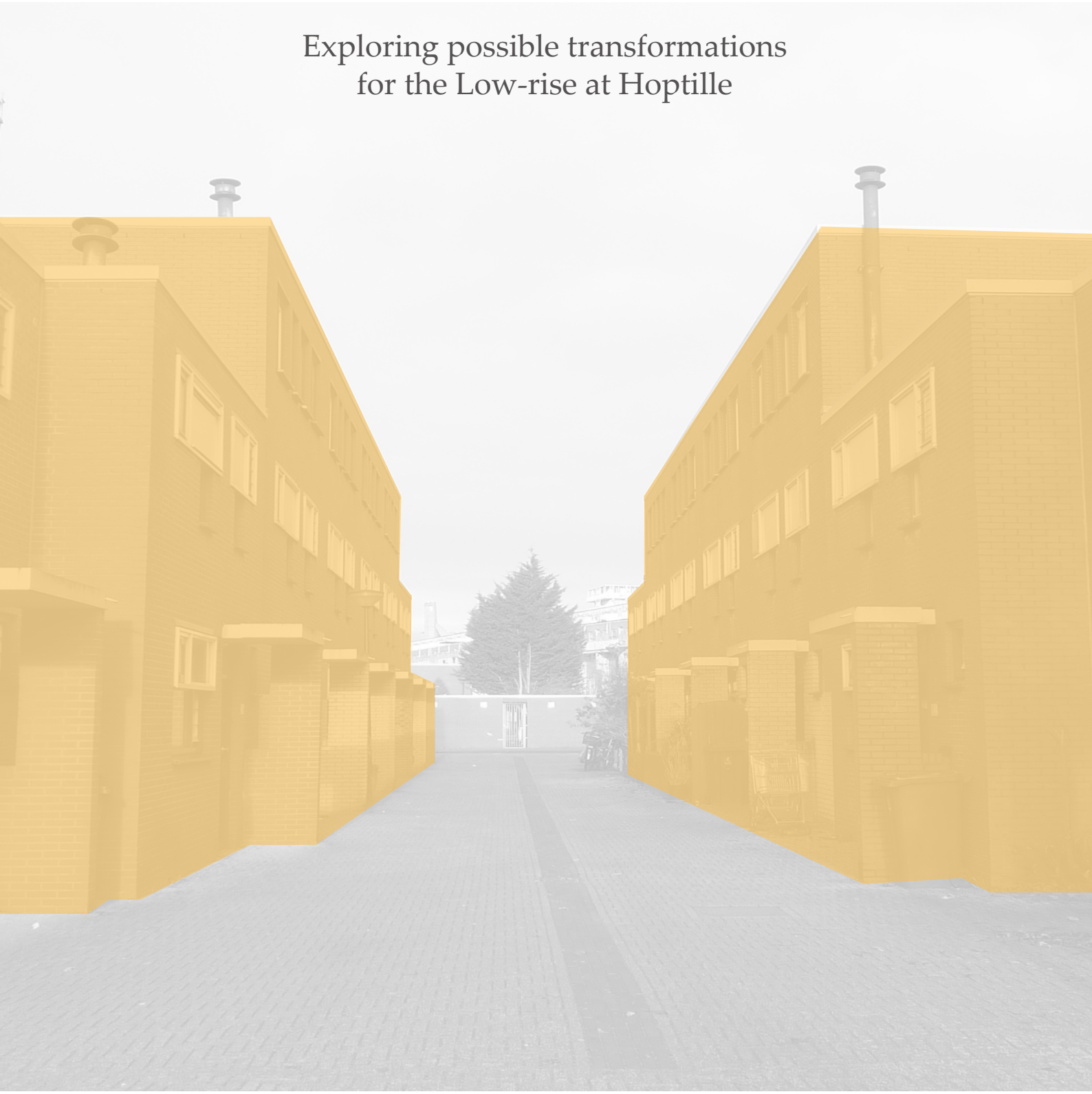
Hoptille

Preserving and future proofing a community

Exploring possible transformations
for the Low-rise at Hoptille



Graduation Report
Sophia Vrisekoop
Graduation studio - New Heritage
Heritage and Architecture
TU Delft

Graduation studio - New Heritage
TU Delft - Faculty of Architecture and the Built environment

Sophia Vrisekoop - 4032942

Tutors:
Nicholas Clarke
Ger Warries
Lidwine Spoormans

Delft, the Netherlands, November 2021

Introduction

If an existing neighbourhood community is confronted with social issues; such as an unsafe feeling during the night, a lack of social interaction and loneliness, one of the first reactions is that the build environment and its direct surroundings no longer meet the needs of that community.

When the Dutch communal housing company, located in city of Amsterdam, assigned the architecture firm of Kees Rijnboutt to design Hoptille. in 1979, the ambition was to create a social and architectural reaction to the large scale city expansion plan of the Bijlmer. (Ibelings, 1996) Hoptille was one of a few experimental locations within the Bijlmer area where a progressive mix of tenants devised by the Amsterdam housing company (a governmental organisation) was put together to form a new community. Within the first year of completion, the crime rate in all experimental locations was so high that the owners of the buildings where forced to make changes to improve the safety . (Verlaan, 2013) The combination of the mixed inhabitants and the architecture immediately caused an amplification of anti-social behaviour.

During the years, new development strategies for Hoptille were presented. Multiple architectural changes, such as the change of entrance to the building and the change of the inner street, where executed but none of them managed to structurally improve the feeling of safety. (Ibelings, 1996) Eventually Ymere, the owner of the Hoptille buildings, decided to demolish and develop new housing. This got cancelled due to the economic crisis. (Bijlmermuseum, 2017)

The New Heritage graduation studio aims at a value-based design by generating proposals from existing values. The aim is to maintain these values and potentially develop them further. The main design question is: “What can the existing values of the H-Buurt contribute to the sustainable future of living environments in Amsterdam? (Spoormans,& Clarke, 2020)
The architectural, cultural and technical values of the Hoptille low-rise buildings are researched from the perspective of different stakeholders and analysed in order to find the best possible solution for three topics; Preservation, Community and Future Proof.
Using these values, design decisions and choices can be clearly communicated, augmented and tested in a systematic way in order to lead to ‘’heritage-conscious’’ interventions.
Besides literature research and case studies there will be an investigation on how to preserve this existing community and how to meet the needs of the nation wide demands on energy neutral buildings.
By anticipating on the prospected growth in the aging population and by investigating the buildings environmental position, within the nations demand, the final design proposal will not only be a better fit for the existing community, it can also be considered to be future proof.

Problem Statement

On the 13th of December 1966 the mayor of Amsterdam, Gijs van Hall, symbolically started the construction of the Bijlmer. An expansion of the city was needed to provide housing for the growing
population. The Bijlmer was a big scale urban housing project based on the functional city-ideas founded by CIAM. (Verlaan 2013) In an urban scale this would roughly translate to high-rise living
spaces so that the ground-level would remain open for recreation and separate collective spaces. Apart from architectural interventions the social aspect of the user demands, such as personal development and interaction, were realised by investing in the interaction between municipality and residents. (Zonneveld, 2020)
The Hoptille building ensemble was a reaction to the high-rise apartment buildings of the Bijlmer and consists of a 365 meter long, five storey high apartment building and multiple two and three storey high clustered buildings. (Verlaan, 2013)
Within the first year of completion the first architectural changes where implemented to improve the safety that was lacking due to the high crime rate in the area. (Gemeente Amsterdam, 2019)
The small entrance gate to the ensemble and the internal street within the mid-rise building turned out to be the biggest cause of the problems and transformation was needed. (Bijlmermuseum, 2017)
Despite the high crime rate, and the direct implement of architectural changes this required, the social atmosphere amongst the residents has always been good. Especially the Low-rise building blocks are considered to be of high value to the people that live there because of the small scale setup and the interaction amongst neighbours. Residents of the mid-rise and the low-rise buildings feel part of a community. (Wassenberg, F. personal interview, 2020)
As was stated by Koster (1982), Hoptille was one of the first projects executed as an inclusive design and the aim of the project had an important social origin. Part of the history of Hoptille is that it has always been a social housing project. Even though this feeling of unsafety is present, a lot of people actually like living here and feel part of a community. (Streetinterviews, 2020)

Today, the Hoptille buildings still deal with social issues such as an unsafe feeling during the night and the lack of overview in the outside spaces of the low-rise. (Streetinterviews, 2020) On top of the social issues they also face a lot of technical issues, such as heat control, ventilation issues and noise disturbance. (Ymere, 2019) The simplest way to deal with all issues would be to demolish the buildings. However, by demolishing the buildings the embodied energy of the buildings would be lost and potentially the existing community as well.

Another reason for considering demolition was the opportunity to contribute in a better, more efficient way to the nation-wide demand for 1 million more homes in 2030. (Gemeente Amsterdam, 2020)
The city of Amsterdam is currently growing 21% in population each year. The Hoptille area houses currently houses around 2000 people and the vast majority of the residents is aged from 15 to about 45 and lives alone. What stood out is the low amount of 65 and older group and the low amount of families. (Gemeente Amsterdam, 2020)
Besides the migration to the city, the increase in live expectancy of the population will result in one third of the population to be sixty-five years or older in 2040. (Laan, 2020) Resulting in a higher demand for (elderly) housing in the near future.

Problem Statement

The current units are approximately 70 m2 whist the majority of the residents already live alone, with the anticipation of the growing aging community and the increase in demand for bigger units the layout of all apartements need to be examined further.

The framework of the research has been made visible on in image 2. The three main themes of the research; Preservation, Community and Future Proof are all connected and/or dependant on each other but from different angles.

- Preservation will have a focus on the buildings, the architecture and the values associated. It can help in maintaining and potentially strengthen the community and should be future proof in meeting the nation wide zero energy demands.
- Community will have a focus on the social aspects and those values associated in the architecture. By preserving the existing community and attending to its current and future needs by anticipating on the growth in the aging population.
- Future Proof is anticipating the future demands for buildings and the future demands of the users. In contrast to the other topics this topic is assisting and more open to change leading from research findings coming from the other topics.

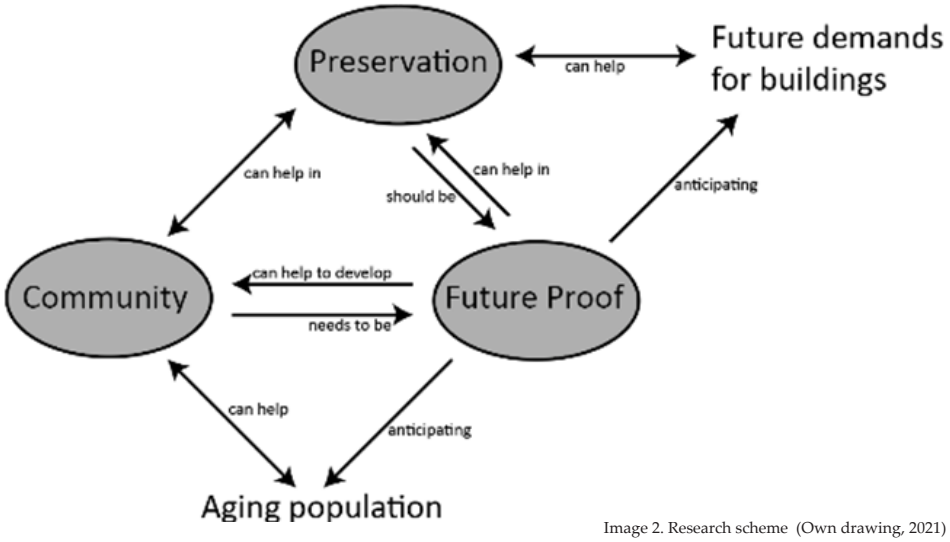


Image 2. Research scheme (Own drawing, 2021)

The research will be based on the broad research question; How can the residential area of Hoptille be transformed into a sustainable future proof housing complex, by strengthening the present social community and preserving its architectural values?

The following sub questions will be researched:
- What are the current architectural values and qualities of the Hoptille buildings and how can they be strengthened?
- How can the existing community of Hoptille contribute in the social interaction and sustainable exploitation of the design?
- How can the redevelopment of Hoptille anticipate on the future housing demands of the aging population and the future zero energy demands?

The frame of reference for this report is a dialogue between literature, research methods and the research that has been conducted by the different stakeholder groups.
The books of Kuipers (2017), Gehl (2011), Brand (1994) and Lynch (1979) were used together with the scientific papers of Pereira Roders (2007) and Bonsignori et al. (2007) to form the theoretical framework. The other sources of information used in this report were the article of Jacoby (2015), the interviews conducted by the users and the makers group and the in-depth personal interviews conducted by the author of this report.

Preservation
The Hoptille buildings are, at the moment, not considered to be of any value for both the owner and the users. However, there are intangible qualities such as the community feeling.
The buildings themselves and their direct surroundings will be investigated to map out all potential qualities.
As a tool, The layers of Brand and the questions from ''Designing from Heritage'' by Kuipers (2017) will be used to achieve a systematic study of the buildings and their elements. By mapping the possible changes and the values of the building and relating them to historic timelines, the significance of these aspects becomes evident while the dilemma's, the opportunities and the obligations for a future intervention are formulated.
In the first method she uses the shearing layers of change from Brand, which have in origin six topics, Site, Skin, Structure, Services, Space plan and Stuff. (Brand 1994) Another layer was edited; Souls, were the experience and feeling of users is taken into account.
The purpose of this approach is to systematically analyse a building from the outside in. By adding the 'souls' layer the investigation on the community feeling can be expanded. All layers have a description and the typical lifespan/activity is mentioned to specify the building even more into detail. (Stankovic et al. 2017. P. 752) During analysis the lifespan of the Hoptille low-rise buildings will become clear and can be taken into account during the design process.
For instance the structure's lifespan depends on the materials used. By mapping the building systematically like this, a value matrix scheme can be made to give a good and thorough overview of the building. The value matrix is based upon the theory of both Brand and Riegl.
It can be applied to most building types and buildings with different ages. The goal is to observe and investigate a building from as much angles as possible so that possible design decisions can be explained and substantiated.

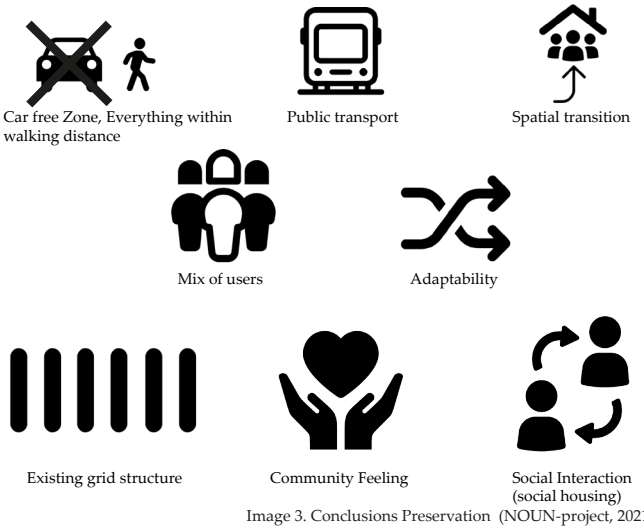


Image 3. Conclusions Preservation (NOUN-project, 2021)

Community

When designing a building or making a redesign for a building ensemble, the interaction and perception of the buildings to the user is one of the most important things to consider.
As Lynch (1979) describes in his book 'the city image and its elements' . Not only the mayor access lines but also the concentration of activity and special use is important. (P.48) People need to be able to feel part of something, for instance a community. Characteristic spatial qualities can strengthen the image of particular paths. Important feature is that the path is continuous. (P.54) a sequence of 'landmarks' or nodes along the path and the marking of regions.
The expression in a design closely relates to how it is conceived and produced in relation to its context and purpose. A built object should also inform and express the principles of its programmatic, structural, material and spatial qualities. A user should be able to perceive and understand how it serves and fits its purpose and should be able to use the building as it was designed for. Adaptive re-use can be considered a durable approach, nevertheless in some cases the quality of the building asks for complex solutions or even completely rebuilding a building that is in its original conception too 'tailor made' to get a proper new use. (Kuipers, 2017).
Literature research can be a valuable source of information, because of the availability of a wide range of sources (Lucas, 2016). One of the main sources used is the work of Gehl, an architect that focusses on the topic of community and discusses the connection between people in the direct surroundings of their homes. Gehl states that there are five essential components to enhance the interaction within a neighbourhood. 1. No walls, 2. Short in between distances, 3. Low Speed, 4. One level, 5. Face- to face interaction. Maintaining contact between neighbours also can be achieved using some key points from Gehl. The encounter among neighbours can maintain well-being and the feeling of safety. (Gehl, 2011)
Another main source is interviews. In the group research a combination of streetinterviews with users and in-depth interviews with other stakeholders provide current social information specifically for the community research. (DPS, 2007), (Gemeente Amsterdam 2019) and (Gemeente Amsterdam 2020) In addition to these interviews an in-person interview was conducted with a social worker and a resident of the Hoptille low-rise where it became clear that people like living in Hoptille and feel part of the Hoptille community but the current buildings and direct s urroundings need a designers attention.
In case studies of successfully designed communities, the community aspect will be investigated upon more from a technical and architectural point of view.

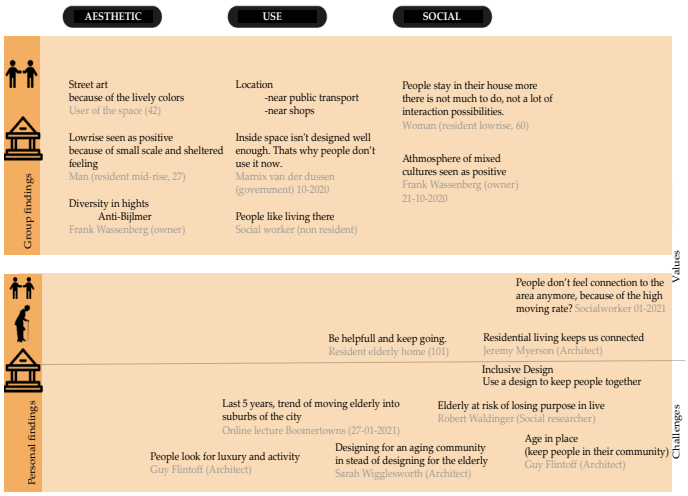


Image 4. Values and Challenges scheme Hoptille (own drawing, 2020)

Future proof

After the building analysis, the interviews and the literature research, the information provided by the owners and government and an online research will be an angle for further documentation and structured interpretation. The intention is to provide a substantiated distinction between general and crucial features that make a building valuable and to give the design an environmental position. To substantiate what values should be safeguarded for the future. Typology research and literature study emphasize the use of diagrams to investigate. In addition to the method that Kuipers provided, Jacoby describes the use of architectural diagrams as a tool when analysing the typology. (Jacoby 2015). Jacoby states that: "While the architectural diagram is regularly explained as a generic and generative description, it can equally be defined as a typological diagram specific to the architectural discipline and its production of knowledge." By clarifying the concept of type and paralleling that with ideas and diagrams, a broader spectrum of tools can be used that effectively link to each other. While Kuipers approaches from a heritage point of view, where the building and its history is the starting point of the research. Jacoby approaches from a more general point of view and generic architectural position.

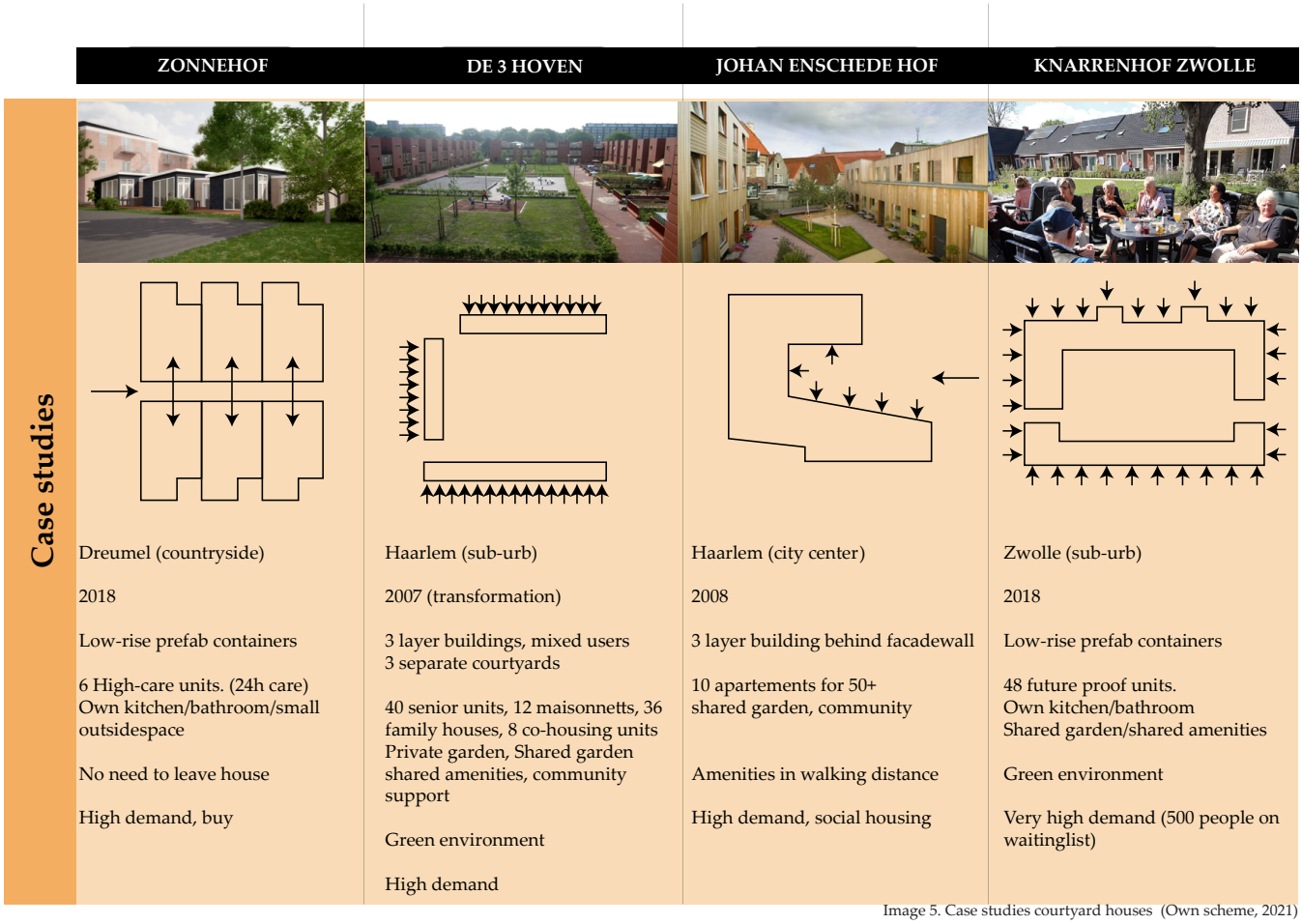


Image 5. Case studies courtyard houses (Own scheme, 2021)

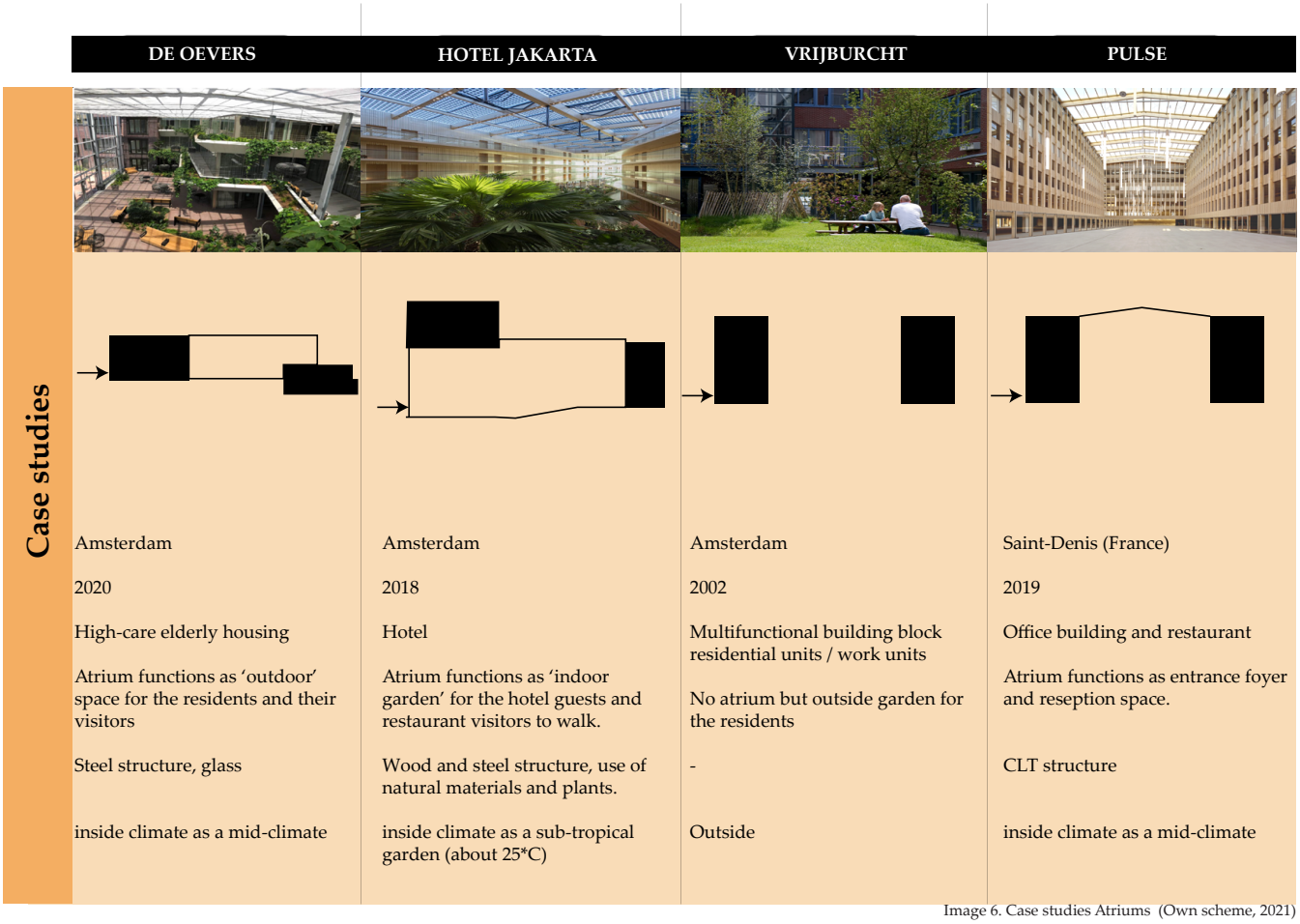


Image 6. Case studies Atriums (Own scheme, 2021)

The last step before the start of the design is to map out the ambitions. By making a significance assessment using spiders diagrams (image 7), it is possible to evaluate the current values of the project (indicated in a black line and based on the interviews with stakeholders) and to project the ambitions of the design (indicated in a dotted line and based on the personal ambition of the designer combined with the demands of the owner and future demands). In the last phase of the design process the spider diagrams will show a third line indicating the values of the design. This approach is based on the approach presented during the World Building Congress in 2007. (Bonsignori, 2007)

Research

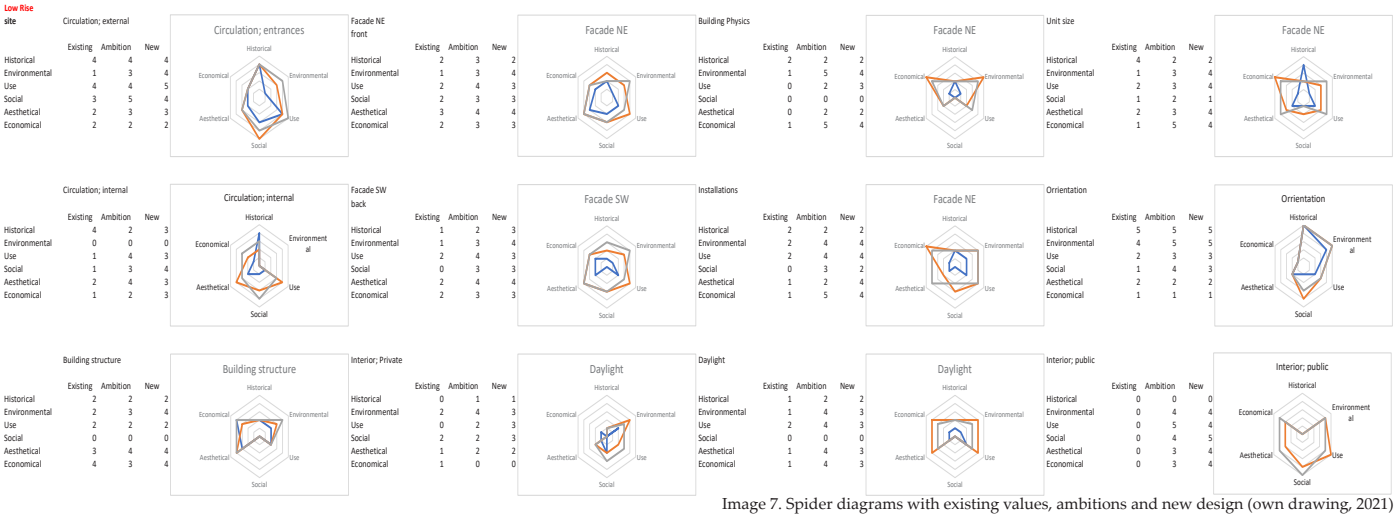


Image 7. Spider diagrams with existing values, ambitions and new design (own drawing, 2021)

The spider diagram shows in grey the new building in comparison to the existing and ambitions. It shows an overall big improvement.

The 3 topics that stood out are the circulation; translated into spatial transitions.
Circulation exceeds the expectations in the use and environmental axes, this goes for building structure as well.
In circulation and orientation there is a lacks on the social axes. This can be explained partially by the bad image Hoptille has and partially because it is situated within a redevelopment area.

As mentoined previously the design focusses on three main topics.

Preservation focusses on the exisiting building blocks and investigates the values and challenges on both architectural and social level.
Literature research mainly from the perspective of Kuipers, Brand and Pereira Roders.
Analysis with the help of schemes for comparison and to determin the aim of the design.

The community which focusses on the existing social housing community and explores the possibility to enhance the community feeling.
Literature research mainly from the perspective of Jane Jacobs and Jan Gehl.
Interviews with people on the street, personal interviews with local residents living in the Low-Rise and a social worker.

Future proof which focusses on the ambition to develop a net-zero energy project where people, planet and prosperity are equally balanced.
The diagram is based upon the sustainable development goals determined by the UN.
Literature research mainly from the perspective of the municipality of Amsterdam and the Nation Wide Demands.

Additionally the aging population was investigated as a prospected future resident.
In an interactive workshop the living desires of elderly people where mapped out.

To address the main research question each topic will have its own sub-question.

Design

As mentioned in the research report the Hoptille area houses around 2000 people.
From the 2000 people that live in the area, only 65 of them are 65 years or older.
That is weird considering the elderly (50plus) community is growing rapidly. In 2040 (that's in 20 years) ONE THIRTH of the world population will be 'elderly'

The topic is relevant as the CBS the increase in the next 20 years.
Besides that, government regulations (revised in 2015) state that elderly people are expected to keep living as much as possible independently.
Only after doctors approval one can be placed in a care home.

Research states that Elderly people Need:
- Suitable housing (preverably 1 level or adapted to care needs)
- Amenities close by (walkerdistance max 450m)
- Social interaction .

The interviews mentioned earlier stated that elderly people also have DEMAND:
- Safety feeling
- green environment (to use for gardening)
- good location (public transport, amenities etc)

According to a social worker and a local resident there are 4 possible answers on why there are currently not a lott of elderly people living in the Hoptille area.

- Back to land of origin
- Relocated to nursinghome/needed more care
- Relocated to more suitable housing in other city
- Relocated to be closer to family (assistance and interaction)

There is a nation wide demand for energy neutral buildings.
By investigating the buildings environmental position, within the nations demand, the final design proposal will not only be a better fit for the existing community, it can also be considered to be future proof by making use of the sun, the collection and re-use of rain water but also by the re-use of materials.

The ambition following research are:
Phased transitions for Hoptille area meaning From BENG (Almost Energy Zero Building) to Net-Zero energy

All materials added are removable,re-used or re-usable

Design

One building block on ground level will have 11 units of 43m2 who each have there own storage next to the front doors. In front and in back of the unit there is an area designated as private space. The area in the courtyard can be used as an extension to the livingroom.
The semi-private space that the residents and people that are invited can use is within the building block. On all levels there is a gallery on the outside of the building improving the social interaction in the neighborhood.
Maintaining contact between neighbours is one of the key points from the research of Gehl.
He also stated that The encounter among neighbours can maintain well-being and the feeling of safety.

On the corners the amenities. These can be replaced with a different function every now and then following the demands. In this porposal there are the community restaurant and takeout where residents and other can enjoy a meal and a space where the dentist and or doctor can do a weekly consultation. There are also a workshop space and a small shop.

The façades of the building block will have the same grid layout but the family houses are transformed into courthouse houses, ONE block goes from 16 to 52 units.

1 block will have 24 single units that are 43m2; 12 of them are designated as future proof unit providing a mobile scooter loading area, a wheelchair proof bathroom and a single or double bedroom.
On ground level all appartements have the extension of the Livingroom over the whole with of the apartment, the levels above have a balcony on the Livingroom side.

Each block has 8 units for families. All have a connection to the atrium and a patio balcony. They are big in size, from 86m2 up to 100 m2.

There are 2 staircases. One with a stair spiraling an elevator and the other with straight stairs on top of eachother.
There are 2 storage areas with personal storage units for the higher levels and shared bike storages

The First floor has a gallerij around with open spaces for more light. The Second floor will have the same. All ammartements have a balcony within the atrium and in front of the dwelling a small space to sit and look onto the street.

The roof will have solar panels. The atrium Roof with the glass and wooden panels which provide shading.

Design

All additions to the building will be re-used or re-usable.

The new additions to the façades will be executed in horizontally placed pine wood boards. The CLT-frame for the gallery is self supporting and can be removed as it is not integrated within the building but attached to.

The entrance façade and the rear façade are both new and will complement the new additions made on the front and back façade.

The CLT-frame supporting the balconies and the atrium roof have their own foundation poles.

The outside gallery provides the opportunity to interact and improves the feeling of safety with eyes on the street.
The building will have a heat and cold/storage and works with natural ventilation in the dwellings and in the summer in the atrium. The atrium will be a covered outside space with a tempered climate.

Rain water will be collected and stored. This will be used to water the plants and flush the toilets
By normal use, he storages in the crawlspace can serve 10 days without rain. Refill through wadi's
Solar cells will be placed on top of the roofs.

There are two building blocks on the far south of the area that are about six meters apart.
However the gallery reduces this to about two and a half meters resulting in four bridges connecting the galleries. There will be twelve less units in these blocks in order to provide enough sunlight.

The atriums both have different options for the infill. A kitchengarden for all blockresidents and two deep boarders with plants and trees with a small meeting square in the middle for dance recitals or performances.

A proposal for the area in front of the garage is to add 68 brand new family houses. These family houses have a northeast façade and will be constructed as dike houses.
They are net zero energy and can be the next step in the redevelopmentproces.

Alle drawings on scale can be found on the P5-Posters-Vrisekoop-4032942 file.

Conclusion

To answer the Research question:

How can the residential area of Hoptille be **transformed** into sustainable **future proof** housing complexes, by strengthening the present social **community** and **preserving** its architectural values?

Preservation

What are the current architectural values and qualities of the Hoptille buildings and how can they be strengthened?

Exsisting grid

Entrance through front door (from the outside)

Community

How can the existing community of Hoptille contribute in the social interaction and sustainable exploitation of the design?

Interaction in outside space to improve the lack of connection

Enhance the feeling of safety (eyes on the street)

Private space, semi-private space and public space

Future Proof

How can the redevelopment of Hoptille anticipate on the future housing demands of the aging population and the future net zero energy ambition?

Targetgroup; mixed users, growing elderly community

BENG (Almost Energy Zero Building)

All materials added are removable, re-used or re-usable

By preserving the architectural qualities of the Hoptille buildings and strengthening them.
By helping the existing community to contribute to the social interaction and the sustainable exploitation of the design.
And by redeveloping to anticipate the future housing demand of the aging population and the future energy ambitions.

Sources

BijlmerMuseum. (2017, July 8). Heesterveld en Hoptille. Retrieved 4 December 2020, from https://bijlmermuseum.com/heesterveld-en-hoptille/

Bijsterveld, W. 2021. Alle Cijfers.nl. Retrieved 18 June 2021, from https://allecijfers.nl/buurt/hoptille-amsterdam/

Bonsignori, C., Post, J., & Pereira Roders, A. (2007). Re-architecture of Industrial Heritage. CIB World Building Congress 2007. Retrieved 22 April 2021, from https://pure.tue.nl/ws/portalfiles/portal/3102491/Metis232050.pdf

Brand, S. 1994. How Buildings Learn. What happens after they're built. New York: Viking.

Gehl, J. (2011). Life between buildings : using public space. Washington, D.C.: Island Press.

Gemeente Amsterdam, Projectgroep ArenAPoort (2020). Ontwikkelstrategie ArenAPoort 2030 Het stadshart van 1Zuidoost. Amsterdam: Gemeente Amsterdam.

Gemeente Amsterdam. (2019, May 21). Verkenning kansen H-Buurt. Principenota H-Buurt Stadsdeel Zuidoost Fase 1: Verkenning. Gemeente Amsterdam.

Koster, E. (1982, May 11). Hoptille Amsterdam en Gerdesiaweg Rotterdam door Kees Rijnboutt. Retrieved 2 December 2020, from https://www.dearchitect.nl/projecten/hoptille-amsterdam-en-gerdesiaweg-rotterdam-door-kees-rijnboutt

Kuipers, M., & De Jonge, W. (2017). Designing from Heritage: Strategies for conservation and conversion. DELFT, TU DELFT.

Laan, S. (2020, November 12). Nederland in 2050 vol en sterk vergrijsd migratieland. Retrieved 16 December 2020, from https://www.vastgoedmarkt.nl/beleggingen/nieuws/2020/07/nederland-in-2050-sterk-vergrijsd-migratieland-101155264?io_source=www.google.com&_ga=2.10420469.1944799757.1608282921-361603494.1608282921

Pereira Roders, A. R. (2007). Re-architecture: lifespan rehabilitation of built heritage - basis. Technische Universiteit Eindhoven. Retrieved 16 December 2020, from https://doi.org/10.6100/IR751759

Spoormans, L., & Clarke, N. (2020). Studio text Heritage & Architecture – Studio: New Heritage. Msc3/4 studio Heritage & Architecture – Fall – Spring semester 2020-2021, Delft, TU Delft.

Verlaan, T. (2013, May 20). Bijlmer: a Reputation Blown to Smithereens? Retrieved 30 November 2020, from https://failedarchitecture.com/amsterdam-bijlmermeer-a-reputation-blown-tosmithereens/

Zonneveld, J. (2020, December). Wijkaanpak nieuwe stijl: minder aandacht voor stenen, meer voor bewoners; Masterplan Zuidoost. NUL20 Wonen en bouwen in de metropoolregio Amsterdam. Retrieved 17 December 2020, from https://www.nul20.nl/dossiers/masterplan-zuidoost

Sources

Image list
Cover page photo. Vrisekoop, S. Hoptille Low-rise (Own picture, 2020)
Image 2. Research scheme (Own drawing, 2021).
Image 3. NOUN PROJECT (retreived 28 june from: https://thenounproject.com/)
Image 4. Values and Challenges scheme Hoptille (own drawing, 2020)
Image 5. Case study on courtyard building type (own drawing, 2020)
Image 6. Case study on atriums (own drawing, 2020)
Image 7. Spider diagrams with existing values, ambitions and new design (own drawing, 2021)

Other sources
Wassenberg, F. Interview conducted by Owner group in 21-10-2020 with Frank Wassenberg, senior project developer for the municipality of Amsterdam.

In-dept interviews with a resident of the Low-rise (Annie) and a Hoptille social worker (non-local) conducted by Sophie Vrisekoop on 31st of January 2021.

Ted Talk Robert Waldinger (2015) on the secret of a good life. Watched on jan 31 on: https://www.ted.com/talks/robert_waldinger_what_makes_a_good_life_lessons_from_the_longest_study_on_happiness?language=en