

GLAZED CONNECTIONS

A design strategy to promote wellbeing & social interaction
within glazed spaces in residential buildings



Lucrecia Parma | Chalmers University of Technology | 2020
Department of Architecture and Civil Engineering | Architecture and Planning Beyond Sustainability
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CHALMERS
UNIVERSITY OF TECHNOLOGY

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Direction: Housing
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ABSTRACT

Northern countries are challenged by extreme weather conditions, social vulnerability and health related issues caused by stress and loneliness. Glazed spaces in multi-family dwellings counts with the benefits of climate protection, increased daylight, gardening possibilities, promoting participatory and collaborative activities, provide social support and enhance closeness with nature, surroundings and people. These geometries also influence wellbeing and social interaction which helps to build up social support. This influences physical and mental health, helps build trust among residents, lower crime levels and creates a stronger sense of community. The purpose and aim of this thesis seeks to explore how glazed geometries can promote wellbeing and social interaction among residents of multifamily houses?

Based on findings from literature research, analysis of different glazed spaces (charts), study visits and interviews with residents, this thesis provides a design guideline together with a design proposal. The findings were focused on best practices for promoting social interaction and wellbeing among residents of multifamily housing with integrated glazed spaces. The proposal aims to contribute to a sustainable housing debate. By exposing and suggesting the inclusion of relevant design elements for promoting social interaction, it intends to help set up sustainable communities. During the design proposal process, the guidelines were put into practice. Emphasis was set on providing maximum opportunities for contact among residents to help create social networks. The proposal is focused towards the individual, the community and the context to promote social sustainability. This thesis is a collaboration together with architects and engineers from Chalmers and Sweco within Spaces project.

KEYWORDS:

:: glazed spaces :: wellbeing .: social interaction .:: social sustainability .:

COLLABORATION

CHALMERS - SWECO

The team Spaces from Sweco, investigates glazed geometries for improved indoor climate and social interaction. This interdisciplinary team consists of architects and engineers from Chalmers and the company Sweco. Together we investigated diverse glazed spaces and how it influences resident's well-being and their social coherence within the community. For this work, I chose to focus on three reference projects from the previous research, based on their remarkable performance promoting wellbeing and social interaction. Together we participated in study visits to some projects. Sweco also provided me with access to interviews with residents of different glazed projects that they conducted in the beginning of their research. This was very valuable for my work since it is highly relevant to take into account the user's feedback.

Interesting debates, based on shared literature, emerged during the meetings with the team Spaces. Thus, it aided to generate conclusions that were later reflected in the design guidelines and

proposal. My tutors, Kajsa Crona and Ruxandra Bardas-Dunare, guided me through this process. Together, we tested the guidelines into the design proposal to evaluate them.

During the process of this thesis, together with the team, we had the opportunity to study relevant factors that are needed for social interaction and how glazed geometries could contribute to resident's wellbeing. Thanks to the collaboration with the team, especially with Kajsa and Ruxandra, I was able to set the theory into practice by adapting the ideas into a design, following urban codes and regulations. Their observations and construction experience gave me insight to architecture in Sweden, a very enriching experience. I am very grateful to Chalmers and Sweco for giving me this valuable opportunity to have been able to collaborate in this interdisciplinary research team for improving people's quality of life.

TACK!



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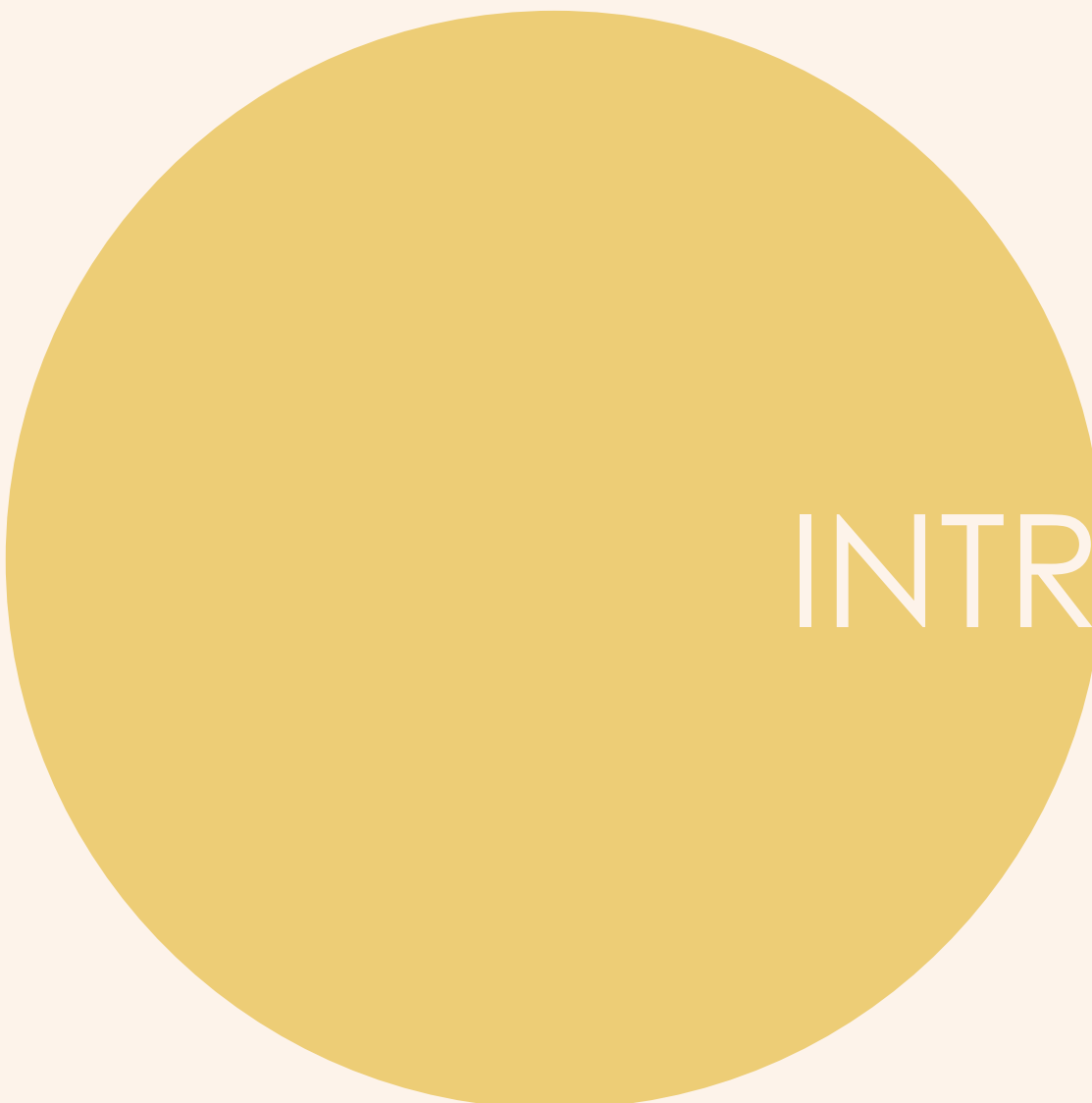
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INTRO

BACKGROUND

Normal winter conditions in countries of the northern hemisphere are challenging and include long periods of darkness, rain, wind and low temperatures. In addition to this, Scandinavian countries are starting to face stronger winds, significant increase in precipitation, social vulnerability and health related issues caused by stress and loneliness. Different glazed spaces in multi-family residential buildings in cold climates have been investigated as a robust solution from a social, health and resource perspective.

Some advantages of glazed spaces, in addition to provide protection against climate conditions, are the health related benefits. In these spaces there is an increase amount of natural light, which has important effects on our well-being since it helps us to reduce chronic stress levels. On the other hand, these spaces are ideal for growing plants. The production of vegetables and plants both, for human consumption and for space's decoration, brings positive consequences to health due to the connection with the natural environment. Gardening has been proven to reduce stress levels and promote movement among people, especially elderly. In addition to this, collaborative activities among residents help generate a social network and strengthen community ties. Furthermore, glazed spaces reinforce the contact with the surroundings, nature and other people which also brings serenity.

There is a current tendency to incorporate policies that support the development of more sustainable communities. One of the requirements of these policies is focused on the design of spaces that promotes social interaction. This emerges from the need to encourage strengthen local social capital which has been demonstrated to bind neighbors and encourages them to cooperate with each other. This is known as social support and has a positive influence on human physical and mental health. It has also been proven that it helps build trust among residents, lower crime levels and create the conditions to establish common norms for a better understanding within the organization of communities.

The hypothesis is that well-designed glazed geometries can help increase well-being and social interaction. Having in consideration all these benefits that are brought by glazed spaces into residents wellbeing, the focus of this thesis is to explore and discover how they can serve as a tool to promote social interaction.

This raises the question of which are the design elements needed within these spaces for best practices to promote social interaction.

WHY

The purpose of this thesis seeks to question, investigate and understand how glazed spaces within residential architecture can influence aspects of social sustainability and health. The thesis explores the necessary conditions required for these spaces to promote social interaction and well-being.

WHAT

The aim of this architectural thesis is to explore relevant aspects that helps promote social interaction and wellbeing among residents. Based on literature research, the analysis of different glazed geometries, study visits and conversations with residents, this thesis provides design guidelines for best practices to promote social interaction and wellbeing among residents within glazed spaces of multifamily housing. The result of these findings will be exposed in a design proposal.

RESEARCH QUESTIONS

> How can glazed geometries in multifamily housing promote wellbeing among residents?

> How can glazed spaces in residential buildings have potential to promote social interaction among residents?

METHOD

The method of this thesis was research on, for and by design. The process was divided into four stages which concluded with design guidelines implemented and tested on the design proposal.

Process stages:

> **Building a base** through literature research within identified areas (social interaction, daylight and well-being), gathering information of many project's from different glazed typologies, study visits, interviews with inhabitants and attending to meetings with the team Spaces where I was part of relevant discussions.

> **Building analysis** was followed up by a deep investigation on three selected study cases to evaluate them. The project's selection had been based on their remarkable performance in terms of wellbeing and social interaction. Findings of this stage can be find within the charts section, where the information has been portrayed. Conclusions were drawn from the analysis into the guidelines.

> **Design Guidelines** were based on the previous findings from the theory and reference projects above mentioned stages.

> **Design Proposal** was focused on best practices for promoting social interaction and wellbeing among residents of multifamily housing with integrated glazed spaces. Here, the design guidelines as well as the theory had been applied and tested.

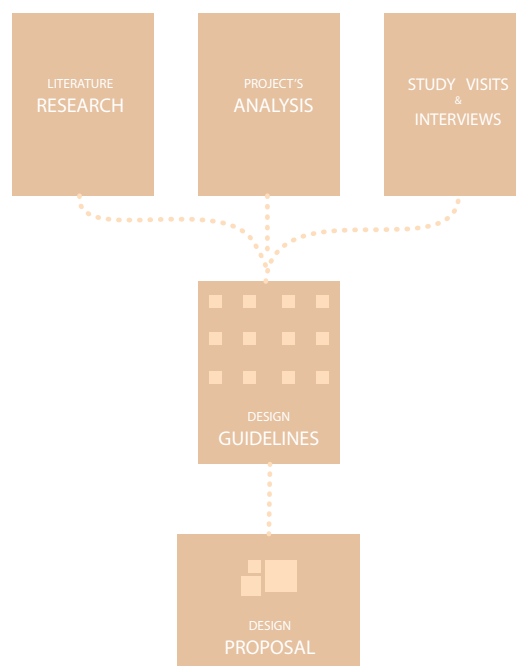


Fig 1. **Method**, own illustration

DELIMITATIONS

The project is limited to the boundaries of the chosen block and will not take a full grip on the whole of Chalmers area.

This thesis does not look into economical calculations regarding apartment rents or costs as well as figures related to indoor quality such as humidity, over temperature, air flow and ventilation. Within the collaboration team, engineers and technical experts on the subject will collaborate with interior comfort in glazed spaces. Conclusions will be included in the design proposal.

STUDENT'S BACKGROUND

: Bachelor in Architecture and Urban Planning

Universidad de Belgrano | Buenos Aires, Argentina | 2010 - 2015

Relevant courses:

Public Spaces (1st year)

Multifamily Housing (2nd year)

Student Housing (3rd year)

Master Plan (4th year)

Housing (5th year)

: Experience on residential architecture during internship.

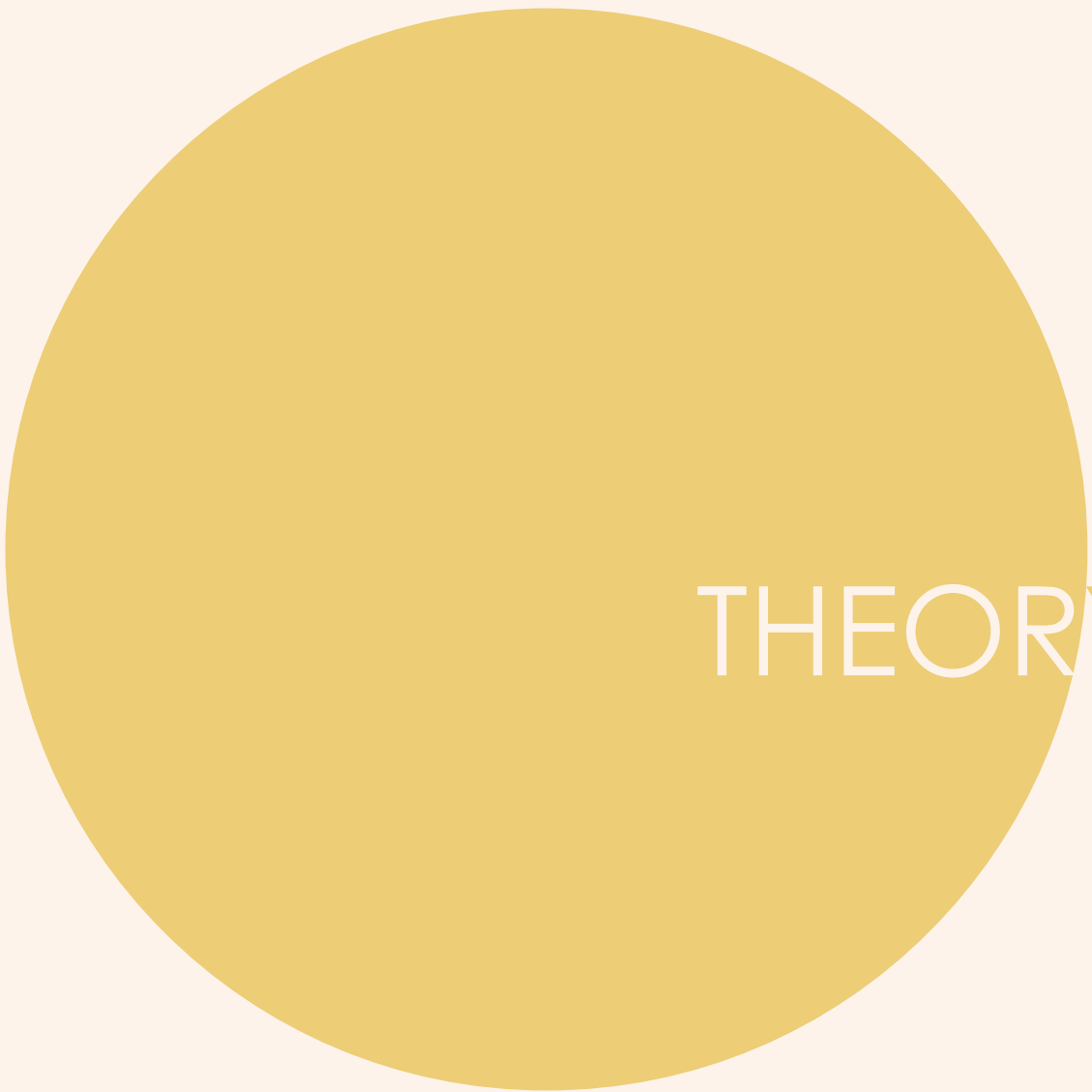
: Master in Architecture and Planning Beyond Sustainability

Chalmers University of Technology | Gothenburg, Sweden | 2018 - 2020

Social Inclusion (1st semester)

Sustainable Architectural Design (2nd semester)

Residential Healthcare (3rd semester)



THEORY

How can glazed geometries
in multifamily housing
promote
WELLBEING
among residents

?

WHY GLAZED SPACES?

“

An open courtyard between buildings in Nordic climate does not enhance social interaction due to the unpleasant climate. Contrary, a heated atrium can be used more frequent during the year thanks to its nice climate.

”

(Danielski, 2016, p.353 - 363)

GLAZED SPACES ADVANTAGES:

- HEALTH & SOCIAL BENEFITS -

CLIMATE COMFORT

As we can imagine, glazed spaces have plenty of positive qualities. Among them, these robust surfaces can act as climate shields to provide residents with a safe and social environment to enjoy all year round. This is because it can meet necessary conditions for an optimal indoor climate. Some of their features are related to increased amounts of daylight, warmer temperatures, wind and rain protection, potential to grow plants and bring nature closer.

The spaces we live in, shape our lives and they have an impact on our perceptions and behavior according to Bernheimer (2018). Because we spend most of our time inside buildings, it is important to provide spaces with good indoor quality. In this way, all the previously mentioned qualities that help improve comfort within glazed spaces have a positive implication in the use of space and well-being among users.

WELLBEING

In Cazes's (2019) report, there have been presented a numerous list of beneficial features acquired from glazed spaces. Among them, we can find benefits related to health and social sustainability.

“

We spend over 80% of our lives within buildings and numerous research studies have demonstrated that glazing has profound implications in terms of human health, happiness and productivity, including: quality of life, happiness and a sense of wellbeing; health (and healing); ability to learn in educational establishments; productivity whilst at work.

”

(Cazes, 2019 p.28)

DAYLIGHT

As said before, glazed spaces have the advantage to increase the amount of natural light inlet, which has important effects on our well-being since it helps us reduce chronic stress levels according to the Journal of Internal Medicine³. Spaces with good natural light gives a positive perception of the space and brings health benefits related to people's mood.

“

Light is one of the essential elements not only for architectural design, but also for us to satisfy both physiological and psychological needs during our daily life.

”

Daylighting, Architecture and Health: Building Design Strategies

CLOSENESS TO NATURE

Moreover, this increase in natural light inlet also brings optimal conditions for cultivating plants and food in these spaces. This helps create a livable atmosphere that influences resident's wellbeing and their connection with the natural world. As Bernheimer reveals, there is a relation between organic design and the sense of wellbeing.

“

The built environment supports our well-being best when it echoes the natural world in some way - through pattern, dimension, light, layout, noise - the scale and tone of the world that we were built for.

”

Bernheimer, 2017 p.1

COLLABORATIVE & PARTICIPATORY ACTIVITIES

Furthermore, the possibility of having horticulture brings a set of benefits regarding health and social concerns.

“

Horticulture therapy helps people learn new skills and regain lost skills. It is a restorative technique to improve memory, attention, sense of responsibility and social interaction with few to no adverse side effects. Moreover, HT has been found to reduce stress, to increase feelings of calm and relaxation, to foster a sense of accomplishment and to improve self-esteem.

”

Detweiler et al., 2011, p.101

Gardening and cultivation of vegetables for own consumption, among many other examples of communal activities, creates the opportunities to bring in participatory and collaborative activities in a community. These activities not only help promote movement especially among older people, but also generates a feeling of coherence and belonging in a group according to the study carried out by Nygren, B. & Lundman, B. (2014).

This is closely related to the creation of relationships, not only between residents and the place but also within a social group in a community which helps build the local social capital.

“

Local social capital is the 'glue' which binds people together in a neighbourhood and encourages them to cooperate with each other. It is the local networks together with shared norms, values and understandings that facilitate cooperation within or among groups in a neighbourhood. Without social capital individuals feel isolated and are untrusting, which reduces levels of cooperation within the neighbourhood.

”

Jo Williams 2006

SUSTAINABLE COMMUNITIES

As discussed in the journal of urban design, to support the development of sustainable neighbourhoods it is important to promote social interaction. There is a current tendency to incorporate policies that support the development of more sustainable communities. One of the requirements of these policies is focused on the design of spaces that promotes social interaction. This arises from the need to encourage more vibrant communities but also to help rebuild local social capital.

Moreover, to support this argument, in the following quote it is possible to appreciate some of the benefits that sustainable communities obtain by promoting social interaction among their inhabitants.

“

Social interactions provide residents living in a community with knowledge about their fellow residents and social structure. This in turn helps to build trust between residents, allows for exchanges to take place and creates social networks (connectedness) and common rules/ norms.

”

Pretty & Ward, 2001

SOCIAL SUPPORT

Furthermore, compelling evidence indicates that social network involvement is linked to health and well-being across the lifespan (House, Landis, & Umberson, 1988). For social networks to emerge, we need to provide opportunities for people to interact. Social bonds create social support among individuals. Social support has a positive influence on human physical and mental health. It helps coping with stress, depression, anxiety and also boosts our immune system. Contrary, the lack of social support can lead to isolation and loneliness, possibly leading to depression.

Building a strong social network can improve quality of life and, moreover, aid people who suffer from diseases to recover. Social interaction among residents not only allows exchange and flows of ideas but also boosts creativity and influences people. It has been proven to help build trust among residents, lower crime levels and create the conditions to establish common norms for a better understanding within the organization of communities according to the journal of urban design carried out by Jo Williams (2006).

Therefore, the importance of designing spaces that can promote social interaction, to help build social networks and strengthen communities. While investigating different typologies with glazed spaces, I have found out that the atrium typology gathers valuable features that help with the development of social spaces and social interaction.

ATRIUM FEATURES

The study Atrium in residential buildings examines if residential buildings with atrium can enhance sense of community and social interactions in Nordic climates. Therefore, there has been carried out a survey among residents from a traditional building (without atrium) and one with atrium. Based on the comparison of their experience and perception, the results demonstrated that atriums within residential buildings...

“

...have a potential to facilitate social interactions, engage residents in common activities

and provide them with a sense of community, which is an important part of social sustainability (...) In Nordic climates social interaction among neighbors could be achieved by providing a properly designed residential building with a heated atrium. This is shown by studying an existing residential building in northern Sweden, by using a survey among residents and discussions with the building association

”

Danielski, 2016, p.353 - 363

How can glazed spaces
in residential buildings
have potential to promote
SOCIAL INTERACTION
among residents

?

Designing for social interaction...

“ *We shape our buildings, and afterwards
our buildings shape us*

”

Winston Churchill

There are two important focuses to take into consideration when designing and analyzing a building, the physical and the social framework. The physical structure has a major relevance since it reflects and supports the desired social structure (Gehl 1971p.54). In this way, the design decisions made in the building's physical configuration and the spaces it encloses, will directly influence how the space is perceived and used.

PHYSICAL STRUCTURE

As said before, the physical structure has to do with the design of the building. In order to promote social interaction, it is relevant to provide opportunities for people to meet in the same space and so, to establish contact. The physical framework influences the inhabitant's social situation, therefore it can facilitate, impede or even make it impossible for establishing contact among people and activities. The role of architects that strive to promote social interaction is to broaden the spectrum of possibilities for contact and activities to happen.

THE NEED FOR CONTACT

Low-intense contacts or, passive contacts, are relevant both as independent forms and as prerequisites for other, more complex interactions. As Gehl (1971) states, low intensity contact is a *medium* from which other forms of contact can grow. We can say it is the first step for social interaction to occur. For example, from hearing and seeing our neighbours, we begin to know who lives in the area, we start to know each other and with time, this can grow into other types of interactions like a greeting or a small talk, finally establishing social bonds.

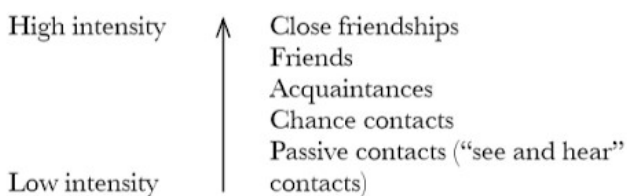


Fig. 2 **Degrees of contact intensity**, Gehl (2011 p.15)

In the graphic above, there is a representation of the diverse degrees of contacts intensity. Right in the bottom of the scale we can see low-intensity contacts. As in many other cases, the most important part of the structure is the base.

Social contacts are enhanced in a community when residents have opportunities for estab-

lishing contact, live in close proximity to others and have appropriate space for interaction (Festinger et al., 1950). Proximity (both functional and physical) is very important in terms of encouraging social interaction (Fischer et al., 1977; Kenen, 1982; Hillier & Hanson, 1984; Fleming et al., 1985; Cooper Marcus & Sarkisian, 1986; Gehl, 1987; Sengul & Enon, 1990). Increasing proximity through design increases repeated passive contacts between residents, which helps to form social relations (Kuper, 1953). Proximity greatly influences patterns of socializing (Homans, 1968). Immediate neighbours tend to communicate more with each other than residents living further apart (Williams, Jo, 2005).

The first step for promoting contact is to attract people into the same space, facilitating encounters. A daily reinforcement is created with the recurring crossing between people in shared spaces. This is how residents start to know each other better by the mere action of seeing or hearing each other. The subtle contact can grow into other levels such as greetings and a casual conversation that can lead to exchange of ideas and demonstration of shared interests. Little by little, a relationship is established.

PROVIDE OPPORTUNITIES

Architects have the power to determine the qualities desired in spaces through design. It is well-known that the built environment influences the user, as stated in the beginning of the chapter. Therefore, it is of great importance to provide the required qualities and conditions that users need in order to strive with our intentions. In this matter, it is relevant to provide opportunities for people to meet, to share the same space, to see and be seen, in order to strive with our intentions. As we can see in the figure below, we can promote, inhibit or even make it impossible for people to establish contact.

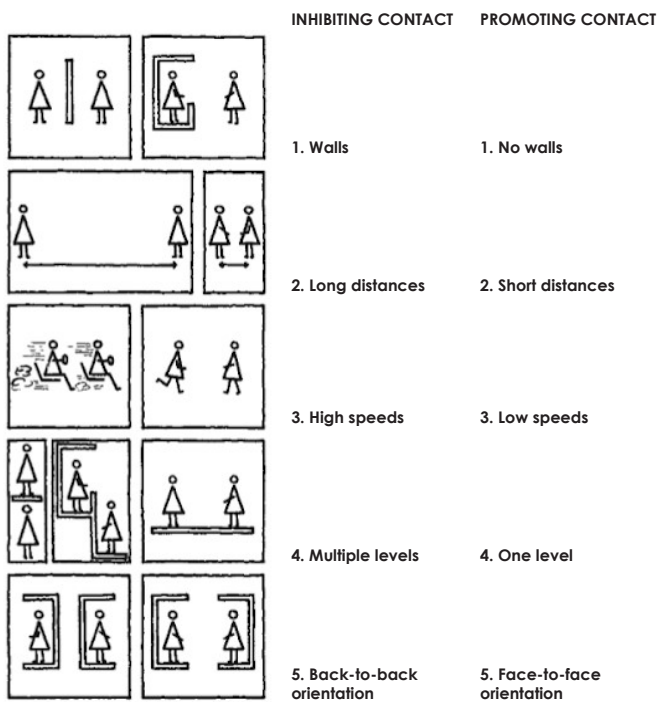


Fig. 3 **The senses and communication.** Gehl (2011 p.62.) Physical arrangement can promote or prevent visual and auditory contact in at least five different ways according to Gehl.

When designing a building for promoting social interaction, an important factor is to strategically integrate certain spaces at a certain degree (having privacy in mind) to increase encounters between residents.

“

Very freely interpreted, a social activity takes place every time two people are together in the same space. To see and hear each other, to meet, is in itself a form of contact, a social activity. The actual meeting, merely being present, is furthermore the seed for other, more comprehensive forms of social activity.

”

(Gehl, 2011, p.13)

COMMON GROUND

The entrance level, is where the transition from public to private takes place. This means from the outside to the interior of the building. Therefore, the implied public character of the level. Here is where we can find the main flow of people (residents and neighbours) for that reason, connections with the neighbourhood

can be settled. It is also where residents from all levels meet up. These facts enhances the importance of making it *the social level*. This exposes the relevance of the common ground regarding contact between people.

MEETING POINTS

These are spaces of obligatory use, such as entrances, circulation and laundry rooms among other facilities. These areas can be discovered by tracking the spaces used frequently by residents through the building. The more frequent the space is used, the more relevant is the meeting point. Our job is to imagine the spatial sequence residents will follow and so, highlight the possible contact areas there could be. By doing this, we could suggest how much contact people could have.

Since entrances and circulation areas are the main meeting points in residential buildings, reducing the amounts of them will increase the chances of encountering with other residents. At the same time, it is recommended to have a waiting space near by, where people can hang out. This prolongs contact among people, facilitating interactions.

In multi-story buildings, where there is a need of circulation nodes, it is important to reduce the amount of these in order to concentrate the people in one spot instead of several. Meanwhile, it is valuable to integrate these flows of people and spaces of obligatory use, with stationary activities. For example, including waiting or relaxation areas with entrances, circulation and laundry. By doing so, this will help prolong the stay of people in the space, increasing the opportunities for contact and social interaction.

In the case of atrium typologies, where the common space is open and connected to other spaces providing a good overview, the circulation should be placed within this open area. A strategical spot where to place the circulation node is farther away from the entrance, to enhance circulation through the space, activating it and promoting contact. This could be complemented by implementing transparent materials or virtual delimitation surrounding the circulation shaft which allows visual and auditory contact with others.



The reduced amount of **entrances** promotes encounters.



Physically and visually integrated **circulation** with the different levels of multi-story building provides a good overview. The reduced amount of **circulation nodes increases encounters**. Placing them farther away from the entrance, in a visible place within the public area, stimulates contact.



Physical and visual connections within **common spaces**, enhances passive contact among residents.



Combination of **stationary activities** with spaces of **obligatory use** promotes encounters and contact between people.

On the other hand, prioritizing a walkable circulation (ramp or extended stairs) over the use of elevator could facilitate and enhance the overview within the building and so, prolong the contact among residents. This could be compared to the use of cars within a city. Together with this, as mentioned by Bernheimer (2018) people usually feel uncomfortable when sharing very small spaces, such as elevators because they are forced to be too close to others.

OVERVIEW

Summarizing, these strategies helps to have a good overview of the building, increasing principally visual and auditory contact among residents which helps them know better who are their neighbours. This gives the residents a sense of belonging within the community and helps create a relation with the place. Together with this, by allowing residents to see and be seen, it creates a surveillance effect that helps residents feel more secure.

“

When entrances, balconies, verandas, front yards and gardens are facing the access street, people can follow the life in the public space and will meet frequently in the course of their daily activities. This can be an important factor for building social networks

”

(Gehl, 2011, p.54)

It is important to design attractive spaces but deciding where and which spaces and activities to combine is extremely relevant. Therefore, the reason why atrium typologies generally work well when it comes to social interaction, has to do with the obligatory use that the common space has. This brings livability to the space and attracts other people to involve either passively or actively. Atriums provide a good overview of the building, activities and people.



Transparency and **virtual limits** allows contact among people in different spaces.



Passive contact can grow to build up social networks which brings in a **sense of belonging within the community** and a stronger relation with the place.



Surveillance within the community.

PRIVACY

On one hand, we can see privacy as how physically and/or visually secluded from others we can be. The aim is to provide spaces for everyone to feel comfortable on their way, and so, to promote the use of spaces. Therefore, it is a good strategy to incorporate spaces with a private character, for being *together but alone* (with a degree of privacy) within the social area. This will make residents feel more comfortable and so increase the space's use. At the same time, it could open the possibility of having simultaneous activities without disturbing others sharing the same space.

A good suggestion for private places within the building is the option of booking a specific area for private gatherings. It is good to emphasize that these spaces that can become totally private, do not occupy more than a low percentage of the public area.

“

Personal space, territory and personalization all relate intimately to privacy. We often find that more private spaces are more personalized.

”

(Bernheimer, 2017, p.46)

APPROPRIATION OF SPACE

Bernheimer indicates that the challenge is how we control our privacy. There are different levels of territory. One way to define these territories is by personalizing them. By decorating the spaces, the identity of those who occupy the space is expressed. This has showed to create an attachment between people and the place, bringing satisfaction among residents.

This is a relevant factor to be included in the design to promote wellbeing and strengthen the relation between residents and space.

“

The real secret to building for well-being, Bernheimer argues, is to reconnect humans with the power to shape our surroundings. When people are involved in forming and nurturing their environments, they feel a greater sense of agency, community, and pride, or “collective efficacy.” And when communities have high rates of collective efficacy, they tend to have less litter, vandalism, and violent crime.

”

IN BETWEEN SPACES

Once spaces are integrated, flowing gentle transitions emerge, to lead residents among spaces. Therefore, the importance of designing these “in between spaces” instead of neglecting their importance as essential space articulations.

As Minoura and Gehl states, it is of great importance to make a clear definition of borders and spaces for clarifying internal organization and solving local problems. If confusion reigns, the space risks not being used or being used by the wrong target, among other causes.

As happens in cities, streets lead residents to their dwellings, through transitional spaces that articulate the public from the private sphere. Such transitional spaces are entranceways. These private areas in residential entrances, are in between spaces, that for being more exposed and placed closer to the public area, they have implied a public character. These spaces are widely used for socializing, especially among neighbours. Therefore, the importance of recreating a similar situation within buildings.

“

A gradual transition between public and private spaces greatly assists people in participating in or keeping in close contact with life and events in the public space.

”

(Gehl 1971 p. 114)

Whether public spaces are inviting or repelling, greatly depends on how is that transition between spaces. If the transition is radical as in traditional buildings, where we can find the extremes of public or private, it will be difficult for residents to move into the public area if it is not necessary to do so.

“

Flexible boundaries in the form of transitional zones that are neither completely private nor completely public, on the other hand, will often be able to function as connecting links, making it easier, both physically and psychologically, for residents and activities to move back and forth between private and public spaces, between in and out. Being able to see what is going on in public spaces also can be an element of invitation.

”

(Gehl 1971 p. 116)

THE EDGE EFFECT

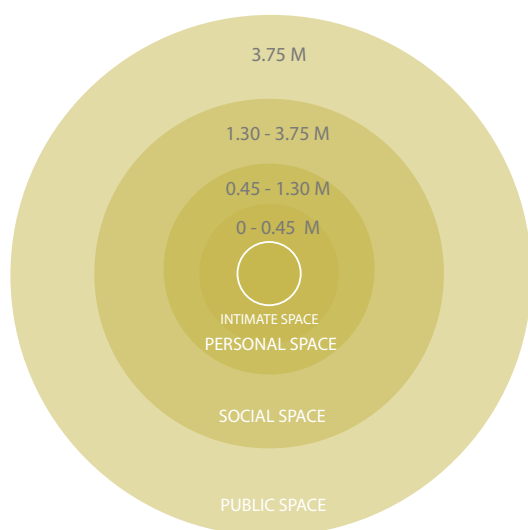
Popular areas where to stay, are often found along borders and edges of the space. An example of this are entranceways. These are very important social spaces because they have been proven to work very well as activators of the public space. Edge zones offers a variety of practical and psychological advantages as a place to linger. An explanation for this can be shown by the anthropologist Hall.

“

...close to a facade helps the individual or group to keep its distance from others. At the edge of the forest or near the facade, one is less exposed than if one is out in the middle of a space. One is not in the way of anyone or anything. One can see, but not be seen too much, and the personal territory is reduced to a semicircle in front of the individual. When one's back is protected, others can approach only frontally, making it easy to keep watch and to react, for example, by means of a forbidding facial expression in the event of undesired invasion of personal territory.

”

Within these in between spaces, one can choose either to move further in to the shared space if desired or to remain in the “comfort zone”. This draws the conclusion that activities grow from inward (from the edges) towards the center of the shared spaces.



SENSES AS A PLANNING CONSIDERATION

The anthropologist E. Hall gives us an insight of the most important senses and their functions regarding human contacts and with experiencing the outside world. According to him, there are distance receptors – eyes, ears, nose – and immediate receptors – skin, membranes, muscles. Distance receptors are of particular importance for socializing because of already explained reasons.

Sight and hearing are the most comprehensive senses in social interactions, since we rely on them for establishing contact with people and for analyzing perceptions of spatial conditions and dimensions. Therefore, the need of knowing how they work in order to include them as a planning factor. The following summary give us the guidelines of the level of privacy and contact that we can create in a residential home.

“

At a distance of approximately 30 meters, facial features, hairstyle, and age can be seen and people met only infrequently can be recognized. When the distance is reduced to 20 to 25 meters, most people can perceive relatively clearly the feelings and moods of others. At this point the meeting begins to become truly interesting and relevant in a social context. At even shorter distances the amount and intensity of information is increased greatly because the other senses can now begin to supplement the sense of sight. At distances of 1 to 3 meters, at which normal conversations usually take place, the experience involves the

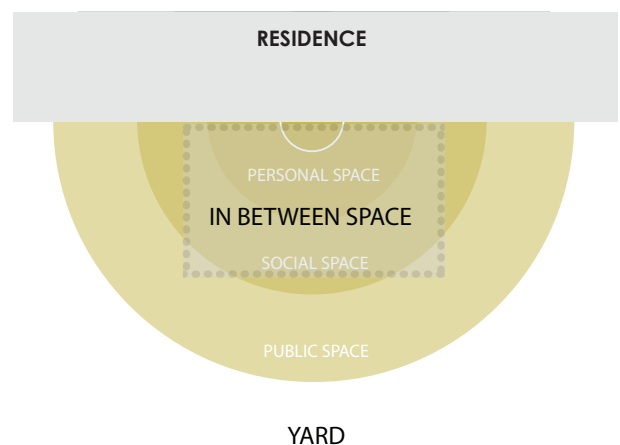


Fig. 4 Diagrams showing social distances and a representation of the edge effect, own illustration.

degree of detail generally necessary for meaningful human contact. At still shorter distances, impressions and feelings are further intensified.

”

(Gehl, 1971 p.67)

SOCIAL DISTANCES

“

Distances are used to connote different relationships among people. Such phrases as 'close friends' and 'keeping an arm's distance from someone' indicate the degree of intimacy achieved. Correspondingly, small spaces tend to be perceived as warm and personal. Conversely, large spaces are perceived as cold and impersonal. Buildings as well as people are 'kept at a distance'.

”

(Gehl, 1987, p.68)

As it was showed before, distances are another important factor that can facilitate or inhibit contact among people. These also determines the type and intensity of contact wished to establish. As Brenheimer and Gehl stated, distances among people can vary depending on who is involved and the relation between them, as well as the type of activity being held. The intention of showing this information is to provide a sense of which distances are best fitted to be used among residents in different spaces.

- **proxemics** - : (noun) / the branch of knowledge that deals with the amount of space that people feel it necessary to set between themselves and others.

Proxemics are the dimensions of personal space.

Hall saw the space between people as a form of communication. Therefore, he defines a number of social distances. These thresholds are defined by human scale in relation to cultural norms. The anthropologist states that people have four basic sizes of personal space bubbles, which they inflate and deflate depending on where they are and with whom they are with. These bubbles can be modified, they shrink and wrap in relation to our physical

surroundings. For example, as rooms gets smaller, personal space bubbles expand (White, M 1977).

“

Intimate distance (0 to 45 cm) is the distance at which intense feelings are expressed: tenderness, comfort, love, and also strong anger.

Personal distance (0.45 to 1.30 m) is the conversation distance between close friends and family. An example is the distance between people at the family dinner table.

Social distance (1.30 to 3.75 m) is the distance for ordinary conversation among friends, acquaintances, neighbors, co-workers, and so on. The sofa group with armchairs and a coffee table is a physical expression of this social distance.

Finally, **public distance (greater than 3.75 m)** is defined as the distance used in more formal situations – around public figures or in teaching situations with one-way communication or when someone wants to hear or see an event but does not wish to become involved.

”

(Gehl, 1987, p.68)

ILLUSTRATION OF SOCIAL DISTANCES



Fig. 5 **Social distances**, own illustration.



80 m (240 ft.)



7.5 m (25 ft.)



50 m (150 ft.)



2 m (6 ft.)



20 m (60 ft.)



40 cm (14 in.)

Fig. 6 Seeing, a matter of distance, Gehl, 1971 p. 66.

SOCIAL STRUCTURE

SUBDIVISION

Providing residents with a clear structure of subgroups within the community through dividing them in different blocks "strengthens natural surveillance, helps the inhabitants know who 'belongs' and improves the possibility for making group decisions concerning shared problems."

“

several examples demonstrate that the residents in these small units are more quickly and more effectively able to organize themselves for group activities and to solve mutual problems.

”

Gehl, 1971 p.61

As stated before, providing subdivision among residents helps create a social network which not only helps residents individually but also collectively as it strengthens the community.

“

The subdivision of housing schemes has become quite widespread in new Scandinavian residential areas. The small housing group of 15-30 households has, in particular, been found to work quite well, encouraging social networking.

”

Gehl 1971 p. 55

TYPES OF ACTIVITIES

From Gehl's perspective, activities in public spaces can be classified in three categories, each of which places very different demands on the physical environment. These are: *necessary, optional and social activities*.

Necessary activities: compulsory ones, those where participants have no choice over the physical space nor the weather conditions. The task must be done, therefore there aren't big demands on spatial quality. Examples of this are: going through certain circulation and/or entrances, going to school/work, running errands. In general, everyday tasks and pastimes. This group includes the great majority of activities related to walking.

- . There's not a wish from the user to be there, there's no other choice.
- . It doesn't demand spatial quality.
- . It doesn't require any kind of contact with other people involved in the activity.

Optional activities: these are activities that have a recreational dye (pursuits). People tend to participate whether there is a wish to do so and if time and place make it possible. In this type there is a choice, therefore the high demand on spatial quality. These activities take place only when the weather conditions are good and the place is inviting. For example: relaxing, contemplating, standing around or walking enjoying life, sunbathing and sitting.

- . There is a wish to be there.
- . It demands spatial quality.
- . It doesn't demand any necessarily kind of contact with other people involved in the activity.

Social activities: are the ones that depend on the presence of others in public spaces. Examples are: children playing, greetings and conversations, communal activities and passive contacts (seeing and hearing other people).

This last type of activity occurs spontaneously, as a direct consequence of people moving

and being in the same spaces. Therefore, social or, also called resultant activities, evolve from the other two kinds of activities, when the necessary and optional activities are given better conditions in the public space.

- . There is a wish to be there.
 - . It demands at least passive contact which can evolve into an active one.
 - . It requires other people to be in the same space, therefore the importance of connecting different activities to increase the chances of social interaction.
- It demands spatial quality.

SPATIAL QUALITY AND ITS RELATION WITH ACTIVITIES

As it was shown before, there are some activities that will take place independently of the spatial quality. But there are others that are directly dependent on that for them to happen.

In the figure below, it is possible to see the direct relationship between the space's quality and the frequency with which that space is used. It is clear that when the space is of poor quality, then it is only strictly necessary activities that occur.

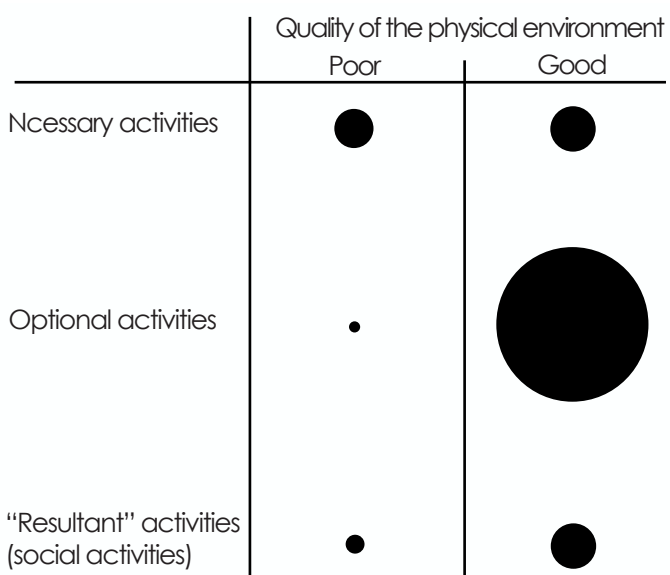


Fig. 7 **Graphic representation of the relationship between the quality of outdoor spaces and the rate of occurrence of outdoor activities.** (Ghel, 2011 p.11)

On the other hand, when public spaces are of high quality, necessary activities take longer time because the spatial quality is being appreciated. Additionally, a larger scope of optional activities will happen because the space now is inviting. Therefore, we can state that the greater quality the space has, the bigger chances to be not only used but enjoyed by the people.

In conclusion, it is fundamental to provide desirable conditions for any type of activity in order to promote lively spaces that can contribute to social interaction and well-being. It is of great importance to provide spaces where people are able to move easily and confidently, to linger and enjoy the place. It is our role as architects to provide strategies for them, to be able to meet and get together with other people in any way, informally or in a planned way.

COMBINATION OF ACTIVITIES

The increase in quality and frequency usage of space leads us to the next point, combination of activities. As a result of the increased use of public space for both, necessary and recreational activities, a ripple effect is created that directly impacts the appearance of social activities. The reason behind this is that people now enjoy staying in that space and this arise the meetings between people that have the potential to lead into social interactions. The space now has several purposes, people can enjoy the space and even meet other neighbors or just relax alone.

In conclusion, it is of great value to combine different types of activities if possible in the same space or in adjoining ones. This enhances the need of placing mixed functions in order to increase meetings among people. It is important to point out that the combination of activities should be taking into consideration the inclusion of stationary activities which will allow people to stay longer periods of time within the social areas and so, increase the opportunities of meeting others.

PEOPLE AS ATTRACTION

“ folk dras dit människor är ”

“

- 'People come where people are' - is a common saying in Scandinavia. People are spontaneously inspired and attracted by activity and the presence of other people.

”

(Gehl, 2010, p.65)

The idea is to intertwine in all conceivable combinations functional, recreational and social activities, just as on public streets, to generate a common meeting space. But this with special emphasis on the quality of space, which helps attract people to experience it. And as a ripple effect, activities and so, people, attract more people. This is how space is made meaningful and attractive.

“

It is generally true that people and human activities attract other people. People are attracted to other people. They gather with and move about with others and seek to place themselves near others. New activities begin in the vicinity of events that are already in progress.

”

(Gehl, 2011, p.23)

COMMUNAL ACTIVITIES

Providing possibilities for having group activities among residents can help build a social network. This enhances the sense of community and belonging to a place and group. Communal activities can be spontaneous or planned. Examples of this are: gardening, events, courses and workshops oriented to promote sustainable habits.

Last, the garden example...

Activities like gardening has many benefits as stated before. These ones are related to collaborative and participatory activities which help residents strengthen their sense of community through the social networks created during the activities. Furthermore, particularly gardening can help us lower the stress levels, reconnect us with nature and other people.

Furthermore, activities like this one does not necessarily need planning, they can be done spontaneously while meeting up with friends or watching people pass by. Although it can be done in that way if there are especial occasions. Having opportunities to do something in the shared space, help bring in people to it. This will make the space more livable and ideal for social and individual activities. In the following lines we can find analyzed the interesting comparison between a playground and a garden for adults.

“

Playgrounds are fundamentally meeting places. The playground provides a place where children can always go, and the play equipment provides opportunities for passing the time alone until other children arrive and more worthwhile activities can begin (...) gardens and gardening, for example, can serve the same purposes quite well for other age groups. The garden provides meaningful activity, something to do. If the garden is located where people pass by or where there is a good view of other activities, work in the garden is often combined with other, recreational and social activities. The useful is combined with the pleasurable.

”

Gehl, 1971 p.

With all this being said, it is time to explore and analyze some projects...

GLAZED TYPOLOGIES

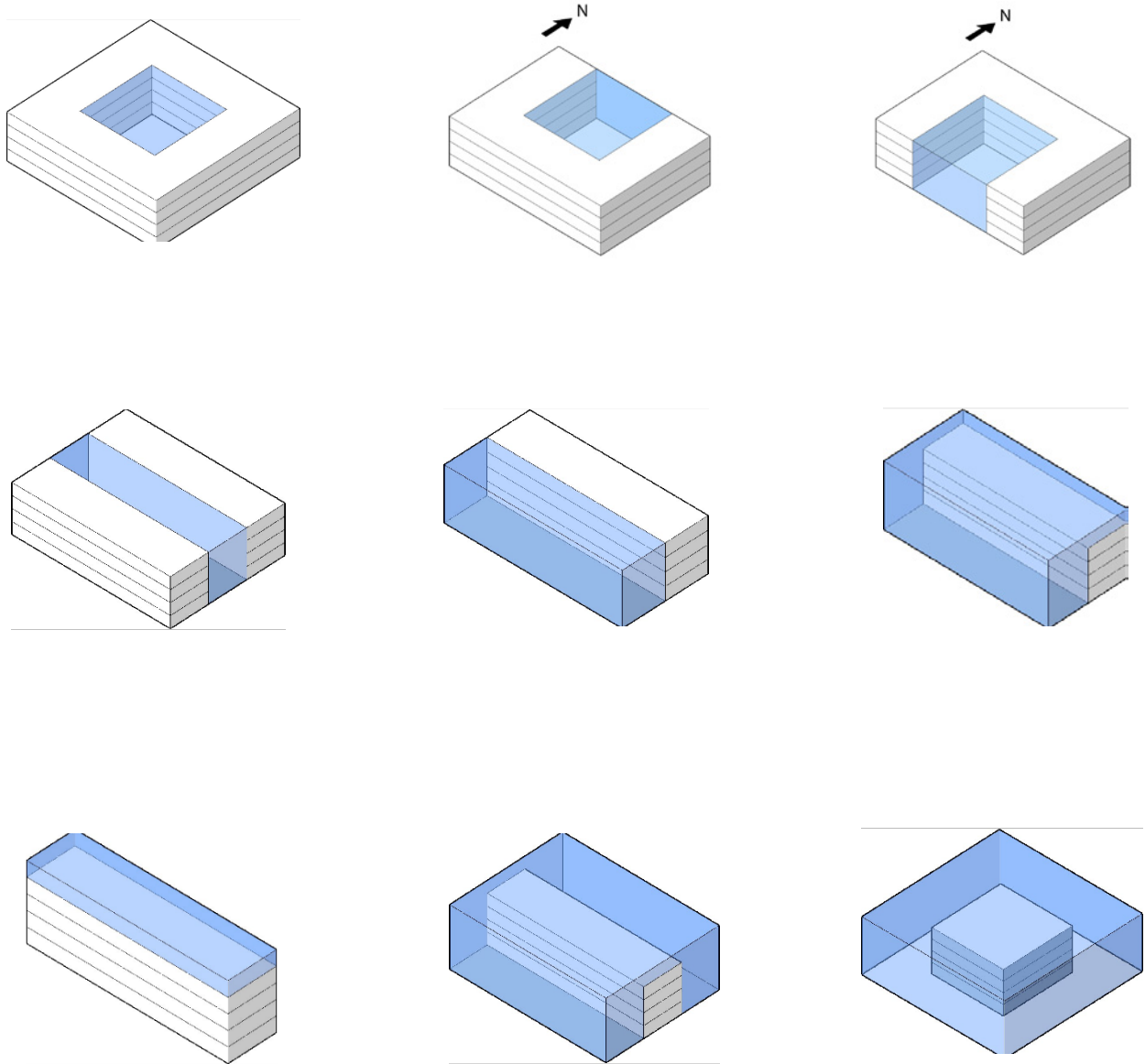
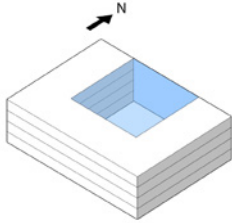


Fig. 8 Volumetric representation of the different glazed typologies investigated, team Spaces illustrations.

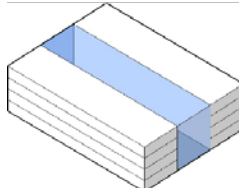
Above it is possible to see the different typologies of residential housing with glazed spaces based on projects found in Sweden. Spaces team had already

been investigated them and I have been assisting to their meetings where interesting discussion had been held. This helped enrich the project's analysis.

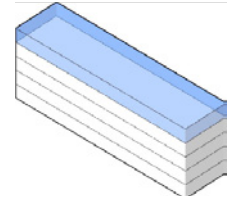
CHOSEN TYPOLOGIES



BOVIERAN



SJÖJUNGSFRUN



CINNOBER

Fig. 9 Volumetric representation of the different glazed typologies chosen to investigate deeper, team Spaces illustrations.

After a general investigation of different glazed typologies, I chose three reference projects to analyze in detail based on their successful performance within social interaction and wellbeing. Therefore, we have two atrium typologies and a rooftop one. Below follows a short de-

scription of each chosen project to help the reader understand them better. Under "advantages" it is possible to find some of the design strategies found in the project that were later applied in the design proposal.

BOVIERAN



Fig. 10 Bovieran external image.

Typology: Atrium
Location: HeinövalLEN, 475 40, Hönö
Year: 2014

Short description:

This project consists of a U-shaped volume that hosts 3 levels of exclusive apartments for +55 seniors. There is an atrium (greenhouse of about 1,800m²) with a totally glazed roof. Towards the northern side, there is a glazed facade that contributes to the daylight inlet and visuals to the surroundings. The apartments can be reached through open corridors that faces towards the heated greenhouse, where different types of warm climate plants are found making it a perfect place to relax and socialize among neighbours. The main entrance, circulation and apartments are integrated within the social area, which enhances the contact among residents.

The concept of this project is to provide a social and green environment protected from inclement weather, recreating the healing environment of the French Riviera. Residents share a common space with different activities. The maintenance of the core of the building, the greenery, is taken care of by hired gardening staff.

Advantages (applied in the design proposal):

- Reduced amounts of entrances and circulation nodes.
- The space configuration provides a good overview of the building, easy to establish contact among residents integrating entrances and circulation.
- Space's quality and combination of activities: greenery, livable atmosphere, winding roads symbolizing nature, pond with fish, plants and people circulating (interesting to contemplate), sitting areas, spaces with more privacy with greenery as walls, boule field.
- Distances in between residences provide more privacy (although harder for establishing contact).
- Roof and northern facade totally glazed very good daylight.
- Northern glazed facade prevents overheating and provides connection with the surroundings and daylight inlet.
- Combination of activities in the main social area: sitting area, spaces with more privacy with greenery as walls, boule field.
- Personalized entrances to apartments.
- Openings in corridors slabs for social distance and daylight.



Fig. 11 Bovieran internal image from common glazed space.



Fig. 12 Bovieran Floorplans scale 1.1000.



Fig. 12 External image of Sjöjungsfrun in Umeå.

Typology: Atrium

Location: Sjöfruvägen 165, 907 51 : Umeå

Year: 2005

Short description:

This multi-family building is comprised of two identical five-story apartment buildings joined by an enclosed lined atrium in-between. Each of the buildings accommodates 16 apartments with two, three, and four rooms and the upper floor is used for common activities (storage space, technical space and a multifunctional room for communal use). The entrance to each apartment is through an indoor balcony (or semi-public living room) facing the atrium. The vertical communication (one staircase and an elevator) are located in the middle of the atrium and serve both buildings. This divides the rectangular atrium area in two squares. On the other hand, the atrium is heated during the cold season.

The concept of this residential building is similar to Bovieran. However, in Sjöjungsfrun, there is not an exclusive user target. Also in this case, the users are the ones who take responsibility

of common tasks through communal groups. A garden group is responsible of the plants maintenance while another caretaker group is in charge of technical tasks. The cultural group organizes parties and other events, the IT group helps residents with internet and telephone, etc.

Advantages (applied in the design proposal):

- Low density (32 apartments).
- Reduced amounts of entrances and circulation nodes.
- Spatial configuration with good overview of the place (entrance, circulation, apartments and balconies integrated in the social area).
- Apartment's entrances and interior balconies big size provides more flexibility.
- Short distances among neighbours which reinforces strong contact among people.
- Appropriation of space in the main garden, balconies and entrances.
- Communal activities: gardening, events, IT.
- Space's quality: greenery, people, decoration, good daylight.



Fig. 13 Floorplan (not in scale).

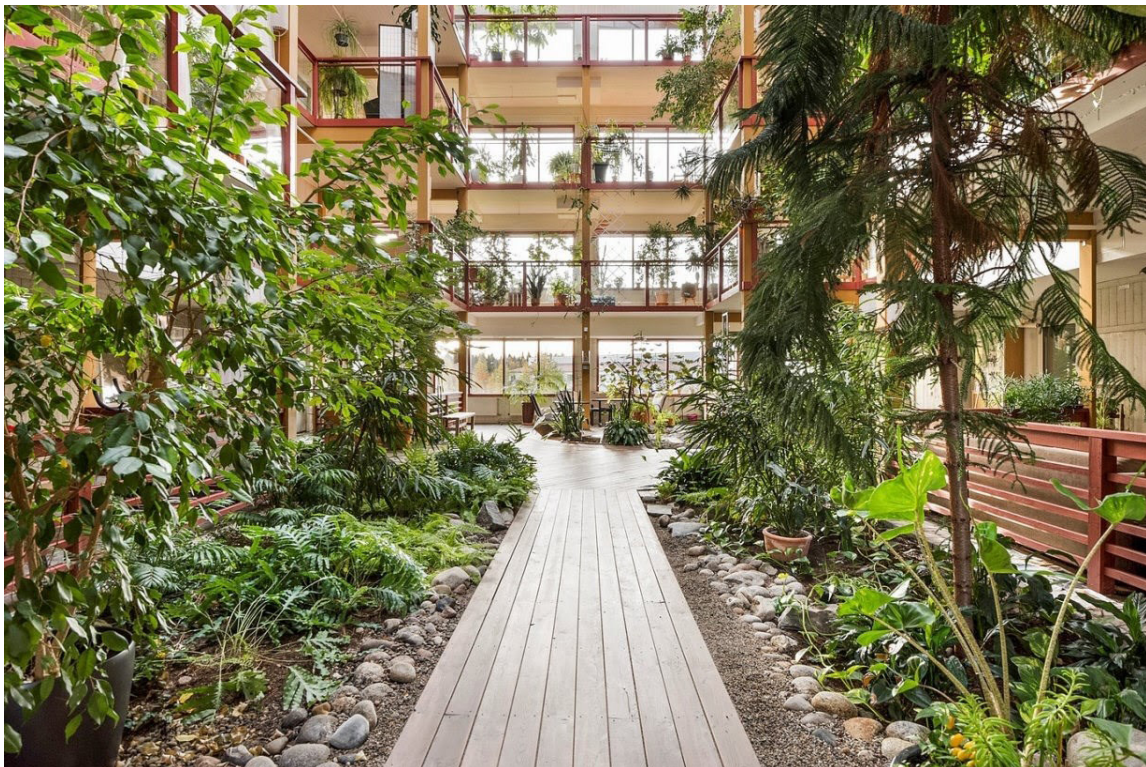




Fig. 14 Interior images Sjöjungsfrun.



Fig. 15 External image of Cinnober, Göteborg.

Typology: Rooftop

Location: Gustaf Daléngatan 18, 417 20, Göteborg.

Year: 2018

Short description:

Cinnober is a residential building that has four multi-family housing residencies of 5, 6, 7 and 8 stories high. There is a glazed space for common uses in the top level of one of these buildings. This is a very flexible space that can be subdivided into smaller parts to be used simultaneously for different purposes. All subspaces are visually connected through glazed walls. The public space is compartmented into 3 areas: the associations room and laundry room which are heated and can be booked. On the other hand, there is a bigger and unheated space in between these two rooms above mentioned. It is always available for residents. It has a direct connection to the roof-top terrace which has access to the outdoors. Here residents can hang out with neighbors or friends, rent a private party area, enjoy the

evening sun on the terrace, barbecue on the association's grills and at the same time do the laundry. Residents take care of the greenery within the glazed space.

Advantages (applied in the design proposal):

- Private social space with possibility of booking area provides flexibility (private events, activities that include loud noises/smells/exposedness).
- Space's quality: greenery, overviews towards the surroundings, daylight, privacy.
- Combination of activities: social spaces communicated with outdoors terrace, laundry and association's room.
- Glazed walls allows visual connection in between social spaces, promoting contact among residents.
- Physical connection to the outdoor area bring in more activities and people to the common space.



Fig. 16 Project images.

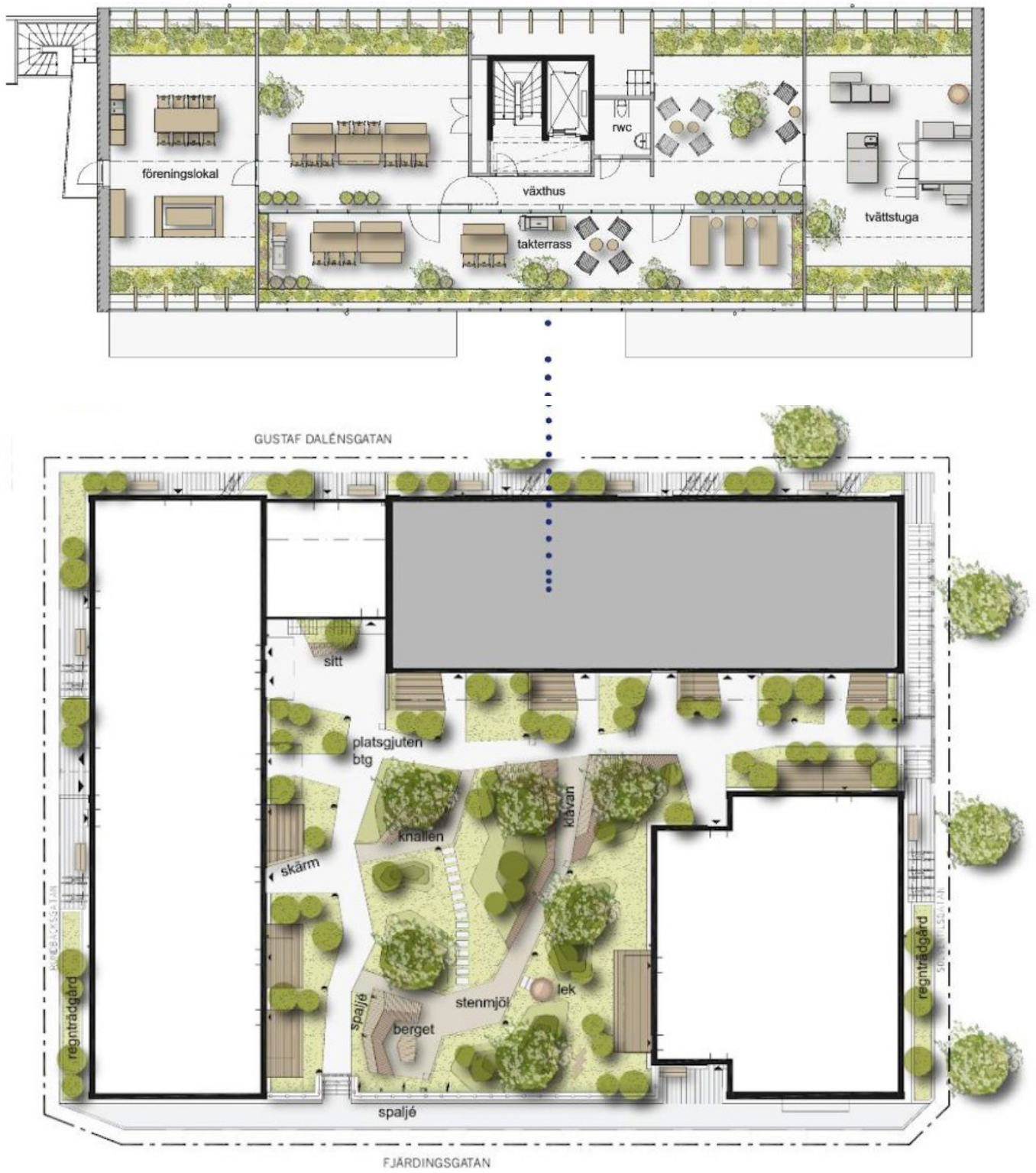



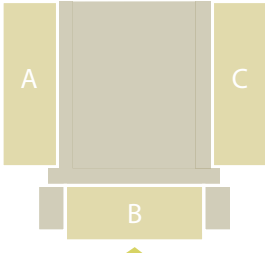
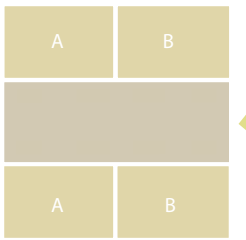
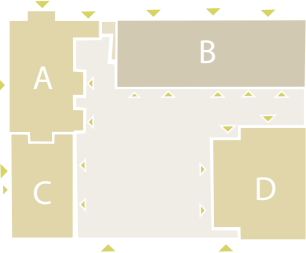


Fig. 17 *Interior images and floorplan Cinnober*

: < DESCRIPTIVE CHARTS > :

The project's analysis have been carried out through different methos that include drawings, diagrams, text and oral discussions. The most relevant aspects of the analysis have been portrayed in the following charts. This way of presenting the information has been designed in order to facilitate the reading of the analysis through the different projects. There are three different charts, followed up by conclusions.

< GENERAL DESCRIPTION >			
ATTRIBUTES & FEATURES	BOVIERAN	SJÖJUNGSFRUN	CINNOBER
TYPOLOGY	Atrium		Rooftop
			
# LEVELS	3	5	8
# APARTMENTS	48	32	89
SOCIAL STRUCTURE (BLOCK'S DIVISION)	3 blocks share 1850m2	2 separated blocks share 200m2 each	4 separated blocks share 200 m2
			

“

The small housing group of 15 to 30 households has, in particular, been found to work quite well encouraging social networking.

”

(Gehl, 1971)

This can be seen implemented in Sjöjungsfrun where residents showed to have a stronger sense of community.

From Gehl's theory we know that the priority for promoting social interaction is to provide opportunities for establishing contact between residents. Contact can be enhanced or inhibited by distances. Short distances between residents of the same block have proven to have a direct impact on socializing.

Low, less dense buildings along with short distances among neighbours increases contact among residents which shows to work best for social networking. Bernheimer states that when buildings have more than 6 floors, cohesion among residents is harder to achieve.

ATTRIBUTES & FEATURES	BOVIERAN	SJÖJUNGSFRUN	CINNOBER
# MAIN ENTRANCES	1	1	Several
ENTRANCE SEQUENCE TO APARTMENTS	Entrance - open circulation through common space - Apartments	Entrance - open circulation through common space - Apartments	Several entrances - enclosed circulation - Apartments
VERTICAL AND HORIZONTAL CIRCULATION			
INTEGRATION OF THE SOCIAL SPACE WITH THE BUILDING?	Integrated	Integrated	Separated
OWNERSHIP	Cooperative Housing	Cooperative Housing	Cooperative Housing

Entrances and circulation nodes are valuable **meeting points** in buildings. Reducing the number of them, increases the opportunities of encountering with other residents.

In this descriptive chart we can find two typologies with different spatial configuration and so, advantages. On one side we have the **atrium typology** which has the entrance, circulation and apartments integrated within the common area. This increases **daily contact** among residents which has positive effects. It helps establish **social bonds** and **strengthen the sense of community**. However, this common space has a more **public character**. Because it is highly communicated with private apartments, the area has shown to work best for calm activities among residents.

On the other hand, the **rooftop typology** has the common glazed space on the top of the building, separated from the entrance and residential apartments. This brings in more **privacy** into the common area. The space has shown to be very successful not only for resident's spontaneous meetings but, also for more private gatherings with visitors. Activities that could disturb the rest of the residents, for example those that involve loud noises, strong smells and exposure (for example parties, diners and sunbathing) are best carried out in these enclosed spaces.

In several studied cases, it has been perceived a greater responsibility in the maintenance of the common areas and a stronger sense of belonging to the place where residents are part of the **cooperative housing**.

< COMMON GLAZED SPACES >

ATTRIBUTES & FEATURES		BOVIERAN	SJÖJUNGSFRUN	CINNOBER
AVAILABILITY OF OUTDOOR SPACE		No	No	Yes
PHYSICAL & VISUAL CONNECTIONS	ADJOINING SPACES	Association's room, storage (and sauna in some buildings)	Multifunctional association's rooms and storage	Outdoor terrace, laundry and association's room
	VIEWS (FROM/TO PUBLIC SPACE)	Mostly towards greenery and neighbours	Mostly to and from neighbours and greenery	Towards the city
ACTIVITIES TYPE	NECESSARY	Entrance and circulation	Entrance, circulation, gardening and association's meetings	Laundry, association's meetings and gardening
	OPTIONAL	Contemplating, going for a walk, relaxing alone, reading	Relaxing alone, reading	Cooking, barbequing, sunbathing, relaxing, contemplating, reading
	SOCIAL	Gardening, relaxing, events, fika, diners, boule, hobby at workshop's room, drinks, cards	Gardening, relaxing, events, fika	Diners, fika, events, barbequing

KIND OF ACTIVITIES		Public Calm	Public Calm	Private, Public Calm, Loud, Smells
POSSIBILITY OF SIMULTANEOUS ACTIVITIES WITHOUT DISTURBING		**	*	***
USE		*** Inevitable	*** Inevitable	* Optional
USERS	RESIDENTS	***	***	**
	VISITORS	*	*	***
AMOUNT OF SIMULTANEOUS USERS		*	*	**
FREQUENCY OF USE		**	**	*

The availability of an **adjoining outdoorspace** has showed to increase the use of the glazed space because it allows a greater scope of activities to be carried out. These spaces have showed to be very valuable for residents, especially during warm seasons. In the rooftop typology this type of space is secluded providing the space with a private character. This allows more intimate activities to occur, such as sunbathing and gatherings among exclusive groups. Generally, residents in this typology brings in **visitors**. It also provides excellent views towards the city, fresh air and possibility of barbequing.

Having **spaces linked to the common space** generates a more lively area because it provides a wider scope of activities, facilitating social interactions. This is directly related to the type of activity that is carried out in the public area and adjoining spaces. Placing **necessary activities in common areas** guarantees a greater usability of the spaces. Contact between residents increases when diverse types of activities are mixed, especially **necessary** and **stationary activities**. Examples of this are the ones associated with human flows: entrance and circulation with sitting places, and areas of obligatory use as laundry and the association's room together with a relaxing area.

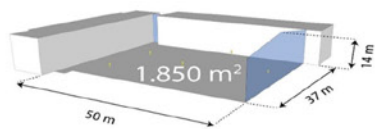
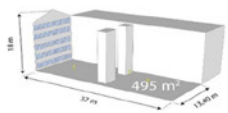

Recreational and social activities are dependent of the **space's quality**. It is important to design inviting spaces for attracting these types of activities. Lively spaces create a ripple effect, attracting more activities since **“people attract more people”**.

As stated earlier, **views within the building** (especially in the public area), are very valuable for increasing **contact** (visual & auditory) among residents, which has great results over **social interactions**. This feature is stated on the physical structure which is evident in the **atrium typology**. In the same way, **visuals towards greenery and the surroundings** (city) have shown to increase wellbeing among people. The **rooftop typology** has proven to succeed in this point.

How space is generally used:

Rooftop: high amount of visitors, good for private and noisier activities (also cooking), mostly planned ones, shorter stays but more sporadic, concentrated during afternoons and over the weekends.

Atrium: mostly residents, preferably for calm and more public activities, mostly spontaneous ones besides from gardening, boule and communal meetings (rarely big meetings), passive stays (relaxing, reading).

SIZE & SHAPE				
PHENOMENOLOGICAL	PRIVACY	*	*	***
	PERSONALIZATION OF SPACE	Permanently	Permanently	Temporarily
	RESIDENT'S SENSE OF COMMUNITY	**	***	*
	OPENESS	***	**	*
	ENCLOSENESS	*	**	***
	EXPOSEDNESS	***	**	*
	HEATING	Yes	Yes	Partly

Residents prefer to personalize spaces.

Decorating the common space (or certain parts of it), helps make it more private and personal. By doing this, residents are able to appropriate the space which means creating a stronger attachment and satisfaction with it. This affinity with the space is strengthened if the customization is durable. This helps residents have a stronger sense of belonging within the community.

As said before, providing more or less privacy in the public space affects how the space is used. It also facilitates the development of certain activities over others. **Designing a more exposed common spaces increases opportunities for establishing contact among residents. This facilitates interactions among them.**

From the interviews of the different case studies, it is possible to confirm that **residents prefer**

heated spaces.

As for the building's dimensions (relation between heights and areas), we know from Bernheimer that **people prefer low density buildings**. This means a fewer amount of households within blocks subdivisions and lower heights (in accordance to **human scale**). Together with this, **personal, medium size spaces rather than large and impersonal.**

As shown in the chart, sense of community among residents appears to be associated to **reduced distances between neighbours**. This brings **stronger daily contact** among them, encouraging and facilitating social interactions. This, together with **rotary activity groups** for communal tasks, helps build **social bonds, strengthening the sense of community.**

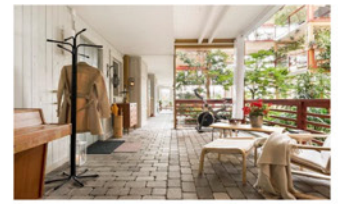
< IN BETWEEN SPACES >

ATTRIBUTES & FEATURES

BOVIERAN

SJÖJUNGSFRUN

SPATIAL QUALITY



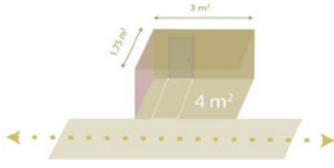
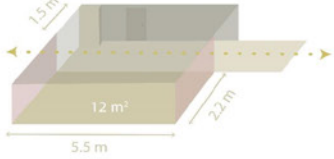


In Between Spaces (IBS) include the entrance and interior balconies area. From the analysis of the atrium typologies, we can point out the following relevant aspects:

First of all, it is worth mentioning the importance of incorporating these areas from a social point of view. As we found earlier in the literature research, these transitions from public to private play an important role (when carefully designed) encouraging residents to participate of the social space. In between spaces turn to work out as the plaza or streets when compared to a city. Endorsed by the strong connection between residences and the main social

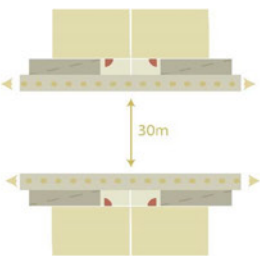
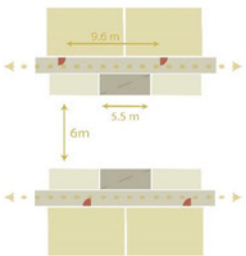
space, together with the edge effect, these spaces provides an evident invitation to use it. This enhances contact among residents, which brings in opportunities for socializing and creating bonds among neighbours.

Here, it is also possible to observe how the combination of activities works. There is space to "stop and relax" (stationary activity) while the necessary activity of circulation guarantees encounters and contact among people, bringing in a livable atmosphere. Moreover, in between spaces bring in the possibility of helping appropriate the space by customization, as showed before.

<p>SPATIAL CONFIGURATION</p>		
<p>DIMENSIONS</p>		

There are some differences within the spatial configuration in between Sjöjungsfrun and Bovieran. In Sjöjungsfrun, there is a large in between space prolonging the activities that are usually done within the private area, to the outside. Therefore, it is commonly used as an exterior living room. The size of this space remarks the importance that the area was given within the project. Its generous size brings more flexibility to it, by making it possible to include diverse activities within the space and more people (ex: residents use it for exercising, fika/ dining, living room). In Bovieran, there is a smaller area for customization which might reduce the flexibility of the space.

On the other hand, in Sjöjungsfrun the circulation is set in between the apartment and the in between space, integrating the neighbour passing by within the private areas of the other residents. Meanwhile in Bovieran, the design can be related to the traditional configuration of {street - entranceway - home} which also works very well. In this case, by placing the circulation close to the apartment, there is a need of creating a gap to separate neighbours from the private apartment. This was successfully solved through the incorporation of opening within the corridor's floor. This also helps natural daylight reach lower levels of the building.

<p>DISTANCE BETWEEN NEIGHBOURS</p>		
<p>ADJOINING ROOMS</p>	<p>Single and double bedrooms</p>	<p>Kitchen, toilet and in some apartments a room.</p>

A very important factor to point out are the ways used in the reference projects to facilitate and inhibit contact among residents. Distances among frontal and adjacent neighbours in Sjöjungsfrun are max 6m. This encourages contact among people facilitating interactions. There are no blinding objects impeding visuals since the main tool used for creating privacy is distance. Some residents added curtains in case

they prefer to have more privacy. Contrary, the distance between frontal neighbors in Bovieran is 30m. This brings in more privacy but also makes it harder to establish contact among neighbours. Moreover, although there is no physical distance between adjacent neighbours, there is a wall impeding visual contact and bringing more privacy to the space.

Diagrams based on resident's interviews

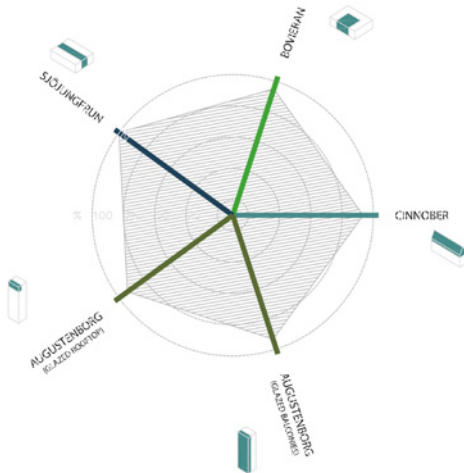
The following diagrams have been designed by Spaces team. They are based on the interviews they conducted with the users of the glazed projects that it is possible to see below. The diagram above is an illustration based on numbers obtained from the interviews carried on by Spaces group. After assigning numbers to the four grades of satisfaction associated to a

specific topic, it was easier to establish a relation among projects and resident's satisfaction regarding certain aspects. Users are a very valuable source to interview since they provide subjective information on essential aspects of the projects, i.e. wellbeing in the glazed spaces. This includes thermal comfort, acoustics, indoor air quality, social interaction and usage of spaces.

SOCIAL INTERACTION

How important is it that the glazed space can be used for social activities and relaxation?

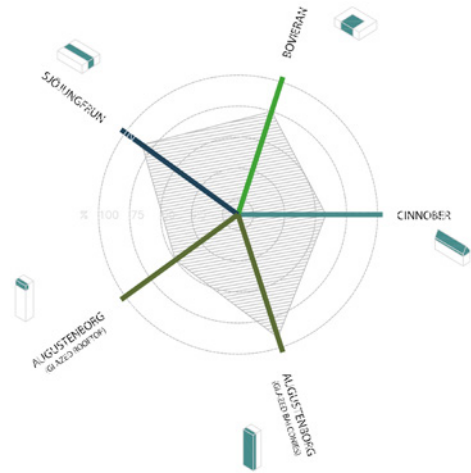
Answers shown: **important and very important**



WELLBEING

How much does the glazed space influences your well being?

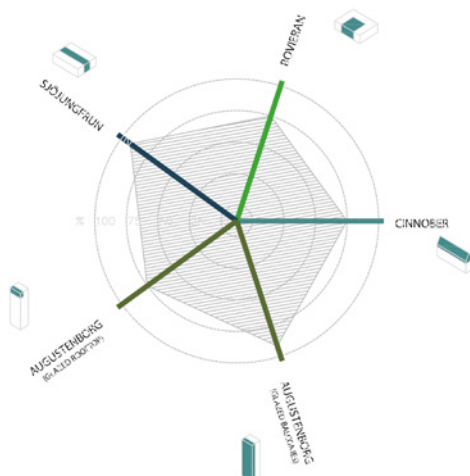
Answers shown: **much and very much**



OVERVIEW

How much does the glazed space affect your feeling for the area/view/overview?

Answers shown: **much and very much**



DAYLIGHT

How important is it for you the large amount of daylight provided by the glazed space?

Answers shown: **important and very important**

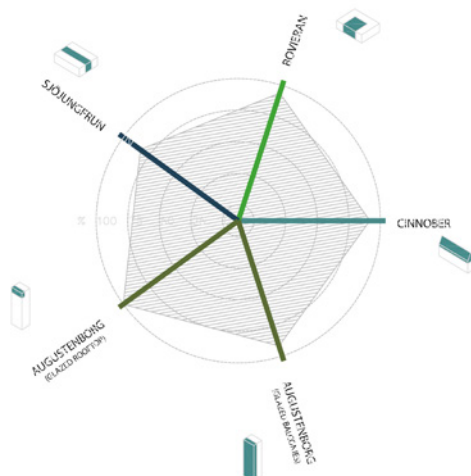
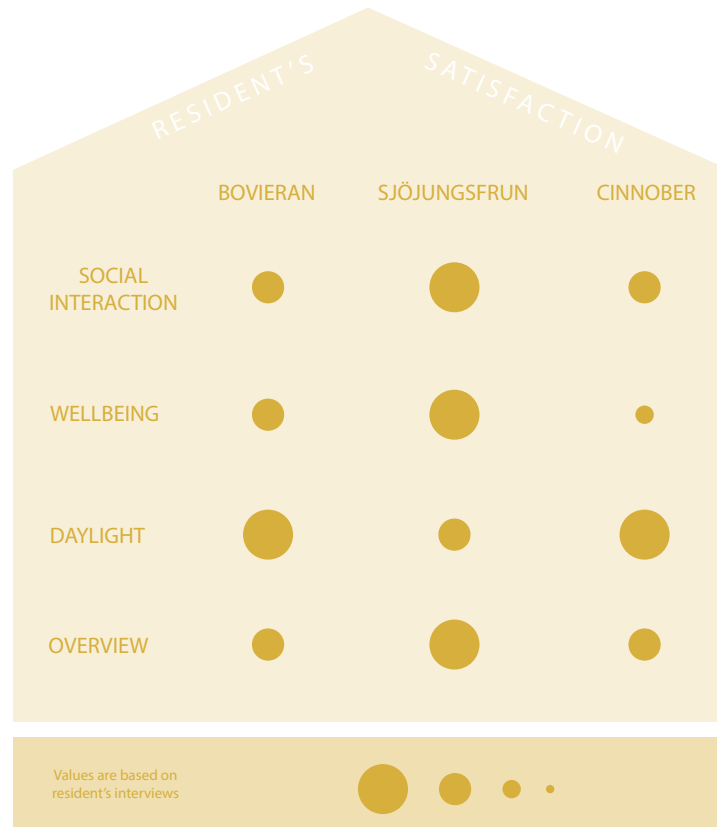


Illustration based on resident's interviews & diagrams



This illustration has been made with the purpose of showing how glazed spaces influence resident's satisfaction. It is based on the results obtained from the interviews made by Spaces project.

It is valuable to highlight that all projects have a remarkable performance regarding the evaluated aspects in the illustration, compared to a traditional building. The small differences between projects can be seen as exaggerated in order to facilitate the visualization of the results to investigate more in detail each case in particular. Under no circumstance was it intended to devalue any project, but to take the design elements that work best in each one and be able to draw conclusions based on each case.

According to the interviews, residents perceive a stronger sense of community in Sjöjungsfrun. This could be associated to the high rates of social interaction within neighbour's that is visualized in the illustration. And the higher values on social interaction might be correlated to the shorter distances among residents, together with the importance and flexibility of the in between

spaces which makes a big difference regarding contact. In the other two projects, where distances are longer, contact among residents is harder to achieve, which could be the reason behind the result.

It is interesting to point out that Sjöjungsfrun seems to have the highest levels for both social interaction and wellbeing, which goes hand-in-hand as we explained before. This gives an obvious result on the overview of the place, since residents are very satisfied.

On the other hand, it is interesting to compare the differences in daylight inlet perceptions. The residents with the highest amounts of daylight aren't the most satisfied ones. Although Sjöjungsfrun has not the highest score within this focus, on my way to interpret this, it succeeded on more important aspects as wellbeing and social interaction are.

This can lead us to think that maybe glazed surfaces need to be analyzed to define which is the needed amount of openings in roofs and facades to get an optimal daylight result preventing over temperatures and high losses of heat.



DESIGN
GUIDELINES

DESIGN GUIDELINES

Below are the design elements for best practices to promote social interaction and well-being within common glazed spaces in residential buildings. The findings and conclusions obtained in the literature research, analysis of referent projects, study visits and interviews with the residents are portrayed in these lines.

PHYSICAL STRUCTURE



Low Density

From the theory we know that the small housing group of 15-30 households has been found to work quite well, encouraging social networking. When the housing design predominates horizontally, a greater degree of contact between neighbors is achieved, unlike the overlapping construction of multi-story buildings.



Subdivision

Providing residents with a clear structure of subgroups within the community through dividing them in different blocks "strengthens natural surveillance, helps the inhabitants know which people 'belong' and improves the possibility for making group decisions concerning shared problems. This allows them to organize themselves quicker and more effectively for group activities. In this way, it helps carry out democratic processes while it strengthens the community.



Common Ground

The entrance level is where the transition from private to public takes place, hence the implied public character. It is also here where the main flow of people is found, therefore the importance to enhance passive contact by combining stationary activities with necessary ones. Another advantage of this level is the possibility to include the neighborhood in certain activities.



Meeting Points

Entrances are an important meeting point within buildings. Reduced amount of entrances increases the chances of encountering other residents. Including stationary activities like a waiting area, also increases and prolongs opportunities of meeting people. Being a place of obligatory daily transition, it sets up the opportunity to communicate public information among residents (Ex: bookings and reservations of spaces, common activities, offers and requests, etc.). As with entrances, reduced amount of circulation nodes increases the chances of meeting up with other residents.



Overview

The main objective to help promote social interaction is to allow contact among residents within the building. Therefore, the importance of physical and visual connection in spaces, especially in common areas. Integrating entrances and circulation within the common space increases contact by allowing to see and be seen by others. This also creates a surveillance effect that helps residents feel more secure. Therefore, the importance of incorporating virtual limits through transparencies and materiality that allows visual contact among residents within public spaces. Avoid blind walls where the intention is to establish contact among people.

The design guidelines are divided in two sections, the physical and social framework. The physical structure (the building) reflects and supports the desired social structure (social situation).

PHYSICAL STRUCTURE



In between spaces

Incorporation of private areas within shared spaces. These in between spaces have a more public character by being placed within the public zone. The intention behind these spaces is to provide residents with opportunities to participate in the common space in a more passive and less exposed way. Ex: sitting place for relaxation, fika, reading. Generally, these spaces work best if residents can customize them.



Spatial Quality

It is important to provide attractive social spaces to persuade people's desire to use and stay in that space. This has to do with the overall atmosphere of the space. Examples that could be taken into account are plants, natural and artificial light, views, people, nature, sounds, furniture, colour and decoration. With good space's quality, not only necessary activities will take place but recreational and social activities will follow.



Privacy

It is valuable to include spaces with a private character within the social space. This will help within resident's integrity, encouraging them feel more comfortable and less exposed. Along with privacy within public spaces, incorporating bookable common spaces has shown to bring advantages within social activities. These enclosed spaces can be used for activities that otherwise could disturb other residents (ex: noise, exposure, smells). For these reasons, these spaces can be used in a more private way.



Daylight

Exposure to natural light is a vital need that has important health effects. Glazed spaces increases the amount of natural light inlet and resident's satisfaction.



Social Distances

Distance between people determines the type of contact wished to establish. Therefore, to provide possibilities of contact among people, it is recommended not to exceed 25-30 m between residences entrances. On the other hand, to enhance a closer contact but still provide privacy, it is recommended not to reduce the distance to more than 4m between neighbours.



Nature

Incorporation of greenery and having views towards outdoor areas, especially nature, reduces stress levels and promotes wellbeing among residents. Glazed spaces enhance the connection between people, nature and outdoor environments. It also creates optimal conditions for the production of vegetables for local consumption. This brings health and social benefits among residents.

DESIGN GUIDELINES

Below are the design elements for best practices to promote social interaction and well-being within common glazed spaces in residential buildings. The findings and conclusions obtained in the literature research, analysis of referent projects, study visits and interviews with the residents are portrayed in these lines.

SOCIAL STRUCTURE



Appropriation of Space

Allowing residents to decorate and personalize certain areas to bring in their identity, helps them appropriate the space. This creates a sense of attachment and belonging with the place.



Combined Activities

It is important to give a strong purpose to social spaces to guarantee the use of it. Emphasizing integration of necessary activities (entrance, circulation, laundry and other facilities) together with stationary activities within the social space or adjoining areas, will increase and prolong opportunities of contact among people. Recreational and social activities appear as a result of the former strategy. At the same time, providing a wider scope of activities in the space, attracts more people. This triggers a ripple effect in which the appearance of people generates a more livable atmosphere attracting even more people.



Communal Activities

These activities are meant to be done among rotary groups of residents, to promote contact among them and help build a social network. This strengthens the sense of community. Ex: gardening, events, courses and workshops oriented to promote sustainable habits.



DESIGN
PROPOSAL

The following project was based on the guidelines, which are the findings extracted from the theory, the analysis of different reference projects, interviews with the residents, study visits and discussions with the interdisciplinary team Spaces. Relevant conclusions have been found within Gehl, Hall, Minoura and Bernheimer among others.

The building has been designed as a way of testing the design guidelines. This proposal is an ideal project for testing and showing possible solutions to the concept of increasing social areas and a strengthened connection between them and the apartments, to help promote social sustainability among residents. Although this proposal might be hardly affordable today, I think its necessary for sustainable societies.

Acknowledging indoor qualities relevance in glazed spaces, the incorporation of these applicable notions in the design proposal will be pending for a next stage.

LOCATION

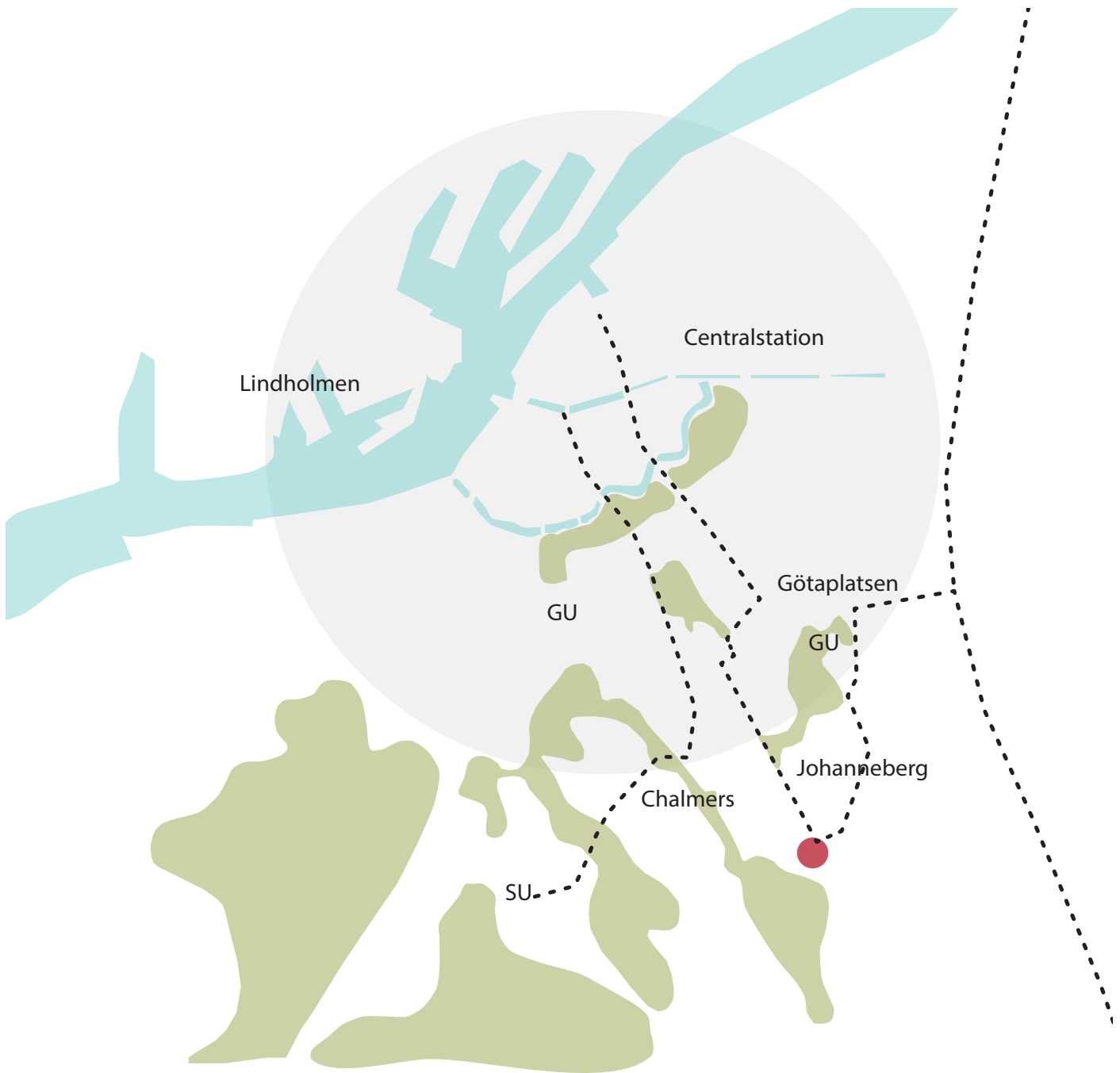


Figure 18. Illustration of Gothenburg with plot's location, team Spaces.

The site has been used merely to test the design proposal together with the design guidelines previously exposed, with the aim of promoting well-being and social interaction among residents. An analysis of the detail plan has been carried out based on the objective of the proposal, from which it has been decided to take into account certain points of it. The project does not look into economical nor indoor quality

calculations regarding demands or apartment rents or costs.

The plot is situated in the area of Johannneberg, close by Chalmers University campus. This is a transitional area between residential and academic dwellings, together with student housings. There are some commercial stores along the main road Gibraltargatan, which has the highest traffic flow around the site.

THE CONTEXT



Figure 19. Satellite photo Gothenburg, Eniro Kartor 2020.

In the following illustration we can clearly see that the plot is situated in a transitional area, in between an academic and a residential area. The dwellings along the main street have a mixed use, including a commercial area on their ground floor. This, together with the recommendations from the detail plan, triggers the idea of incorporating a commercial zone with spaces for public use (residents and the neighbourhood).

Following this idea, it was decided to incorporate a fixoteket (a place that offers tools, material and knowledge to be shared for fixing and exchanging things, ideal specially among students), a sec-

ond hand store connected to the building's recycling area, a coffee (cafeteria with office space) and spaces to be used as studios, offices or stores, along the main street Gibraltargatan.

At the same time, it was possible to take advantage of the space by avoiding the allotment of apartments over the main street where there is high traffic of vehicles and people.

This idea of involving the residents with the neighbourhood and external people, brings benefits for both sides. Having mixed uses in the ground level can help create a more livable atmosphere which

SITE ANALYSIS WITHIN THE CONTEXT

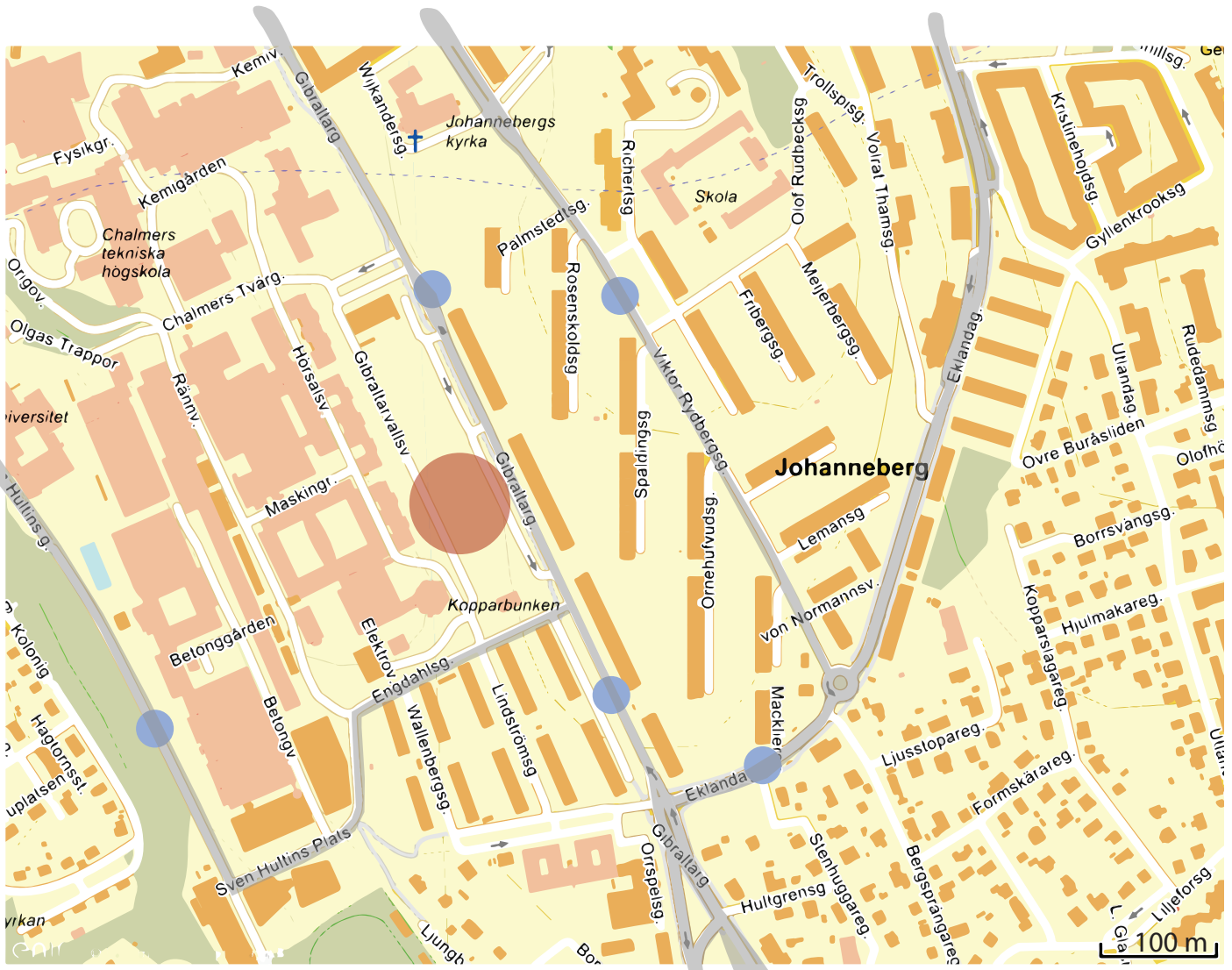


Figure 20. Illustration Johanneberg, Eniro Kartor 2020.

makes it more attractive for people and it also influences positively the economy in the area and the building itself.

On the other hand, the analyzed projects have shown good results obtained among members who belong to the housing association. In these cases, residents have a greater commitment with the community and the maintenance of common spaces.

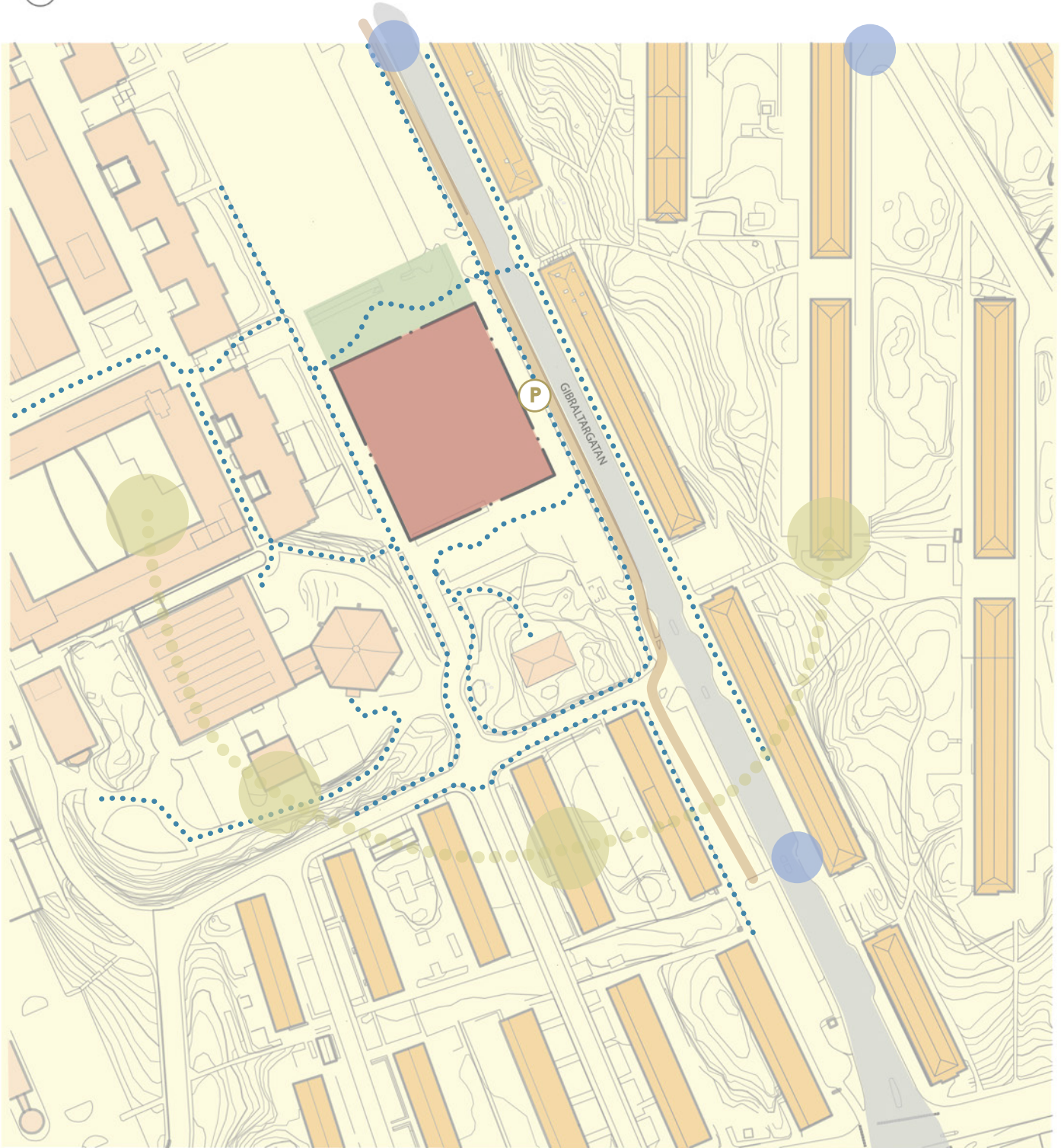
References

- PLOT
- RESIDENCES
- ACADEMIC BUILDINGS
- MAIN TRAFFIC ROADS
- PUBLIC TRANSPORT
- GREEN AREAS

SITE ANALYSIS

ZOOM INTO PLOT

scale 1:2.000



References

- | | | | |
|---|--------------|---|--------------------|
|  | BIKE LINE |  | PLOT |
|  | PARKING |  | RESIDENCES |
|  | WALKING PATH |  | ACADEMIC BUILDINGS |
|  | SQUARE |  | MAIN TRAFFIC ROADS |
| | |  | PUBLIC TRANSPORT |

DETAIL PLAN

The detail plan was facilitated by the project Spaces. It was very valuable for adapting the project within the plot's urban code and Swedish regulations.

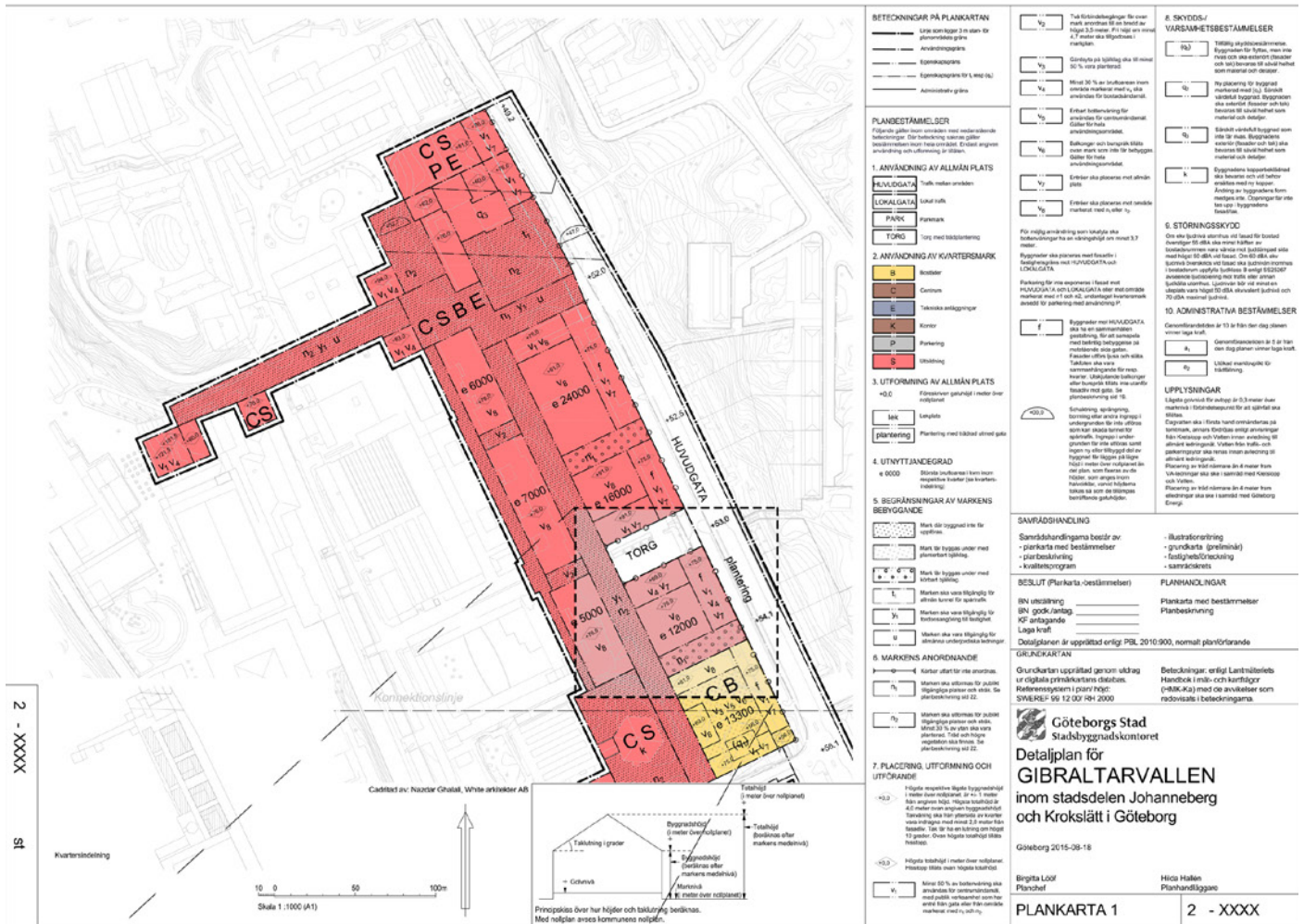
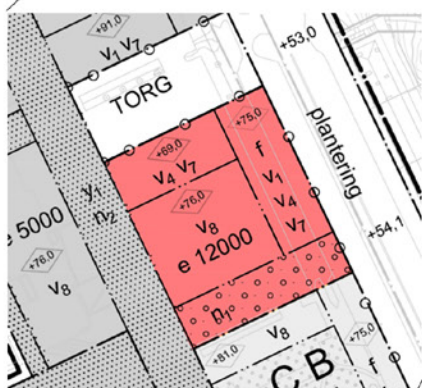


Figure 21. Detail plan, team Spaces.



- V₁** Minst 50 % av bottenvåning ska användas för centrumändamål, med publik verksamhet som har entré från gata eller från område markerat med n₁ och n₂.
- V₄** Minst 30 % av bruttoarean inom område markerat med v₄ ska användas för bostadsändamål.
- V₇** Entréer ska placeras mot allmän plats
- V₈** Entréer ska placeras mot område markerat med n₁ eller n₂.
- n₁** Marken ska utformas för publikt tillgängliga platser och stråk. Se planbeskrivning sid 22.
- e 0000** Största bruttoarea i kvm inom respektive kvarter (se kvartersindelning)
- f** Byggnader mot HUVUDGATA ska ha en sammanhållen gestaltning, för att samspeja med befintlig bebyggelse på motstående sida gatan. Fasader utförs ljusa och släta. Takfoten ska vara sammanhängande för resp. kvarter. Utskjutande balkonger eller burspråk tillåts inte utanför fasadnivå mot gata. Se planbeskrivning sid 19.
- +00,0** Schaktning, sprängning, borming eller andra ingrepp i undergrunden får inte utföras som kan skada tunnel för spårtrafik. Ingrepp i undergrunden får inte utföras samt ingen ny eller tillbyggd del av byggnad får läggas på lägre höjd i meter över nollplanet än det plan, som fixeras av de höjder, som anges inom halvcirklar, varvid höjderna tolkas så som de tillämpas beträffande gathöjder.

HIGHLIGHTS FROM THE DETAIL PLAN

V1: At least 50% of the ground floor must be used for commercial purposes, with public activities having entrance from the street or from the area marked with n1 and n2.

The building takes into consideration the possibility of including a commercial area within the ground floor. These spaces are facing towards the main road Gibraltargatan with entrance only from the street and without access to the residential building. Integrating a commercial within the building could help promote interaction among residents and neighbours.

A discussion could be address further to clarify which is the optimal percentage to include. In this project, 390m² is believed to be enough for bringing in benefits to the community and the neighbourhood.

V4: At least 30% of the gross area within the area marked with V4 shall be used for residential purposes.

Leaving aside the commercial premises on the ground floor, the rest of the building consists of residential apartments.

V7: Entrances should be placed against public space.

This point is not followed, since the entrance is placed towards the southern area. The idea behind this decision is to gather social activities at the entrance. These spaces have a better quality and are used more by locating them on the south side, where there is a greater entrance of natural light.

In addition, the entrance is located close to the cafe, for which it is also important to be placed on the south side. Both spaces have the possibility of expanding into the public area. Following this line, a greater connection with the neighbours and its social space is provided.

On the other hand, it was decided to place the commercial area along Gibraltargatan, so that the stores are more visible and there is a direct connection with the greater flow of people and traffic, and thus attract more clients.

V8: Entrances should be positioned towards areas marked with n1 or n2.

In this case there is no need to locate additional entrances to the main one, which we have already discussed.

n1: the ground shall be designed for public accessible places and routes.

The building is receded from the plot's limit (and future bordering building) to achieve a higher privacy and a greater inlet of natural light. In this way, it also creates space for public use, as stated in the detail plan.

e 12.000: largest gross area per square meter within each block.

The maximum number of square meters allowed to be built is not exceeded, since this project does not focus on building as many apartments or squaremeters as possible, but rather on generating spaces that collaborate to promote well-being and social interaction.

F: Buildings facing MAIN STREET shall have a coherent design, in order to interact with existing buildings on the opposite side of the street. Facades are executed bright and smooth. The eaves should be connected for each block. Exterior balconies or bow windows are not allowed outside facade living on the street.

Exterior balconies towards the main road, Gibraltargatan, are following the recommendations of the detail plan by not exceeding over the facade line.

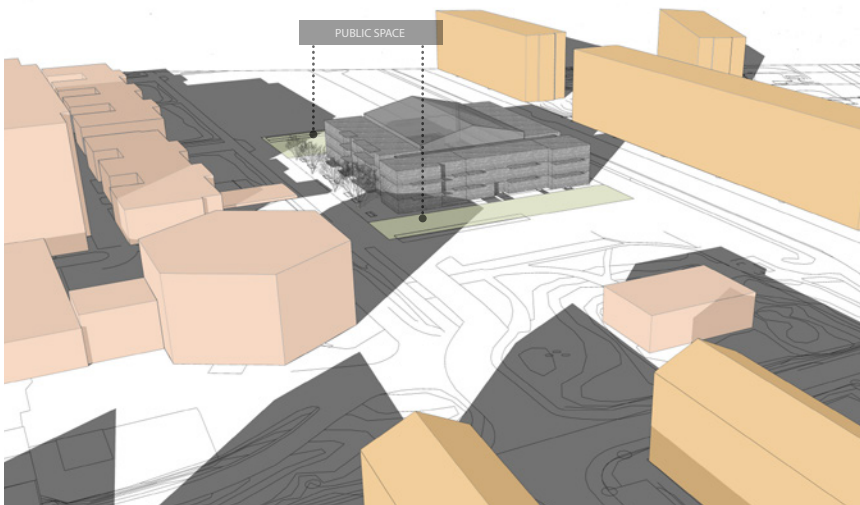
HEIGHT:

+69,0m – (+53,0m) = +16m ~ 5 floors

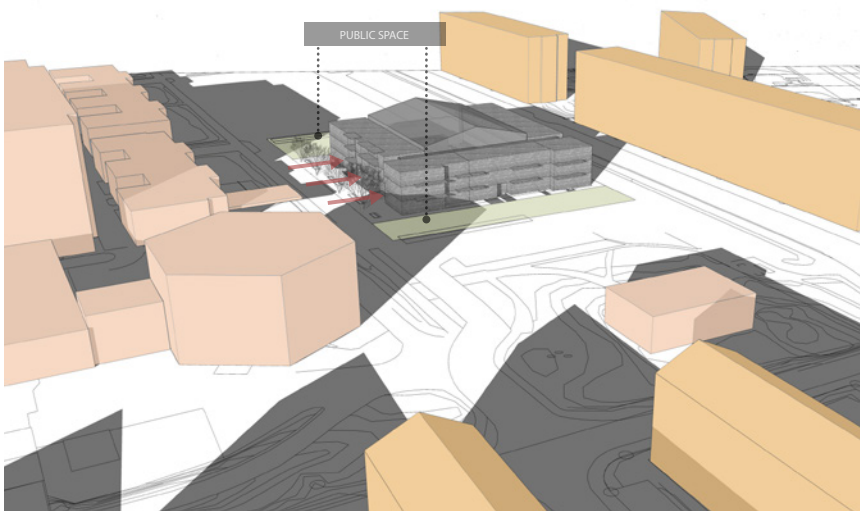
+75,m – (+53,0m) = +22m ~ 7 floors

The maximum height allowed in the detail plan are 5 - 7 floors height. According to Gehl's theory, small housing groups of 15 to 30 households have proven to encourage social networking within the community, which is the objective of this project. Therefore, the residence consists of 36 apartments for a maximum of 107 residents. Adding one level would mean having 50 apartments in total, with possibility of hosting 149 residents. The less dense and crowded the building is, thus the community, the easier is for residents to know their neighbours, feel safe and will to interact.

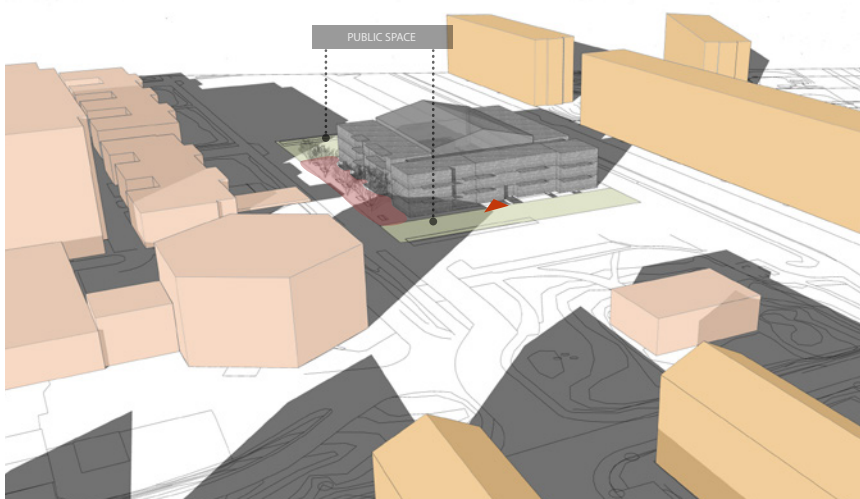
ADAPTATION TO THE CONTEXT



Towards the **North** and **Southern** side, the plot is situated in between two public spaces which brings in greenery and people closer to the building. This helps improve the views towards the surroundings.



On the **South West** side, which is a calm area, the building has been receded pushing it closer towards the main road, creating a green area. This strategy takes advantage of the good sun orientation, ideal for having a garden (especially for kids since its protected from the traffic road) and urban farming.

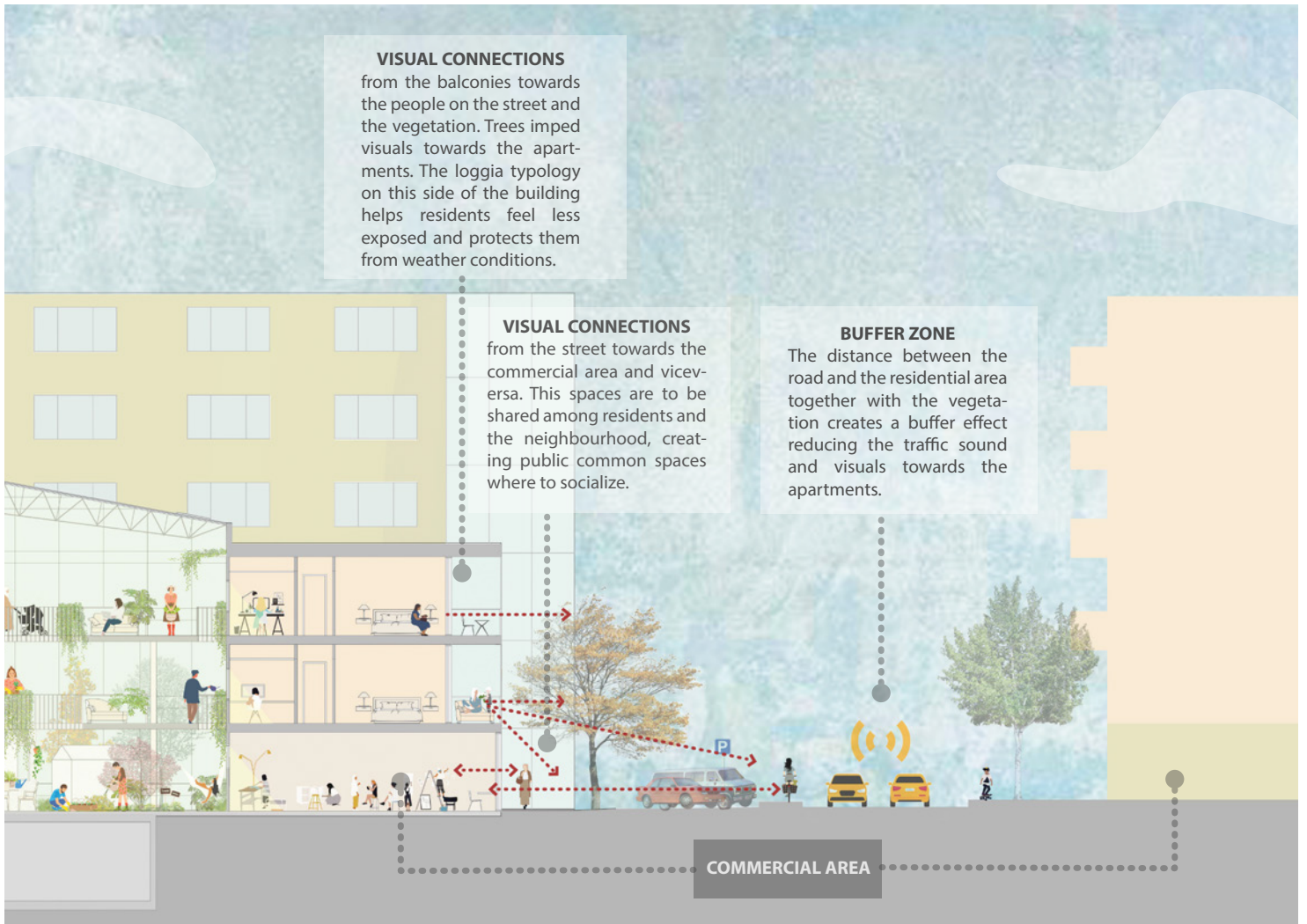


- ACADEMIC AREA
- RESIDENTIAL AREA
- GREEN PUBLIC AREAS

Neighbourhood model.

The main road (Gibraltargatan) is situated towards the **East** side. In this section, it is possible to see the physical and visual communication between the main street and the commercial area. These spaces are situated on a highly visible spot

to be seen by the public. The noise from the street as well as the visuals from people towards the apartments are reduced by the distance and the trees which act as a buffer zone.



Street section.

NEIGHBOURHOOD VIEW

Chalmers (academic area) - green space - project - Gibraltargatan - Joahanneberg (residential area)



Neighbourhood view scale 1.600.

VISION

In order to successfully encourage social interaction, the housing facility must address the needs of the individual, help build a sense of community among residents, and engage with the surrounding context, the neighborhood. Therefore, the three main focuses:



INDIVIDUAL



COMMUNITY



NEIGHBORHOOD

Individual refers to the residential apartments owned or rented by the residents. This space must address the individual's need for privacy and security while still encouraging social interaction.

Communal refers to areas shared by all residents. This space must draw neighbors together, make them want to stay there, and encourage interaction between them.

Contextual directed to areas meant to engage with the neighborhood. This space is accessible by both the community and the public. The objective is similar to the social space, draw residents and visitors in and encourage interaction between them for greater repercussions on social sustainability.

TARGET

As previously shown, residents who belong to a housing association have a greater responsibility for the maintenance of common areas and a greater sense of belonging to the place. Therefore, this proposal considers that cooperative housing is an optimal solution for this project.



FAMILIES



ELDERLY



COUPLES



SINGLES

The three different types of apartments were designed having in mind the needs of their users which are: singles, families, young and elderly couples.

GENERAL DESCRIPTION

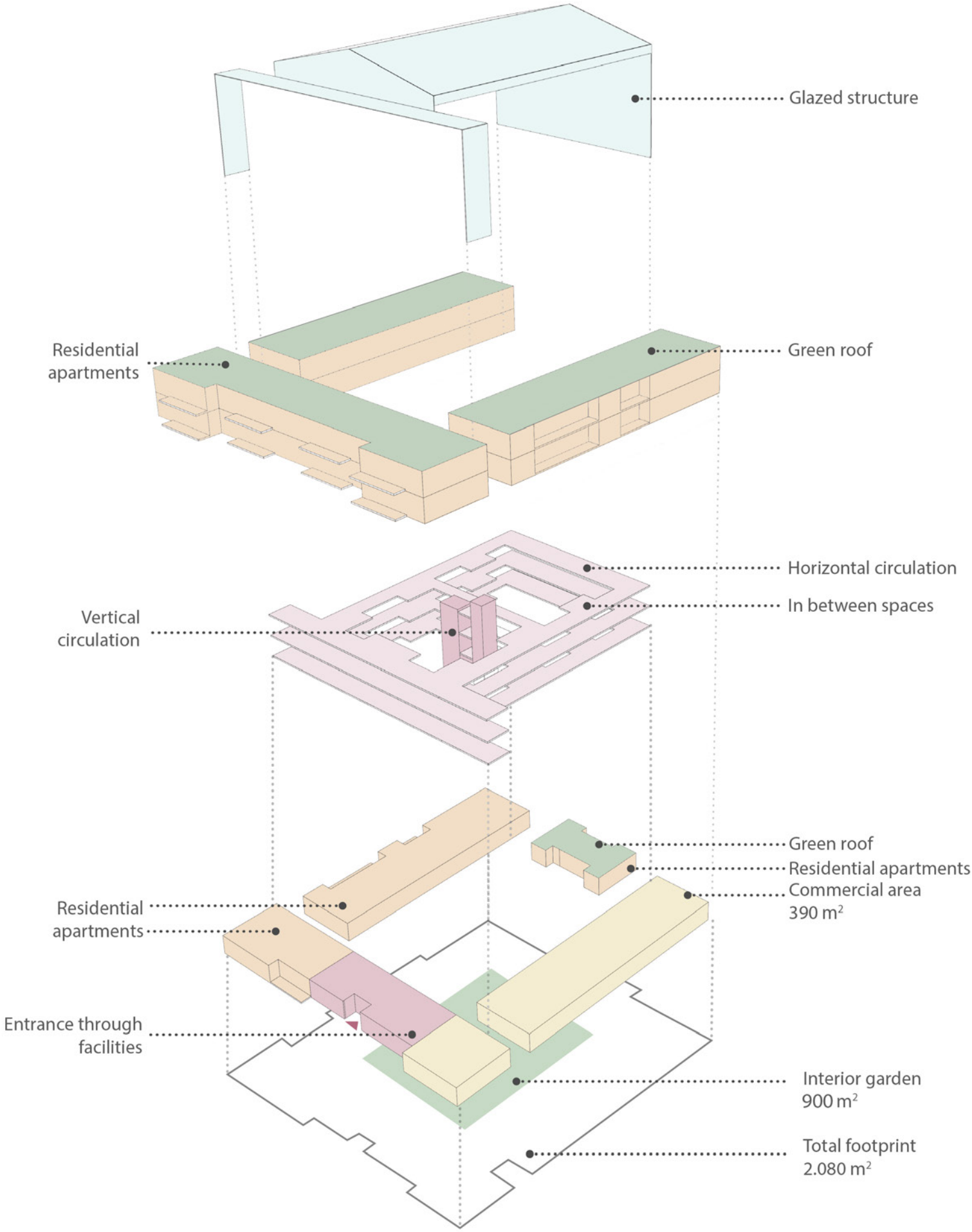
The design proposal corresponds to the atrium typology. As mentioned during the theory and analysis of different reference projects, this typology has showed a remarkable performance in terms of social interaction and wellbeing. Its spatial configuration provides several benefits that will be mentioned throughout the project's presentation.

The building has a U-shape, where the volume's main opening faces towards North. In this way, there is a good provision of natural light inside the building, avoiding overheating in the summer. In addition, to increase the entry of natural light and improve visuals towards the surroundings, there are also openings on the East and West sides, and the roof is totally glazed.

The building is subdivided into three main blocks around an atrium, where the social space is located. In turn, this central space is subdivided into two smaller areas, giving different characteristics to each sector: an active and a calm one. The circulation is integrated into this main space, together with the main entrance of the building, its facilities and the entrance to each apartment providing a good overview. The entrance to each apartment is through the *in between spaces*, an important area for socializing, which we will talk about later.

In the ground floor it is possible to find apartments on the West and North sides, and a commercial area within the East (these spaces do not have access to the interior of the building). The two upper levels are comprised with apartments of 2, 3 and 4 rooms.

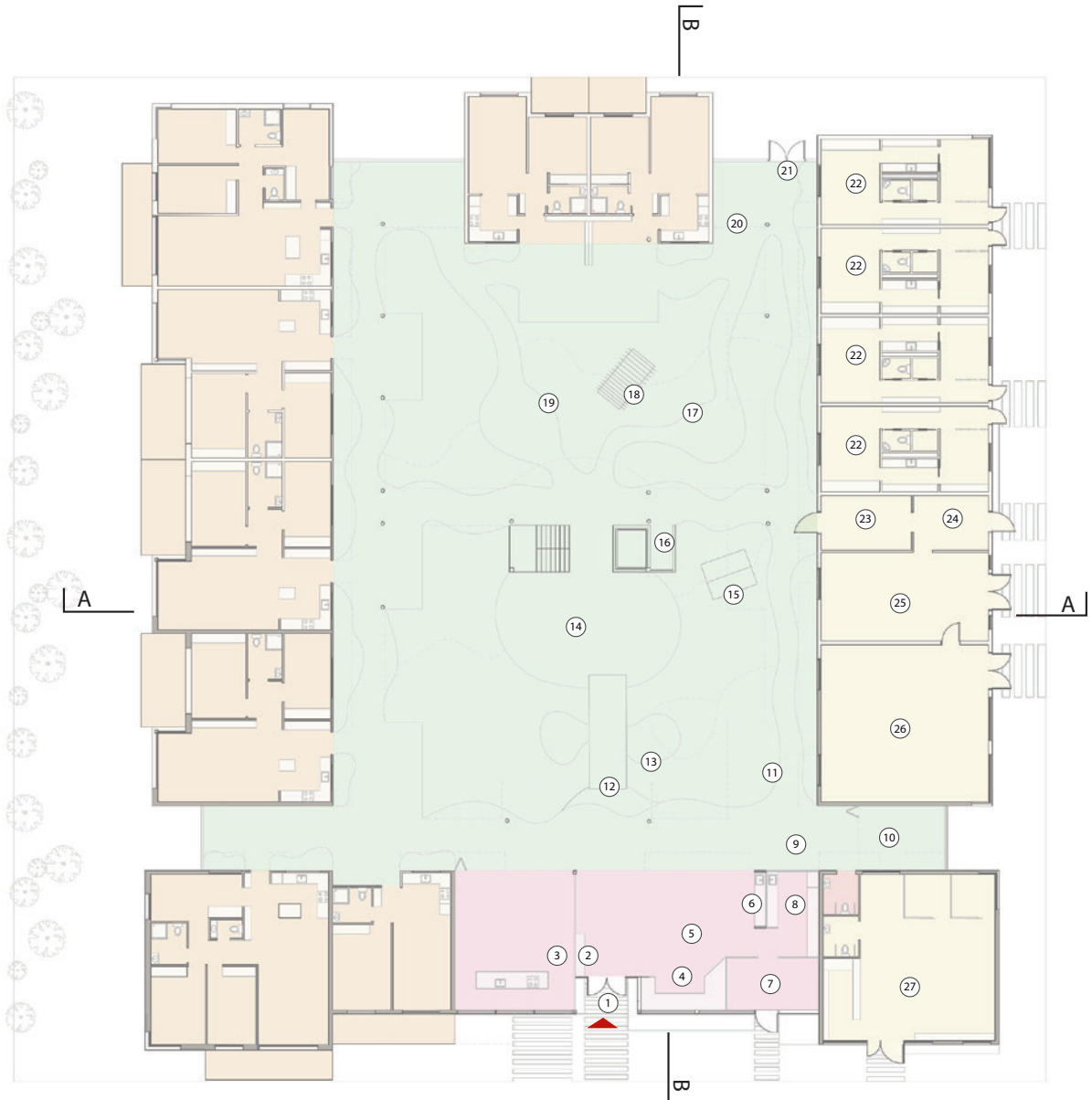
PROGRAM



ZONING GROUND FLOOR

The ground floor is where the transition from private to public takes place, hence the implied public character. Therefore the possibility of incorporating spaces to be shared among residents and the neighbourhood. For example, the coffee (caffeteria with office area), stores and studios together with a fixoteket (facility with tools, materials and knowledge where

to learn and fix objects). Having the commercial zone within the building helps activate the area, bringing in a more livable atmosphere. The entrance is through the facilities. This strategy offers a good overview, ensuring to establish contact by seeing and being seen, as well as providing opportunities for encountering with others.



scale 1.350

- | | | | | |
|--|----------------------------------|---------------------|-------------------------------------|-------------------------|
| ● Residences | 1. Entrance | 7. Bikepool | 14. Meeting platform | 21. Service door |
| ● Entrance facilities | 2. Information board and mailbox | 8. Laundry | 15. Gardening gear | 22. Rental office/store |
| ● Garden facilities | 3. Association's room | 9. Hammocks zone | 16. Wheelchair and stroller storage | 23. Recycling storage |
| ● Commercial | 4. Gardening | 10. Pingpong's room | 17. Relaxing area | 24. Garbage storage |
| | 5. Library & playroom | 11. Sitting area | 18. Pergola | 25. Second hand shop |
| | 6. Kitchinette | 12. Bridge | 20. Reading area | 26. Fixoteket |
| | | 13. Pond with fish | | 27. Co-office |

COMMON GROUND

The ground floor or entrance level is what I call common ground in the guidelines. Here is where the main flow of people is found (residents and also neighbours). It is also here where residents from all levels are able to meet up. These facts enhance the importance of making it **the social level**.

From the theory we know that for social interaction it's important to provide opportunities for people to **encounter**. We know that entrances and circulation areas are the main **meeting points** in residential buildings. Therefore, reducing the amounts of them will increase the chances of encountering with other residents. This is the reasoning behind having only one main entrance area and a circulation node.

Another important aspect for promoting social interaction is to allow people to establish **passive contact** (this means be able to hear, see and be seen by other people). By doing this, we let residents know each other better, recognizing who lives in the community. With time, this passive contact can grow into other types of interactions like a greeting or a small talk and finally establishing social bonds. This strengthens the sense of community.

So the strategy to increase contact among people is to provide them with a good **overview** of the building. For this, we can visually and physically integrate spaces of daily obligatory use. For example, the entrance and circulation within the social space. By doing this we guarantee that the space will be used, and that people will establish contact, promoting social interaction.

The circulation node is placed in the middle of the social space, offering a good overview and dividing it in two. The area closer to the entrance is activated by the adjoining facilities and the flow of people from the entrance and circulation. The other half of the social area is further away from the entrance, making it a calmer zone. It is ideal for relaxation and it counts with space for reading and relaxing alone or in groups. In the social space it's possible to find nature (vegetation to be cultivated by the residents and a pond with fish), social and individual zones furnished with sofas, hammocks, tables and deck chairs.

We can see there is a combination of different spaces and activities among the facilities and the main social area. According to Gehl, there are different types of activities. The **necessary activities**: are the ones where people are obligated to use certain spaces in order to achieve their goal (E.g. entrances to the building and to the apartments, circulation, laundry room). And then we have the **optional and social activities** where the user can choose to use the space or not (this depends on the spaces quality and how attractive it is for the user).

In order to increase contact and encounters among people, the strategy is to **combine necessary** with **optional and social activities**. Furthermore, in order to prolong the contact among residents, Gehl also suggests to add **stationary activities**.

Therefore, we can see the entrance physically connected to the gardening area, the playroom with a library and sitting place, which is also communicated with the main social area that has different activities and the circulation. We also have visual connections towards the laundry room and the associations room which have frozen glazed walls.

By combining different activities, we are attracting a wider scope of people to the place, creating a more active and livable area which improves the **space quality** since we know from Gehl's theory that people like to observe other people, the space becomes more attractive and more interesting to be part of.

The associations room is a very **flexible space**. From the theory and the reference projects we know that it is important to provide social spaces that residents can use in a more **private** way. Therefore, this space can be closed up and booked to be used for certain activities that otherwise could bother others residents. E.g. activities that involve smells like cooking or loud noises and for private events. By pulling in the curtains, it reaches a higher level of privacy. On the other hand, it can be used for **communal gatherings**, easily connected to the main social space and it can also be expanded towards the exterior public space. In this case, its glazed walls allow residents to see if there is any communal activity going on like cooking, yoga or painting courses.

COMMON GROUND (GROUND FLOOR)



1. Meeting point
2. Common ground
3. Overview
4. Combined activities
5. Privacy
6. In between spaces
7. Social Distance
8. Space's Quality
9. Nature (local greenery)
10. Daylight
11. Appropriation of space
12. Communal activities
13. Subdivision
14. Individual spaces
15. Noisier activities with possibility of closing

- Coffice
- Fixoteket
- Second hand store
- Recycling & Garbage
- Studios/Stores

- 2 room apartments
- 3 room apartments
- 4 room apartments

⌚ scale 1.200

SPACE'S QUALITY

OVERVIEW

Integrating spaces of necessary activities within the common space increases contact among residents. Therefore, the vertical and horizontal circulation is placed within the social space, offering a good overview of the place. This helps to see and be seen, knowing who lives in the community and creating a surveillance effect that helps residents feel more secure.

MEETING POINTS

The reduced number of entrances and circulation nodes and its integration within the social space improves the general overview, increases contact among people and creates possibilities for encountering with other residents. Including stationary activities prolongs the contact. Thus the social platform situated beside the circulation area.

COMBINED ACTIVITIES

Emphasizing integration of necessary activities like entrances, circulation, laundry, association's room, gardening areas together with stationary activities (playroom, library, sitting places for relaxing and socializing) within the social space or adjoining areas, will increase and prolong opportunities of contact among people. Recreational and social activities appear as a result of the former strategy.

IN BETWEEN SPACES

Openings in corridor slabs allows **DAYLIGHT** to reach lower levels and creates **SOCIAL DISTANCE** towards the apartments.

SUMMARY

of the ENTRANCE VISUALIZATION

APPROPRIATION OF SPACE

COMMON GROUND

The entrance level is where the main flow of people is found, therefore the importance to enhance passive contact by combining optional and stationary activities with necessary ones. Another advantage of this level is the possibility to include the neighborhood in certain activities or areas (e.g. bike pool, and commercial area).

The **COMMERCIAL ZONE** (offices, stores, fixoteket, second hand shop) helps activate the area bringing in a more livable atmosphere. The cofficec (caffeteria with space for office) has the possibility of expanding over the public area which faces towards South.

BIKE POOL including cargo-bikes to be shared among residents and the neighbourhood. Personal storage and bike garage in the basement.

PEOPLE AS ATTRACTION

Providing a wider scope of activities in the space, attracts more people. This triggers a ripple effect in which the appearance of people generates a more livable atmosphere attracting even more people.

COMMUNAL ACTIVITIES

Certain activities as gardening and events are meant to be done among rotary groups of residents, to promote contact among them and help build social networks. This strengthens the sense of community.



Possibility of expanding the association's room towards the green public space.

The **ASSOCIATION'S ROOM** is a **bookable** space to provide residents with a **private area** for their own events (it can be closed and it is provided with curtains). Residents can temporarily decorate it, thus promote the **appropriation of space**. It can also be used for **communal events** where it can be integrated with the main social space.

Spaces of obligatory daily use and meeting points sets up the opportunity to communicate public information among residents (e.g. bookings and reservations of spaces, common activities, offers and requests, etc). Therefore, above the mail box there is an **INFORMATION BOARD**.

VISUAL CONNECTIONS

facilities - atrium - apartment

Opportunities to establish contact among residents within the building is very important for promoting social interaction. Therefore, the importance of physical and visual connections in spaces, especially in and towards common areas.

UPPER LEVELS

On the first and second levels of the building it is possible to find the residential units of 2,3 and 4-rooms. These units are distributed in the 3 blocks that make up the building. The apartments are communicated with the social glazed space through the circulation platforms.

In between spaces (IBS) were incorporated in the project. These spaces are comprised by the entrance area and the interior balconies that are in between the apartments and the atrium (therefore their name). It is possible to see a differentiation in the floor covering to make a clear visualization of the IBS (darker colour in the floor plans). These spaces have showed to work very well in the reference projects for incentivizing people to use the social space.

Helped by the edge effect, residents feel more protected and less exposed, being invited to be part of the main social area and allowing them to have a good overview over it, creating contact among people in the different levels and the ground floor.

This differentiation of the IBS is enhanced by the decoration of each resident. According to Minoura's theory, allowing residents to personalize certain areas helps them appropriate the space, creating a stronger attachment with it

and within the community.

From Hall and Gehl's theory, we know that contact among people can be influenced by distances. By having more than 30m between people is very hard to achieve contact. Reducing the distance between residences create a stronger contact among neighbours, facilitating social interactions. Therefore, maximum distances among neighbours are 16m between IBS and 25m between residences.

It is also possible to see the blocks subdivision. Subdividing residents into smaller groups helps them organize better for communal activities and creates a stronger sense of belonging within a group according to Gehl.

Also based on the successful performance of the reference project Bovieran, it was decided to incorporate openings in the corridors slabs for allowing daylight reach lower levels. This gap also helps to provide the apartments with more privacy.

From the 1st and 2nd levels it is possible to visualize the surroundings through the glazed openings in the North, East and West sides of the volume.

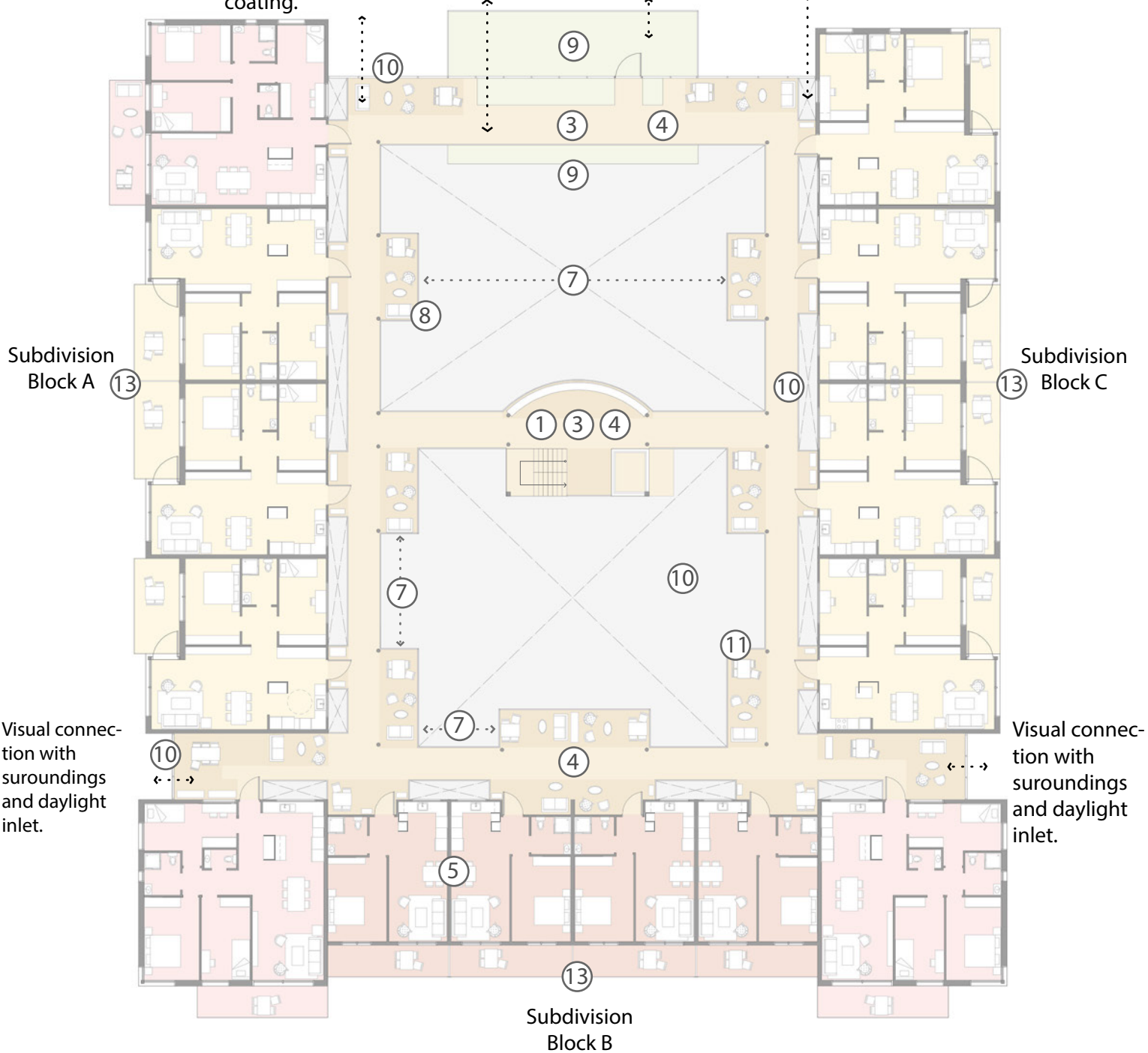
FIRST FLOOR

Entrance and *in between spaces* are clearly defined with a different coating.

Visual connection with surroundings and daylight inlet.

Outdoor terrace with grass floor.

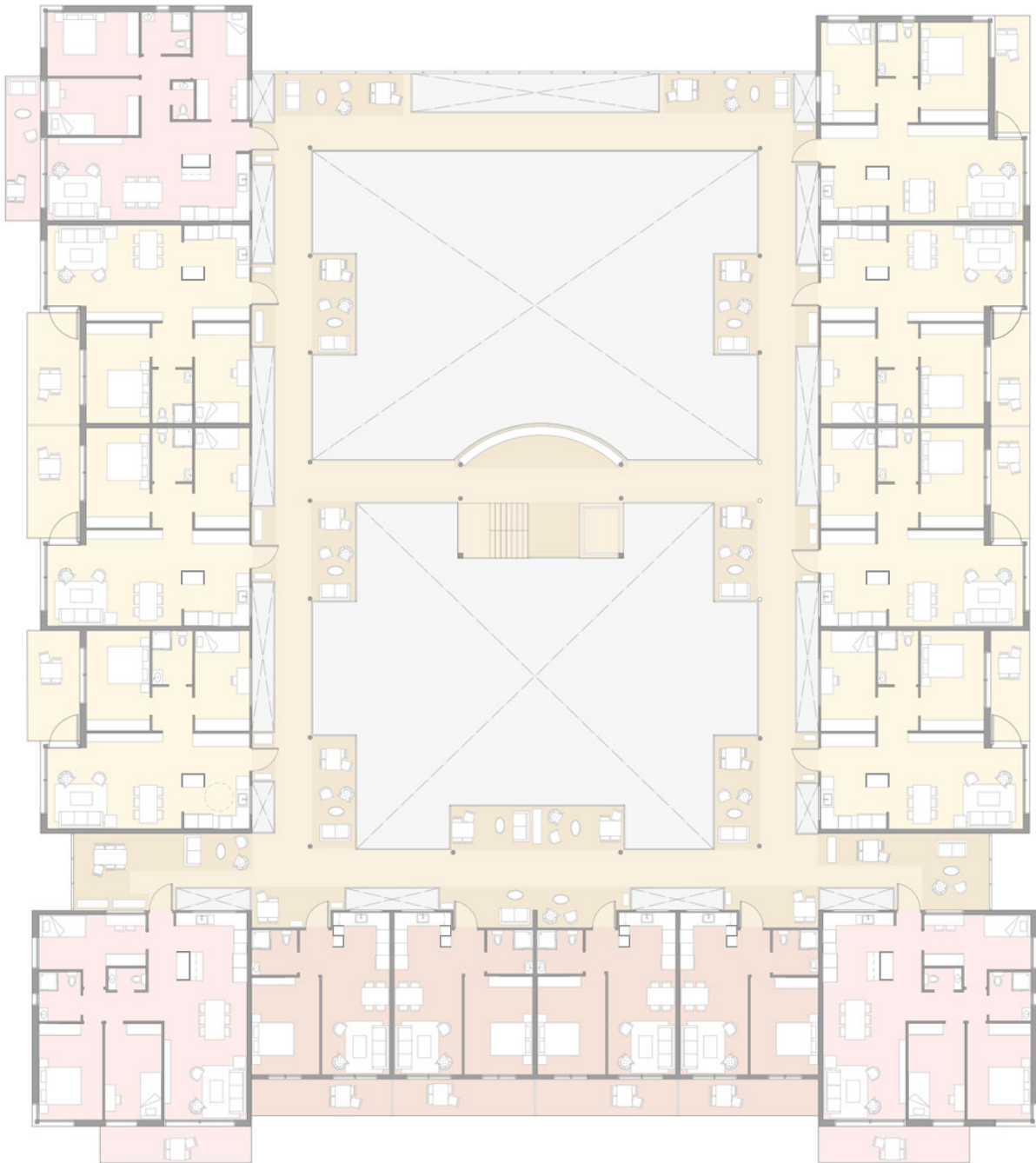
Openings in corridor slabs allows daylight to reach lower levels and creates social distance towards the apartments.



scale 1.300

- | | |
|------------------------|----------------------------|
| 1. Meeting point | 9. Nature |
| 3. Overview | 10. Daylight |
| 4. Combined activities | 11. Appropriation of space |
| 7. Social Distance | 13. Subdivision |
| 8. Space's Quality | |

SECOND FLOOR



scale 1.300

- | | |
|------------------------|----------------------------|
| 1. Meeting point | 9. Nature |
| 3. Overview | 10. Daylight |
| 4. Combined activities | 11. Appropriation of space |
| 7. Social Distance | 13. Subdivision |
| 8. Space's Quality | |

TYOLOGIES

Priority was given to communicating the social spaces of the apartments with the social space of the building. In this way the kitchen together with the living room and the study room are physically and visually connected to the atrium. Thus, the most intimate sectors, the bedrooms and bathrooms, are not connected to the common area.

The atrium is the main social space of the building, which can be noisy. In addition, the passage of neighbours through the corridors can be uncomfortable if the adjoining space is private. For this reason, it was prioritized to locate the bedrooms facing towards the exterior of the building. It is possible to observe that all double bedrooms have been placed towards the outside. This strategy offers higher privacy, better inlet of natural light and cross ventilation. However, some single rooms had to be situated towards the atrium. Hence, residents of these rooms were provided with higher integrity by communicating the room towards the atrium through the study area

thus, leaving a more intimate space for the bed area.

The spaces connected to the main social area have a very good overview towards the atrium with its vegetation and the in between spaces where the neighbours are. In this way, this solution reinforces the contact between neighbours.

The residences have been designed taking into account the Swedish regulations of minimum square meters for housing. The reasoning behind this decision is to enhance the use of the common social space. This is why more square meters were allocated in common areas.

The aim is to incentive people desire to spend more time in the common space and not locked in their apartments thus, avoiding loneliness. Following these lines, the common social area promotes social interaction to help create bonds among neighbours.

TYOLOGIES

TWO ROOM APARTMENT

11 units of 42m²



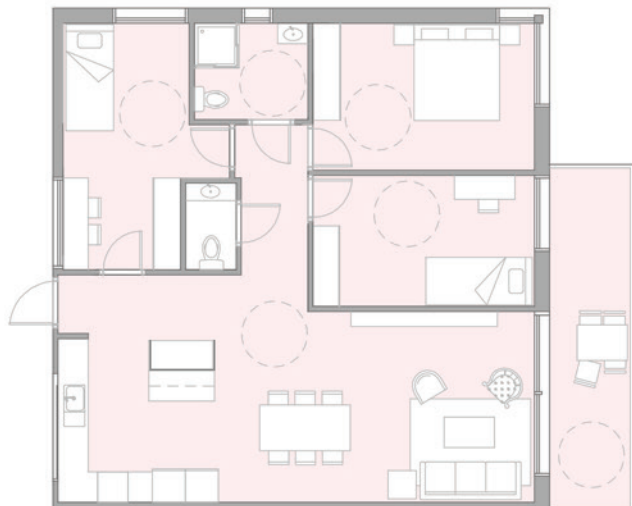
THREE ROOM APARTMENT

15 units of 72m²



FOUR ROOM APARTMENT

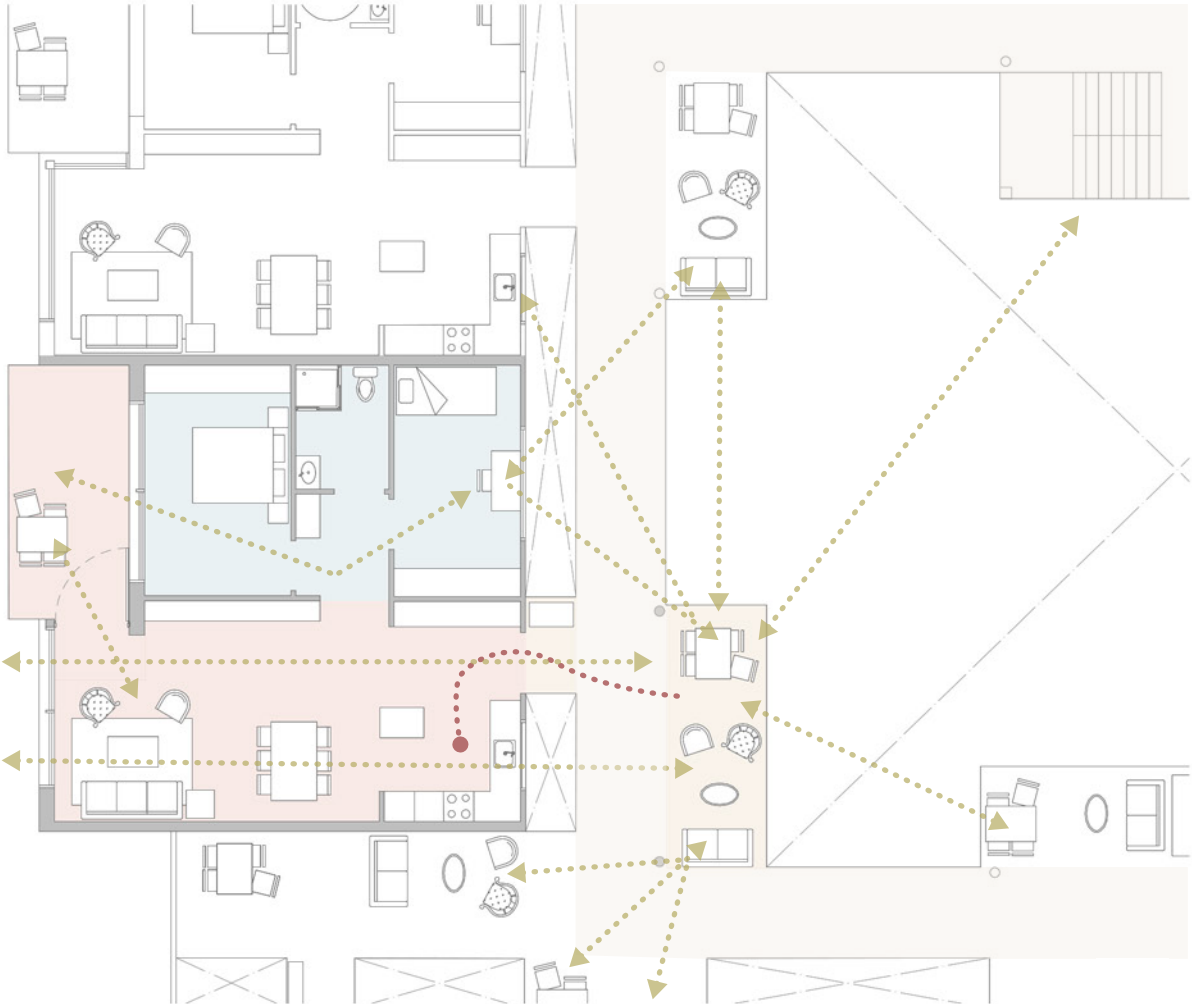
10 units of 85m²



scale 1.150

SPATIAL CONFIGURATION

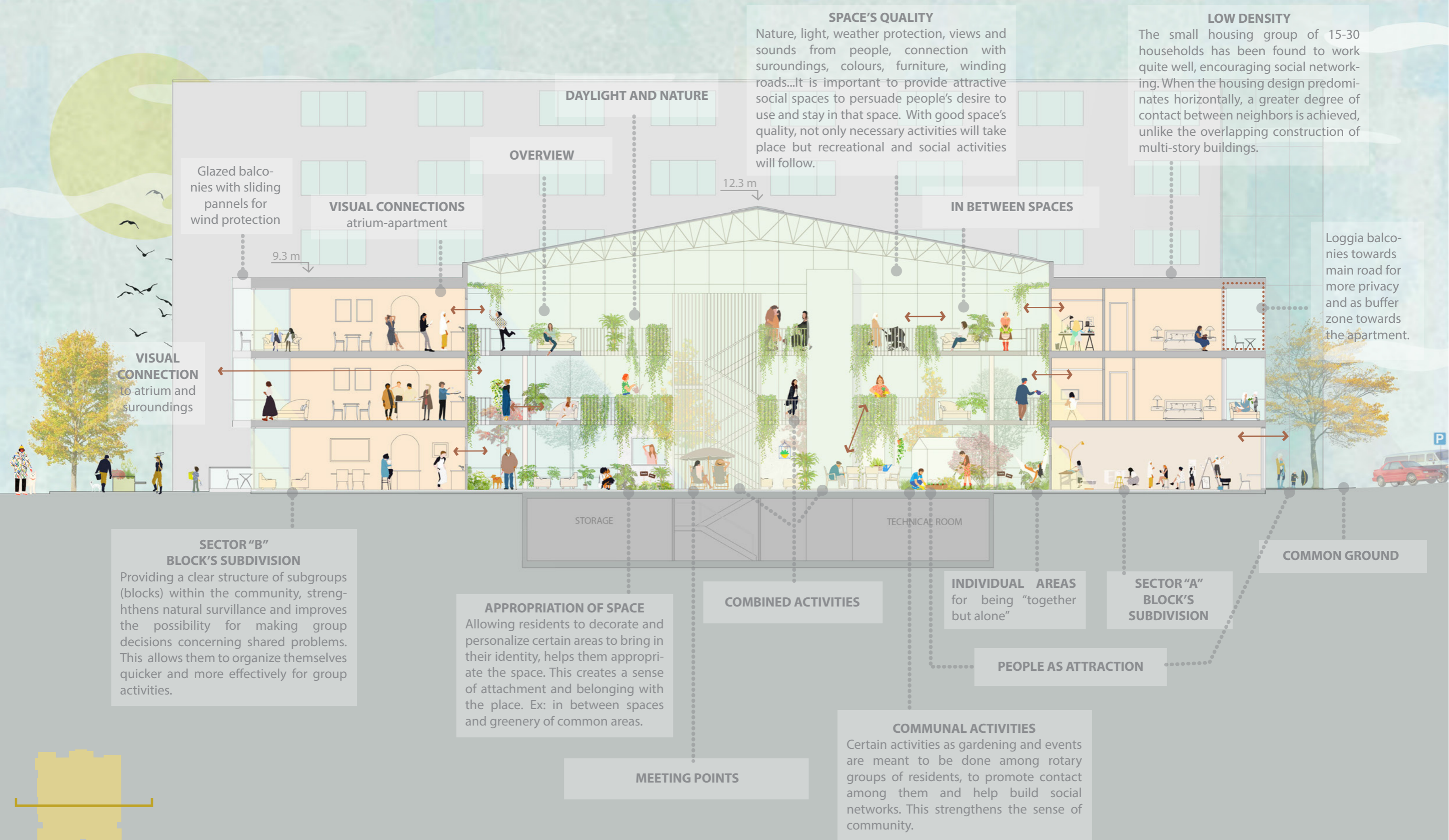
THREE ROOM APARTMENT EXAMPLE



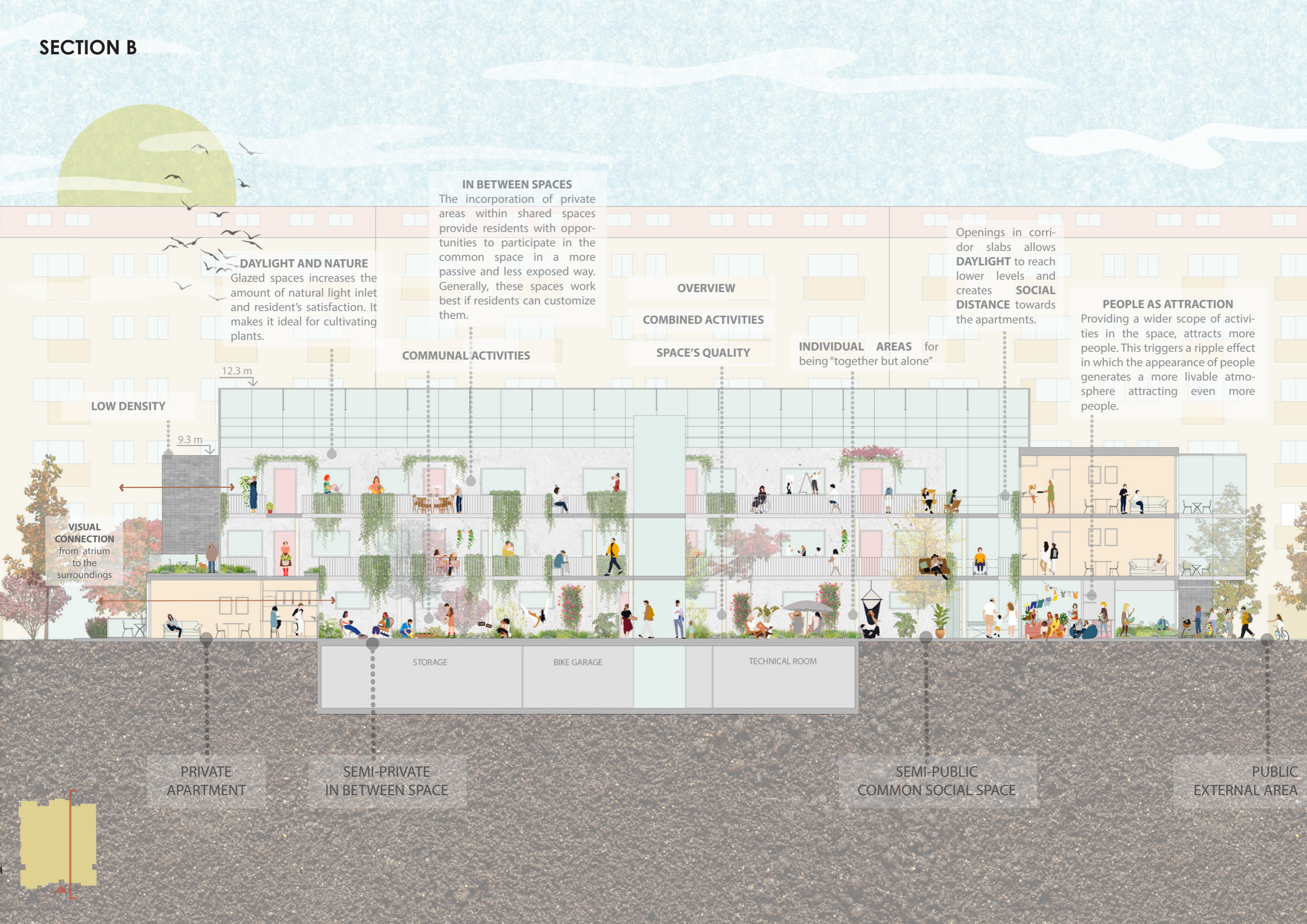
scale 1.150

-  CIRCULATION
-  IN BETWEEN SPACE
-  SOCIAL SPACE
-  INTIMATE SPACE
-  ACCESSIBILITY
-  VISUALS

SECTION A



SECTION B



IN BETWEEN SPACES

The incorporation of private areas within shared spaces provide residents with opportunities to participate in the common space in a more passive and less exposed way. Generally, these spaces work best if residents can customize them.

DAYLIGHT AND NATURE

Glazed spaces increases the amount of natural light inlet and resident's satisfaction. It makes it ideal for cultivating plants.

Openings in corridor slabs allows **DAYLIGHT** to reach lower levels and creates **SOCIAL DISTANCE** towards the apartments.

PEOPLE AS ATTRACTION

Providing a wider scope of activities in the space, attracts more people. This triggers a ripple effect in which the appearance of people generates a more livable atmosphere attracting even more people.

OVERVIEW

COMBINED ACTIVITIES

SPACE'S QUALITY

INDIVIDUAL AREAS for being "together but alone"

COMMUNAL ACTIVITIES

LOW DENSITY

12.3 m

9.3 m

VISUAL CONNECTION
from atrium
to the
surroundings

STORAGE

BIKE GARAGE

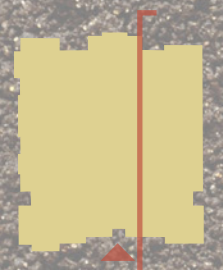
TECHNICAL ROOM

PRIVATE
APARTMENT

SEMI-PRIVATE
IN BETWEEN SPACE

SEMI-PUBLIC
COMMON SOCIAL SPACE

PUBLIC
EXTERNAL AREA



IN BETWEEN SPACES

The incorporation of private areas within shared spaces provide residents with opportunities to participate in the common space in a more passive and less exposed way. Generally, these spaces work best if residents can customize them.

VISUAL CONNECTIONS

ATRIUM - APARTMENT

Contact among residents within the building is essential for promoting social interaction. Therefore, the importance of physical and visual connections in spaces, especially in and towards common areas.

MEETING POINTS

The reduced number of entrances and circulation nodes and its integration within the social space improves the general overview, increases contact among people and creates possibilities for encountering with other residents. Including stationary activities prolongs the contact. Thus the social platform situated beside the circulation area. Being a place of obligatory daily transition, it sets up the opportunity to communicate public information among residents.

SPACE'S QUALITY

Nature, light, weather protection, views and sounds from people, connection with surroundings, colours, furniture, winding roads...It is important to provide attractive social spaces to persuade people's desire to use and stay in that space. With good space's quality, not only necessary activities will take place but recreational and social activities will follow.

SUMMARY of the SOCIAL SPACE VISUALIZATION



In the following interior image, it is possible to appreciate the common space. The physical and visual communication between different spaces results in a good overview of the area. The diverse combination of necessary and optional activities helps attract more people into the space.

Moreover, the provision of stationary activities together with obligatory ones in visually and/or physically communicated spaces, increases and prolongs contact among residents, facilitating interactions.

This together with the large amount of natural light inlet and abundant vegetation, creates a livable atmosphere that contributes to the space's quality, attracting residents.

As we know from the theory, glazed spaces increases the amount of natural light inlet and so, resident's satisfaction, also improving their health. These spaces brings optimal conditions for cultivating plants and food. The possibility of having gardening as a communal activity promotes participation & collaboration between people, which helps build up social networks that strengthens the cohesion in a community.

OVERVIEW

Integrating entrances and circulation within the common space increases contact by allowing to see and be seen by others. This also creates a surveillance effect that helps residents feel more secure.

COMBINED ACTIVITIES

Emphasizing integration of necessary activities together with stationary activities within the social space or adjoining areas, will increase and prolong opportunities of contact among people. Recreational and social activities appear as a result of the former strategy.

COMMUNAL ACTIVITIES

Certain activities as gardening and events are meant to be done among rotary groups of residents, to promote contact among them and help build social networks. This strengthens the sense of community.

APPROPRIATION OF SPACE

Allowing residents to decorate and personalize certain areas to bring in their identity, helps them appropriate the space. This creates a sense of attachment and belonging with the place. Ex: in between spaces and greenery of common areas.

PEOPLE AS ATTRACTION

Providing a wider scope of activities in the space, attracts more people. This triggers a ripple effect in which the appearance of people generates a more livable atmosphere attracting even more people.

COMMON GROUND

The entrance level is where the main flow of people is found, therefore the importance to enhance passive contact by combining stationary activities with necessary ones. Another advantage of this level is the possibility to include the neighborhood in certain activities.

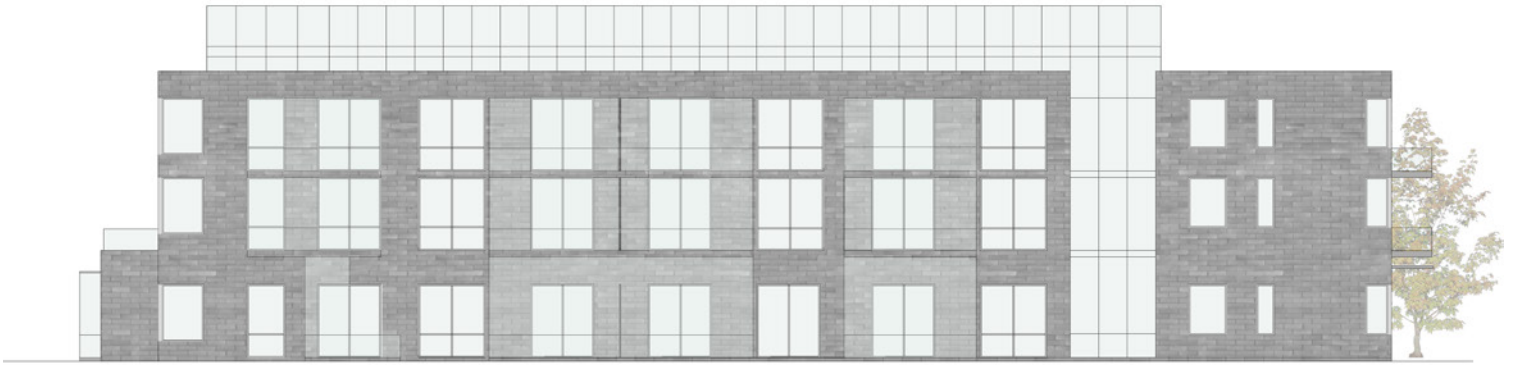
ELEVATIONS



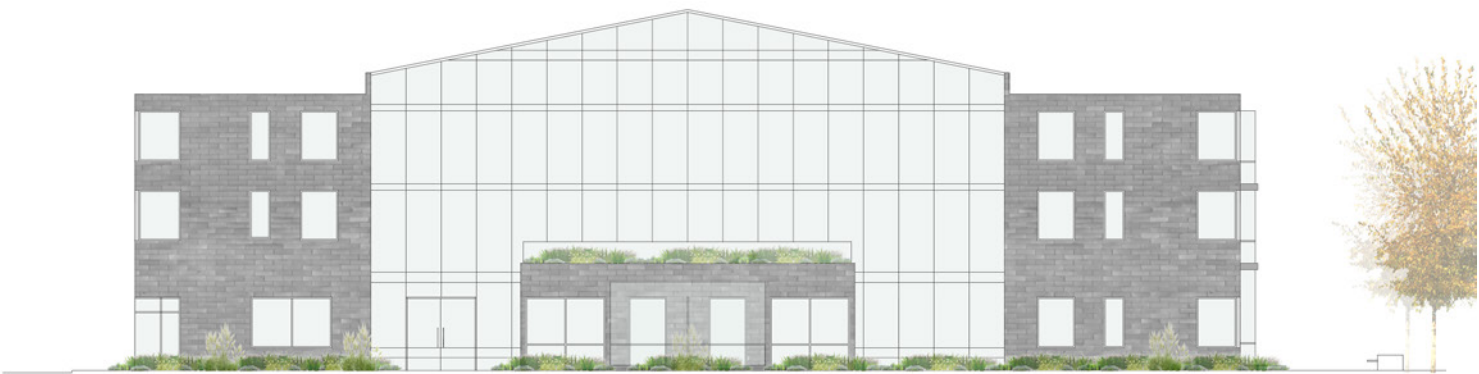
South facade scale 1.300



East facade scale 1.300



West facade scale 1.300



North facade scale 1.300

COMMENTS

Since indoor climate is a relevant variable in glazed spaces, the incorporation of these applicable notions in the design proposal will be pending for the next stage.

Priority was given to allocating facilities on the southern side of the plot, in order to take advantage of the orientation towards the sun. On this side of the volume, the facade is glazed in the entrance, to enhance the visual connections with external people and the nature found in the public space.

While on the north side, on the other hand, the volumetry is almost entirely open. In this way, this glazed façade allows more natural light to enter, avoiding overtemperatures due to its orientation. This façade, together with the glazed roof and the lateral openings on the East and West sides, allow optimum natural light to enter in the atrium. In addition, the corridors slabs have been perforated in order to improve natural light to enter the apartments and reach lower levels of the building.

The building has geothermal ventilation which contributes to have a passive air preheating system. The atrium is minimally heated during the coldest months of the year to reach a temperature of 10 - 14°C, with the incorporation of radiators. On the other hand, cross ventilation from the outside of the building, through the apartments and towards the atrium, guarantee a passive way of reducing temperatures both in homes and in the atrium. The central glazed space has an automatic window opening system at the top of the ceiling for realising warm air during the summer.

Regarding acoustics, there has been placed acoustic panels above the corridor slabs. The soil together with the abundant vegetation in the ground floor and upper levels contribute to minimize sound waves bounce. Moreover, perforated wooden panels also grants better acoustics in the dwelling.

REFLECTIONS

Through this investigation, it has been stated that the spaces where we live in influences our behavior, mood and health among others...in the end, it affects our daily life. Therefore, the importance of the topic and the architect's role. We, as architects, have the power in each design decision we make, to improve people's quality of life. This thesis referenced existing theories and projects related to glazed social spaces and determined that it is essential for space to actively encourage social interaction in order to create local social capital that encourages social support and improve people's health as well as for promoting collaboration among its inhabitants and the neighborhood.

As stated before, there are two important focuses to take into consideration when designing and analyzing a building, the physical and the social framework. The physical structure (the building itself) has a major relevance since it reflects and supports the desired social structure. In this way, the design decisions made in the building's physical configuration and the spaces it encloses, will directly influence how the space is perceived and used, therefore influencing its inhabitants wellbeing, the contact and will to interact. Hence, it can facilitate, impeded or even make it impossible for establishing contact among people and activities. The role of architects that strive to promote social interaction is to broaden the spectrum of possibilities for contact and activities to happen.

The theory and analysis conducted for this thesis culminated in a set of design guidelines. Although glazed spaces include a larger scope of health and social benefits

in relation to a traditional building, architects can use these guidelines to encourage social interaction in any building typology. Some strategies are applicable to all architectural typologies; it can be more universally applied having in mind the different cultural needs.

For example, in the central part of Argentina where I come from, there are no huge climate challenges related to daylight, temperatures and strong winds as here. Therefore, instead of a glazed space we would have an outdoor garden with in between spaces facing to it. This would work perfectly adjusting the design guidelines to it. On the other hand, in the southern part of my country, where the climate is similar to Scandinavia, this glazed space might be needed. It would be very interesting to test how it can work in different cultures, where social distances, definitions of private and public spaces, behaviours and ways of interacting (among many others) might divergent.

I believe it is a delicate theme and it varies depending on a wide scope of factors such as the culture. For me it was challenging since I come from a different culture. This influences my point of view and the solutions exposed in the design. I am very grateful for the opportunity that Chalmers together with Sweco gave me in order to learn about this interesting topic, the Scandinavian culture and how to take a theoretical approach into the practice through the company's advices.

REFERENCES

REFERENCE LIST

Bernheimer, Lily (2017), *The Shaping of Us : How Everyday Spaces Structure our Lives, Behaviour, and Well-Being*.
Great Britain - Robinson

Boubekri, M., (2008); *Daylighting, Architecture and Health: Building Design Strategies*; [Master's thesis].
https://www.academia.edu/31834934/Daylighting_-_Architecture_and_Health_Building_Design_Strategies

Danielski, Itaj; Krook, Malin and Veimer, Kerstin; *Atrium in Residential Buildings—A Design to Enhance Social Interaction in Urban Areas in Nordic Climates*; In, *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates*; Dennis Johansson, Hans Bagge, Åsa Wahlström; 773-801; Springer; 2018.

Durkheim, E. (1897/1951). *Suicide: A study in sociology*. Translated by J. A. Spaulding & G. Simpson. New York: Free Press.

Gehl, Jan (1987/2011), *Life Between Buildings: Using Public Space*.
Washington - Covelo - London: Island Press, ISBN: 978-1297268271

Gehl, Jan (2010), *Cities for People*
Washington - Covelo - London: Island Press, ISBN: 978-1597265737

Hall, E.T. (1968), "Proxemics (and comments and replies)", *Current Anthropology*, 9 (2/3 April-June) 83-10,84.

Lindqvist, P. G.; Epstein, E.; Nielsen, K.; Landin Olsson, M.; Ingvar, C.; Olsson, H.; *Avoidance of sun exposure as a risk factor for major causes of death: a competing risk analysis of the Melanoma in Southern Sweden cohort*; In: *Journal of Internal Medicine*; 2016
<https://doi.org/10.1111/joim.12496>

Minoura, Eva (2016); *Uncommon Ground: Urban Form and Social Territory*; Doctoral thesis, Stockholm: KTH Royal Institute of Technology, 2016. , p. 383.; ISBN: 978-91-7595-823-1; OAI: oai:DiVA.org:kth-183394

Pretty & Ward (2001) *Social capital and the environment*, *World Development*, 29, pp. 209–227.

Strong, David; *The distinctive benefits of glazing: the social and economic contributions of glazed areas to sustainability in the build environment*; In, *The Energy Performance of Buildings Directive, Maximising energy savings from glazing*; Cazes, Bertrand; 28; *Glass for Europe*; 2019.

White, M. (1977), "Interpersonal Distance as Affected by Room Size, Status, and Sex", *Journal of Social Psychology*, 95, 241-249.

Williams, J.; *Designing Neighbourhoods for Social Interaction: The Case of Cohousing*; In: *Journal of Urban Design*; 2006.

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