

QUALITIES OF BALCONIES

- OPPORTUNITIES OF ADDING BALCONIES AND THEIR DESIGN CHARACTERISTICS



Chalmers School of Architecture Department of Architecture and Civil Engineering

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Master's Thesis by *Axel Svensson*

Qualities of Balconies

- opportunities of extension and design characteristics

Chalmers School of Architecture
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Abstract

Urbanization has embossed the past few centuries and will likely continue to do so. An increased population within the cities and a focus on exploitations within architecture will lead to a more densified urban environment. Therefore, outdoor spaces will play an increasingly important role in providing access to nature. If a balcony exists, it is the most accessible outdoor space in a residential building. According to housing surveys, the balcony has become one of the most important attributes of the apartments. However, many apartments lack a balcony, and if there is one, the quality varies.

This thesis aims to investigate and highlight design characteristics of balconies to provide an accessible outdoor space for residents with the possibility of privacy. Furthermore, this thesis will investigate opportunities to transform existing building into dwellings with focus on balconies and how to create generous balconies through design. The purpose is to enhance the quality of apartments in the urban environment by strengthening the relationship between in- and outdoor spaces and to create usable balconies which become a natural part of the apartments meanwhile enrich the exterior.

The process has mainly focused on research for and through design. By collecting knowledge from scientific- and built references, essential design characteristics were analysed. Research through design was mainly conducted through 3d model making and sketching.

The result from this thesis indicates different qualities of balconies, showcasing the learning outcome in proposals of two sites with substantially different preconditions.

The architecture and the urban space can improve by adding balconies and enhancing the qualities of apartments.

In conclusion, addition of balconies can be a great solution for providing possibilities for private outdoor spaces whilst strengthening the relation between in- and outdoor space. It is of great importance to understand the site for the transformation to cautiously take the existing building into consideration.

Keywords: Balcony, Loggia, Terrace, Outdoor space, Residential Architecture, Transformation.

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| Introduction

Delimitations

This master's thesis will not look in to structural calculations and how the physical meeting between the facade and the added balconies. Nor will it calculate daylight analysis but rather focus on design in first hand. The economical aspect is also disregarded. Areas of the building which not identifies as apartments, eg. common spaces and storage will not be designed.

Purpose & Aim

The purpose of this master thesis is to improve residential architecture in urban environments. By adding balconies to existing buildings the life quality for residents can improve. An addition of a balcony with a conscious design will enhance the use of the space and can be advantageous for physical aspects in terms of daylight and air quality. In addition, vegetation and outdoor spaces can increase the well-being of people.

This thesis aims to investigate and highlight design characteristics of balconies. Furthermore, the aim is to transform an existing building into dwellings with focus on adding balconies and adding balconies to an existing multistoriey residential building. The design should be based on the investigation and showcase certain design characteristics. The proposals should then be compared with each other for a greater understanding of balcony design.

Research Questions

-How can different design characteristics of balconies improve the architectural and spatial qualities of apartments?

- How can balconies be added on existing buildings with focus on architecture?

Method & Process

To begin the process of this master thesis, various relevant sites within Gothenburg will be investigated to find two specific projects for the addition of balconies.

Research for design is carried out to find scientific papers and other references that will generate a knowledge base for investigating specific design characteristics for balconies.

To start the visual signification, images of balconies in Gothenburg will be collected that showcase qualities and concerns about the balcony space. Selected reference projects will be analysed to understand the design intentions and qualities that the balcony room results in.

To showcase the design characteristics and investigate how balconies can be added with focus on architecture, research through design will be done. To proceed with a successful design, sketching combined with digital sketching in 3d will take place.



| Theoretical background

The theoretical base of the master's thesis is how the balcony function in a home. A knowledge base for how a balcony affects an apartment, and a search for qualities and design that improve the space.

All images in this chapter are photographs from Gothenburg. Certain qualities or concerns of the balcony space are highlighted in orange.

Fundamental

Brief history

Exterior spaces in relation to residential architecture is a relatively new fashion. It was first in the nineteenth century that balconies became present in dwellings, but at the time rarely for the common citizen.

Similar balconies as today can be found on old farmhouses, however only as exterior structures. The functionality differs from today's use of the space and the relationship between the interior and the exterior was nonexistent. The balconies were usually reached from outside and functioned as drying areas for fruit and field crops rather than extensions of the living space. (Ebner et al., 2010)

In Sweden

In the late nineteenth century, exterior spaces became a feature of residential architecture in Sweden. Balconies from this period can usually be recognized by their frame in wrought iron. During the youth period, the balconies adapted to the new design ideal and material such as stone and brick appeared. The placement of the balcony could be free, but it was not

unusual to connect them in between- or as an end- of bay windows. From this period, you can also find shared balconies adjacent to stairwells, mainly at the time used for airing as an answer to the awakening of hygiene thinking. Yet, the balconies are still associated with more affluent houses. During the twenties neoclassicism the balcony appeared more rarely, perhaps as the facade-decoration during this period appeared more frugal. However, when the balcony was included, it was mainly as a decoration.

When wartime broke out in the forties, the design was simpler and more stripped in response to the economical situation. The balconies built during the war had simple handrails with sheet metal front. A few years after the end of the war there are also examples of concrete and asbestos sheets. However, due to the materiality most of the balconies from this time have been replaced in later years (Historiska hem, 2019).

Typologies

A balcony can take several different shapes and can be divided into different typologies. In the attempt to understand the balcony as an element and how it influence the residential architecture it is important to decompose the term. Originally there are three typologies of balconies: Projecting balcony, loggia and terrace. Different typologies will imply certain characteristics to the balcony space. This master's thesis will use the definitions according to the book *Typology+* (Ebner et al., 2010). However, occasionally it can be difficult to strictly define a balcony in a certain typology, and a merge can better describe the space.

The projecting balcony is by definition a



Molinsgatan 19, Gothenburg: Railing in wrought iron with decoration. Beautiful ornamentation to support the balcony.

horizontal platform that projects out from the facade. Generally, four sides of the balcony are open with exceptions where the top is covered. The space of the projecting balcony is defined by an enclosed railing or a balustrade which will affect the design significantly. The -railing or -balustrade can often be more freely designed and play a great role in the expression of the exterior.

The word *loggia* originates from the Italian language, and the Italian renaissance. A *loggia* does not extend over the facade of the building and the space is commonly defined by five sides with one opening in the facade. An exception to this is when the *loggia* is placed in a corner of a building.

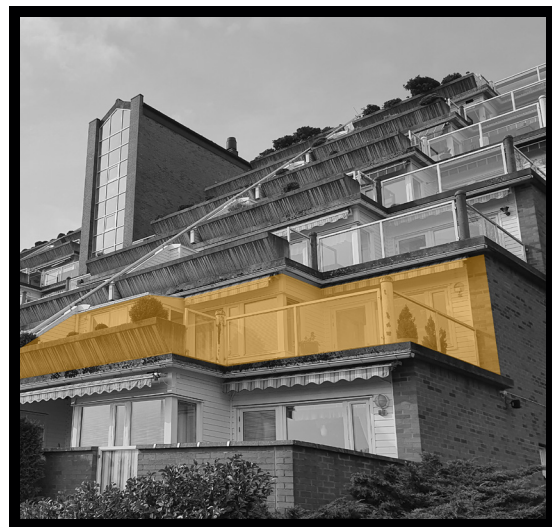
A terrace is defined as a flat area on the top of a roof, where a railing or balustrade builds up the boundary of the space, occasionally together with walls (Ebner et al., 2010).

Loggias in favor

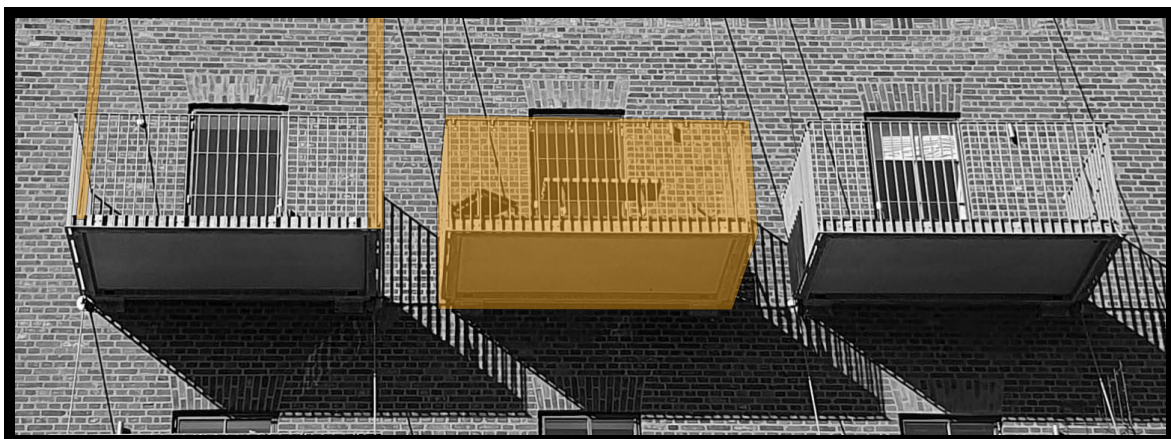
Since the Italian Renaissance, loggias have regularly been used in buildings. However, it was in the nineteenth and twentieth centuries that loggias became an element in residential architecture. It seems never-



Kvarnbygatan 31, Gothenburg: Example of a loggia. A new production of a point house where large loggias are created that connects several rooms in the apartment.



Lejonstengatan 3, Gothenburg: Example of apartments with terraces.



Bratteråsbacken 39, Gothenburg: Typical projected balcony. An added, rectangular volume, with concrete slab and a simple railing. Here also supported by wires to be able to increase the depth.

Functionality

theless that loggias are favored amongst contemporary architects. In comparison to projecting balconies, a loggia provides better protection to the outdoor climate and a higher level of privacy. The loggia can also be implemented into the exterior in a more modest way (Ebner et al., 2010). A factor to consider with loggias is that they can provide less sunlight for the adjacent interior room compared to other typologies. However, the depth of the balcony is of greater importance rather than typology according to Wallinder et al. (1985) who also seems to prefer loggias.

Highly valued space

Balconies has become a desired feature for residents and in new production they are usually an added element. An apartment with a balcony implies, according to the common habitant, a greater value of the apartment both economically and as an architectural element. Balconies are also at the top of the list when habitants are asked about the most important attributes of an apartment (Ebner et al., 2010), (Werner, 2007).

Intermediate space

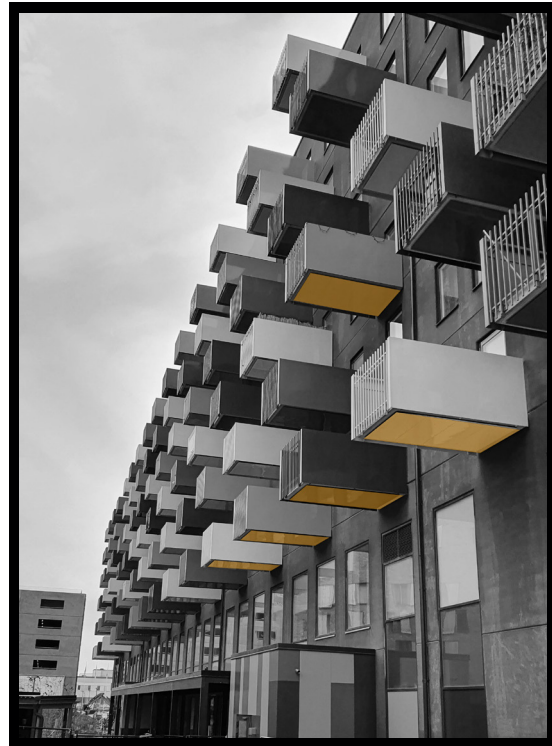
What distinguishes the balcony from other rooms in the apartment is that the space is situated outside the exterior walls of the home which dramatically changes the preconditions. The late-nineteenth-century urban tenement balcony is in the book *Typology+* described as a elaborately designed buffer zone to filter the outside world (Ebner et al., 2010). An introduction of creating a relation between interior and exterior, an intermediate between home and public. Smektała & Baborska-Narozny (2022) define the balcony as “a space where the private and public spheres coexist”, which can be interpreted as the modern way of looking at balconies. They emphasize the importance of the balcony to feel connected to the interior and as a part of the home. In order to achieve a balcony room that inhale the outside world for the tenant to experience, without annihilating the homely atmosphere demands



Viktoriagatan 23, Gothenburg: Loggia in a corner that provides a wide field of view, and enhances the interior connection between adjacent rooms.

high precision in the balcony design. Furthermore, Granath (2020) designate the balcony as one of the most important element as an architect to define the relation between interior and exterior.

A balcony generates possibilities to create seamless transitions between in- and outside. It is the boundary and elements of the balcony that defines the transition, which also affects the visual connection. Besides bringing the outside world into your home, a visual contact between interior rooms can appear which can strengthen the interior relation and exaggerate the balcony as an incorporated space in the home. Regardless, the door element with adjacent windows comprehensively provides more light into the interior spaces. Regarding the function of the connected interior room, opinions differ. In a report, made in Sweden concerning applying balconies, the kitchen is the most preferred adjacent room followed by the living room and finally the bedroom. However, If there are two doors connected to the interior a majority favored a combination of kitchen and bedroom (Wallinder et al., 1985). In contradiction, a survey done with dwellers in Iran a balcony adjacent to a living room is preferred over kitchen or bedroom. The Iranian survey shows that regardless of the adjacent interior room no readable difference in the function of the balcony was established (Pouya et al., 2021). This on the other hand does not mean that the function of the adjacent room is irrelevant since this tells nothing about the usage of the space.



Bergskroken 13, Gothenburg: Projecting balconies that configures a spectacular facade but in this case questionable proportions: fairly large but narrow.



Bergskroken 6, Gothenburg: Same architect firm as the image above and geographically adjacent. Here the depth is large enough so the loggias provide large, usable outdoor spaces.

A utilized space

There are several characteristics of the balcony that will affect the usage of the space. Different designs will most likely influence in different manners, and the preferable design is highly personal. Correlation between usage and design can however be found.

Everything is a matter of balance and adaptability of the space is vital for a well-designed balcony to satisfy the needs of inhabitants (Smektała & Borska-Narozny, 2022). People will use the space in different ways, and if you cannot use the space as you desire you will experience it as an unnecessary space. A large balcony should imply more adaptability and the size of a balcony is strongly related to the time spent on it (Pouya et al., 2021). However, a larger balcony does not necessarily mean a better and more utilized space. Smektała, & Ba-

borska-Narozny (2022) are raising concerns of the industry only looking at size. They mean that proportions are equal important. Thus a narrow balcony will affect the usage and limit certain activities.

The railing, is more historically but still today the element of the balcony that most affects the exterior appearance, not least for the projecting balcony. The railing also has properties that can have great impact on how people will use their balcony. The railing is there to provide safety and stop you from falling down, but also to feel safe and not observed. It is about having the possibilities to observe the surroundings rather than being observed since exposure to the public can be palpable. The railing also separates you from neighbors encroaching. This, however, will be a greater challenge due to densification in the urban cities. For the architect to achieve their intend design it is important to have a well



Lejonstengatan 3, Gothenburg: Terraces where greenery is arranged to block view and work with a displacement in the geometry to provide flexibility and different spaces with different qualities.

designed railing for people not to cover up the insight with own installations. Greenery and potted plants is highlighted as a common arrangement to block view for the public space. The level of transparency will affect the solar gain both to the balcony but also to the interior spaces behind. Transparency is one way to control and affect the relation between interior and exterior.

Mental impact

The balcony in residential architecture has the opportunity to improve the quality of life for the habitants. Spending time on a balcony can have positive effects, and contributes to improved health, spirit and social interaction. A balcony may also increase the physical health with a supply of fresh air, natural ventilation and an increased amount of received sunlight. However, the quality of the balcony as well

as the surrounding environment needs to be considered. A correlation between an inadequate environmental view from the apartment and stress has been shown (Pouya et al., 2021). It has been theorized that there is an increased risk to experience symptoms of depression in apartments with limited views, including balconies with poor qualities. Exposure to nature for about 20-25 minutes per day through a balcony can be enough to increase the wellbeing of dwellers. Those minutes are especially crucial for young people under the age of 30 and over the age of 60 (D'Alessandro et al., 2020).



Arbetaregatan 2, Gothenburg: Views over trees, bushes and the river Göta älv within range.



Otterhällegatan 3b, Gothenburg: Limited view with an narrow, adjacent building.

Perception and Expectation

Most buildings within the housing section of architecture will only be observed from an exterior point of view and perhaps the balcony as an integrated room is damaged by this. Smektała & Baborska-Narozny (2022) are raising concerns about the industry being disconnected from reality. Architects and estate agents follow the logic of investment costs and return, focusing on safety requirements and contribution to the facade appearance, rather than the created space. Furthermore, according to the industry, south is clearly the favored orientation of a balcony, which is supported by the investigation of applying balco-

nies by Wallinder et al. (1985). However, Smektała & Baborska-Narozny (2022) survey shows that people with balconies facing north admire the opportunity to escape warm summer days. Manuals for choosing apartments will also highly value southwards facing balconies according to the architect Gert Wingårdh. However, Wingårdh imply that a balcony towards northwest is preferable if you want to utilize the space with sun since most people are working during daytime (Carlsson, 2019).



Maj På Malös Gata 34, Gothenburg: Concrete slabs that create a uniform expression of the exterior. The removed geometry however lets desired light through to the loggia behind.



Spaldingsgatan 15A, Gothenburg: Projecting balcony over a corner was popular in the 30s. Mainly for the appearance but also generates a wider field of view and can create a stronger interior connection through sight.

Improved Indoor Climate

Historically, balconies have been a comfortable connection to the outdoor. The balcony has been a tool to transform the indoor environment without using added mechanical elements, and by that also reduce the energy consumption for the residents. However, the opportunities to improve the overall indoor climate with balconies are greater than that.

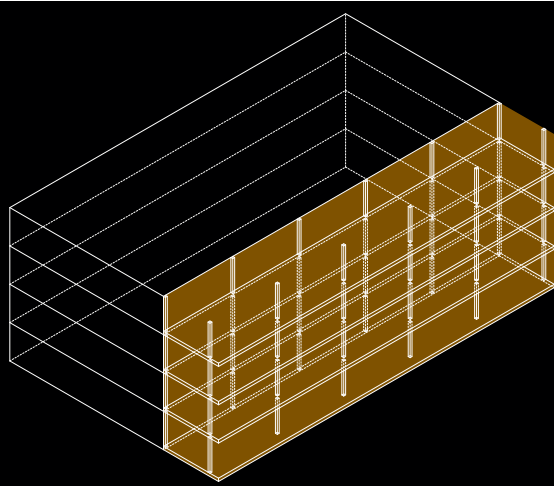
The required design of a balcony to impact the indoor climate is heavily affected by location and context. In warmer climates solar shading systems becomes an important factor, whilst in colder climates a glazed balcony can be an improvement. The overhang effect is a possible solution to provide solar shading in warmer climates. The overhang can reduce undesirable sunlight and uncomfortable glare while protecting from ultraviolet radiation. However, the sunlight factor must be considered for the interior to receive enough sun. For cold climates the greenhouse effect can be utilized with glazed balconies heating the apartment. This can lead to overheating but with passive techniques such as solar shading and night ventilation the overheating can be handled. It is important to know that a glazed balcony can also have a negative effect of daylight into the interior.

The proportions of the balcony with orientation and wind angle, has a positive impact on the airflow pattern and can result in an improved natural ventilation for the interior which will decrease the need of mechanical ventilation. However, thermal bridges can highly affect the indoor air quality, thermal comfort and energy consumption of dwellings. Today this can be handled by thermal breaks or low thermal

conductivity materials. With influence on the geometry of the balcony elements it is also possible for the balcony to work as an acoustic shield. It can be a great tool in decreasing noise pollution and reducing health related issues, which is something glazed balconies are doing effectively. Glazed balconies can also decrease air pollution (Ribeiro et al., 2020).



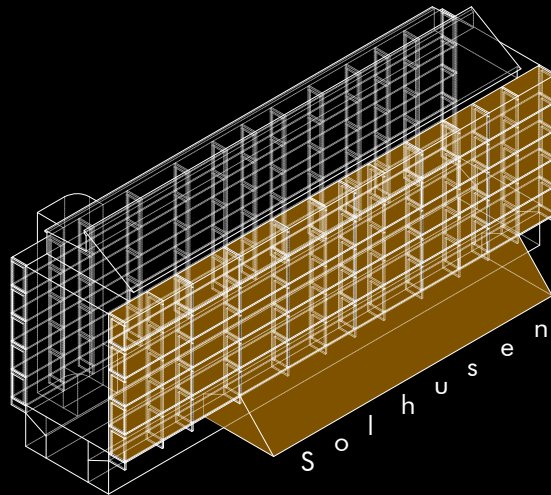
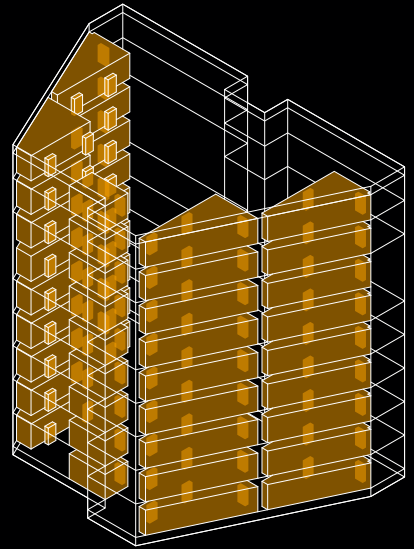
Kvarnpirsgatan 2, Gothenburg: A glazed loggia placed in the corner of a building.



GHI Le Grand Parc

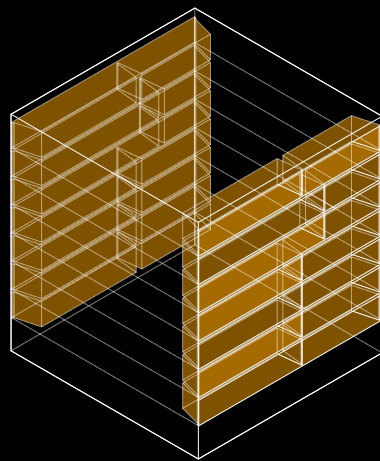
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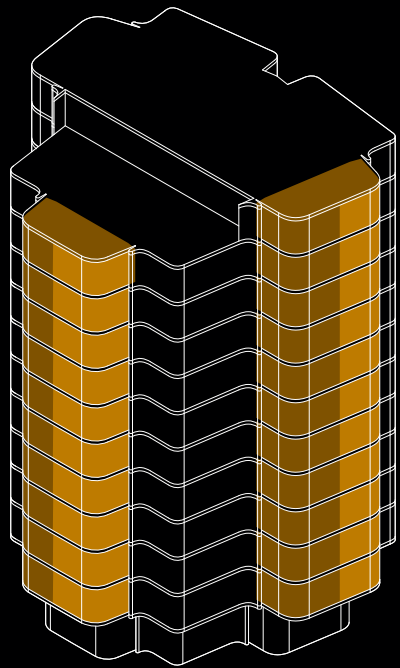


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| Reference projects

A balcony room is often interpreted by looking from the outside but in order to recognize what a balcony does to a apartment it is important to understand the relation to the interior rooms, and with what role and qualities the balcony space possess.

This chapter discusses five reference projects, both newly built and upgrades, with balconies that stands out. The aim is to understand the design intention of each project and discuss qualities that the balcony room results in.

Additional Space

The architect firm LacatonVassal has done a socially sustainable project by a transformation of 4000 dwellings built in the early 60's in Bordeaux during the mass construction of housing in the post-war period. The project is a political response to demolition as an established method for housing renewal.

The project implies a refurbishment of the interior with extension of what they call wintergardens with balconies, a merge of loggia and projecting balcony. Larger windows and a sliding glass door accessing the outdoor space generates more daylight into the building. The wintergardens are made from prefabricated elements as an own structure which decreases the construction period, and makes it cost efficient. They also improve the thermal performance of the building by storing heat during the winter and provides solar shading during summer.

The relation with the residents during the

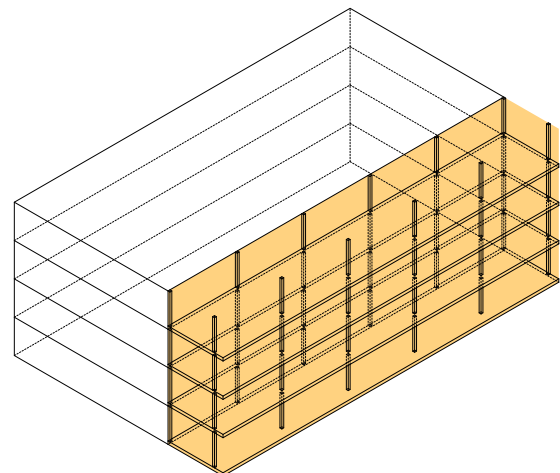
process of the renovation was of great importance. The project took on different phases, including consultation with residents for a prosperous renovation and construction period (e.g., setting up a show-flat for the people to experience the wintergardens) which also helped the design and construction teams to understand and further develop the project.

With a guide on how to live there during the construction, residents were able to remain for the whole period of work which on average lasted for three weeks per flat. In addition, for people unable to deal with disruptions, there were three fully fitted flats to access on the property.

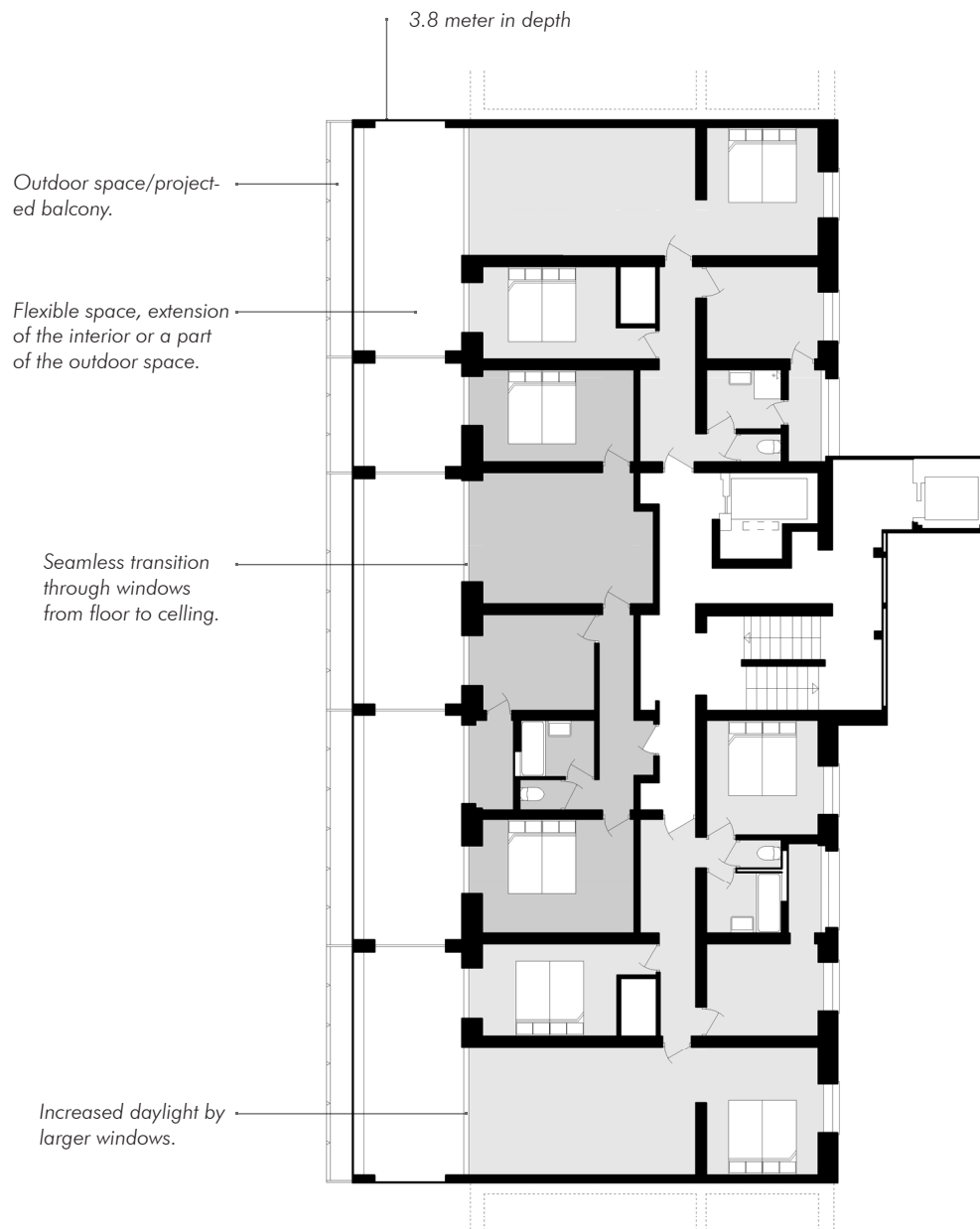
This project resulted in an increased living area with access to a private outdoor space. Generous 3.8-meter depth, 25 – 30 m² extra space in total, for the wintergardens allows the residents to use it as an additional interior space or an extended balcony space. Quality of life was increased, and more daylight is generated into the building while at the same time achieving thermal energy savings (Druot et al., 2017).



Image I: Exterior after the addition of wintergardens.
Image II: Inside the added space.



Wintergardens added on the full length of the facade with a stacking system to preserve the existing facade.



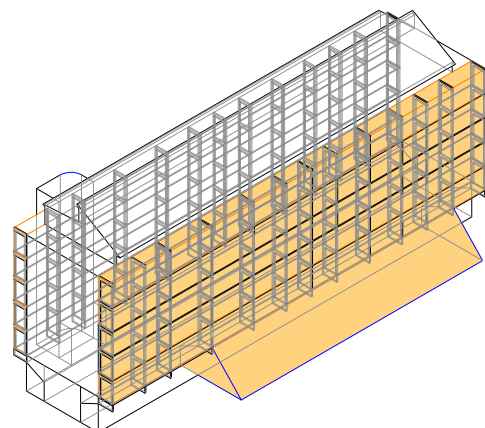
Transparency for Safety

Solhusen is a project done in the early 2000's, and is an upgrade of million program houses from the 60s located in the suburban area Gårdsten. Gårdsten has long struggled with criminality, and in the mid 90's the level of crimes per inhabitant was more than double compared to what it was 2017. There was also a problema with worn apartments that stood empty. With a great deal of patience, purposefulness and collaboration with the community the criminality has since the beginning of the century decreased in the area.

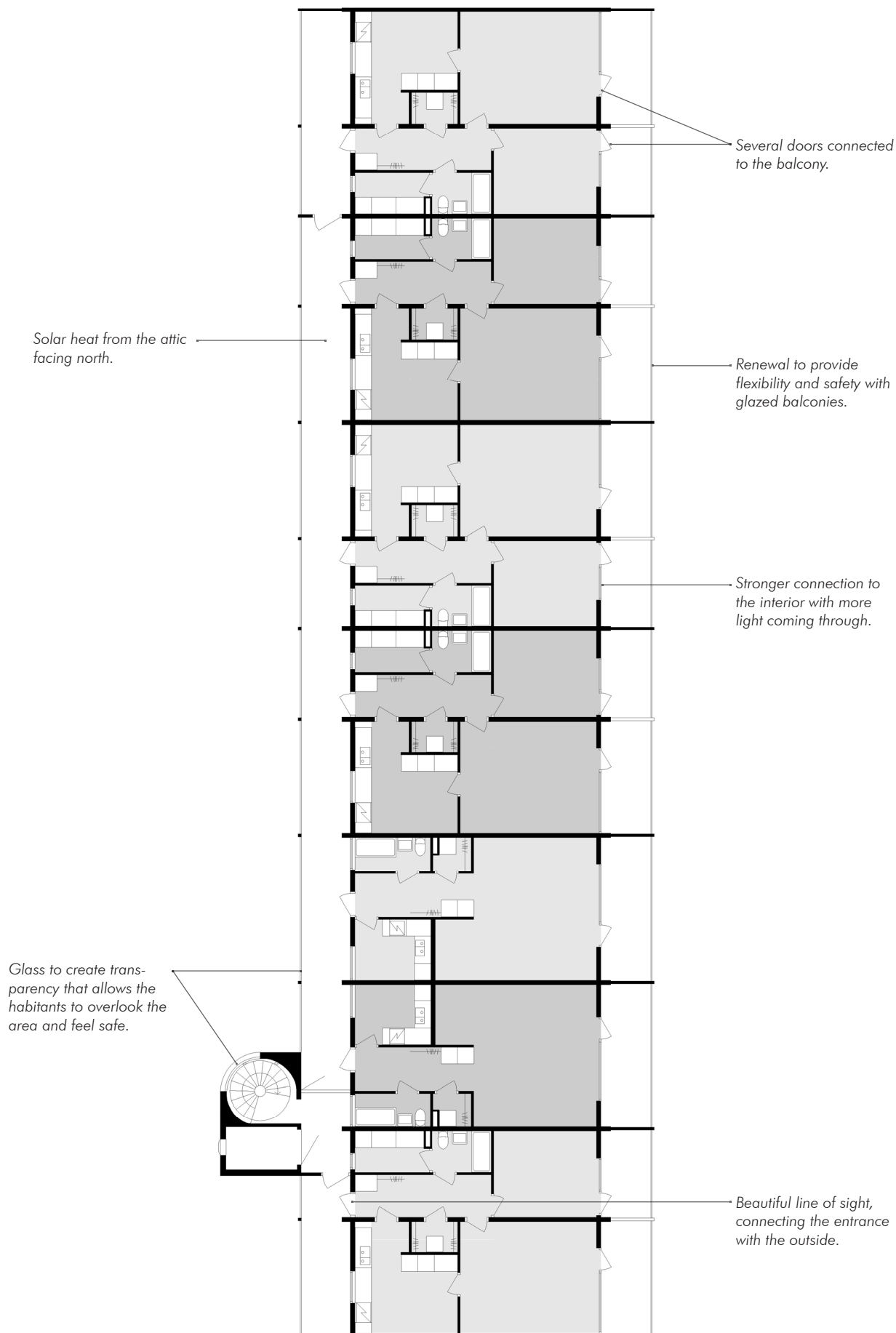
A housing company, Gårdstenbolaget, was created to work in close collaboration with the inhabitants, for them to be a part of the reconstruction of the area. In the design process for Solhusen there was a major focus on security (Engelbrektson, 2017). As an answer to the desire of safety, facades and stairwells with laundry rooms in ground level were glazed to improve visibility and remove dark corners serving as hiding sports. The large glass sections also contribute to a greater intake of daylight into the apartments, reducing energy costs and maintenance of the buildings in the future. Glazed balconies in the south and attic corridors in the north as well as a common greenhouse on the ground floor were successful for the residents in terms of quality of life improvement and economical savings.



Image III: Exterior after the renovation with glazed balconies and a common greenhouse.



Glazed balconies, greenhouse, stairwell and attic to provide safety for the habitants.



Improved circulation

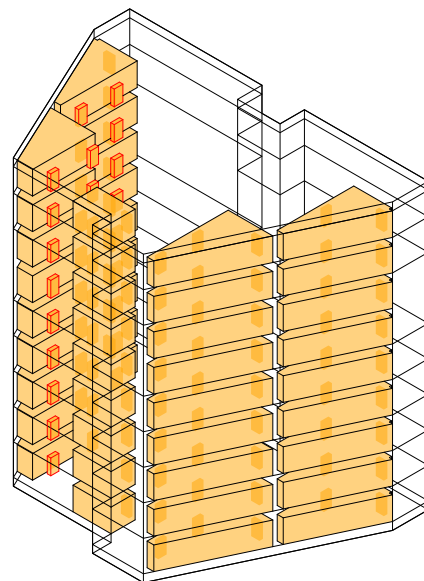
Brf Rosendahl is a new housing project in Kvarnbyn, Mölndal, consisting of two point-blocks that reaches eight to eleven floors with five apartments on each floor. The wedge-shaped volumes, tapered facing southwest, allow triangular loggias to be an active space in the apartment. The design strategy from the architect was to embrace large loggias by arranging the adjacent rooms around the outdoor space, every room with their own entrance. They call it a modern example of "rum i fil" which implies a minimized communication area with movement through rooms instead of wasted space (Arkitema, n.d.). With this design, the outdoor – indoor connection becomes natural both in terms of space and circulation. The loggias are generous in space, up to 22m², clad with wooden ribs that improves the spatial quality of the room as it is approaching the feeling of an interior room. In addition, there is also a common roof terrace to share with an adjacent community room.



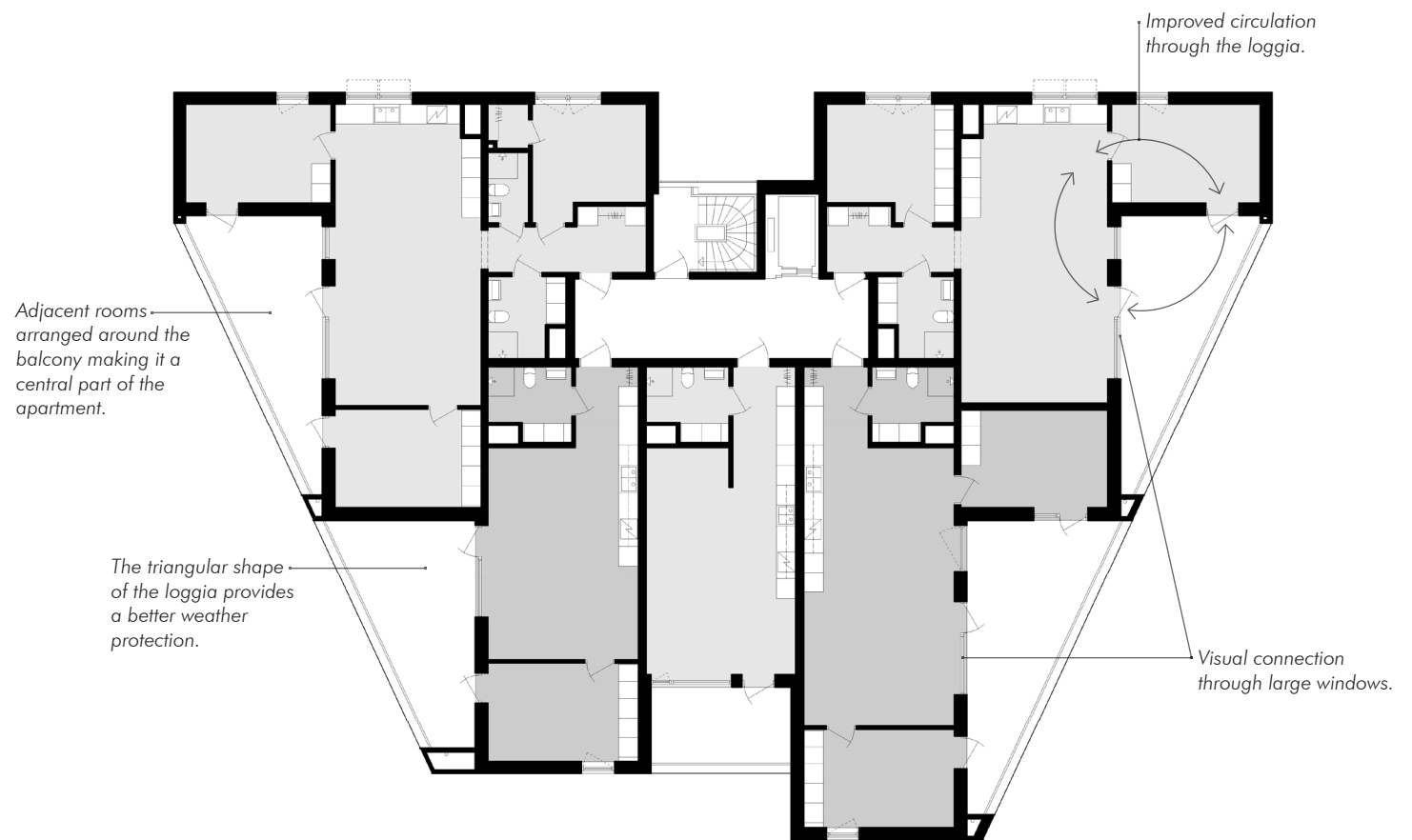
Wood-clad panel in the loggia with large windows connecting the interior and exterior.



Building exterior.



Loggias inserted to constitute the center of the apartment with doors to each adjacent room to improve the circulation of the apartment and the connection to the outdoor space.



Extended Livingroom

Brf Bomullsbalen and Varptråden is a newly built residential project in Krok-slätts fabriker, Mölndal. It is six apartment buildings with quadrangular footprints that has seven to nine floors with four one to four room apartments on each level. The facades facing southeast and northwest provides a large outdoor space for each apartment. The loggias are nearly three meters deep for all apartments with a total area of up to 38m².

The loggia is reached via a door connected with the living-room, and the separating wall is composed of large window-sections, with parapet, that provides generous daylight into the apartments. However, Granath (2020) raises the questions whether the apartments would benefit from a sliding glass wall attaching all the way from the floor up to the ceiling to improve flexibility and usability. He also highlights the fact that there is only one entrance to the loggia. Perhaps the

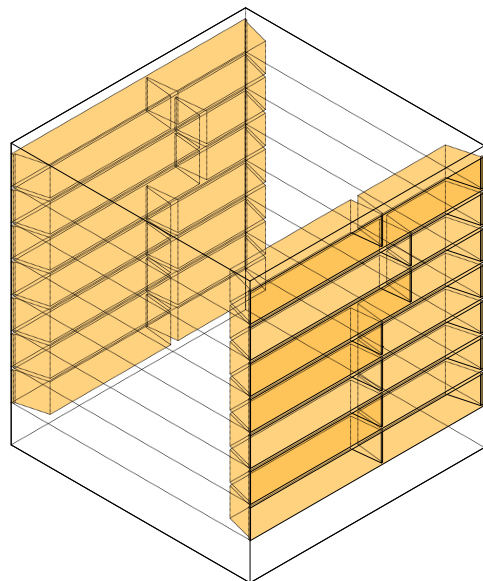


Exterior of the building. The apartments have windows on the facade without loggias.

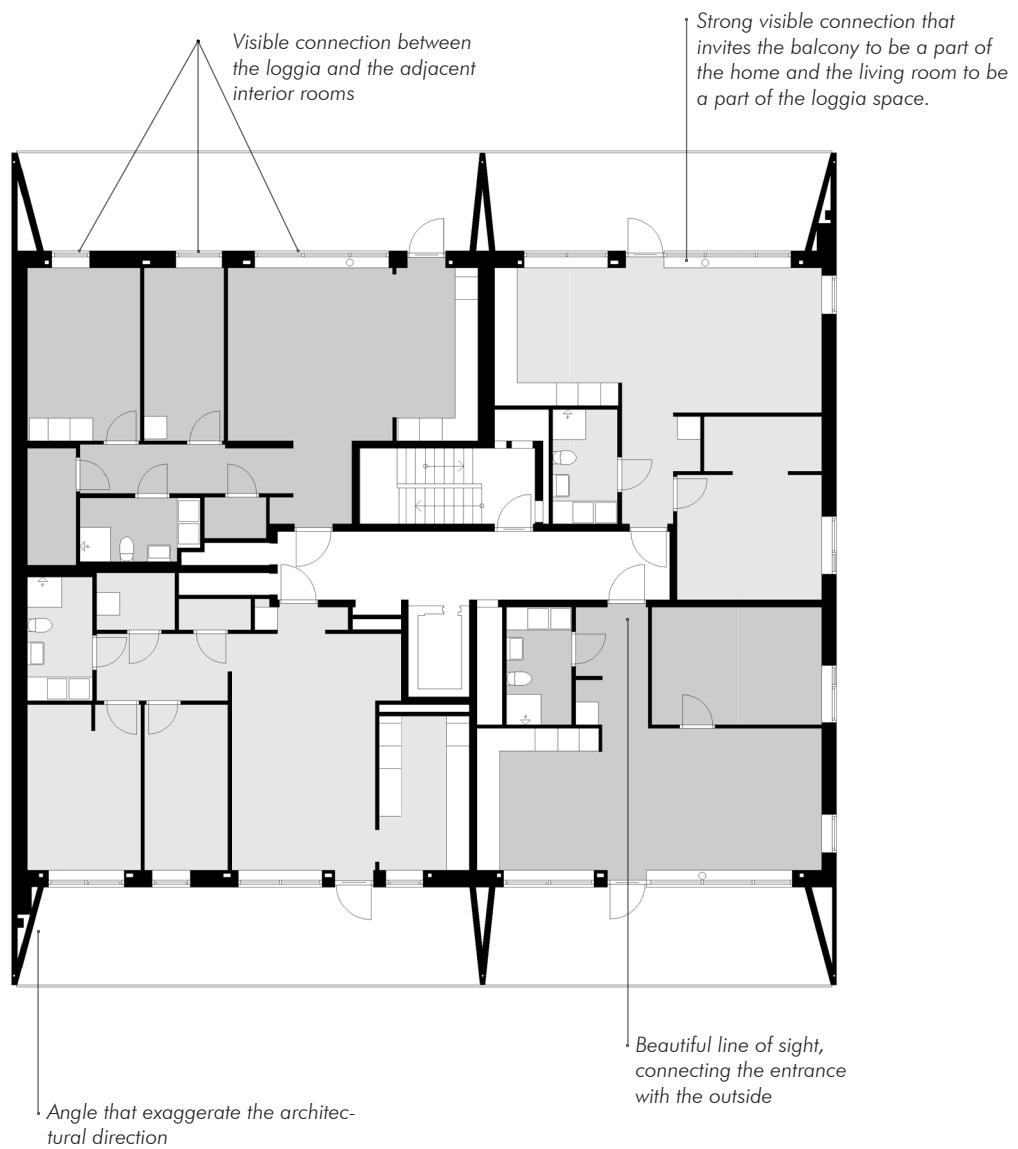


A majority with glazed loggias to prolong the time you can use the space.

circulation would be increased with better access and the loggia could be a more active room in the apartment. However, he emphasize the overall success of the balconies created. In similarity with Brf Rosendahl the loggias are clad with wooden ribs to increase the sense of habitability of the space. To further increase the usability and flexibility of the space it was optional to glaze the loggias to prolong the season and use the space to its full potential all year around. It is evident that the absolute majority have chosen to do so, and it is possible to tell that the space is used as an extended living room since the spaces are well furnished and appear as interior living rooms looking from the outside.



Elongated loggias along the facade that will provide an large outdoor space.

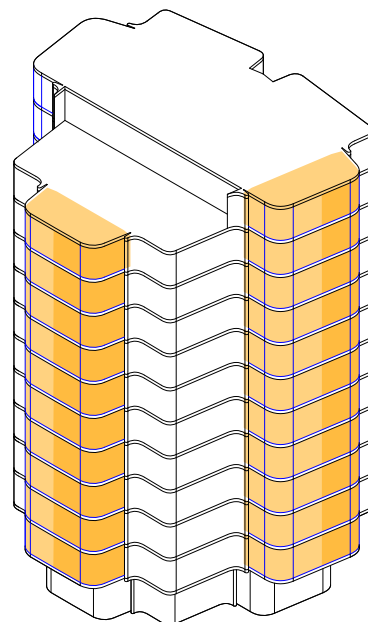


Personal garden

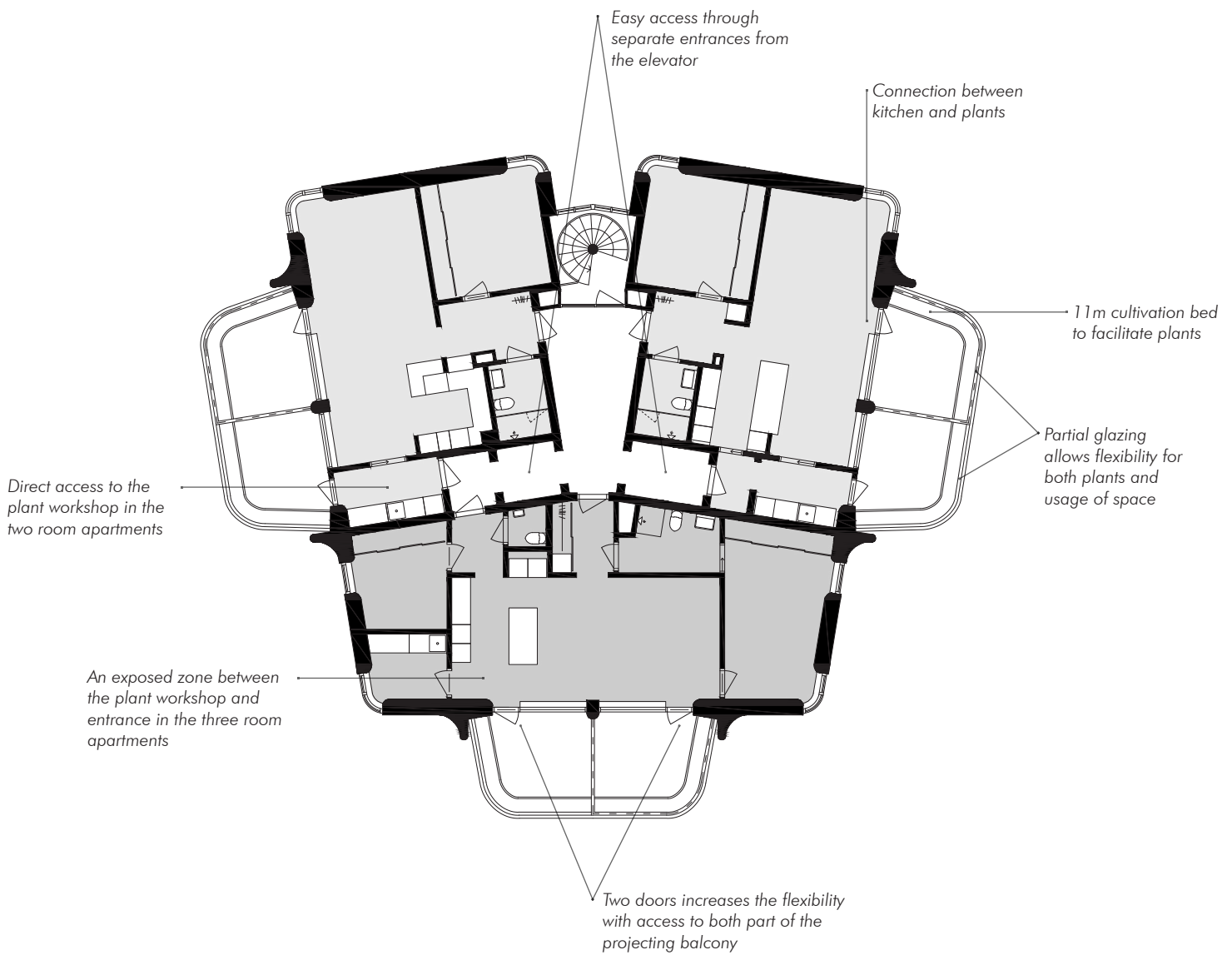
Greenhouse is an apartment building in Malmö with the ambition to enhance an environmentally friendly lifestyle by installing smart technical solutions and facilitate opportunities for growing plants both in the apartments and in common areas. In the fourteen stories tall building there are three apartments per level, each with a 21m² balcony. The balcony is defined by two spaces; one open space with an entrance through a plant workshop and one glazed space with an entrance via the combined kitchen and living room. The plant workshop is a five m² large room in the apartment which purpose is to ease the process of growing plants. The space is also accessible from the apartment entrance, to allow moving objects without affecting other spaces of the apartment and keep the dirt away. The outline of the balcony is a 11 meters long cultivation bed that keep the two defined outdoor spaces together while providing opportunities for growth.



Image IV: Axial symmetrical exterior. Half of the projecting balcony glazed.



Projecting balconies divided in two, on glazed and one open.



Design Characteristics

From the reference projects it is possible to distinguish different opportunities and design choices that will improve the balcony, both as a space and as a part of the apartment.

A common design for all projects is the visual contact between interior and exterior that invites the balcony room into the apartment but also the world outside. Visual contact also generates more daylight into the building.

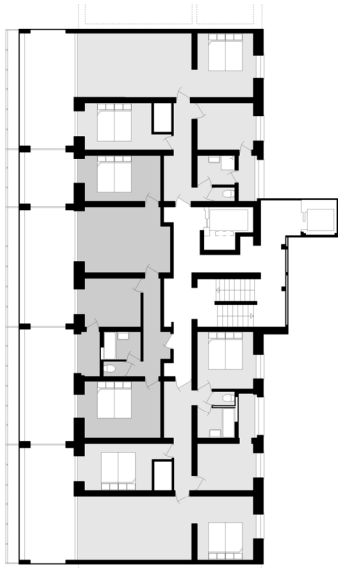
Large balcony spaces will improve the relation to the interior by connecting multiple rooms. Having several doors will strengthen this relation and provide a circulation of movement that will improve the spatial flow of the apartment. This is visible in GHI Le Grand Parc, Brf Rosendahl, Brf Bomullsbalen and Brf Varptråden. The latter provides a beautiful and large space, but by having only one door it does not include the space in the natural flow of the apartment.

In contrast, Solhusen has several doors connected to the balcony spaces with several adjacent rooms, improving the circulation. Greenhouse also has several doors connecting the balcony, but in this case the doors serve to improve the flexibility of the balcony space. For larger balcony spaces, the flexibility and adaptability will increase the amount of time residents spend there.

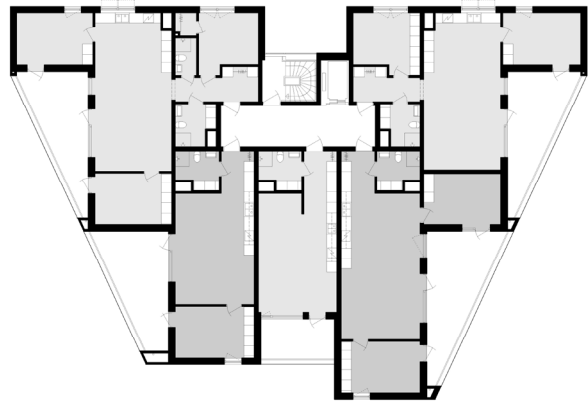
Materiality is a relevant factor for the balcony. The choice of materials contributes to the homeliness of the space (e.g., the loggias where wooden ribs constitute the framing to improve the spatial quality). This is also visible for GHI Le Grand Parc, where concrete is a more common material for the inhabitants living there. Having the same material for the interior and the

balcony can increase the quality of the space. However, the materiality is more limited in projecting balconies and terraces since they are not as weather-protected as loggias.

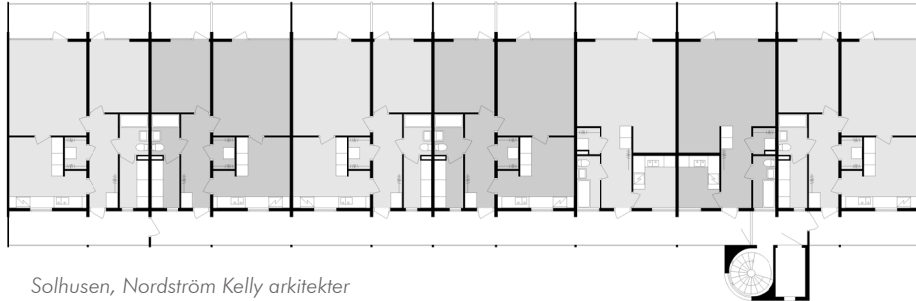
An architect can use a balcony to extend the apartment, both in new production and in transformation. It is interesting to see how through a well-designed balcony, it is possible to unconsciously affect the usage, for example in Brf Rosendahl where a natural movement flow includes the balcony space. It is important to see how design can enhance the usage and certain activities, for example the Greenhouse where greenery is heavily facilitated, which will have long term benefits for human health.



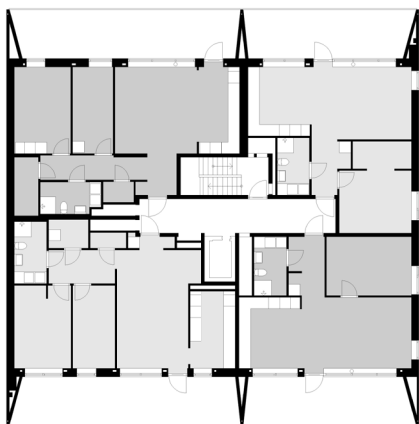
GHI Le Grand Parc, Lacaton Vassal



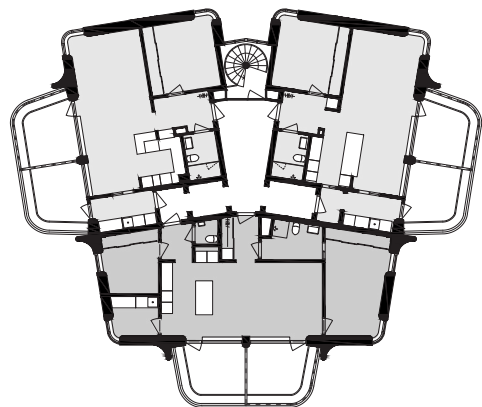
Brf Rosendahl, Arkitema (prev. KUB Arkitekter)



Solhusen, Nordström Kelly arkitekter



Brf Bomullsbalen & Brf Varptråden, Wingårdhs arkitekter



Greenhouse, Jaenecke arkitekter



| Design proposal

To further understand the balcony as an architectural element and its impact on an apartment a design proposal for two different sites within Gothenburg was made. The sites vary in several aspects, both in context and the buildings themselves.

The intension was to, by design, understand the opportunities given by adding balconies to existing buildings in a residential multistory context and to discuss how the context affects the design comparing and contrasting the two proposals.



Molnvädersgatan, Biskopsgården



Skeppsbron, inom vallgraven

Skeppsbron

Site context

Skeppsbron 4 is located Inom Vallgraven in Gothenburg close to city center. Together with Stenpiren further north, Skeppsbron was the first quay constructed along the river Göta älv. The area is a heritage from port activity and a reflection of the past.

Today Skeppsbron is one of Gothenburg’s developing projects to connect the city with the waterfront. The area is worn with large parking spaces. New housing, a park,

offices, shops, restaurant s as well as a transformed extended quay will activate the area. The transformation is a central part in socializing the city center and creating spaces for peaple to meet.

The area is mainly connected through Stenpiren both by boat and tram traffic. Today, according to space syntax, the area is not a well visited place. This will change since the south part of Skeppsbron will also be developed . and new walk and biking paths will be arranged to create a natural movement flow across the area.

This area is a part of the history of Gothenburg and Skeppsbron 4 and the adjacent Merkurhuset are both of historical value.

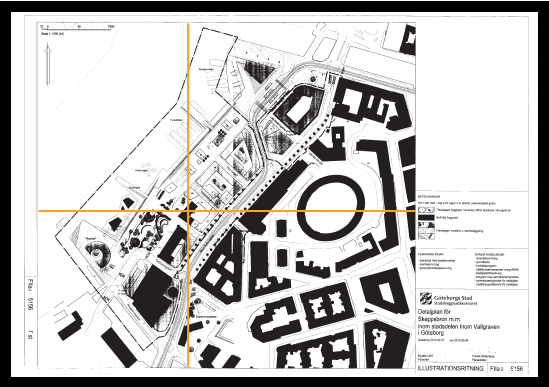
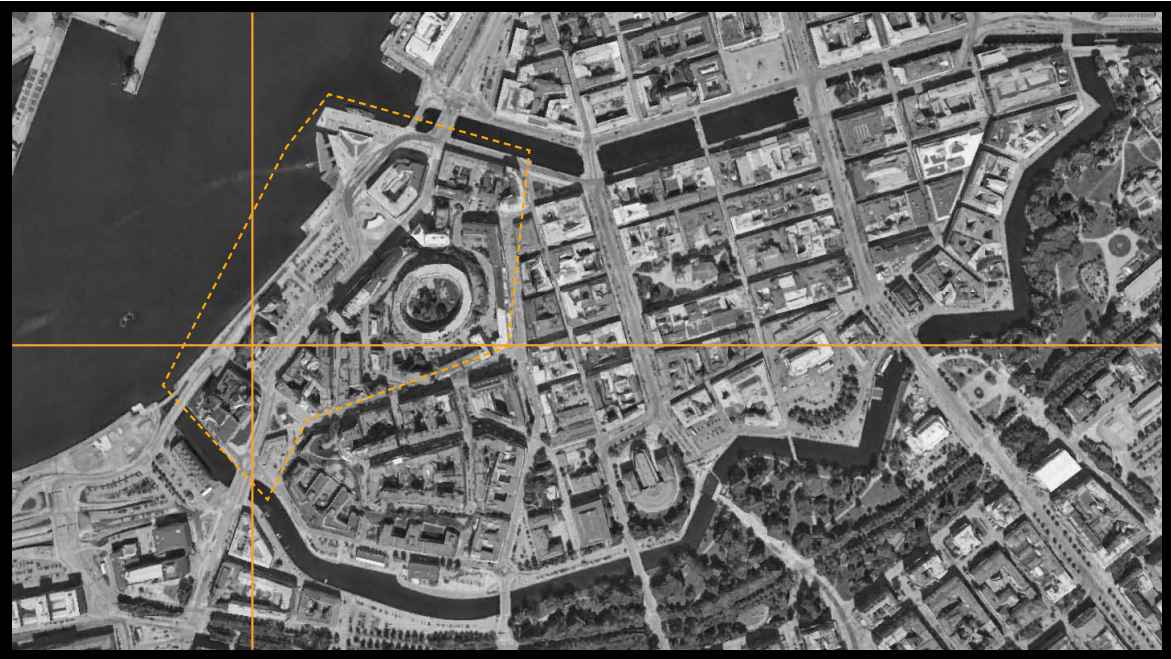


Image V: Future plan of the area with a quay in front of Skeppsbron 4 with new buildings next to the existing.



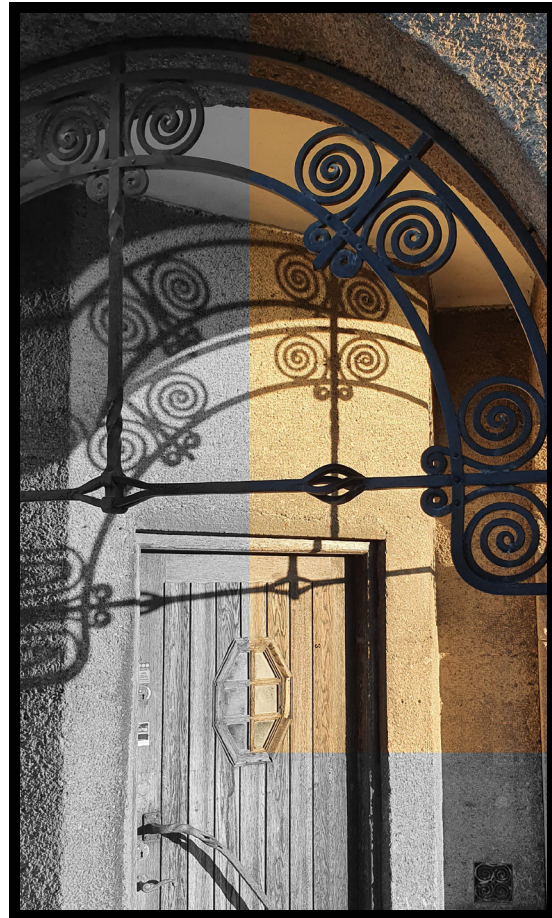
The area skeppsbron within Inom Vallgraven.

Kinesiska Muren

The building on Skeppsbron 4 is colloquially known as Kinesiska Muren, as the first Chinese restaurant in the city opened here in 1959. The building was built in 1914 and has great architectural value. The building is one of the first in the city constructed in concrete. The architecture is characterized by the material and the ornament around the building with decoration in wrought iron.

Due to the great cultural value, the suggestion from the municipality to demolish the building was met with criticism. Today the building is marked as culturally significant, and demolishing is thereby prohibited.

There are suggestions from the municipality to transform the former office building into housing apartment as part of the transformation of the area.



Details in wrought iron.

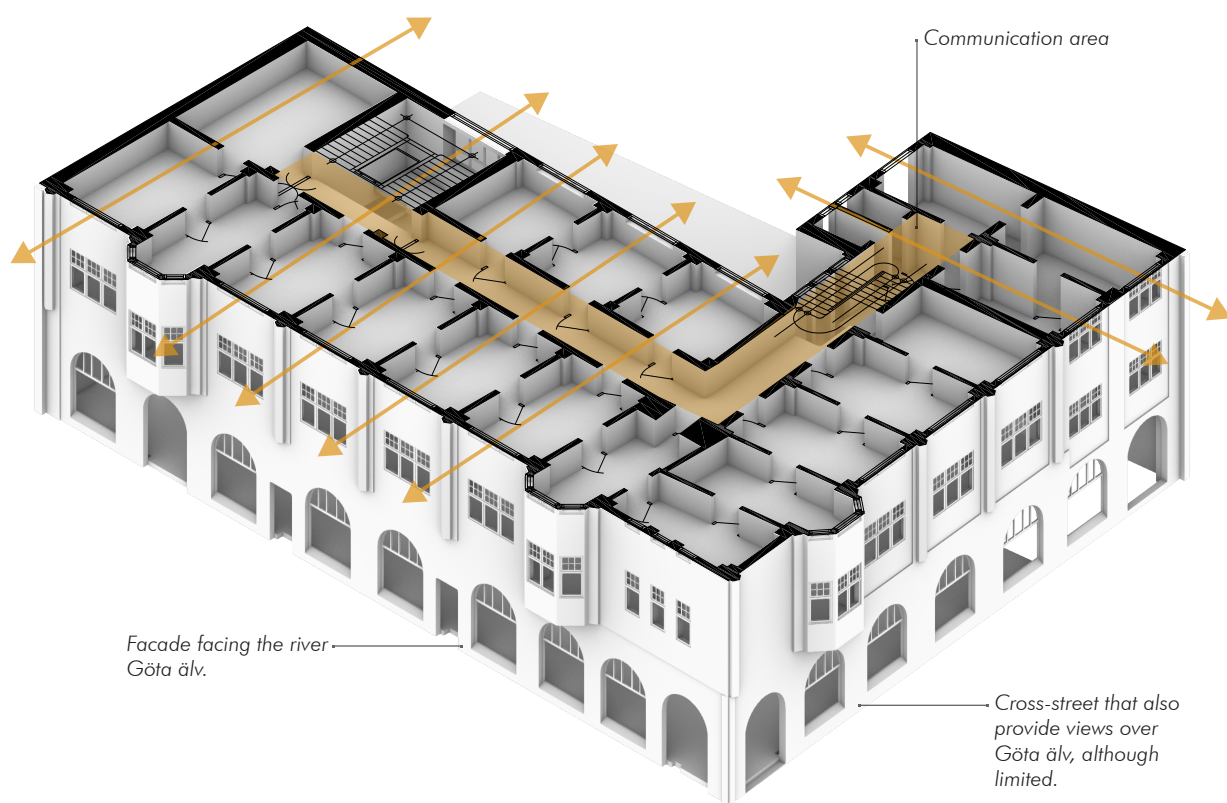


Skeppsbron 4, photography from the river Göta älv.

Apartment arrangement

The existing plan is repetitive with office rooms along the facades and communication areas in the middle of the building. The idea for the design is to extend and possibly preserve the existing interior walls, to make use of the material and use the communication areas for their original purpose. This will make it possible to

arrange apartments going from facade to facade, which will bring in more light and additionally give all apartments access to a facade providing views over Göta älv.



3D-model of the existing building on Skeppsbron 4 and the original floor plan.

Identity

Due to the combination of classic architecture and interest from the local population, the exterior of the building should not be hidden under a new architectural element. The exterior design strategies for this site serve to preserve the main characteristics of the building by highlighting and visually leaving a larger portion of the facade free.

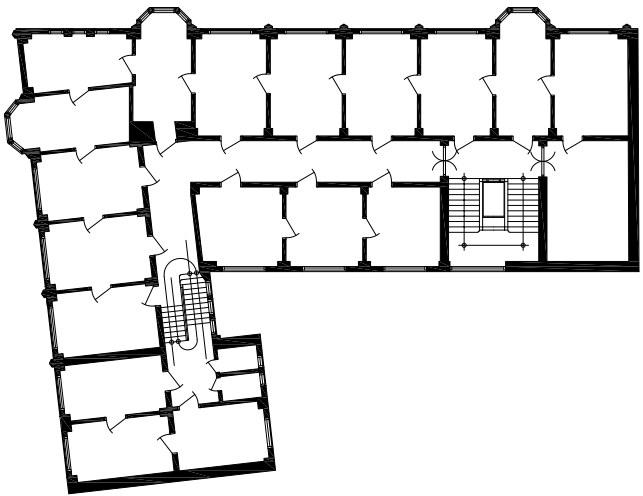
The building has an entrance level in natural stone with ornament and decorations. Throughout the building there are decorations in wrought iron and details that reveal the value of the exterior. The bay windows, and the dormers characterize the building and adds a depth to the exterior.



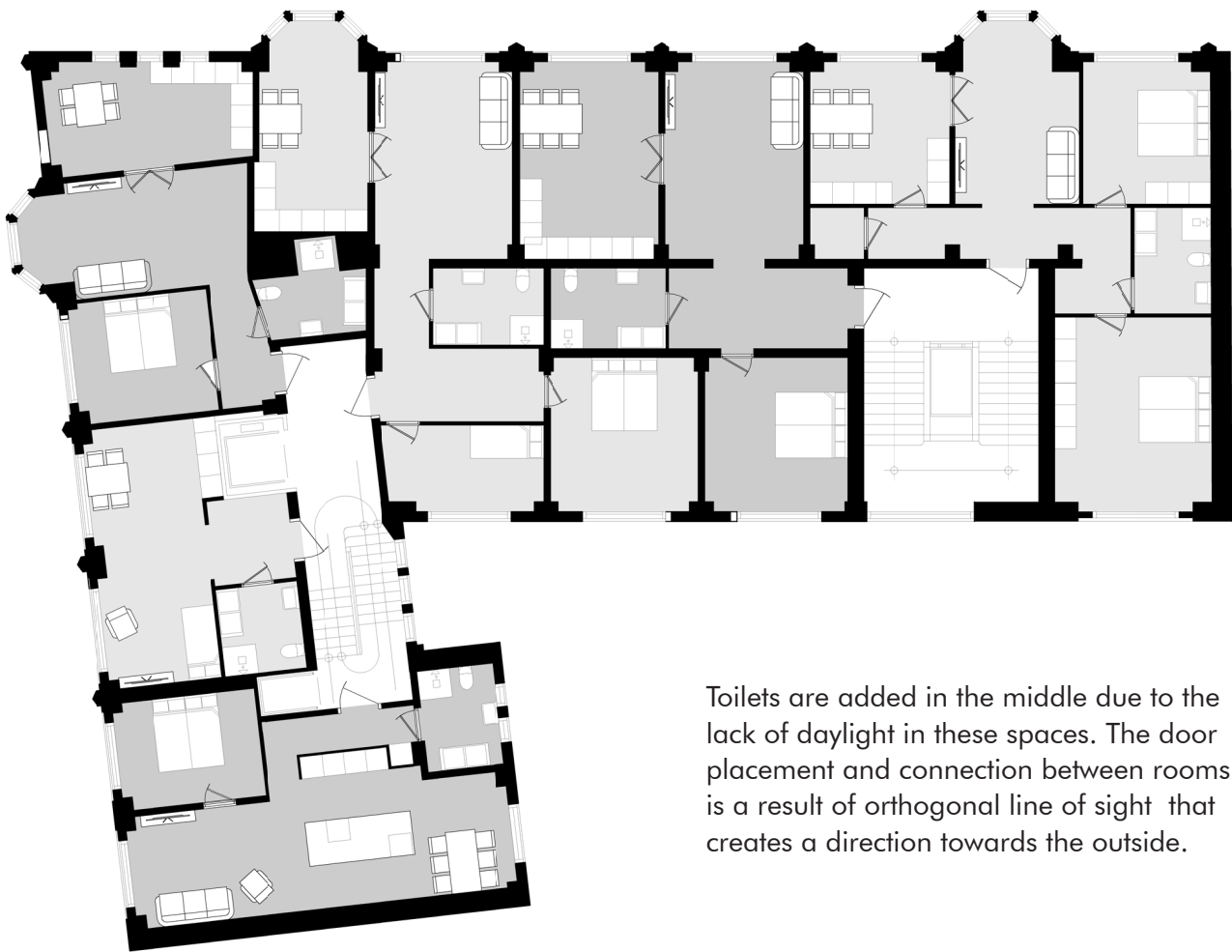
Highlighted areas that contributes to the design character of the building at Skeppsbron 4.

Floor plan

The intention to create light apartments with access to two facades results in six different apartments. The office walls will in most cases remain, with some exceptions where the walls have been redefined and doors have been rebuilt to separate apartments from each other. Rooms such as kitchen and living room are placed at the facade and bay windows (if there are any) to let daylight into the common areas. The former communication areas will be divided into smaller parts and connect rooms facing northeast and southwest for the apartments to face two facades.



Existing plan for Skeppsbron 4.



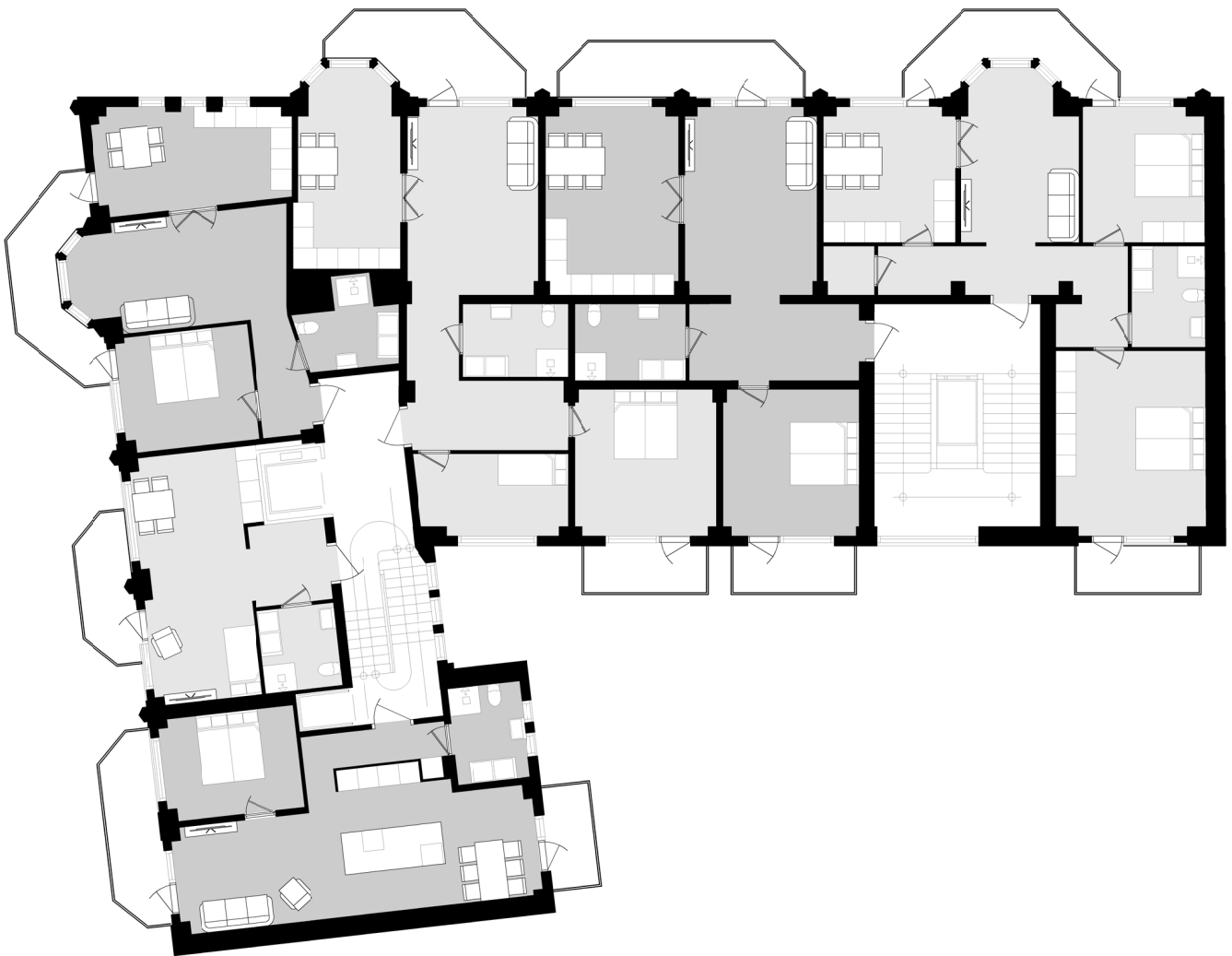
Common floor plan without balconies.

Toilets are added in the middle due to the lack of daylight in these spaces. The door placement and connection between rooms is a result of orthogonal line of sight that creates a direction towards the outside.

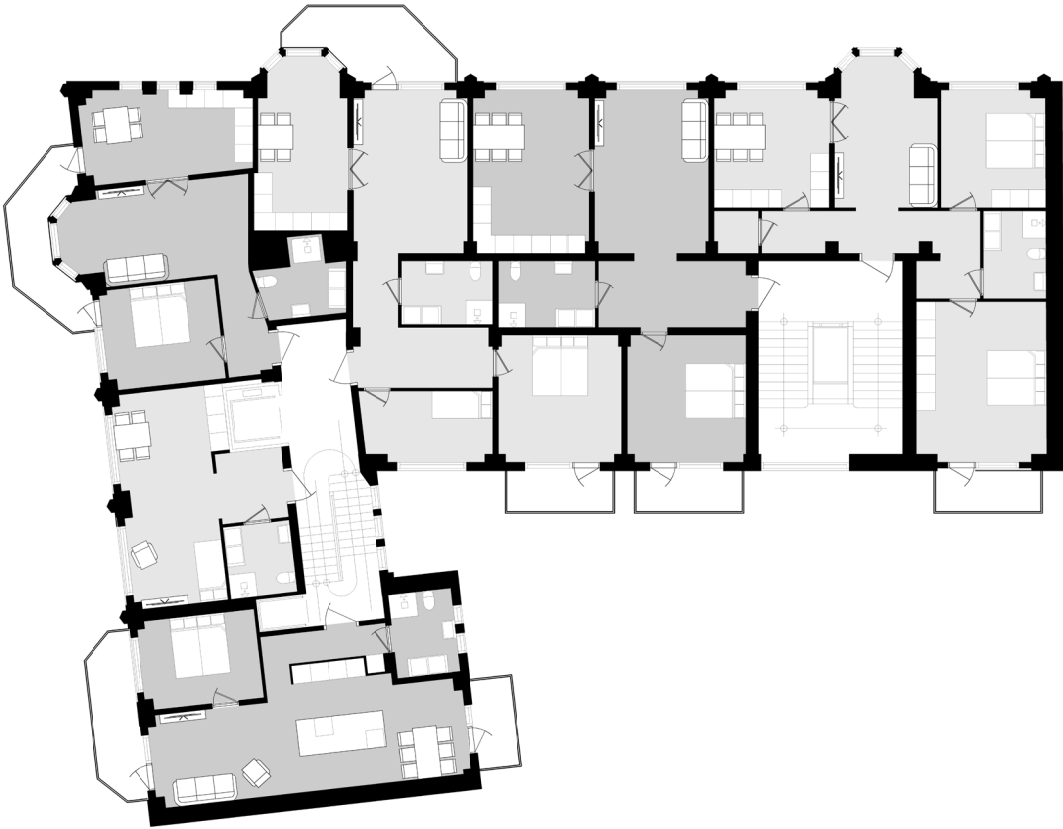
Balconies

Due to the exterior of the building, the balconies are designed in parallel from the out- and inside. Not all apartments have a balcony facing Göta älv. This is a conscious design that comes from the idea of preserving the existing expression of the façade. However, all variations of apartments have a balcony facing the river. Spatially, the main purpose of the balconies facing Göta älv is to strengthen the interior connection with circulation and create extra space with beautiful views. In cases where bay windows are present, the balconies embrace the structure and make

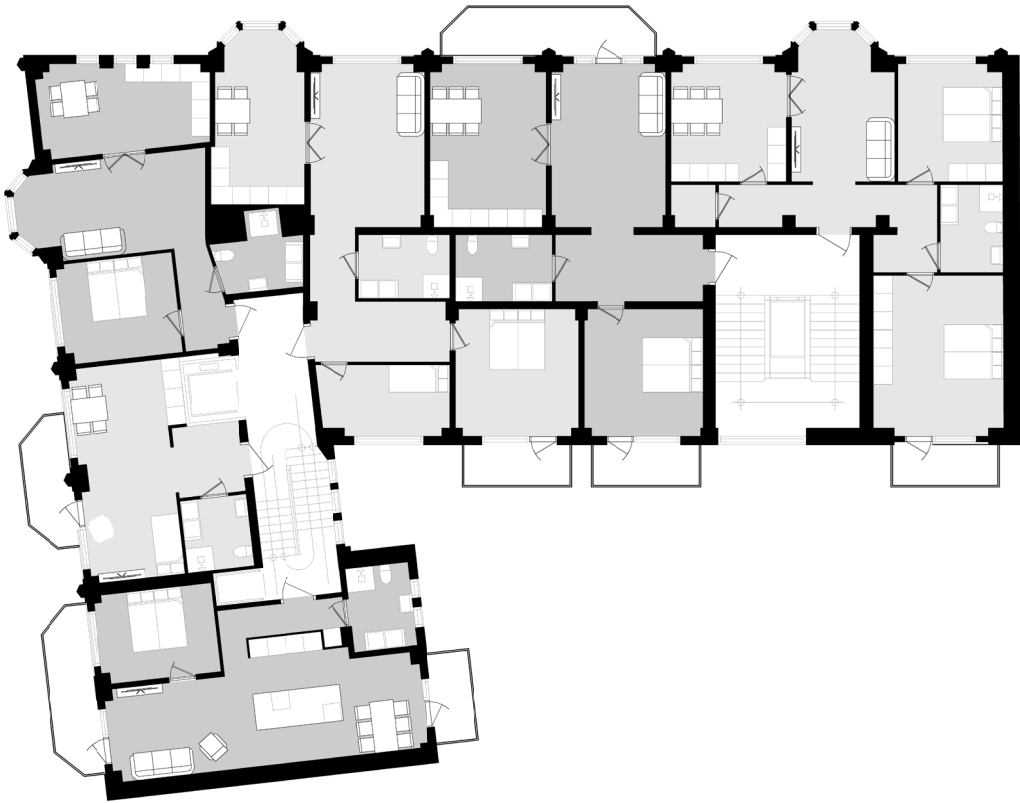
the bay windows the heart of the apartment, which they deserve. The balconies are big enough to serve several activities with spaces defined by the shape of the balcony and the exterior of the building. The cut off corners help the space to be directed inwards and to visually decrease the impact on the exterior. The balconies facing southwest are smaller but provide a space where you can drink your morning coffee, connected to your bedroom. They also extend the apartments and strengthen the axis through the building.



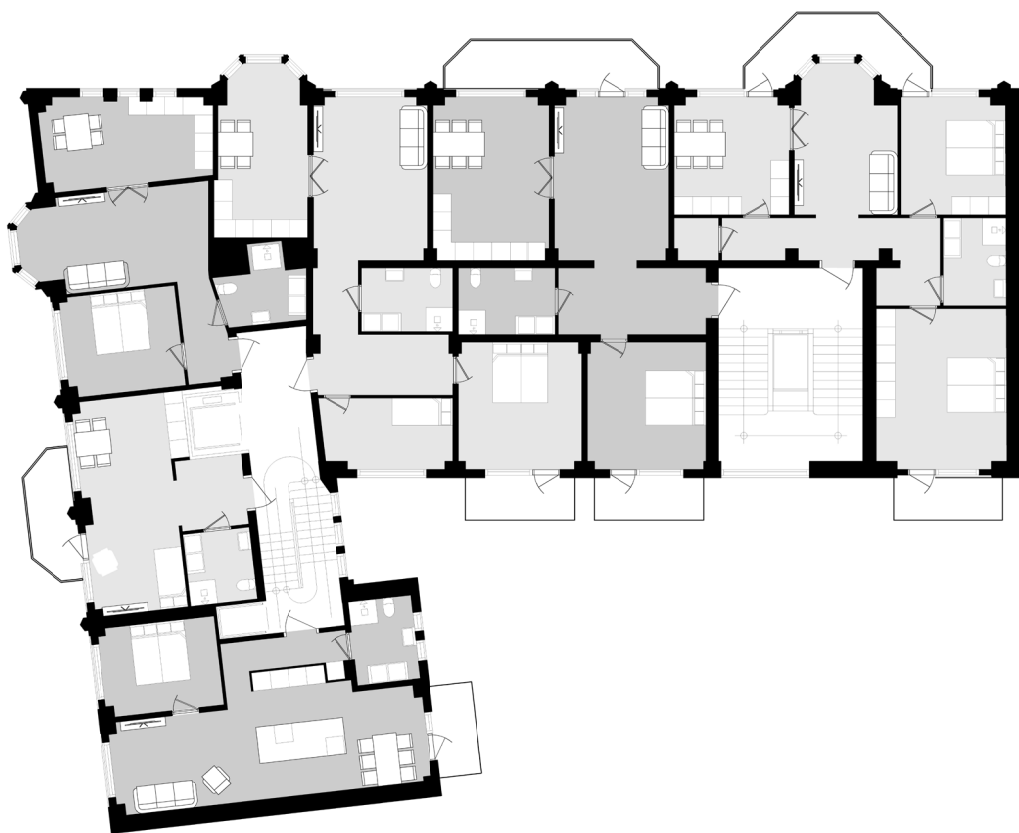
Merge of level 1 and level 3 (showcases all variants of balconies).



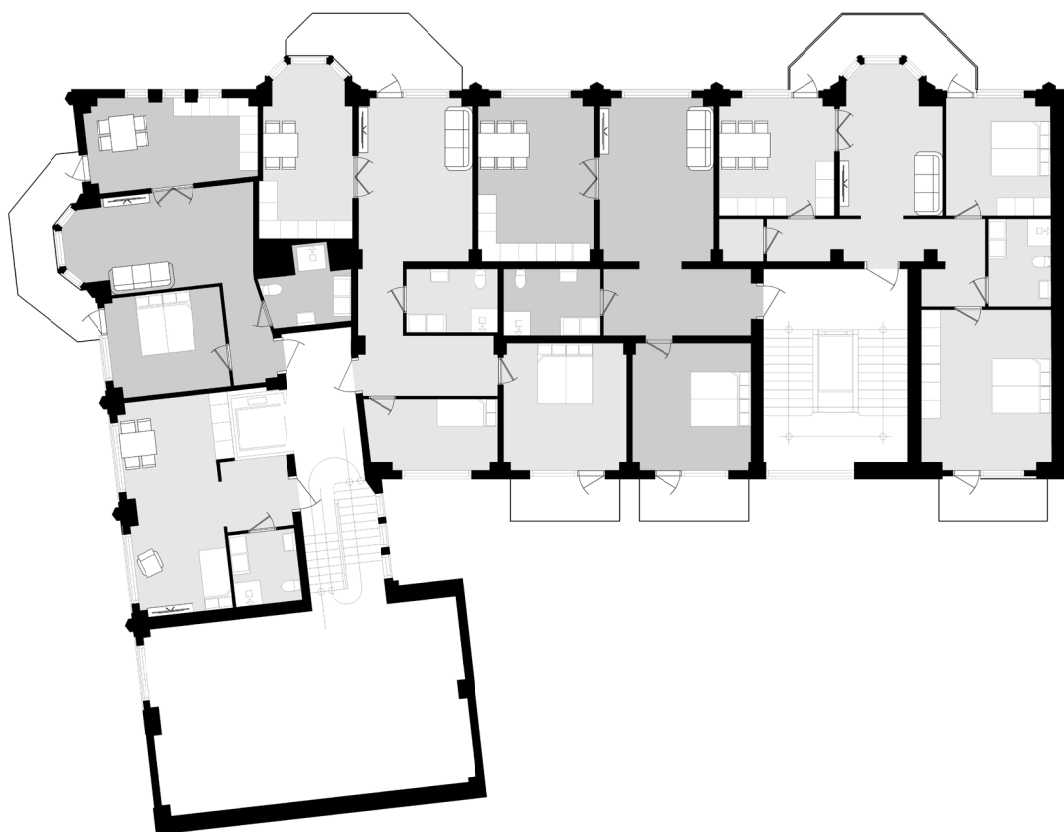
Level 1.



Level 2.



Level 3.



Level 4.



Exaggerate the identity

The architectonic qualities of the building should be exaggerated and highlighted. Therefore, not every apartment can hold a balcony. To highlight the existing exterior, large parts of the facade are free, with balconies placed to highlight certain qualities while providing beautiful spaces for the habitants.

The northwest corner of the building is left free to keep the height of the building and for the facade to remain light. The balconies closest to the corner embrace the bay windows and are placed at the bottom and the top floor not to interrupt the open corner. To further strengthen that concept, the floor in the middle has elongated



Redrawn original elevation facing northwest.

balconies to frame the corner. At the top left corner the balcony is added to the top floor to compliment the placement of the other balconies , to highlight the low



and the high part of the building and to leave the bay window free at the lower part to show the details. Small decorative balconies are added to the end of the top bay windows with different railing to distinguish them from the others on the same facade.

The design for the railings is influenced by the building and the details in wrought iron. Since the space in front of the building will be a public space the railings are rather opaque, and the parapet of the windows with the placements of the balconies allows daylight to be relatively unaffected. The railings will also bring details into the facade that complement the existing exterior of the building.



Redrawn original elevation facing southwest.







Molnvädersgatan

Site context

The building for this project is in the south part of the suburban area Biskopsgården. Since 2015 the population in the area has strongly decreased. To make the area more attractive additions of balconies can be a solution. Most of the residential building in the area is built between 1950s-1970s and are often several stories high.

To represent these buildings, Molnvädersgatan 20-32 has been chosen in the design exploration. The house is one out of four similar multistory apartment buildings at the site.

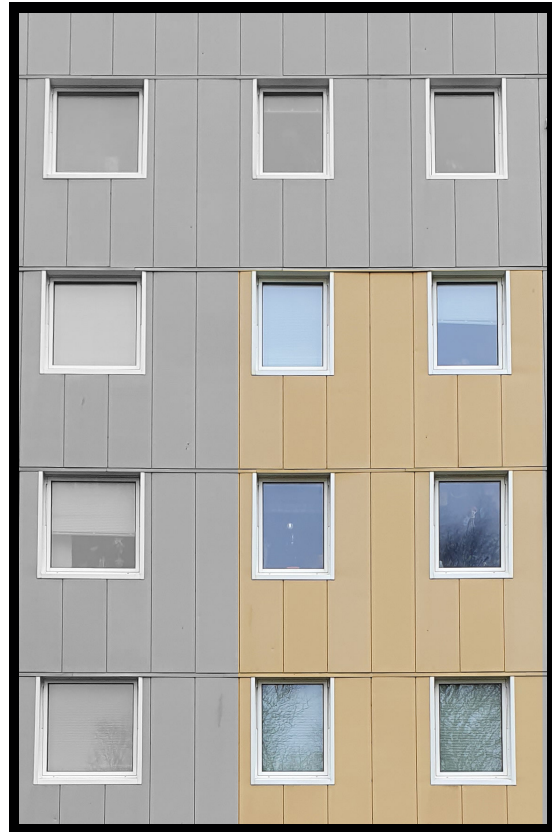
The building is placed on a hill that makes the east face overlooking larger parts of the city and the river Göta älv but are also close connected to the nature close by.



Molnvädersgatan, Biskopsgården.



Existing balconies facing west, some glazed.



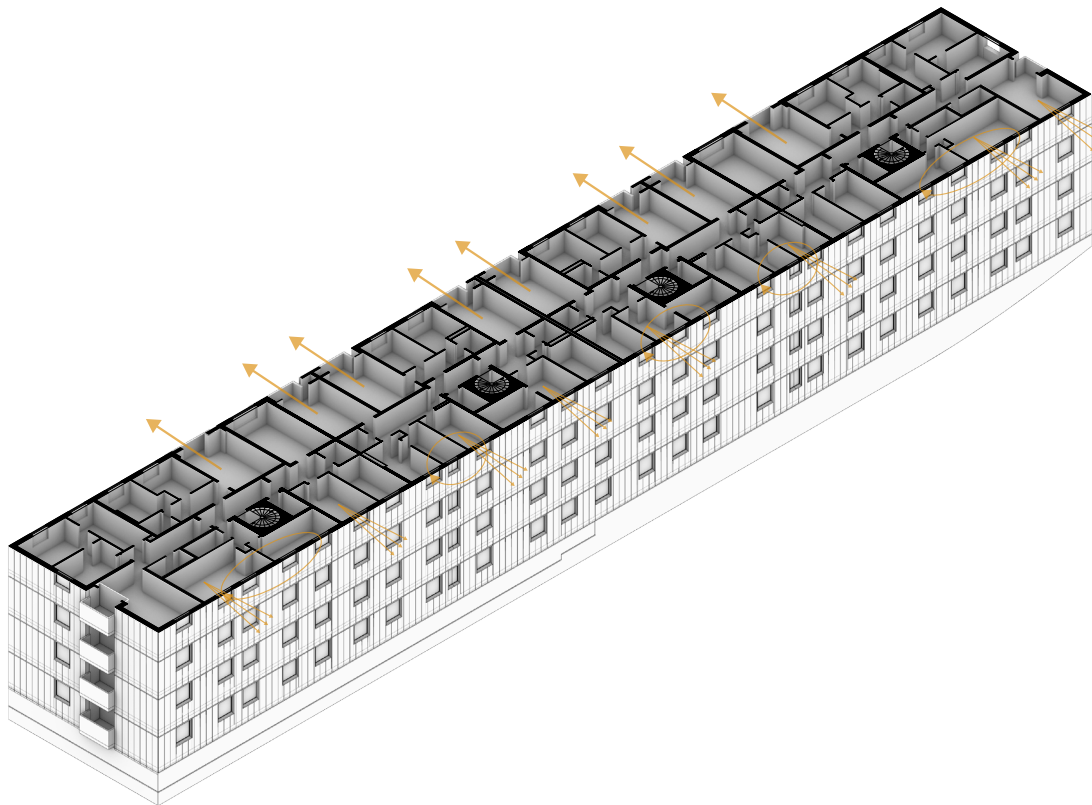
Yellow sheet facade of the building at Molnvädersgatan.



Homogenous facade, facing east.

Frame the view

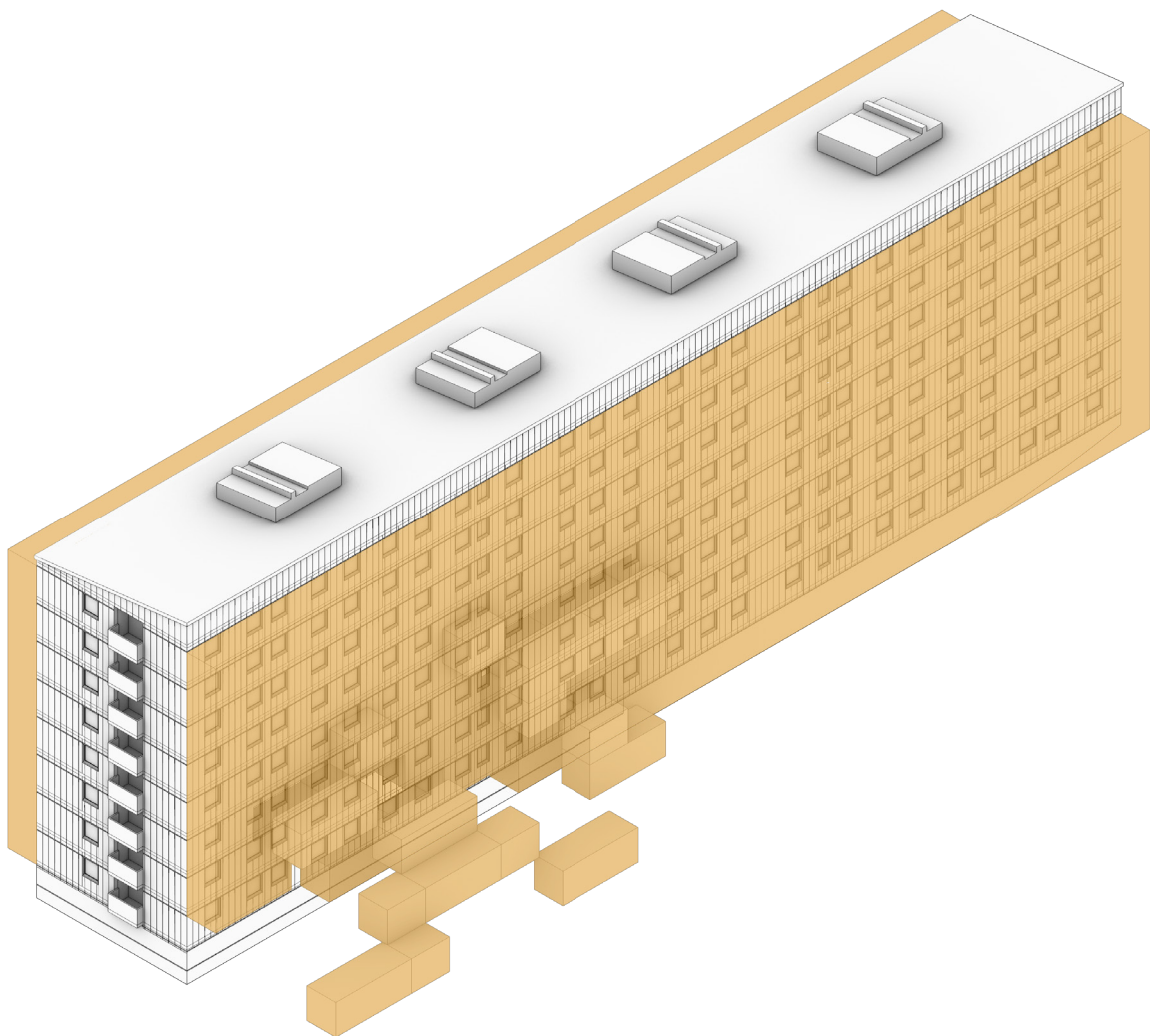
For Molnvädersgatan, the arrangement of the interior rooms is already defined. This will limit the relationship and possibilities to connect interior rooms with the balcony space. For the facade facing west the strategy is to extend the rooms towards the courtyard with focus on creating extended rooms with a direction outward. For the west facing facade an essential part will be to frame the view that this site has to offer. This facade also has greater opportunities to connect the interior rooms through the balcony space.



3D-model with existing plan drawing.

Exterior strategy

The large homogeneous facades opens for many possibilities for architectural interventions for the exterior. However, adding balconies can result in a daylight problem if placement is not carefully considered, and the problem increases with height of the building and depth of the balcony spaces. Therefore, the strategy is to work with different volumes that extend out from the facade with varying depth.



Conceptual 3D-sketch.

Outdoor rooms

An influence for the design is the project Paul Clairmont strasse in Zurich by Sggk-architekten. Especially the large outdoor spaces that they are creating but also the way they are connecting the space both to the interior with the visual

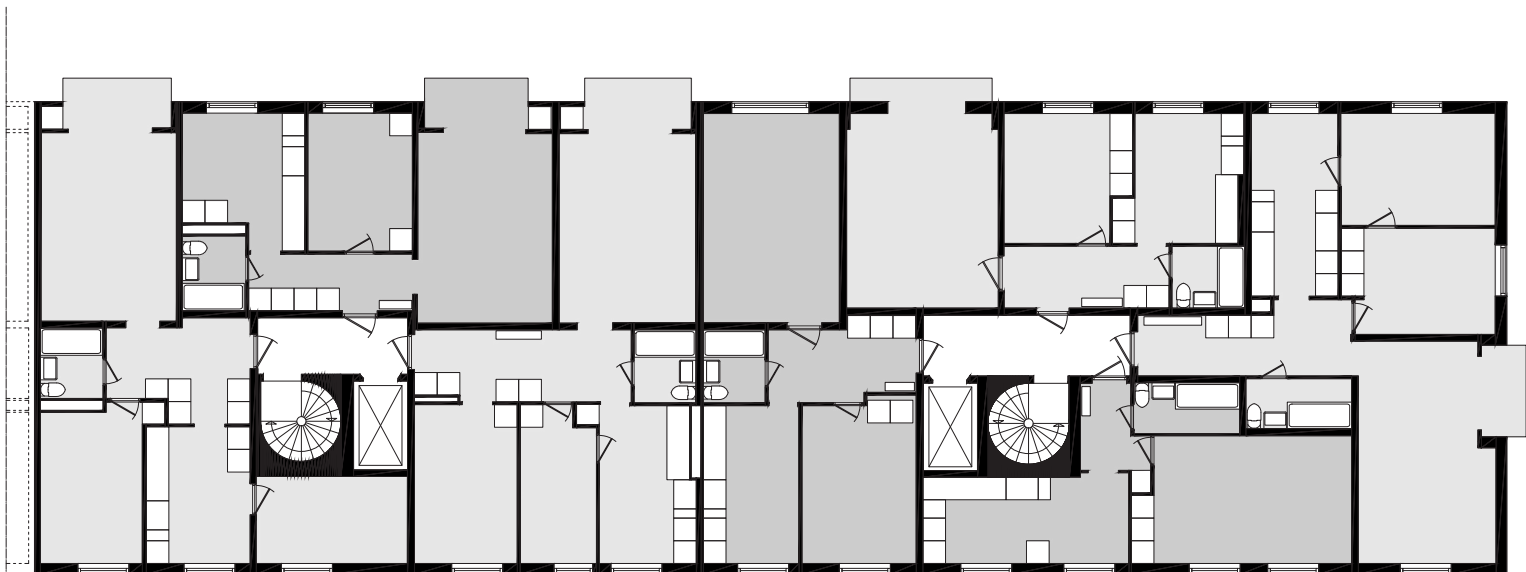


Image V: Paul Clairmont strasse in Zurich, Sggk-architekten.

contact and the exterior by framing the view. The design for Paul Clairmont strasse creates a depth in the facade that I want to achieve, by letting volumes extend out from the façade.

Floor plan

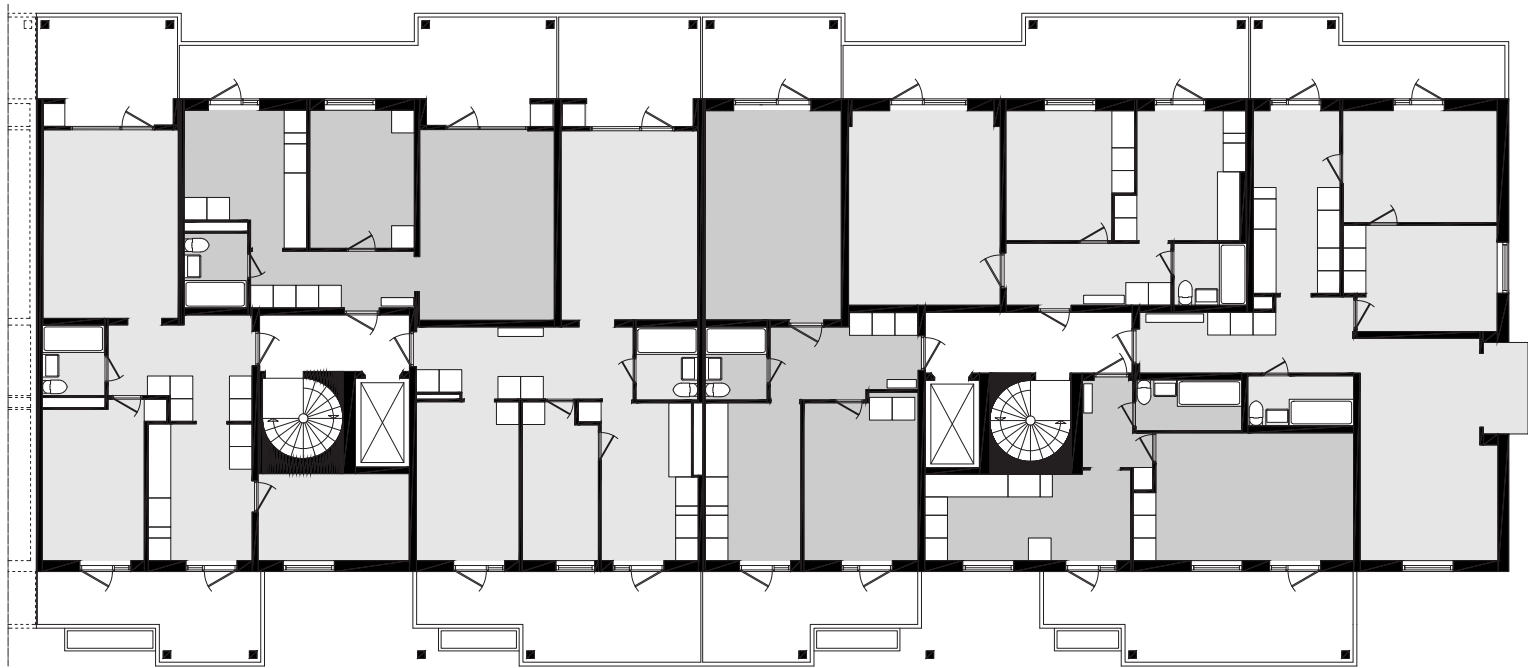
The result is projecting balconies with a displacement in the geometry. The projecting balconies facing west are creating a depth in the facade that the previous homogeneous flat facade did not. An issue with adding deep balconies is lack of daylight reaching the adjacent, interior rooms. The height of the building will aggravate the daylight problem. The displacement defines two different spaces on the balconies to make it flexible and allow several simultaneous activities. The withdrawn volumes are a design strategy that attempt to let enough of light through. This would be critical if all balconies were projecting at maximum. The design choice of having open top for the balconies comes from the same issue and will let more light



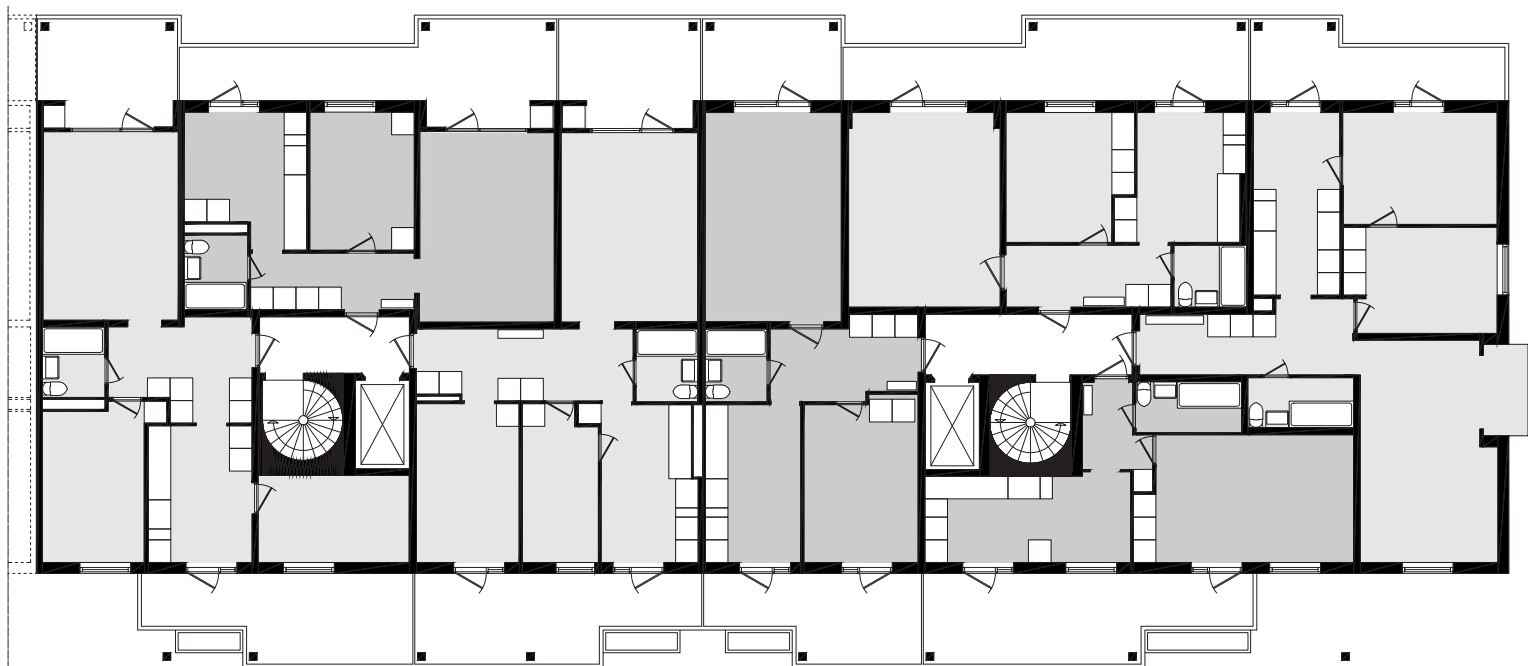
Existing Plan drawing, same for all levels.

through, while also giving a lighter overall impression. The open top will also provide direct sun light into some of the spaces. The openings in the balconies are telling the story of the old facade and the window placements. The openings will also frame

the view over the city and nature close by. To limit the views from neighbors, to maintain the privacy, and enhance greenery, cultivation boxes are added in front of the narrow space.



Level 1,3,5,7.



Level 2,4,6,8.















| Discussion

Balcony design

To successfully design a balcony it is important to integrate the balcony in the apartment, and let the balcony be an extension of the interior that is connected to the outside world on a unique way, compared to other rooms of the apartment. You should let the balcony serve a purpose for the specific site, a better-defined purpose in the design will benefit the usage of the space and the balcony will be interpreted as an included room of the apartment. The purpose also relates to the context of the building and the apartments, which should be included in the design. Again, it is important to stress that the balcony room should be connected to the apartment. It can be designed in different ways but a large balcony with strong visual connection is a useful design strategy to improve the relationship between indoor and outdoor. Another way to connect the balcony is to let it be a part of the movement flow in the apartment, and by adding several doors the balcony will be a natural part in the circulation. The larger the balcony space is, the more it will be used. A large balcony does also imply a greater chance to improve the visual connection, both by several adjacent rooms and several connected doors. Regarding adjacent rooms, common spaces like living room and kitchen is preferred, and with bedroom if there are several doors connected.

The most important thing is however that the balcony space is being used, if not it is just an unnecessary unwanted space. Therefore, flexibility and adaptability are important to inviting the balcony room into the apartment. Again, size is a great way to increase those parameters. However, it is not always possible. To add several

doors and include the space in the circulation will make the space more flexible and adjustable. Another effective way here in the north is to glaze the balcony to prolong the usage to all year around. A glazed balcony will allow the space to either be a part of the interior or a part of the outside, and with a design that provides a seamless transition the flexibility will increase, and the spatial quality will improve. A glazed balcony can also improve the indoor climate and be economically sustainable in terms of energy. However, it is important to acknowledge that glazed balconies can create glare and impair the intake of sunlight.

The balcony is one of the greatest tool for architects to connect and improve the relationship between the outside and the inside. Visual contact, and seamless transition will strengthen the relationship but details that creates a distinct direction can affect the perception. Level of transparency is important to generate daylight into the adjacent rooms but also to take part of the outside. However, the level of transparency must be in balance to separate the habitants from encroaching neighbors and passerby's. A great tool to manage undesired insight is to use greenery, and that can also have positive effects regarding health-related issues.

The balcony is an essential part of the exterior. Balconies will affect how the exterior and the building is perceived. The balcony design with its railing or balustrade will also give a hint of the relationship between the interior and exterior, and tell about the inside and the habitants.

While design of rooms is subjective, this master thesis points out certain designs

that will improve the architectural qualities of the balcony room. The core when designing a balcony should be to provide an adaptable outdoor space, creating a relationship between the inside and the outside.

Reflection

The majority of the desired qualities of a balcony is influenced by the size of the space. Therefore, I think an interesting study would be to investigate the minimum size of a balcony room that would still be considered large and provide possibilities for different designs to improve the quality of the room. It would be interesting to analyze the correlation between size and design and find the breaking point when an increased space becomes less effective.

Regarding the design proposals of this master's thesis, it can be seen as a failure not to investigate glazed balcony spaces. Especially since it is an essential tool to improve the balcony space with improved flexibility, adaptability and prolong the season to all year around. However, I think further work with those proposals can investigate opportunities to add glazed spaces. For Molnvädersgatan it is more obvious how these could be added. For Skeppsbron, on the other hand, I found it more difficult to include glazed balconies in their current state. This could make it more challenging but also fruitful to investigate how glazed balconies can be added in such context while still respecting the building.

Skeppsbron

It would be interesting to take the asymmetry to another level and see if a vari-

ation of the interior on each level could leave space for balconies facing Göta älv for each apartment. Since this was a great part of the design strategy it is a missed opportunity to not include such spaces for every apartment. However, the composure of the exterior now respects the existing building, and the apartments has a variety.

Molnvädersgatan

For the balconies at Molnvädersgatan I think it would be interesting to do daylight analysis, since the volumes added are large and opaque with a great depth. The design proposal however is influenced by this problem and the displaced volumes and openings between the balconies is a result of a concept that considers the daylight problem. Nevertheless, an investigation with larger windows adjacent to the balcony and the connecting door could be a solution and improvement for the daylight issues. In fact, this could benefit the entirety of the balcony space, with a stronger visual contact and the benefits that follows from that. The existing balconies on the gables are left in their original state in this proposal. In a continued working process the project would benefit from upgrading those balcony spaces as well and connecting them to the new situation with balconies added towards west.

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Images

Images without source is taken or created by the author of this thesis.

Image I

Ruault, P. (2015) No title. Available at: <https://www.archdaily.com/915431/transformation-of-530-dwellings-lacaton-and-vassal-plus-frederic-druot-plus-christophe-hutin-architecture/5cb89464284dd11447000160-transformation-of-530-dwellings-lacaton-and-vassal-plus-frederic-druot-plus-christophe-hutin-architecture-photo> (Accessed 08 November 2022).

Image II

Ruault, P. (2015) No title. Available at: <https://www.archdaily.com/915431/transformation-of-530-dwellings-lacaton-and-vassal-plus-frederic-druot-plus-christophe-hutin-architecture/5cb8950f284dd1a8120000cd-transformation-of-530-dwellings-lacaton-and-vassal-plus-frederic-druot-plus-christophe-hutin-architecture-photo> (Accessed 08 November 2022).

Image III

Nordström Kelly Arkitekter (n.d.) No title. Available at: <https://www.nordstromkelly.se/3847792/solhusen-i-gardsten> (Accessed 08 November 2022).

Image IV

Göteborgs Stad Stadsbyggnadskontoret (2012) Detaljplan för Skeppsbron m.m. inom stadsdelen Inom Vallgraven i Göteborg. Available at: [http://www5.goteborg.se/prod/fastighetskontoret/etjanst/planbygg.nsf/vyFiler/Skeppsbron%20-%20ny%20m%C3%B6tesplats%20vid%20%C3%A4lven-Plan%20-%20laga%20kraft-Plankarta/\\$File/Karta%201480K-II-5156.pdf?OpenElement](http://www5.goteborg.se/prod/fastighetskontoret/etjanst/planbygg.nsf/vyFiler/Skeppsbron%20-%20ny%20m%C3%B6tesplats%20vid%20%C3%A4lven-Plan%20-%20laga%20kraft-Plankarta/$File/Karta%201480K-II-5156.pdf?OpenElement) (Accessed November 2022).

Image V

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