in the field of social behaviours confirm that around 30% of Dutch nationals are lonely and 10% suffer from severe loneliness, according to municipal health service GGD. That means 300,000 lonely people only in Amsterdam. This loneliness believed to be caused by a distinction between personal expectations and reality. The researchers distinguish between ‘emotional’ and ‘social’ loneliness, where emotional loneliness results from a lack of a ‘meaningful’ friendship, while social loneliness indicates a lack of a broader social network. Loneliness and social isolation can increase the emotions of sadness, worthlessness, depression, vulnerability, that are finally bad for our mental and physical health and wellbeing.

According to professor Theo van Tilburg, a specialist on loneliness who is helping the municipality address the issue, Amsterdam especially attracts vulnerable people who often come to the city alone. The reason that the city struggles more with loneliness than other large cities like Amsterdam, is because the city is home to many immigrants, expats and students, and the population is aging. There are many ways to intervene and help fighting social isolation, among which one can be prevention by the design that promotes living in the community, creates strong social interactions and offers sociability, support, sense of security.

A housing market bubble

According to the Swiss bank UBS Amsterdam is officially dealing with a bubble in the housing market (UBS Global Real Estate Bubble Index 2019, 2019). The city has recorded the strongest price increase of all cities in the study since 2015 (i.e. Munich, Toronto, Paris, Tokyo, Stockholm, Madrid, Milan, Dubai). On average, yearly real prices have increased by close to 10%, outpacing income growth by far. According to UBS a “strong regional economy” and “rapidly easing financing conditions amid a wave of speculative purchases” has contributed to the issue in Amsterdam, allowing investors to borrow more cash at a lower long-term cost. These investors increasingly buy homes in Amsterdam in order to rent them out at high monthly rates. (Pieters, 2019).
The size of the community has a significant influence on social interactions and their quality. There seem to be fewer in large communities, mostly because residents don’t know each other. Residents choose to interact in other environments, where others are known (workplace, school, etc). On the other hand, in very small communities people tend to lack their privacy, which may also lead to withdrawal from the social interactions. Clustering in larger communities can help to increase potential interactions.

The definition of cohousing, for the purpose of this research, will be the synonyme for the projects that help its inhabitants to cultivate closer social contacts, benefit from communal activities, mutual support and a stable neighbourhood in general. The cohousing is a certain form of a daily practice - the inhabitants are strongly involved during the conceptual and planning phase of the design. The project size can range from small buildings with a few flats to city quarters (see case studies), depending on the size of the community.

The size of the community is the important factor in considering the cohousing project. On one hand the Netherlands will face the problem of providing one million new homes for 2050, with the requirement of the high density of the urban environment in large cities. On the other hand, studies show that people only feel good in certain size of the community.

The community longevity as a function of group size was researched by Robin Dunbar and Richard Sosis in their article “Optimising human community sizes”, based on tree historical, small scale agricultural samples. The community sizes of 50, 150 and 500 are more common than other sizes and also have greater longevity.

To research the natural grouping patterns, Dunbar and Sosis (2018) tested possibilities using historical datasets from three types of collectivist societies: 19th century American utopian communes, Hutterite colonies of South Dakota (USA), and Israeli kibbutzim. All three situations are diversified economically and politically, yet they all face slow growth (births exceeding deaths) and sudden collapses (once the group reaches a limiting size set by their local economy). Researchers stated questions of what is the optimum size, how does the size affect community survival and longevity: “There is a significant negative relationship between the size of a community immediately after fission (size at foundation) and its duration (time to the next fission event). The regression equation suggests that communities of minimum viable size (~40 individuals) are unlikely to last 25 years without fissioning, and communities larger than ~180 would fission so frequently (at least once a year) that they would be socially unstable.”
Dunbar's number

In 1993 Robin Dunbar suggested in his research "Coevolution of neocortical size, group size and language in humans" the presence of a cognitive limit number of people who can maintain stable social relationships, in which individual person knows other members and can relate to every other individual. The number lies between 100 and 250, but is valued commonly to be around 150 people.

Group Thresholds

There are the ideal numbers where a community seems to function best - called the threshold values; and the less than ideal numbers at which a community begins to grow unstable, remaining so until a new threshold number is reached. The relations between those numbers were studied by Christopher Allen (2008).

7 - “The Working Group”. A community this size has about 4 up to 9 members, however 7 is an average that also shows up in multiple studies. It is suggested that it is a number that the brain can easily and intuitively comprehend (Miller, G. 1956) and is referred to as the general “rule of seven”. A tightly-knit group of 7 is the first group size which is truly an optimal community size; moreover it is found to be a very comfortable group size and “feels” relatively natural (Allen, 2018). At this size members are able to easily get to know each other and be-have together in an intuitive and organic manner.

13 - “The Judas Number” (Between 9-25; or 12-15). A community size of 13 doesn’t represent a threshold ideal value, but rather a low point. It is an unstable group size where group dynamics change due to a change of behavior (multiple leaders rise instead of one) or risk becoming dysfunctional. It is one of these valleys beyond every group threshold in which the previously harmonious group dynamics become more difficult. It is worth mentioning this specific group size as it’s a point that small communities often hit.

50 - “The Non-Exclusive Dunbar Number”. This community size sets in the range between 25 up to 75 members, but most the most natural is in the range of 50-60. This number was found by Allen (2008) in many online communities; Dunbar (1993) found it in clans of hunting groups in ancient times.

90 - “The Dunbar Valley”. As Non-exclusive Dunbar number communities grow, they reach a point where increased time obligations and the noise of socialization is required to keep the group stable. Similar as with “The Judas Number” this community size is a low point, where it requires more energy and commitment from group members in order to keep the group cohesive. A lack of commitment comes with the risk of a split in the group; while if the community agrees to a higher level of commitment it can grow to the next level.
150—”The Exclusive Dunbar Number”. Robin Dunbar (1993) got much of the discussion of group thresholds started. The number 150 applies more to groups that are highly incentivized and relatively exclusive and whose goal is survival. Yet, it is related and can be the highest limit of all for a tightly-knit community. Beyond this limit, communities are less cohesive, less trusted, and less participatory, people know each other less. The number of 150 is known as the number of relations that individuals are able to maintain at once.

**Personal Circles**

Personal limit is the measure of the number of connections that an individual can hold. Following numbers, unlike the previous thresholds, are rather applicable in personal relations. These personal circles are discussed by Christopher Allen (2008).

The support circle (3-5): is the number of individuals that one seek advice, support or help from in times of severe emotional or financial stress. An average size of an individual’s Support Circle in most societies is 3-5.

The sympathy circle (10-15): is larger than the support circle. It is the amount of people when you seek for sympathy and those whose death would be devastating. The Sympathy Circle is in the range of 10-15 people, but can vary between 7 and 20. Not all people in the Sympathy Circle are connected - members of one’s Sympathy Circle can have additional people in their own, that are not part of the others.

The trust circle (40-200): people that one has some type of intimate connection to. Measured as the people that would send each other family Christmas card or simply test emotional closeness. The measure are the strong ties and trust. Some researchers compare it with the Exclusive Dunbar Number of 150, however Allen (2008) believes that they rarely come in the same mutual group.

The emotional circle (~290): the total number of people that one can have some type of non-mutual emotional connection with, which can be from diverse groups. The ties to those people do not necessarily have to be strong. This threshold is called “social channel capacity”. The group size can vary strongly between people and might have half of the size depending on the individual.

The familiar stranger (up to 1000): the faces individual is able to recognise, but people know nothing about themselves. In a place where there are a lot of unknown people, one will be unwilling to approach strangers, take risk such as asking questions or interact as eating lunch together.

Power laws let us measure the intensity of individual’s involvement in a group. The best-known power law is the Pareto principle, known also as the “80/20 law”, that says that 80% of the wealth would be held by 20% of the population. But it also tells that some people o a lot more work in any social situation than others - participation inequality. In tightly-knit communities it’s important to consider the degree of participation. There are various levels of participation.
In order to understand what can support the social ties or bring members of the community together, I will investigate the historical approach and benefits, that were proved to be found in cohousing project.

**Building social interactions by design**

The case of cohousing provides a unique opportunity to study optimal conditions for social interactions and how to determine how social and personal factors may help to encourage the outcome of the design. In England, new neighbourhoods are designed to encourage social interactions. The need for more vibrant community helps to rebuild local social capital. Due to social interactions residents live in the community, knowing about other residents and social structure, which helps to build the trust between residents. This results in social capital, such as more efficiently functioning labour markets, higher educational attainment, lower levels of crime or better health.

Cohousing projects allow to study the interactions between residential design and resident behaviors and examine those communities are purposely designed for social connectivity and support. The design approach of those projects mostly represents design principles that literature identifies as crucial for the high level social interactions in neighbourhoods: higher densities, good visibility, clustering, inclusion, car parking on the periphery of communities. They also allow to determine which of those factors are less or more important in terms of encouraging social interactions.

Increasing proximity through the design leads to forming closer social relations due to the often passive contacts between the tenants (Kuper, 1953). Residents who live on the edge of the community can feel more isolated. Those who live close to the stairwell are more likely to socialize with tenants from other floors, and those who live in the centre of the floor socialize more with immediate neighbors (Homans, 1968). In high densities residents feel less control over their social environment.

According to Altman’s optimization process (1975) the use of semi-private spaces as buffer zones can increase the threshold and they provide a gentle transition between public and private spaces. It protects tenants from overexposure to the community and can be great space for encouraging interactions, only by increasing the opportunity of accidental contacts (Abu-Gazzeh, 1999). Other elements that increase social interactions are shared pathways to private units, parking spaces and local amenities.

The size and the quality of the communal spaces (both indoor and outdoor) need to be suitable for the use as well as flexible (Abu-Gazzeh, 1999). This will result in using them more often. To maximize interactions, those should be placed in the center, on shared pathways and visible. The optimum size is rather smaller - tenants use more likely to use shared facilities, when they are meant for smaller communities. The smaller a community, the greater is the intensity. The literature also proves that if residents have less private space, they are more likely to spend time in social spaces.

**Cohousing**

The idea of cohousing is to combine the autonomy of private dwellings with the advantages of community life. This typology consists of private units, semi-private spaces and communal spaces. The design of the cohousing encourages a collaborative lifestyle and interdependence between tenants. There is a list of factors that influences particular behaviour, that is desirable to create a community: personal factors (personality, attitudes, communication, values), informal social factors (relationships between individuals and individuals in group), formal social factors (organisational policies, decision-making processes, social structure) and physical factors (layout, communal facilities, buildings).

Various studies have shown that the mutual support and social interactions are stronger and more developed in the cohousing communities. This is due to the sense of community and positive attitude towards social interactions. This kind of community can be very diversified in interests, age, religion, household types; yet is quite homogeneous in case of social class, race, education and attitudes.

Historically cohousing was first created in Denmark and the Netherlands to increase sense of community; another factor was feminism and woman’s empowerment - in order to reduce the burden of housework for woman and improve the live of working parents with children. Among others, cohousing was seen to positively influence the environment, especially as a solution for alienation on the suburbs. Finally, cohousing is proved to have economic benefits, making it a more sustainable housing type.

Many researchers provided design principles that were adopted in cohousing projects, such as: (1) indoor and outdoor communal facilities with good visibility, (2) car parking outside or car-free community, (3) gradual transition from public to private - leading through collective spaces, (4) positioning activity sites and access points on shared pathways, (5) the tendency for smaller dwelling units than average size households, often due to limited private kitchen and laundry facilities, resulting in cheaper rental prices, (6) loss of the space in private units, that are supported instead by communal spaces (kitchen, dining, living area, laundry, gym, workspace, hobby rooms, workshop spaces, guest rooms, gardens and storages).

It proved to have positive influence for the social contacts between tenants, due to social interaction, participation, support, unity and safety. Torres-Antonini (2001) indentified six social contact design features that were supposed to be studied:

- shared open space,
- grouped structures,
- peripheral parking,
- pedestrian circulation,
- extensive common facilities,
- centrality of the common house.
What Torres-Antonini identified later is the impact of those features on the five social behaviours: social interaction, safety, participatory, support, unity. The first two were increased through the social contact design, and other three seemed to be independent. He suggested presence of other important factors, such as: common goals, the organization of communal activities, the joint ownership and management of the common space.

The foundation of nowadays community or cohousing is to go back to the idea of improving the quality of life of the families. The benefits of living in the community are, among others, social support, interactions, security in the closest neighbourhood.

Cohousing and community based projects lay in the circle of the phenomenon that could be called collective consciousness, where the members of the tribe care about each other.

**The neighbourhood unit movement**

Before the appearance of cohousing projects, in the early 20th century an American architect proposed principles for the measured urban unit. In 1923 Clarence Perry offered the neighbourhood unit as an answer to address social problems of alienation, youth delinquency and lack of civic participation through enhancing the physical design of the community. His inspiration came from his own previous involvement in the community-based social activities and concepts of ex. garden-city.

The plan has set boundary and size for the neighbourhood, specified location of different land uses and facilities and suggestion to create safe internal streets by redirecting them.

Perry’s neighbourhood unit was around 65ha and provided housing area for the population between 5,000 and 10,000 inhabitants, with the public facilities and elementary school at the center of the plan (Perry, 1929). The arterial roads would surround the neighbourhood and the internal roads would be designed to discourage traffic and provide a safe pedestrian environment. The basic principles of the proposal are presented on the figure to the right.

The plan set boundary and size for the neighbourhood, specified location of different land uses and facilities and suggestion to create safe internal streets by redirecting them.

The movement influenced others such as New Urbanism (Banai, 2013; Brody, 2009; Farr, 2008), and therefore contributed to evolution of the neighbourhood sustainability principles.

The idea was realized in Radburn, designed by Henry Wrighe and Clarence Stein (1928). It got characterised as “super blocks gree of traffic, where cars and pedestrians are separated from each other, and public facilities and shops are located on pedestrian networks and embedded in open space”.

The need for identity to a geographic neighborhood community has been related by Perry to the human lifecycle. From young singles that often enjoy the relative anonymity of a city living toward a change when they get married and have children. Then they “long for a detached house and yard and the social benefit of a congenial neighborhood”. The primary challenge for Perry was thus to create spaces that would best suit families with children. His solution: “the neighborhood unit”.

Perry made the primary school the central institution in his plan. He noted that the quality of the school was the factor that affected home-buying choices. The social interactions were often formed around the school, so that many of the families’ friends were parents of children in those children’s classes. Parents were also involved in parent-teacher associations, and for those reasons Perry argued, that neighbourhood should be built around schools. He based the size of the neighbourhood around the number that can house families with the appropriate number of children for a primary school (800-1500 at that time). According to that, a circle of a half-mile radius would...
How the spaces transition from public to private?

work well, to allow children to walk to school without crossing busy streets. The model would be influenced in density, the average number of primary-age school children per household and geographical particularities.

A graded street system would serve people passing by and the residents. After Perry's proposition of particular residential street widths and designs, that ensure the slow move of the traffic, Jan Gehl proposed traffic calming as improvement of life between buildings.

The plan was based mainly on single-family detached houses on separate yards with the business district on the edge of the neighbourhood unit, so that it can be reached easily by residents from internal streets and through traffic arterials by others.

Perry was focused on a limited segment of society, wanted to provide the sense of community for middle and upper-income nuclear families with children; he rejected the messy, mixed neighbourhoods that Jane Jacobs celebrated.

Perry specified particular principles of the Neighbourhood-unit, that applied in urban plans, could vary in results (Farr, 2007):

1. Size - accordingly to provide houses for families of 800-1500 elementary school children
2. Boundaries - by arterial streets
3. Open spaces - a system of small parks and recreation spaces
4. Institution sites - with service spheres in central point or common area
5. Local shops - adequate for the population to be served
6. Internal street system - proportioned to the probable traffic load

An example of the neighbourhood unit movement shows the relations between spaces, such as open spaces, boundaries, public and private spaces. It shows how architect wanted the neighbourhood to function. The pattern that he proposed, could be used in smaller scale - a single unit of perimeter block, that can function just like a small neighbourhood; it also has its own boundaries (facades or streets around), open spaces (courtyard), streets (circulation in the building).

**TRANSITIONAL SPACES**

One of the key aspects of the collective projects is the access to a sequence of the following spaces. Oskar Hansen, polish architect, theorist and utopist, that developed his career during the communist times, and got famous by his visions and theory of the open form and linear continuous system. He believed that the society works on three levels - micro, mezo and macro, and those he studies in his architecture. His researches about the open form are strongly influenced by the presence of the mezo-zone. In his theories Open Form is the concept of creation, project of accomplishment, which by its nature is unfinished and open, allowing the recipient for the interpretation. Moreover, the interpretation take place on both mental plan and by the interaction with the project. Thus it is unsaid, ambiguous and ready to interpret (Springer, 2007). The open-form creation allows the user to make his own interpretation by not imposing any fixed vision. The best example to show how this concept would work in architecture, is to take a look at the project that is the closest to architect - his own house in Szumin, Poland. Utopian project became open and changeable through Hansen's life and was his constantly developing experiment. The concrete wall along the road leading towards the entrance had painted horizontal white line, that on the other side was reversed (white wall with concrete stripe) as a suggestion of being only below the roof, but in semi-interior. That was a representation of the mezo-zone, that despite being physically outside the house, belonged to the interior. Kitchen table (photo below) was built in such a way that was mirrored through the wall made of sliding glazed panels - allowing to remain closed during winter and open for the summer, ready for feasting with more people.

Those are only a few aspects of the house, but one of the most important to explain how Hansen perceived subtle and unsaid transitions of the following zones.

In order to investigate transition zones in collective residential architecture, further research will be led on case studies. I will focus on four chosen projects and examine routing from the public space to the private space of the individuals. My analysis will be based on the sequence of transitional zones, described by Christopher Alexander in "A Pattern Language". The "entrance" on his diagram can be understood in various ways depending on the scale: entrance to the public space, to the building, to the common space, also to the apartment.

Theoretical research about the group numbers didn't result in a single number, but rather the relations that are created in those particular groups. Therefore I can possibly predict how strong will be the community feeling between the closest couple of families, that share together more private facilities, and what will be the relation with all neighbours from the block or even neighbourhood.
Following section consists of the abstracts, analysis and thoughts on the particular chapters from the book „Building and Dwelling. Ethics for the City“ by Richard Sennett. Each part is pursued by the conclusion and supported with illustrations that collect my thoughts on the chapter and put them into the perspective of Minervahaven and my design.

**Building and Dwelling. Ethics for the City**  
Richard Sennett (2018)

Chapter 2. Unstable foundations

The chapter raises the question of how ville shaped cite and through the different themes refers to the relations between them, such as through social inclusion.

In this chapter Sennett provides the historical ideals of the development of the city and the ways of approaching it. He brings the examples of three urban planners (the 1850s great generation of urbanists) for the understanding of how the city was created. Their approaches are provided with different methods of urban analysis along with explanation from where they origin. Eventually Sennett concludes that all urbanists tried to shape the ville to mobilize the city, but their motivations were different and had limitations: Haussmann wanted to make the city accessible, but he privileged the space over place, Cerda - to make it equal, which led to monoculture, and Olmsted - to make it sociable, but his social integration wasn’t achieved.

The last part of the chapter provides the analysis of human behaviours in the crowd and it’s effect on urban planning - the dynamism of the streets, making streets feel crowded and the apparent impression of crowd control.

I believe that architects and urbanists should by their designs try to consciously influence the behaviours of users. It is important to keep in mind both, the elements of engineering and social psychology, and how they can be tools designing human reactions.

“Individuals have no effective voice in any community of more than 5000 persons” Christopher Alexander, A Pattern Language (1977), p.71

Conclusion: Different approached towards making the city liveable have proben to be fruitful, but all had their weaknesses, which are uncovered over time. Sennett implies that social psychology, or a more thorough understanding of „the crowd“, can solve those weaknesses.

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**How to design an open city?**

*Level of the urban community: providing different typologies for different target groups in order to promote diversity rather than monoculture.*

*Mixing target groups within the cluster so that they can benefit from different lifestyles and needs.*
Building and Dwelling. Ethics for the City
Richard Sennett (2018)

Chapter 3. Cite and ville divorce.

In third chapter Sennett considers the disconnection between cite and ville.

The Chicago School - analysing and observing the community. Idea traced back to Thomas Hobes (XVII century) - based on that sociologist Ferdinand Tonnies (XIX century) made distinction between 'community' and 'society' (Gemeinschaft and Gezellschaft), he shrunk the cite: life is local.

The work of Chicagoans emphasized the cite, but neglected the ville. This manifests itself among a Park-Burgess’ bull’s eye target to represent the image of the city. The idea didn’t work because of too big simplification in comparison to the reality, as "big cities are made up of messy blobs and odd shapes". On the other hand, CIAM focused on ville. Le Corbusier’s plan to transform Paris in 1925 with enormous X-shaped towers on a grid seemed to solve the problem of bringing light and air into mass housing (opposing to Cerda’s original plan). He tried to work out the most efficient plan for people to live in “a machine for living” in both: house and the city.

For CIAM three-dimensional modelling was important, so that you could immediately know why the structure is there, just by looking. They were searching for generic plans for the functional city.

In the last part of the chapter Sennett presents the opposed views of Jane Jacobs and Lewis Mumford for the opening of the city. Jacobs was mostly focused on social aspects of life, “eyes on the street” and opening from the bottom up. Mumford, with ideal of the “garden city”, was sure that challenges have to be met first at the level of the ville. He mostly criticized Jacobs idea that the integrated system can’t be created bottom-up and she couldn’t scale up from the local to the urban.

Reflection: The discussion between two views of J. Jacobs and L. Mumford brought by Sennett brings questioning of how can we approach designing according to bigger scale. The approach of Jane Jacobs, that is strongly focused on social aspect, rises problem of scaling ville to bigger area. Example of Tietgen Dormitory in Copenhagen is modern design, that approaches the community and communal spaces. It can be considered as Jacob’s approach, with eyes on the street and surveillance. With the interviews of people living there, we could actually understand the problems on another level, than only from architects approach. For example, that students didn’t integrate with other flats and that feeling of community was not strong enough with the whole building. Can it be improved or is the scale (360 flats) already too big?

The example of Brasilia - the city designed from scratch, was difficult to approach by people who couldn’t afford living there, so that they “designed” their own urban planning around, according to their culture, behaviours and habits. How much can we introduce new way of living to people?

Q: How to can both views of designing bottom-up or top-down contribute to making cities more desirable to dwell?
Building and Dwelling. Ethics for the City
Richard Sennett (2018)

Chapter 4. Klee’s Angel Leaves Europe.

In chapter 4 Sennett brings divorce between cite and ville on another level. On one hand the introduction of global cities ( Saskia Sassen), the network they create and how detached they are from actual local place or nation can show that ville started to evolve in a non-physical way. The physical ville can be shrunk to the very small size of the neighbourhood, while at the same time we can contact people around the world and order goods online, without moving from home. Also the process of globalisation itself can lead to blending cultures. We can observe the same typology of individuals units clustered around one common courtyard. That example we already saw in Shikumen, Iran’s Shushtar-Nou and in slightly different form of Tietgen Dormitory in Copenhagen (bringing more units around one communal space and distributing them also vertically). Up to which point is it copying, inspiration and when it becomes introducing new cultures? How do we know if we create different/the same typology? Can we copy it and adjust the same type to different cultures? Can it work in different climates? The problem of the density and growing the cities raised my questions: what is the maximum capacity? How far can we let cities grow and make sure they still function? What is optimum size of cite and ville? And how to help people who occupy but not dwell?

I think transitional spaces such as communal gardens are key to help people dwell, feel like home and familiarize the space. The incorporation of those common spaces, that we also saw in shikumen, shrink the size of the whole city and help to create communities, which I believe is one of the most important factors to create healthy environment.

Q: Is the globalisation beneficial for humankind in a way of blending cultures? Can we say that similarities in dwelling typologies come from sociological needs of people or are the cultures so different that some solutions can’t be introduced to different social groups?
In 6th chapter Sennett refers to the technology as the threat for the society. He states that “technology will solve what sociology cannot, sorting and smoothing the relations between people”. The idea of the smart city became actually two different kinds: prescribed - that dumbs people down, because of the lack of complexity, and coordinated - the one that interacts with people, self-criticizes, stimulates people and engages them in complex problems. The top-down technology of the prescriptive closed city provides user-friendly technology that lacks a struggle, which in consequence only works when people don’t think about it and don’t ask what-if? questions. As alternatives Sennett gives example of the technology that is not only in service but also in charge (technology that controls activities or coordinates them).

Sennett questions that in the scale of urban planning, the city stupefies people, when they lack interactions with the surrounding. As an example he points that the highway which connects two places might be efficient, but it is not enriched with experiences - “(it favours) moving through space rather than experiencing place”.

Reflection: Use of technology and its accessibility definitely influenced the development. But depending on the ways it is used, the result on people differs. Instead of prescribe it should provide. Easy access to technological solutions may lead to automatic work instead of questioning of what we do and why we do it. The close example (I believe) is the way that architecture students decide to sketch their ideas and draw first propositions for the projects.

During my bachelor in Warsaw, my supervisors used to tell students not to use overly-smart programs as ArchiCAD. They feared that the program doesn’t give full freedom, but rather the flexibility to work efficiently on further stages of the design. Weather it is “old-fashioned” paper and pen, physical model or simple SketchUp, those tools allow certain sketchiness of the idea without closing it in frames of wall with certain thickness. [The same tutors prefered when students used AutoCAD instead of ArchiCAD, because then “every line matters” - they are draw with intention.] Back then I thought it comes from their fear for the new technologies, that they didn’t knew yet. Now I understand the other point. Yet I believe that every method can be right, until it is used consciously.

The technology that makes people’s life easier doesn’t necessarily need to be stupefying. It is important for everyone to question their choices, leave space for doubts and not to take everything for granted.

“**The stupefying smart city (is) a place that works well so long as you don’t think too much about it**” (R. Sennett, p.158), but acc. to the paradox of choice, the elimination of choices reduces anxiety. How to find the balance?
Chapter 7. The competent urbanite

In this chapter considers various ways of perceiving a city. He begins with the concept of “street-smarts” as people, who get knowledge from living in the city. He uses it as an introduction to the distinction between two terms: “erlebnis” and “erfahrung”, as the realm of wandering flaneur - a more open spirit (“erlebnis”) and the qualified flaneur (“erfahrung”). The conclusion he states is that “more erfahrung means less erlebnis”.

The other sense of the perception that Sennett presents in this chapter are shown in different scales, that philosophers and architects used in history. He reminds the observation of Haussmann about perceiving the street with different speeds. Then he lays various physical scales, from Leonardo da Vinci (Vitruvian man), Le Corbusier (Modulor), Allan Jacobs (60-degree cone of vision) and Jan Gehl (movement oriented measure). He concludes this part with his own deduction that “human scale is established not simply by moving, but by moving in a way which is puzzling”.

The last part of the chapter is a try to give tools for designers (especially urbanists) to talk to future users, to unable the dialog with future users of the space: hearing the unsaid, the declarative and the subjunctive voice, the “it voice” and informality.

Reflection: The observation of different tries to catch the perception by different architects and urbanists made me realise, how many different attempts and angles we can try to consider as designers. I think it’s very important to be conscious of those ways, yet of course very difficult task. It’s not only how we design the architectural space to function, but how people (as users) approach it and how human perception changes while following the narrative of transition between the places.
Building and Dwelling. Ethics for the City  
Richard Sennett (2018)

Chapter 8. Five open forms

In this chapter Sennett seem to provide solutions that would lead to open form in architecture and urban planning. He provides examples followed by concrete, though already known solutions.

The idea of “the membrane” is well explained in the third form. Sennett first uses the example of Nolli’s map of Rome, where buildings were black, but the interior of Pantheon was left white – because it was used as public place, where people could meet. The same graphic principle used on Plan Voisin by Le Corbusier shows the distinction between open public space between x-shaped towers with their public space around, and streets and squares in old urban tissue. This comparison prepares the reader to understand the distinction between borders and boundaries. In La Marqueta, New York, the street could have been transformed from the border to boundary by placing market between rich and poor. This way it became connection and place to serve both groups - that leads to open form.

The fifth form that he calls “seed planting” is the least obvious. It sums up previous forms, but refers to the context. Just as throwing seeds in the ground - using the same tools, may lead to quite different solutions. As the open form of “coordinated” plan, it does not tell the user exactly what he should do, but rather provides the tools where people can decide what they do and how they use the space.

Reflection: After the lecture of this book I have quite mixed reflections. The complexity of previous chapters and provided analysis (historical and theoretical) built high expectations for the open-form solutions. Yet the examples seem logical, but very simple. Clearly explained difference between borders and boundaries didn’t bring the new understanding of the idea, but rather helped to look more consciously on how the space is created. Though while reading about the fifth open form, my mind was shifted towards other perspective: it’s about challenging and questioning, instead of providing/living a stable and balanced life (“cause it would lead to losing energy in the city”). Perhaps it is about making conscious choices, while using the same old tools that we already know, but need to rediscover. Especially nowadays, when people (so architects and architecture-users) are overstimulated, it is mindfulness and consciousness that should be promoted, rather than constant expectations for more.

Architects shouldn’t search for new urban/spatial solutions, but rather use and explore ones that are already known and familiar to people (users).

How to re-invent/re-discover old (design) tools that we already know?
How to design an open city? - toolbox

**Toolbox**

Based on the analysis of the chapters from Richard Sennett’s book “Building and Dwelling” I created a toolbox - a set of principles that will be useful for my own design process. Just as in abstracts of the chapters, I didn’t always agree with the author and his point of view, but rather discussed proposals based on his and my own observations.

The matrix of the toolbox is divided into four levels, suggested by the Habitat Bill of Rights - the document that tried to define the principles of designing houses grouped into communities. The document was presented by Government of Iran to the United Nations Conference of Human Settlements in Vancouver in 1976. It considers following six scales: individual, dwelling, cluster, pedestrian precinct, urban community and region. For the needs of this project I only focused on the middle four.

**Urban community**

- different characters of dwelling for different target groups

**Pedestrian precinct**

- different characters of dwelling for different target groups

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<td>City design should be approached top-down, with strong rules that enables clear, integrated structures in order to stimulate small, face-to-face encounters on cité level.</td>
<td>Progress is not a matter of ignoring the past. Instead, one that moves forward should simultaneously spin around his own axis in order to look at past and present. Only when he has searched, assessed and embodied its qualities (cité as well as ville) can he make sense of the direction he goes</td>
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**Research analysis**

Chapter 2 /
Unstable foundations

Chapter 3 /
Cité and Ville divorce

Chapter 4 /
Klee’s Angel Leaves Europe

Chapter 6 /
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Five open forms / 4. Shell & type form

Chapter 8 /
Five open forms / 5. City planning as seed planting
benefiting from different lifestyles

taking into account the group size, relations between people and the privacy levels

globalisation vs. authenticity

propose new way of dwelling, but reflecting on the current life-styles and particular needs of target groups

the easiness of using solutions that people know and understand depends on the social group

Adjusting common spaces to particular users

carefully designed spaces that provide specific proportions according to human perception (more thoughtful than only minimum)

the new ideas must be present in user-friendly way to encourage interaction instead of cutting users off

propose new way of dwelling, but reflecting on the current life-styles and particular needs of target

carefully designed spaces that provide specific proportions according to human perception (more thoughtful than only minimum)

Providing flexible space for different activities:
- corridor --> place for meeting and interaction
  - living room
  - common kitchen

Providing spaces with different privacy levels

Providing common living spaces in the “heart” of house, but also using space privacy gradation (from the most public to the most private) to encourage interaction between tenants

Common spaces on the border of the communication spaces to encourage an interaction between other tenants

Flexible spaces and incomplete forms to let tenants decide how they want to use it and develop on their own

„Seed planting” activities for accidental interaction of tenants, with and between each other

One of the last chapters in „Building and Dwelling” clearly presents particular open forms:

1. Synchronic and sequential
2. Punctuation
3. Membrane
4. Shell and type
5. City planning as seed planting

Cluster

Dwelling

various flat types

families

young couples

singles

Cluster

Dwelling

various flat types

families

young couples

singles

Cluster

Dwelling

various flat types

families

young couples

singles

Cluster

Dwelling

various flat types

families

young couples

singles

Cluster

Dwelling

various flat types

families

young couples

singles

Cluster

Dwelling

various flat types

families

young couples

singles
The collage of the first impression from Minervahaven in Amsterdam is based on the feeling of disconnection present on the site.

The buildings are standing out. Every one of the offices tries to be an icon. They lack of connection with the place and with the ground. But the relation between them exists mostly because they stand so close to each other. The space between them is sometimes defined by common squares (especially on Fashionpier), but it remains empty and is lacking the interactions between users during the day.

One of the few places to sit is represented by three metal tables with benches, that are placed in unmaintained area, surrounded wild high grass.

The water surrounding the site definitely represents the potential of the location, but is still used by boats, that are remains of industrial activity, which was placed and is still present to this days.

The dashed lines between buildings symbolise the illusory relation between the buildings. The connection seems to be only present due to close distance between the side facades.
Historical background of Minervahaven

Amsterdam as the capital of the Netherlands is the largest city with 800.000 inhabitants. In 17th century Amsterdam grew into one of the most important port cities in the world. The city is the cultural capital and financial centre of the country.

Havenstad is an area located in north-west of the city centre and the largest part of it is in between the city ring (A10) of Amsterdam. It is arranged as a harbour area and thus the location at the IJ is crucial. The municipality has the vision for the area to dwell and provide work space for 150.000 in the future.

Minervahaven is located between the Mercuriushaven and the Nieuwe Houthaven. The surrounding industry causes noise nuisance, but from 2030 the municipality wants the residential buildings to arise, and therefore slowly remove the port industry from the area. Minervahaven has two piers, of which the one in the east has turned into the Fashion pier with the offices of famous fashion brands. So far the location is mostly occupied by the companies, but the ambition is to provide the area with 80% of residential buildings and only 20% of the offices and other amenities.
Urban and master plan

As the part of the location research I made various analyses, followed by urban and master plan, together with group of three other Msc3 students: Emelie Swart, Gawein Verbist and Sjoerd Rijpkema. Our urban design was based on the Borneo-Sporenburg, urban plan also from Amsterdam. The idea behind this so called "low rise - high density" plan was to place very densely parallel streets of terraced houses and a few dominants, that boosted the density of the whole site even more. Those icons were supposed to work also as orientation points - often breaking very rigid structure of the linear streets and canals. Our urban plan was prepared basing on the same values and to explain different aspects of it, we prepared various diagrams, drawn by Sjoerd, of which a few I decided to include in this report.

Public transport and car access

Important part of the new urban plan is the aspect of transportaton. We were told by the representative of the Municipality of Amsterdam, that their wish is to reduce the car access to minimum, as much as possible, and to promote better public transport. For this reason we included in the central
part of our plan metro station - favourably connected to one of the dominant buildings, with direct connection to public facilities and to the waterfront. Secondary transport are two bus stops, strategically placed at the entrance to the plan and next to Fashion Pier - district that we decided to be valuable, as an icon of the plan and important work place. Additionally also near to the Fashion Pier we placed possible connection with the ferry. Obviously car access is possible to all buildings, due to the safety reasons - ambulance or fire brigade. Though, we designed the streets between buildings thinking about pedestrians and cyclists, so that the plan is people-directed. Most of the streets are one-way streets designed in loops.

**Public amenities**

To direct the focus in particular places of the plan we tried to predict where the public amenities are most desirable. First is the main street, leading towards the pedestrian and cyclist bridge that in the future will connect two neighbourhoods. Secondly in each dominant it is planned to place commercial locals, with special accent for the place in the middle of the plan, where the attention will be also focused on the connection with the water activities, such as swimming place and cafe’s.

**Zoning for different target groups**

To promote and bring diversity to this quite homogeneous plan we proposed five various house typologies. Each of them: perimeter block (1), terraced houses back to back (2) or double sided on the water side (4), block of flats with staircase (3), could be placed in the configuration of the long line of building and is directed to different target group. We made calculations about the potential sizes of those and the density (units/ha) that they provide, so that the architect that is given the plot, can decide what typologies and how can he mix them to provide particular density (not smaller than 200 units/ha for low rise). The fifth type that we introduced are the roofscape (5a and 5b), that are another layer of living for solo dwellers and couples, with the qualities of living in high density and not experiencing it.
DESIGN RESEARCH

case study, quick start, virtual reality tutoring
Mehr Als Wohnen came about in response to Zurich's inner-city housing crisis. The city has been experiencing, just as many of the urban centers, a sharp rise in its housing costs. In response, the City of Zurich organized an open design competition on a former industrial site.

A series of subsidies are offered to low-income earners, and 10% of the apartments are allocated to charities and not-for-profits, including an orphanage. The result is a development that includes a mixture of people, ranging from recently settled refugees to middle income professionals.

At Mehr Als Wohnen, the architects have been encouraged to explore new modes of planning and organization. The development thus proposes a variety of new ways for people to live together co-operatively.

A product of this experimentation is House A, a 'cluster house' designed by Duplex Architekten. This contemporary interpretation of a share house allows people to live with varying degrees of privacy and autonomy. Architecturally, this is achieved by arranging a series of small, apartment-like units around a generous common space. These joint living rooms provide a space to come together and socialize, with the option to retreat to a private apartment – equipped with a bed, bathroom and kitchenette.

Mehr Als Wohnen is a large-scale prototype for multi-residential housing. It transforms a once neglected neighborhood into a welcoming and diverse civic quarter filled with a genuine demographic mix. As a model, Mehr Als Wohnen is experimental and collaborative, encouraging new modes of living and working in close proximity. In such a way it is, as its name suggests, much more than housing (Duplex Architecten).
Case study 01. Mehr als wohnen

Location
The complex consists of 13 buildings designed separately as cooperatives. It is located on the outskirts of Zurich, between Hagenholzstrasse and the railway tracks, and is close to the Schule Leutschenbach - school’s building designed by architect Christian Kerez.

Each of the buildings has different level of collaboration and privacy for the tenants. The one that I chose to analyse, Haus A, has the biggest common-to-private ratio from all projects.

Sun orientation
The complex is designed in a way, that each building has between 6 to 8 floors and enough space inbetween to get enough sunlight. Haus A is located on the southern side of the site, therefore has the most of the sunlight. The external shape wasn’t especially influenced by the sunlight, but - as will be shown in following analyses - the interior and common spaces benefit from the light access.
Acessibility

The entrances to the building are located on both sides of it - from the public square of the complex. They lead to the main open core, located in the middle of the building. Due to its open structure through all floors, it gives feeling of open space and connection between all levels.

After finding themselves on particular floor, tenants go towards their flat through the space inbetween, that is common for 4-5 flats. Common space of the cluster has functions such as kitchen and living space, that single flats are lacking. This way tenants are in some way forced to interact by passing the common space.

The routing towards the flat comes through spaces of different privacy levels: from outside (public), corridor common for the whole building, common space of the cluster (around 8 people) to the small private unit.

Transition from public to private: gradual.

Social spaces

Each of the floors consists of two separate cluster-like apartments. The size of each unit is around 8 people. In Dunbar numbers it lays between "the support circle" and "the sympathy circle", therefore I can presume that the relations between tenants are still close and the comfortable atmosphere is still possible.
Proportions: private / common

Haus A is designed very specifically. The ratio between common and private is very high. Internal space dedicated to the communal activities takes almost half of the whole area. We can also distinguish different privacy zones, where different groups have access to them.

Common space: 3050 m$^2$ (46%)
Private: 3160 m$^2$ (46%)
Other internal space (staircase etc): 560 m$^2$ (9%)

Outdoor space

Each of the clusters have common balconies that can be accessed from the collective spaces as well as from private units; they are located on every facade. Outdoor space on the groundfloor is dedicated for the community of the whole collective.

There is limited car access to the site, therefore it can be considered calm, safe and quiet.

Amenities

On the groundfloor there is commercial area with access from outside, used as occupational therapy workshop. Other special features of the building are workshops for disabled, gallery and raised groundfloor connecting to Andreas Park. Building doesn’t have internal parking space for cars.

Except of the common space in the large hallway of every cluster, there is also additional room located inbetween two clusters.

There is also bike storage located on the groundfloor, next to the western entrance to the building.

Flat typology

Flats designed in the clusters are rather small - single and double rooms only, but according to the concept, they live in the bigger community with tenants in other flats located in the same cluster.

The location of each unit seem to be accidental. The space between them is used as the large hallway, kitchen, living space and community space for the cluster.
**Flat 1**
Example of flat for the couple: lettable floor area 42 m²
Located on the NW corner of the building. Windows looking outside at the square between other buildings from the collective.
Consists of a living space with a kitchen, a bedroom and a bathroom.

**Flat 2**
Example of the flat for single: lettable floor area 28m²
Located on the western facade, with single window in the bedroom.
Consists of a hallway with a kitchen, a bedroom and a small bathroom.

**Flat 3**
Example of the double room flat for couple: lettable floor area 42 m²
Located on the western facade, with single windows in each of the rooms.
Consists of a hallway with kitchen, a bathroom accessed from the hallway and two separate bedrooms.
**Flat 4**

Example of the flat for couple: lettable floor area 39 m²

Located on the eastern facade. The same typology as the first flat, with the difference that it’s located in the middle of the facade, not on the corner.

Consists of a living space with a kitchen, a bedroom and a bathroom.

**Workshop space**

Single room: lettable floor area 26 m²

The only lightsource in the room comes from one window located on the eastern facade.

A single room space that can be used for other activities, that tenants would like to execute in privacy. It has a single bathroom, without a shower.

**Flat 5**

Example of the double room flat: lettable floor area 32 m²

Located on the south-east facade.

Consists of a hallway, bathroom and two bedrooms.
Babel / Rotterdam, the Netherlands

Amount of dwellings: 25
Dwelling types: Double floor apartments; three- and four-bedroom apartments
Other functions: Common spaces, private outdoor space, street space
Target groups: Urban families
Size: 3000 m²
Density: 259 units/ha (25 units / 0.0965 ha)
Architect: Laurens Boodt Architect
Year: Concept: 2016

On the square there is a common area for children’s parties, (flex) workplaces, meetings, etc. Each home consists of two floors. On the first floor of the house is the street space. Here are the living spaces and the kitchen. The bedrooms, bathrooms and storage are on the second floor of the individual home.

The houses have loggias that can be opened completely, making them private outdoor spaces. On the ground floor they also act as an entrance. In addition, houses have a private outdoor space on the street space, which is indicated by a number of pins. Architects also propose an extra zone of outdoor space, indicated by drawing pins, on the pavement for the houses on the ground floor.

The parking garage consists of two floors and is accessible via ramps. There is space for 30 parking spaces, also space for storing bicycles and outdoor storage.

The load-bearing walls are used as home separating walls as much as possible, in order to meet the noise requirements with regard to contact noise. The core with the elevator and emergency stairs can be reached via the entrance hall on the Kratonkade (Laurens Boodt Architects).

At the Loods Celebes is a gate with a staircase that forms the entrance to the street space around the building. The street space will be expanded on the first floor to a square, for a vegetable garden, picnic area, etc. Architects propose to make a staircase to the courtyard garden of block. The street space continues upwards along the houses, with the stairs connecting the various plateaus. The stairs are a play area, seating area and viewpoint.
**Location**

Babel project is located next to Schehaven, between Kran- tonkade and Loods Celebes. The building is visible already from the streets when approaching it, but also it is next to the water, therefore it can be seen with its outstanding shape from the other bank of the old harbour.

**Accessibility**

The building is located in the corner of the perimeter unit. The access to the site is directly from Krantonkade. On the ground-floor there are entrances to apartments located in the ground-floor, to the main staircase, gate to the garage and to the outdoor terraces on every level.

**Sun orientation**

External facades from the street side are from the northern side. The building was shaped in a way that especially the southern side of the shape creates external space to meet with other tenants - there are not only private terraces accessed from each apartment, but also the same outdoor space on each level creates one long routing through every level towards the top of the building.
Social spaces

Common space inside the building is located on first level. On this floor there are no entrances to the flats - they are double floor apartments with entrance to them form the ground floor. This means that the access to the common room is equal for everyone, but on the other hand there is no opportunity to pass it accidentally.

According to Sennett, it is beneficial to place common spaces and amenities on the borders, because they encourage the interaction.

Transition from public to private: rapid.

Proportions: private / common

Design of the building is very efficient. The only internal space dedicated to the community is located on the first floor (see the diagram on previous page). On the other hand, the amount of the external space that is dedicated for all families as semi-private terraces seem to compensate for this single common space.

Common space: 60 m² (2%)
Private: 2430 m² (81%)
Other internal space (parking, staircase etc): 510 m² (17%)

The size of the community

The community number per staircase / the building is 25 flats (around 90 people). It lays within the optimum number of the flats per cohousing cooperative (between 12 and 30 flats).

The number of flats per floor is either 6 flats (0, +2, +4) and 4 flats (+6). This means around 18-20 people per cluster. In Dunbar numbers this fits into the concept of “super family” and lays still in the sympathy circle.

Outdoor space

The building has extensive outdoor space on every level, due to narrowing the flat size towards the core with the staircase. It is an extension of every flat - that it has outdoor space, just as typical single house. This design decision let to keep the quality of single family house, and at the same time provide truly urban density of the building (259 units/ha).

Another quality of this outdoor space is that it connects all flats together, just as the street. It helps to build the feeling of the community among other tenants, by sharing their semi private terraces as a path towards the top of the building.

Amenities

Babel doesn’t provide other amenities for tenants or local people. Groundfloor from the street side is occupied by the flats - with extended outdoor space on the street; from internal side (of the courtyard) it’s occupied by internal garage for tenants (30 parking places).
Flat typology

The main routing to the flat is relatively short and leads only through the internal staircase and very short corridor with entrances to 4-6 flats per floor. Therefore the transition between different privacy zones is quick: from the street level (most public) tenants go inside the building and with the lift or staircase (collective) they can go to their flats.

In this routing there is no common space on the way, when inhabitants can spend time together - as it is located on the first floor (there are no entrances to the apartments on this level).

If we want to consider outside routing to the flat, it is optional, but there is no entrance to the flat - only possible to enter it directly to the living space through the terrace door. Someone who decides to follow this path, will definitely experience more of the community life - the routing itself is semi-public area with the visual connection with every flat. It is physically longer and the wanderer has experience of walking the street and passing different houses with external spaces.
All flats in Babel project are double floor apartments. This design decision has following consequences on the quality of life:

The division in the flat for the living space and private bedrooms is very clear - as the entrances, living rooms and kitchens are kept on the lower level.

The level with living space has an access to the terrace (semi-public, collective space). The terrace itself is relatively narrow (around 2 metres) - for tenants it gives more of a feeling of the real street outside than the balcony. For every flat there is additional outdoor space taken from the volume of living space, that gives more privacy than the "street". Other inhabitants that are passing the flats don’t have the experience of crossing by the very private space that belongs only to the flat.

The living space on the lower level is very open and spacious - with an open kitchen and dining space that transitions to the living room.

The upper level with bedrooms is designed very efficiently. Every tenant has their private space in bedroom, that has view on the street through the windows. The shape of the building didn’t allow architects to propose private balconies on those levels.
There are three fundamental and cross-sectional principles of the project, (1) redefine the collective housing program. The building program proposes 28 units (40, 60 and 75m²) and community spaces that allow stretching the fact of living, from the private space to the public space to enhance the community life. All of the supporting functions are articulated around a central courtyard, a large relationship space reminiscent of the “corralas”, a typology of popular housing in parts of Spain.

(2) sustainability and environmental quality. The objective is to build with the lowest environmental impact possible, both in the construction work and during its life and, above all, achieve comfort in homes with minimum consumption, to reduce the overall costs of access to housing and eliminate the possibility of energy poverty among users. We started from the conviction that the best strategy is to reduce the initial demand of all the environmental vectors of the building (energy, water, materials and waste), especially at the energy level, where we prioritized passive strategies to achieve maximum use of existing resources.

(3) user participation. Self-promotion and subsequent collective management implies that the participation of future users in the process (design, construction and use) is the most important and differential variable of the project, generating an opportunity to meet and project with them and their specific needs. During the design, the participation was articulated through the architecture commission, which was the link between the technical team and the general assembly, and the one in charge of preparing the architectural workshops. We have conducted an imaginary workshop, program, project strategies, environmental strategies, typology, and sessions for the validation of the preliminary project (Lacol).
Location

It is located in the very dense area of Barcelona. The building is facing the street on the northern side, a courtyard on the southern side and has a close relation with neighbouring buildings.

Accessibility

The access to the building is from the street side with the open passage leading to the backyard. The fact of the rather narrow street that is located on the northern facade influenced the internal shape of the flats: those on the southern facade (with a lot more of direct sun access and more free space) have the depth of even more than 10m; those on the northern facade are only 5-6m deep.

Sun orientation

The sun access is a crucial aspect of the project. The typology, that was used to designed this building, is based on the internal courtyard. Therefore the flats are shaped around internal galleries and have a sun access from the top glazing above the void.
Social spaces

There are various spaces ment for the residents of the building. On the groundfloor there is common kitchen and dining room. First floor offers a multipurpose space and storage. Second room has a guest room and health care room.

Common space inside the building is located on each level as an internal courtyard with gallery. Additionally there are flexible spaces around the courtyard, organised that they can be accessed from both flats, and the gallery. This way of organizing common spaces definitely encourages interactions the most, because of the close contact with other families.

On first floor the gallery was extended with the view to the street side. On fifth floor level it is extended outside for the common terrace. The use of this void not only brings more opportunities for interactions on various levels vertically, but also brings more daylight to the whole structure.

Transition from public to private: gradual.

Proportions: private / common

Design of the building is rather efficient. There are flats located around the inner void with sunlight access from various directions. There is no strict common space, but more of the collective open space on the edge of the flats and corridors. Every flat is designed with a decent amount of privacy.

Common space: 900 m² (30%)
Private: 1860 m² (72%)
Other internal space (commercial, staircase etc): 240 m² (8%)

The size of the community

The community number in the building is 28 flats (around 80 people). It lays within the optimum number of the flats per cohousing cooperative (between 12 and 30 flats).

The number of flats per floor is between 4 to 6 flats. This means around 18-20 people per cluster. In Dunbar numbers this fits into the concept of "super family" and lays still in the sympathy circle.

Outdoor space

The building has outdoor spaces on every level, accessible from the flats as a common terrace. On fifth level there is a terrace with access from the main courtyard, for every resident.

Amenities

There are amenities provided on the groundfloor: a public alley with an entrance to the public inner courtyard and commercial local.
**Flat typology**

Design of each flat is relatively flexible in a way that one of the rooms located close to the internal void can be accessed from inside the flat, as well as from the common space. Therefore it can be either isolated for other users and guests, or only used by the family that occupies the apartment.

The floorplan with the void made it possible make light access to the flats from both sides - internal courtyard and the outside of the building.

**Flat 1**

The flat has main living space stretching from the internal corridor to the outside facade. The space is divided by the bathroom in a cubical shaped with kitchen anex, therefore it remains open but clearly organised in different spaces with smooth transitions. Bedroom and the living space can be accessed not only from the main entrance to the flat, but also there is a possibility to open them directly to the common void. This way the privacy level is fading and makes the tenants integrate more with each other.

Windows of the living space are opening towards the southern facade, where tenants share terrace with other families.

**Flat 2**

General outline of the flat is very similar to the previous one: main living space is divided by the cubic of bathroom and kitchen anex around it. One of bedrooms is located on the side of the internal courtyard with common space; second one has access to the common terrace. Additional room is introduced in this flat: it is proposed as working space and can be accessed either from the common corridor, or from the living space of the flat. It remains flexible, as it can be easily joined to the flat by divisional wall with sliding doors.
**Flat 3**

Third of the flats has windows from the street side, thus it is not as deep as flats located on the southern side of the building - it is only 5m deep, while the other side has rooms with depth exceeding 10m.

The living space is smaller than in previous examples. Kitchen and dining space are located in the separated room. Additional feature of this flat is a small bedroom with the access from the flat and the common corridor.

The door leading to the corridor and efficient design suggest that it is meant as a guest room - for temporary use, with the possibility to include the room to the apartment.

**Flat 4**

Fourth flat has the main entrance opening directly to the living room and further to the dining space with the kitchen. Bedrooms are designed very efficiently - to provide sleeping and working space along with the wardrobe/storage. Second bedroom as in previous example has access to the corridor, therefore it can be excluded from the flat and used as a guest room on its own.

The design of all flats is very flexible - considering the multipurpose rooms, that can be either joined or detached from the circulation of the flat. Also the amount of the doors to almost every room shortens the physical distance to the common space, as well as the psychological barrier to experience the life of the community.
Towers within a Tower brings Hong Kong’s urban verticality into the apartment units themselves. High-rise living, the twentieth century’s solution to urbanization on an unprecedented scale, has been a double-edged sword to cities: witness the wane of residential communities within the pancake stacks of apartments. Is the tower the antithesis of community? We think otherwise. Towers within a Tower is an alternate Tower typology that uses verticality to the benefit of community. Apartment spaces - the bedroom, kitchen, living room, bathroom, study - inhabited as cells in a horizontal field, are instead stacked one atop the other.

Each apartment thus becomes its own Tower. Aggregated within a structural 5mx5m grid, these Towers curate a common space within their fold, a local neighborhood at every level. Each resident can rightfully lay the claim “That’s my tower” without sacrificing the feeling of the community.

Each unit type is composed of prefabricated elements. Once assembled into boxes, it can be easily mounted onto each other apartment with cast-in steel-plate embeds. The concrete frame is clad with colorful ceramic tiles highlighting the common construction material of residential towers in Hong Kong (Kwong von Glinow).
**Location**

The location of the building can’t be discussed, as it is only provided as a concept. Though the project provides variation of stacking a 4-floor high modules on top of each other, as an answer to new sky-rise-like typology, or next to each other in lower parts of the cities.

**Sun orientation**

The shape of the project doesn’t favour any of the facades to the sun exposition. The voids between flats are supposed to be used as vertical visual communication between tenants; and also bring a lot of light inside the core of the building.
Social spaces
The core of the project is ment to be the common space. The voids between different levels are supposed to enhance visual contact with other tenants.

The routing towards the flat leads through the common spaces. This way it gives an opportunity for interaction between tenants. Additionally, the vertical openings in the floors make the space more open.

Transition from public to private: gradual.

Proportions: private / common
The concept of the building is proposed as an experimental approach to living on various levels.

Common space: 75 m² (30%)
Private: 150 m² (60%)
Other internal space (staircase etc): 25 m² (10%)

The size of the community
The community number per module is 8 flats (around 18 people). It lays within the optimum number of the flats per cohousing cooperative (between 12 and 30 flats).

The number of 18 people per cluster, in Dunbar numbers, fits into the concept of “super family” and lays still in the sympathy circle.

Outdoor space
The particular outdoor space of the project isn’t proposed, therefore will not be discussed.

Internal common space on different levels can be considered as balconies, because it has connection with an external edge and it doesn’t have external envelope on the facade.

Amenities and social spaces
Other amenities are not discussed in the project.

Flat typology
The project is the combination of three different modules of flats, dedicated for different target groups: the single unit of 32 m², the couple unit of 37 m² and the family unit 42 m². Every unit is unique in the proportions and organization.

All of them are combined around one core to promote the community ties between different groups.

Access to the flats is differentiated per two lower levels, four flats per floor (as can be seen on the first diagram).
Flats are designed in three types: a single unit (lettable floor area 32 m²), couple unit (lettable floor area 37 m²) and family unit (lettable floor area 42 m²), but each of them was adjusted and solved in details individually.

The studio unit is 32 m² big and designed on 3 levels, with 3rd floor of the height of two floors. The entrance is located on the middle level in the sleeping area. Use of the multiple staircases on various levels seem to be very unefficient, if we consider the proportions to the total lettable floor area.

The location of levels in case of privacy is questionable. Entering the unit by the most private part (bedroom) to move downstairs to the dining/kitchen part seem not to be a rational choice in western culture. Therefore the division for different zones is very clear.

Two-floor-high last level adds to the spatiousness of the space.

The family unit, not significantly bigger than the single unit (42 m²) is located on all four levels of the tower.

The entrance to the unit is located on the second level, through the sleeping zone. It consists of rather different zones (levels) than separate rooms. There are two sleeping zones, dining and kitchen zone, and working zone on the third level.

Again as in the previous flat, the efficiency seem to be low, because of many staircases that take a lot of useable space.

Due to the openness of the whole structure, there is not much privacy left for particular members. The flat has very few wall-divisions of the plan. Placement of following functions on different levels brings the privacy division in vertical dimension.
Reflection on Quick Start

Form studies in Minervahaven

In order to understand the scale of the plot and start working on the design, I compared the projects from case studies and placed them on the plot in Minervahaven.

At first I placed 5 buildings from the urban plan of Mehr als Wohnen from Zurich to see the real distances. Next I was able to multiply one of the buildings that I analysed and place it on my plot. I repeated this step with the concept project of the tower from Hong Kong and Babel from Rotterdam, in both plan and isometric view. This experiment suggested me what are the possibilities of the site, how many flats of what type I am able to propose and what are visual and organisational aspects of each proposition.
First two projects were rather separate buildings; the combination of Babel created semi-perimeter block and became an inspiration for the urban solution.

As seen above, the maximum possibility of the plot, presented as the single volume did not appear as attractive in either visual scale or form. The numbers of maximum height (44m to the roof, 13 floors) gave a lot of possibilities to shape the building. The density required on the plot is set on 300 units/ha, which multiplied by the size of the plot gives the requirement of at least 240 units. During my experiments with locating projects from case studies I was able to estimate the amount of flats, that each combination provided.

First proposition resulted in 231 units, second with 400, third one only 200.

Though the combination of all three projects resulted in total number of 325 flats of very diversed relation between private and common space. The visual representation wasn’t coherent and clearly shown three separate and vary different buildings.

max height - 44m
13 floors
min density 300 units/ha

<table>
<thead>
<tr>
<th>Combination</th>
<th>Flats</th>
<th>Per Floor</th>
<th>Total</th>
<th>Per Unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>c0iving: 143 flats</td>
<td>13 floors (11 flats/floor): 250 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.700 m2 (~40 m2/flat)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3 towers: 81 flats</td>
<td>13 floors (1 modules): 160 people</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.000 m2 (~75 m2/flat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 flats (4 blocks)</td>
<td>10 floors: 400 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.000 m2 (~100 m2/flat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in total:</td>
<td>325 flats</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>810 inhabitants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21.700 m2</td>
<td></td>
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</tbody>
</table>
The result of the previous studies became an inspiration for the perimeter-like shape consisting of 8 towers connected with each other. This combination of Babel’s (project located in Rotterdam) was possible, because the building is the corner infill, connected to the other blocks. It gave urbanistically very interesting result of two perimeter blocks with open courtyards towards each other and quite public space inbetween them (plan below). Yet when rotated two of the middle towers and connecting them with each other, two courtyards were connected into one with more open and coherent space (plan on the next page). The transition of spaces in this configuration is more smooth and all towers, even divided, are perceived as one complex.

Following reconfiguration that I prepared consists of various flat types from the analysed projects. Depending on the size of the flat and mobility of the tenants, I proposed three types of the apartments: single floor for solo dwellers or people with reduced mobility, duplex for couples or families - because of the clear division between the common and private zones in flat arrangement, and apartment of four floors for families that need more space.

The idea behind dividing the perimeter block into eight tower-like shapes was to show the subdivision for separated communities. I tried to follow this path by proposing vertical segmentation of every tower for smaller tribes that could share similar lifestyles, hobbies, or just have similar family structure. For that reason second floor was only occupied by singles (floor plan based on Haus A from Zurich), next four floors were mix of families that could interact on different vertical levels. This experiment of the transition spaces I was able to research further and really perceive by the use of virtual reality.
Quick start

Spatial diagrams of various types of flat

Diagram of location of the flats in the tower

Result of the quick start 02: plan
Research by Virtual Reality

My research in virtual reality was mostly based on the form studies that I prepared for the quick start of Msc3. As the result of the previously mentioned workshops was building with eight tower-like divisions representing clusters, rather than final shape. Thus what I decided to research through the virtual reality was the perception of the spaces, while moving from the street towards the building, through the courtyard and finally exploration of the common spaces. I was focused to find out the variety of experiencing different transitional zones - so for example how does it feel inside the open for public courtyard, if user would feel rather comfortable or intimidated by the scale of the building. Of course those experiences can be different between users, yet the reactions of other students and tutors exploring my model showed me the range of feeling and if I am heading in the right direction.

I have to admit that from the beginning of the course I was quite sceptical about the use of the method of virtual reality as a research method, especially in this very early stage of the design that we were dealing with. Yet it appeared to be quite enlightening in case of perceiving the size of the project, proportions between the shapes and the space in general. It’s worth mentioning, that I didn’t have any experience earlier with design using tools offered by the virtual reality.
Although the way of approaching the buildings as well as visibility from the distance is crucial for any building, it seems to me that it is often left out in the process of designing. Most of the times it is just very difficult to take into account all points in the neighbourhood (or the city), from which the building will be seen. There are many examples of “city views ruined by the new architecture” - one of them is the office/shopping mall building Plac Unii Lubelskiej in Warsaw, that seen from perspective of the street was closing the composition of the street, by extruding the triangular shape of the plot. Unfortunately, after finalizing the project it appeared, that the tower is so high, that it ruins very iconic view for the Belvedere Palace built in 1820s and designed as dominant on the hill of Royal Baths Park. I noticed on my own design, that moving around the model in virtual reality is just so easy, that it could help to eliminate those design mistakes of big scale buildings.

My presentation started from the far view from the main street and as the user moved foreward, he or she was fed new information and details about the project. Stading in front of the building (figure 1) the user could see the structure and location of each flat types between the others, and also what kind of target group is expected to dwell in it. The size of the whole shape was scaled down due to use of openings, terraces and smaller blocks. Additionally the division for eight towers showed clear structure and gave each of the tribes identity.

Another great feature of the VR, that I saw in my project, is dealing with the space from human scale and perspective. It helps, first of all, to experience the proposed building from the level of the eyes of its users and question the functionality of solutions proposed in 3d out-of-scale model. The advantage for my design process was that I was able to move around the inner yard of the building and test how the geometrical landscape proposal will be seen by tenants - is there enough space for interaction? Is it tempting to stop and enjoy it?

To conclude I would like to add that of course VR as a tool is useful in the smaller scale, such as designing interiors or even details of the building, but in my opinion it’s the big scale that is more difficult to imagine and understand.
CONCEPT DESIGN

reflection on the research, design brief & conceptual design
The term ‘benefit’ that I used in the title of my thesis refers to the profits, that individuals and families gain from living in the community. The most important factors that I identified are that children learn to live in the community and therefore learn to help each other. The society loneliness decreases and as people share more common spaces, housing becomes more affordable. The population statistics of the percentage of households with children in families show that Amsterdam has one of the lowest scores, only 29%, thus the quality of the spaces may attract those families back to the city.

The research about the optimum group numbers didn’t gave a single answer of what is a particular number, but rather suggested several numbers and the qualities of the relations that are created in the groups. Examples of the different typologies analysed in case studies gave me insight for the various approaches. Designs of the complex in Zurich as well as La Borda in Barcelona have very open type that forces interactions and therefore an be catalyster towards stronger social ties. On the other hand, Babel in Rotterdam is an example of the project that gives its users (here: families) a lot of privacy and considers more of the accidental interactions and meetings rather than the direct contact. It is also reliable source of the standard of living in the Netherlands. The topic and literature research led me to the following design question:

**How to provide highly urban residential building with suitable housing for the diversed group of urban families, in which they could live independently and participate in the community life?**

**Ambitions**

My vision for the design, build on the research that I conducted, will be based on the following principles and ambitions that I want to fulfill.

- Flats designed on the technological grid of 6x6m, with possible variations of sizes and forms (single or double floors), to answer to the needs of various families.

- Rather small flats, due to the financial aspect: affordability, that will be also achieved by creating common spaces as an expansion of private spaces.

- Master plan for the location requires the amount of minimum 300 dwellings per hectare. According to the size of the plot, it means the requirement of at least 240 units. In order to provide good functioning of the communities, dwellings will be grouped in smaller clusters - accordingly to the optimum size.

- Daylight access and broad views for all flats.

- Communal spaces of good quality: rooms for events (to invite friends, family etc), workshops and hobby rooms, laundry room, chill rooms with games, gym, guests rooms, living rooms, flexible spaces, gardens, common terraces and activities on the courtyard, storages. All spaces will be provided for the particular group, depending on the needs and the level of privacy (e.g. laundry rooms for couple of flats - one per floor, but gym can be open for everyone from the block).

- Sustainability of communal spaces: good acoustics in areas used for social events and meetings; optimum size of the spaces (spacious or cozy enough, according to the purpose).

- Local public amenities and commercial locals from the main street of the urban plan.

- Modular technology of the construction.

**Design concept**

The building is shaped in a way that clearly presents the division for the particular clusters - each of them is housed in the separate tower-like shape. Additionally the block is shaped in peaks and valleys that visually divide it, so that the whole structure doesn’t look as massive, allows more light inside the block, allows for the views through and around the building, provides visual interactions between tenants of other clusters: views from the terraces on various levels. From primarily shaped volume of 6x6m blocks I removed one cube of 3x3m - it introduced additional outdoor space and visually scaled down the form closer to the human scale.

To provide similar quality of of the communities - which optimum number is up to 40 dwellings per cohousing - I aim to locate rather smaller flats in the southern volumes, and bigger units in the northern towers. This way I want to propose various quality of the communities among the volumes of different sizes (diagram D0.)
Dwelling types

In order to provide affordable housing, the project will be based on the modules 6x6m for the construction grid. The arrangement of circulation will make it possible to fit varied range of the flats. To meet the standards of various families I proposed different types and sizes of apartments, with the depth of 6m. To know the demand for each type I made an estimation based on demographic statistics of the Dutch families: therefore my aim is to provide around 40 single bedroom flats, 105 flats of 2-bedrooms, 70 flats of 3-bedrooms and 25 flats of four and more bedrooms (the numbers are a rough estimation and the amounts in final design may vary between 5-10%). Parents expecting a child were included within a group that already has an additional room.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>1 child</th>
<th>2 children</th>
<th>&gt;=3 children</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW-tower</td>
<td></td>
<td>48%</td>
<td>31%</td>
<td>11%</td>
</tr>
<tr>
<td>NE-tower</td>
<td></td>
<td>30%</td>
<td>23%</td>
<td>17%</td>
</tr>
</tbody>
</table>

44 m² - young couples, single parent + 1 child

52 m² - parents + 1 child

63 m² - parents + 1 child. Single floor (6x12m), duplex (6x6m)

53 m² - parents + 1 child

72 m² - parents + 2 children

96 m² - parents + 2 children

D0. Various volumes of the towers require to diverse the sizes of the flats to keep the community number on 40 units: SW-tower will contain relatively smaller 40 flats than NE-tower.
D1. Shaping the form (lower on the southern edge; the northern higher)

D2. Shadows
- Private
- Common
- Public

D3a. Circulation and accessibility: entrances to the 6 staircases (smaller communities)

D3b. Circulation and accessibility: shaping internal circulation on module 6x6

D4a. Views for the water and surrounding

D4b. Visual connection between tenants
Design concept

The shape of the building is based on the perimeter block with inner courtyard. The block was shaped according to the orientation (diagram D1) - the part on the south is lower (up to 8 floors) to provide sun access to the courtyard, the part on the north is higher (up to 14 floors).

The organisation of the public facilities around the building is focused around the western facade that is facing the biggest street of the urban plan, leading to the pedestrian bridge (diagram D3a). Other three facades are mostly given to inhabitants (diagram D3b). Nevertheless, on the north and east side the building is facing the water, thus it seem to be naturally best to propose public activities on the waterfront, yet moved away from the direct contact with the building.

In order to make the building visually smaller and visually more attractive, it is shaped as 6 towers, which all are separate communities. The valleys between the towers are used for common and private terraces. Each community has the core with lift and two staircases (diagram D3a); the organisation of residential floors is set at module of 6x6x6 (diagram D3b), where the internal module is meant for the circulation and common activities, and external modules from the facades are meant for flats. This way the privacy was scaled: the groundfloor is occupied by the public (commercial locals) and common activities; flats are located on the higher floors.

Important aspect of the design was to obtain optimal daylight conditions (diagram D2) and views for the water and surrounding environment. The peacks and valleys create visual connections with the Haven even for inhabitants of the southern west and middle tower (diagram D4a) and between tenants on various levels and different towers to enforce the feeling of living in the community (diagram D4b). Due to the valleys the daylight is present in every flat, even those inside the courtyard and on northern facades - also thanks to the orientation of the plot which has longer sides pointing towards NEE (diagram D2).

Parking places for tenants are provided in the level below the groundfloor (diagram D5), so that the cars aren't visible from the street and eye-level can be left for catching and entertaining activities, interesting for inhabitants and people walking by. The access is led from the street on the southern side, thus the eastern and northern facades are car-free and waterfronts are left for pedestrians.

Courtyard inside the perimeter block remains open on two sides, on the longer facades: northern and southern. This internal space is dedicated mostly for the tenants and since the plot is located in highly urban environment, I proposed to plant extensive greenery to bring more nature and create a contrast with the surrounding (diagram D7). Particular species of trees and plants will be proposed on later stages of the design, based on the climate and soil possibilities and the maintenance map of City of Amsterdam. Due to the presence of trees and plants on the patio at least one metre of the soil is required. In order to do that the level of the courtyard was lifted about this one meter above the surrounding, therefore people approaching the inner space have stronger perception of transitioning between different zones, due to this height difference.
Design concept

Common and public spaces located on the groundfloor:
- Commercial locals
- Waste
- Entrances and circulation
- Rooms and kitchen for events, workshops, gym, guest rooms
- Bike storages
- Entrance to the parking
Common spaces for inhabitants located on the floors 1-12:

- living rooms and chill spaces
- laundry
- gardens and terraces
Other spaces located on the floor -1:

- parking (>120 places)
- storage units
- technical rooms
Above: Impression on street level of spatial qualities of the concept design, view from the main street

Right: Impression of spatial qualities of the concept design, view from the common terrace towards the inner courtyard
Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences
Graduation Plan: All tracks

The graduation plan consists of at least the following data/segments:

**Personal information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Marta Maria Kaniuk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student number</td>
<td>4901746</td>
</tr>
<tr>
<td>Telephone number</td>
<td>+48 697 222 639</td>
</tr>
<tr>
<td>Private e-mail address</td>
<td><a href="mailto:kaniuk.marta@gmail.com">kaniuk.marta@gmail.com</a></td>
</tr>
</tbody>
</table>

**Studio**

<table>
<thead>
<tr>
<th>Name / Theme</th>
<th>Dwelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main mentor</td>
<td>Theo Kupers, Architecture</td>
</tr>
<tr>
<td></td>
<td>Pierijn van der Putt, Architecture</td>
</tr>
<tr>
<td>Second mentor</td>
<td>Ferry Adema, Arch. Engineering + technology</td>
</tr>
<tr>
<td></td>
<td>Tuuli Jylha, Management in the built environment</td>
</tr>
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</table>

**Argumentation of choice of the studio**

My interest in architecture lies mainly within residential architecture, due to close relation to the clients during the design process. For me it remains the closest way to influence and improve the quality of life of various social groups, by making people’s life better and more comfortable at the level of their basic needs and in their most important space. The problem of constantly growing population that many cities are facing - including Amsterdam, is the problem in the urban scale, but it also requires micro-scale solutions. My plan after the master graduation is to work in the Netherlands in architecture studio that is focused on the residential buildings.

**Graduation project**

<table>
<thead>
<tr>
<th>Title of the graduation project</th>
<th>Benefit of the collective housing for the urban families</th>
</tr>
</thead>
</table>

**Goal**

<table>
<thead>
<tr>
<th>Location:</th>
<th>Amsterdam, the Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>The posed problem,</td>
<td>The world’s growing population brings new challenges, especially to the big cities. As more dwellings are needed, their prices are rising. An increasingly larger group of city emigrants are families with children, who’s parents search for affordable housing with particular standard on the suburbs. Amsterdam for many years is facing the deepening problem of migration – the number of citizens is growing mostly due to solo dwellers, students and expats (CBS). The Municipality of Amsterdam addressed the issue of growing number of the immigrants and the requirement of providing high density in new built areas. As families search for the particular standard of house with gardens, it becomes a real challenge to provide those qualities in highly urban environment. Another problems following a lack of families and disproportionate amount of solo dwellers in the city are social loneliness, week social interactions and the lack of the community feeling.</td>
</tr>
</tbody>
</table>
**Research questions and design assignment in which these result.**

- What is the optimum group size of the community?
- What is the foundation of the community?
- How the spaces transition from public to private?

There has to be explored a new approach for the families to dwell in particular environment. My goal is to provide attractive and affordable housing to invite families back to Amsterdam and propose the design that will have the qualities of single-family housing in highly urban dense environment. This said, the result will be an integrating inhabitants, safe and stimulating building block or neighbourhood, socially engaging and providing common indoor and outdoor spaces. I want to introduce modular solutions to the project in order to make it more affordable. Different dwelling sizes will ensure the diversity for the families of different sizes and needs.

**Process**

**Method description**

My research has been done using several various methods of research design. First, I made an extensive literature research to investigate the crucial subjects and prepared a design toolbox with principles for my own design. Afterwards, using the case study projects I analysed i.a. privacy levels, proportions between public, common and private, and flat typologies. My next step was research by design, in which I used my knowledge gained by analysing the case studies and eventually used virtual reality as a research tool. In addition to that I prepared an analysis of the location and proposed master plan, as a group work. On the basis of the results of this research, as following, I proposed conceptual design. In the next phase I will prepare a final graduation design.

**Literature and general practical preference**

Alexander, Christopher (1977) *A pattern Language*. GWP. Gdańsk, Poland.

Allen, Christopher (2008). *Community by the Numbers, Part One: Group Thresholds.*

Allen, Christopher (2008). *Community by the Numbers, Part II: Personal Circles.*

Dunbar, Robin (1993). *Coevolution of neocortical size, group size and language in humans.*

Centraal Bureau voor de Statistiek CBS. *Veel Jonge Gezinnen Verlaten De Grote Stad.*
(access: 11.10.2019).

Centraal Bureau voor de Statistiek CBS. *Verhuizingen na geboorte eerste kind.*
(access: 13.10.2019).


Cambridge University Press


Reflection

According to several sources, many young families in the Netherlands are moving out of the big cities and for last years this number is increasing each year. Amsterdam has already relatively small percentage of the families and the reasons are to be found in rising house prices and limited outdoor space. The problems following families leaving out are weaker social relations, social isolation and loneliness.

Families have a big influence on the quality of life in the city. They ensure more diversity and strong social networks, due to encounters between parents, at schools and additional activities of their children, like hobbies and sports. They made the society coherent and involved in the neighbourhood’s life. It is important to mention the economical aspect, as families use shops, childcare, various activities. With are more options, the attractiveness of the city increases. Companies also come to that and with them employment.

In order to design collective residential housing it is important to know the social limits and how different are people’s relations in groups of various numbers. The right clustering might be the key aspect to successful project with engaged community.