Transformation: reimagining Aalborg Women's Crisis Shelter

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Abstract

Over 100.000 women in Denmark are a subject to domestic violence every year (Dansk Kvindesamfunds Krisecentre, n.d.). This creates a major demand for safe and supportive crisis shelters where they can heal from their experiences and receive help to break free from the cycle of abuse that they find themselves in. Even with the importance of these institutions, they are often obliged to turn down women in need due to lack of accommodation space.

This project therefore focuses on the transformation of an old dormitory into a modern women's crisis shelter that contributes to a faster and steady healing process through the work with social sustainability, design tools of healing architecture as well as creating an increased sense of perceived safety. The project is a proposal for a way of preserving much of a larger existing building with different user needs while at the same time de-institutionalizing the typology in order to generate a feeling of hominess. It also proposes that the presence of the institution and the activity from ambulant counseling and workplace facilities for the staff will increase the perceived safety.

Reading guide

This report is developed in connection with the master thesis project in Architecture at Aalborg University. The project consists of a main report and an appendix folder.

The main report presents the theoretical research, analysis, design development, presentation and evaluation. To establish a clear overview, it will not be presented chronologically or in the order of execution.

The appendix folder includes questions and notes from the interview with Aalborg Women's Crisis Shelter, the preliminary and final room program, a bluespot analysis, LCA results as well as copyright consents.

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Project premise and approach

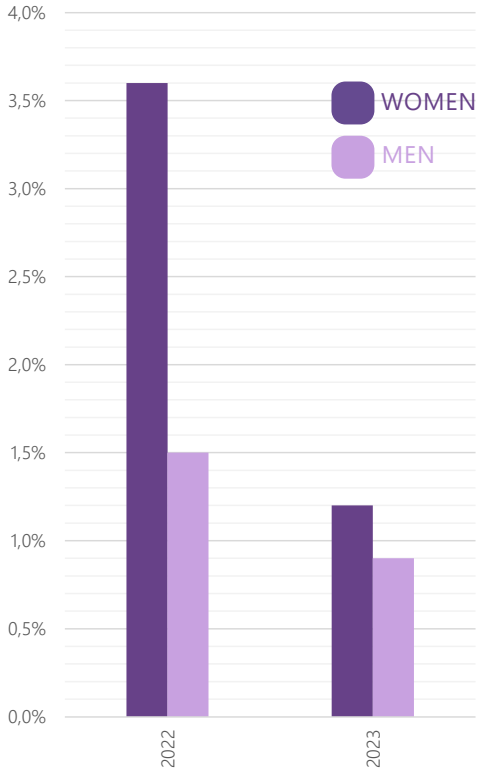
Illu. 1: Picture of the dormitory entrance

Introduction

Each year, thousands of domestic abuse instances occur (Pedersen, 2024). Most often, it's a result of an unequal balance of power, where the abuser tries to gain control over the victim (Danner, n.d.). Sometimes, holidays or festive seasons like Christmas or the summer break can heighten financial pressure and stress levels which may cause the abuser to lose control, using violence as a way to gain it back. (Mødrehjælpen, 2024) Other factors that might contribute to the likelihood of domestic abuse are cultural and social background, a history of abuse in one's upbringing, infidelity, alcohol or traditional gender roles (Ottosen & Østergaard, 2022; Pedersen & Balvig, 2024).

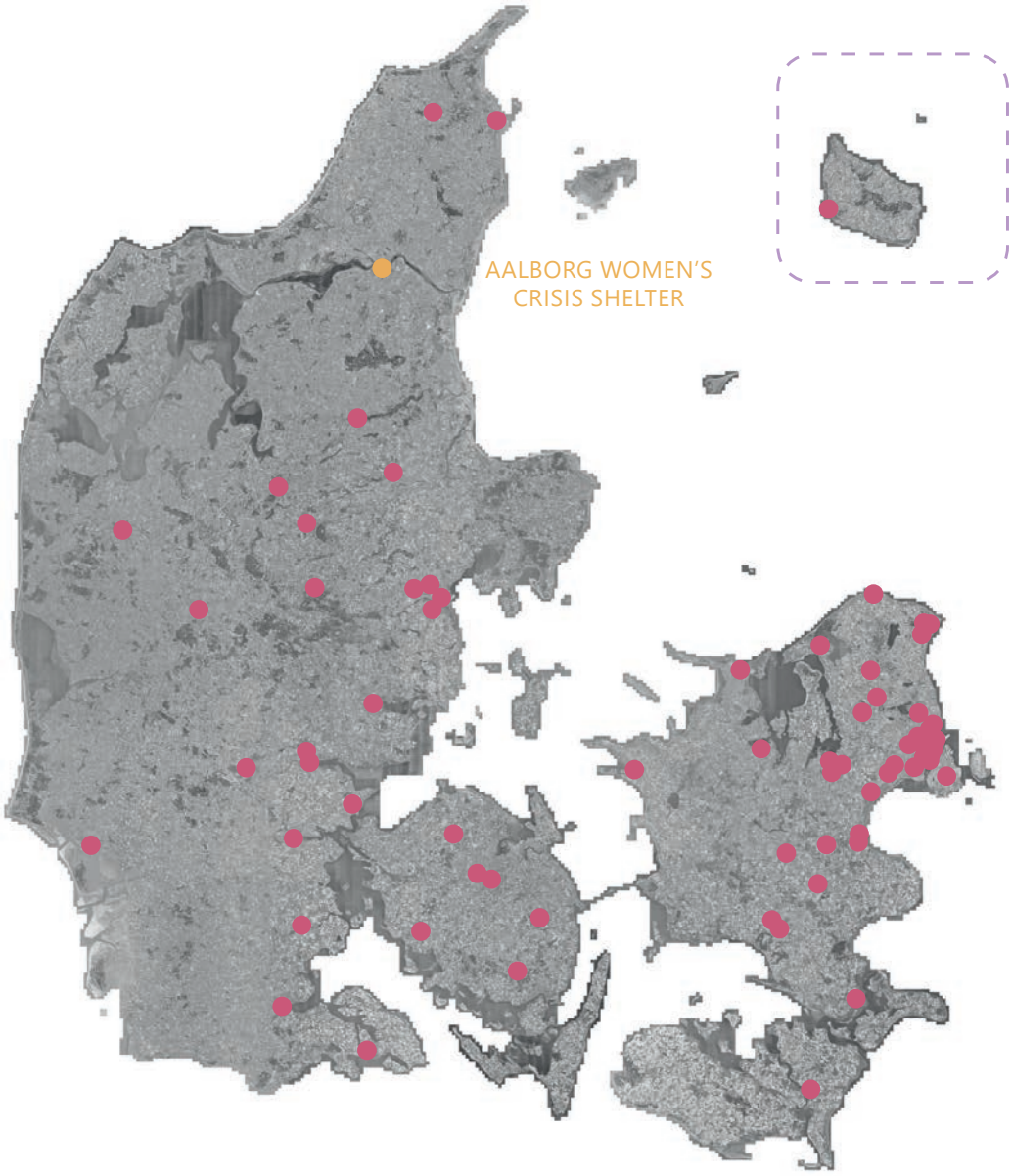
The predominant view of domestic abuse is that women are the victims and men the perpetrators. However, the recent victim survey for 2023 conducted by the Ministry of Justice, Danish National Police and the Crime Preventive Council reveals that when looking at violence in a broader sense, the number of male and female victims of domestic abuse is nearly equal which can be seen on illustration 2 (Pedersen, 2024: Ottosen & Østergaard, 2022).

Overall, psychological abuse is the most prevalent, whereas material, economical and digital violence as well as stalking occur less frequently. However, when looking at cases of more severe violence, women are more frequently the victims, just like studies conducted in 2022 indicate that, regardless of the type of violence examined, women remain significantly more exposed to domestic abuse than men. This also results in physical violence being the second most frequent type of abuse against women, just like they much more often experience sexual violence. (Ottosen & Østergaard, 2022; Ottosen et al, 2022; Social- og Boligstyrelsen, 2023).



Illu. 2: Bar chart showing the difference in domestic violence against women and men.

The discrepancy in the survey results, as is shown on illustration 2, can partly be attributed to differences in respondents and research questions (Pedersen & Balvig, 2024; Ottosen et al, 2022). Additionally, some cases may remain unreported as it can be difficult for the battered person to report the abuser and sacrifice much of what they have – a home, family, or sporadic happy moments. Men are also often less likely to report abuse or be taken seriously by the police. (Ottosen et al, 2022; Seidelin, 2022)



Motivation

Despite the unreported numbers and contradictory survey results, it is deemed that there is a great need for more women's crisis shelters in Denmark. With over 80 shelters across the country (see illustration 3), many women are still turned down or directed to other shelters far away from their former home due to lack of space (Lev uden vold, n.d.; Bjørn, 2024). Furthermore, the shelters are often located in old single-family houses not fit for the needed functions or providing a healing environment, and only few have overcome the trauma when moving out, by which post-care support are in demand as well (Oldrup et al, 2018) (Appendix 1).

This report will therefore focus on the design of a crisis shelter for battered women in Aalborg. Through the exploration of the typology, the aim is to offer a safe refuge where women and their children can regain strength and confidence in themselves to start a new and better life. To delimit the project, the focus will primarily be on establishing a comfortable environment for the women.

Additionally, the project will evolve around the transformation of an old dormitory building and the possibilities and challenges this may bring. Today, the building sector accounts for 30% of the carbon footprint in Denmark, which indicates the need for implementing more environmentally sustainable solutions to mitigate climate change (Realdania, 2023) Many older buildings offer great architectural value or contains solid structures and materials for reusing, even after many years of use or abandonment, for which reason transformation is seen as an engaging way to reduce the climate impact when having to design Aalborg's new women's crisis shelter.

Illu. 3: Map showing crisis shelters in Denmark.

Methodology

An essential part in the architectural design process is being able to continuously go back and forth between different phases concurrently with discovering new challenges, gaining new knowledge and developing new ideas. Integrating both architectural and engineering qualities is especially important when reusing an older building as aspects such as the current preservation value and general condition affect the new interventions.

Throughout the education of Architecture, the Integrated Design Process (IDP) has been taught as the main methodology, and though it sets the stage for a non-linear process, it's often depicted as a strict set of separate and simple phases arranged on a line (Knudstrup, 2005). However, the multidisciplinary process is much more complicated, and the methodology for this project is therefore based on the IDP but visualized as a multi-layer process and adapted to that of transforming an existing building (see illustration 4). The sketching phase has therefore been renamed design development as sketching is more of a method used throughout the project rather than a phase.

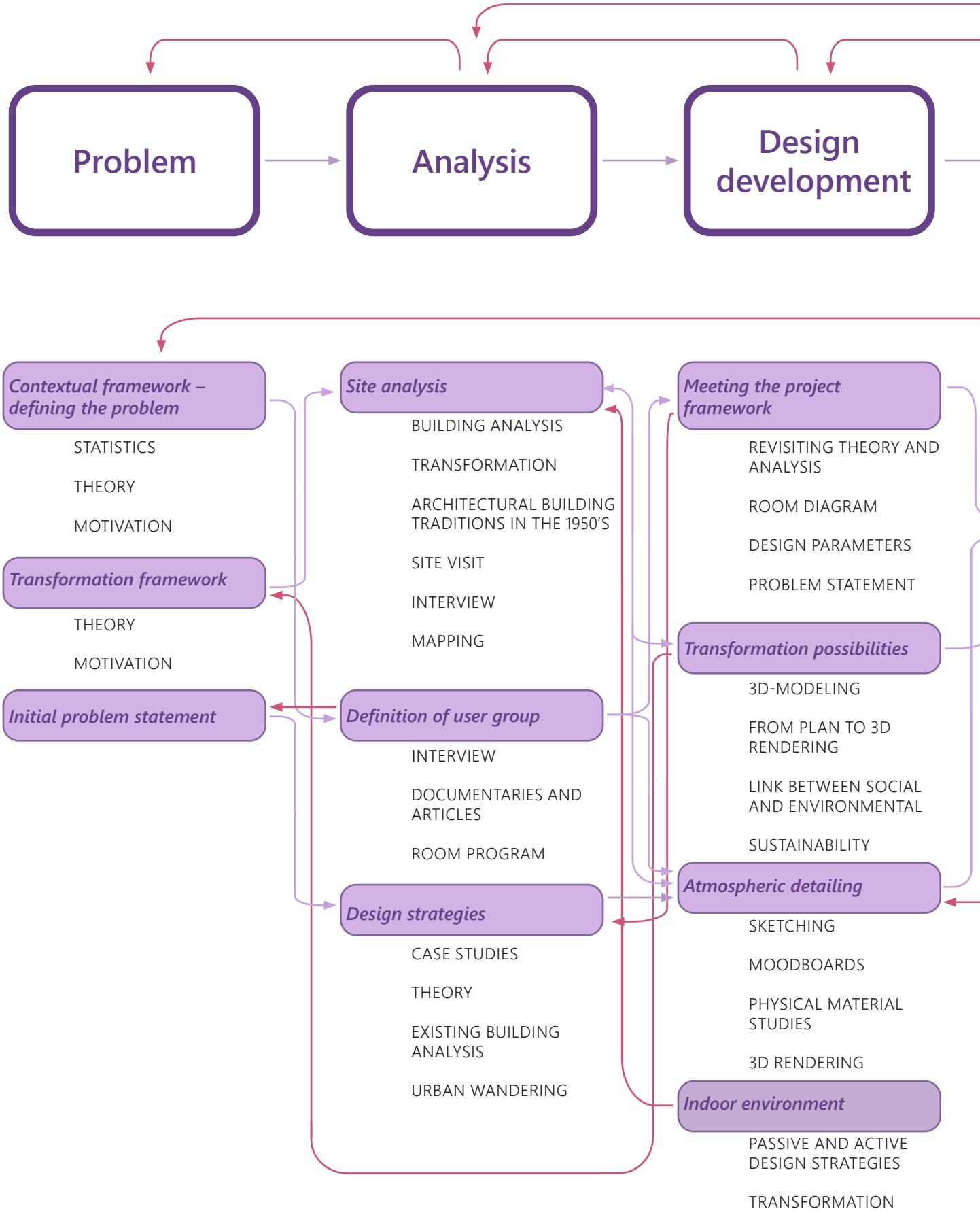
Problem: the framework for the project, the motivation and the problem to be solved is established by researching theory and gaining knowledge about thematics. This phase is revisited concurrent with the development of analysis and design proposals as new perspectives are gained.

Analysis: knowledge is gathered about the site and user group to further understand the scope of the project. In a transformation project, part of understanding the site is also understanding the existing building and its capabilities. An interview with the user group clarifies hypothesises and leads to design proposals as well as new topics and existing buildings to be researched.

Design development: a common understanding of the demands and wishes for the project is defined to further specify the problem while also opening up for new design strategies. At the same time, continuous results from the problem and analysis phase are included in design proposals through sketching, 3D modelling, rendering as well as physical material studies and additional analyses of the existing building.

Synthesis: the common thread for the project is established with regards to the contextual framework while increasing the focus on environmental sustainability. The phase ensures that everything from the previous phases is being combined and investigated further.

Presentation: is the final phase of the project where everything from the initial to the final design proposal is documented and described. This happens through visualizations, diagrams and technical drawings combined in this report detailing both the outcome but also the process of getting there and the documentation behind.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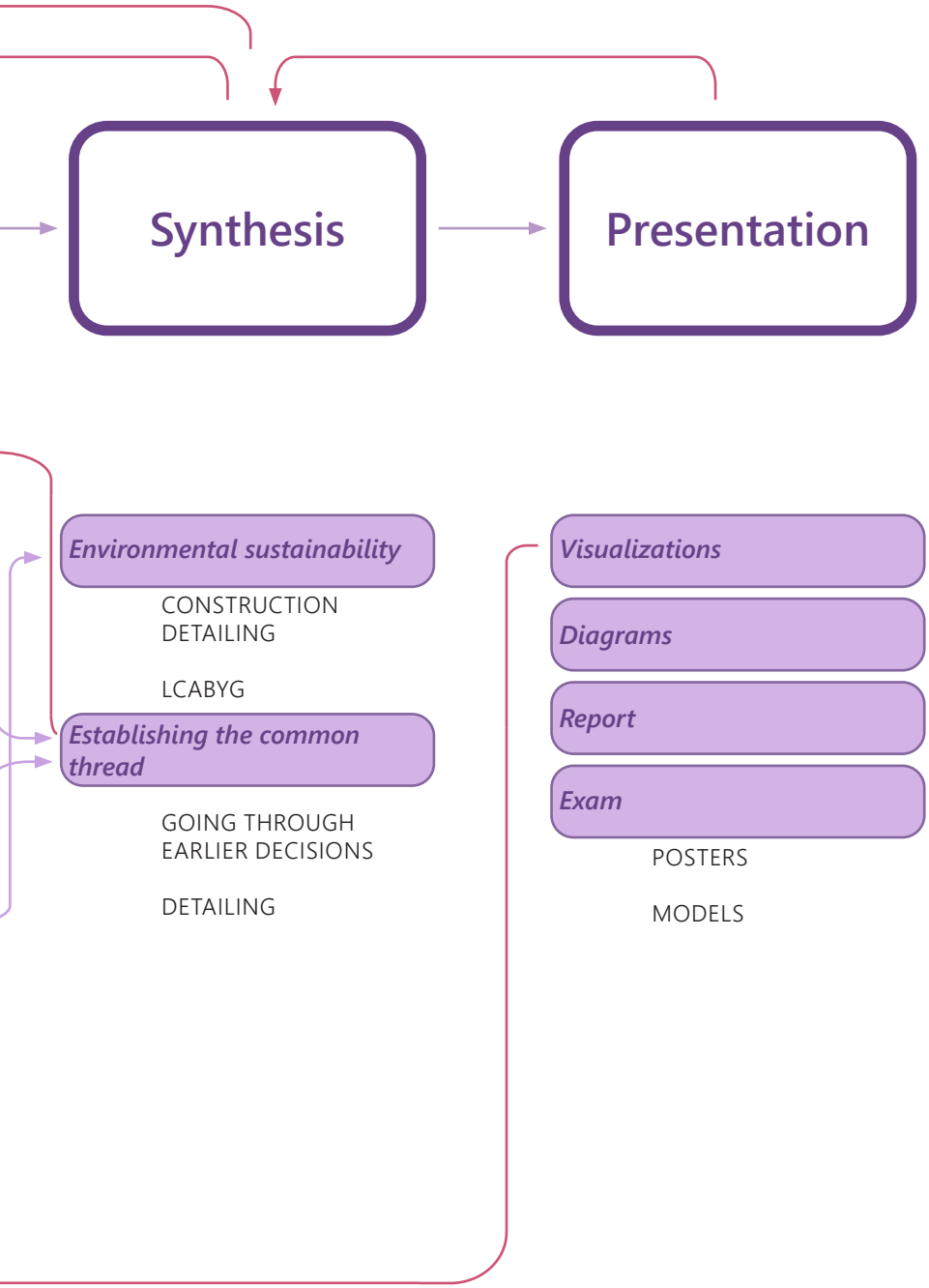


Illu. 4: The methodology of the project based on the IDP.

Creating healing environments: a theoretical perspective

Illu. 5: Picture of the garden at the dormitory.

Defining the typology

A crisis shelter for abused women is a secure, voluntary and temporary residence for women who have been subjected to abuse or threats of violence by a close relation such as a partner or family member. Abuse can, among other things, be both physical, psychological, economical or digital, and surveys show that most women at the crisis shelters have experienced multiple types before arriving. (Kvindekrisecentrene, n.d.; Krisecenter for kvinder, n.d.; Social- og Boligstyrelsen, 2023)

The purpose of the shelters is to support the women and possibly their children by offering a breathing space and safe refuge in addition to counseling and legal aid to prepare them for a new life without violence. They are typically attended day and night by volunteers or by staff with social work education. (ibid.)

In addition to the shelters, women in crisis can also seek help from ambulant offers in case they don't want or need to move out of their current home. Here, they can receive counseling and support, either as an isolated instance or for a longer period of time. (Social- og Boligstyrelsen, 2023)

Having the possibility to stay at a shelter is not just a convenient offer but stated as a right in the social service law, section 109. The shelters are primarily non-profit organisations funded by the government, municipality and donations, for which reason they work in close collaboration with local municipalities. (Krisecenter for kvinder, n.d.; Social- og Boligstyrelsen, 2023; Pedersen, 2023).

A stay at a women's shelter or a visit to the ambulant counseling rarely fully eliminate the emotional distress, the women feel as a consequence of the abuse. It can be difficult to move into a new home alone or with children, and some may still feel lonely or isolated after receiving help. For that reason, many women's shelters and ambulant offers also provide post-care support to ease rehabilitation. (Socialstyrelsen, 2022; Oldrup et al, 2018)

Common to all offers are therefore that the women receive help understanding the violent relationship, contacting authorities, establishing a social network in a new local community, as well as organizing and prioritizing aspects in their life to regain independence and belief in themselves (ibid). Moreover, research show that they have a positive impact on reducing and preventing relapse into abusive relationships and that the majority of the women break with the violent relation before or when contacting a crisis shelter (Social- og Boligstyrelsen, 2023; Rambøll, 2015). Establishing well-functioning crisis shelters and counseling offers throughout the country is therefore important to make help accessible and breaking with violence more encouraging.

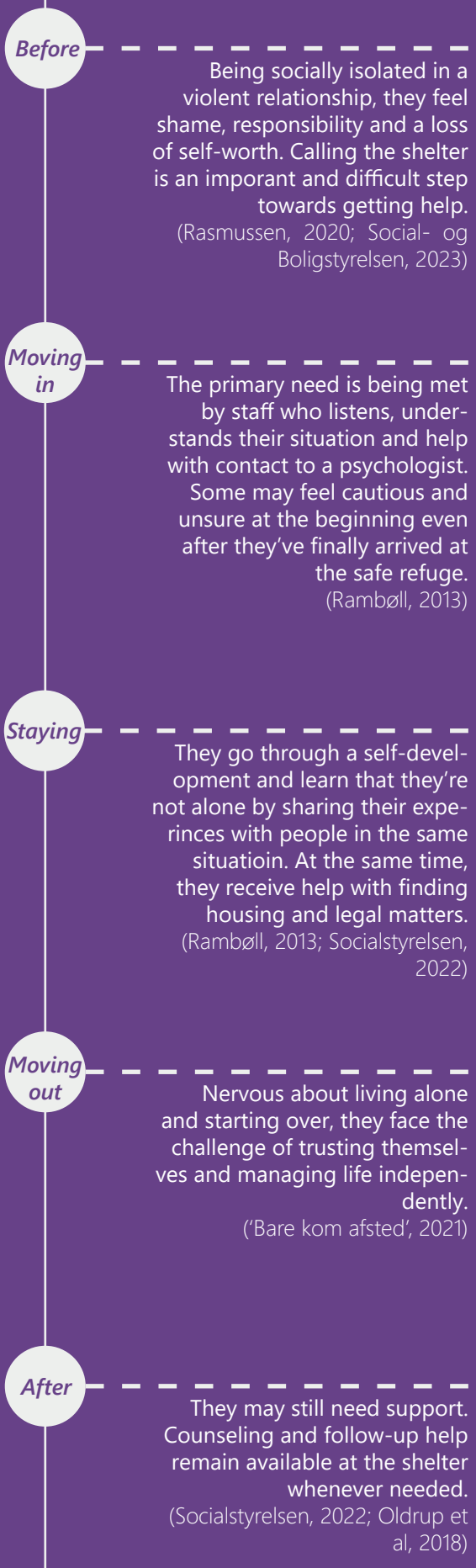
The effects of abuse

In order to develop a well-functioning crisis shelter throughout this project, it's important to survey the emotional state of the women during their stay, from being caught in the spiral of abuse to moving out again (see illustration 6).

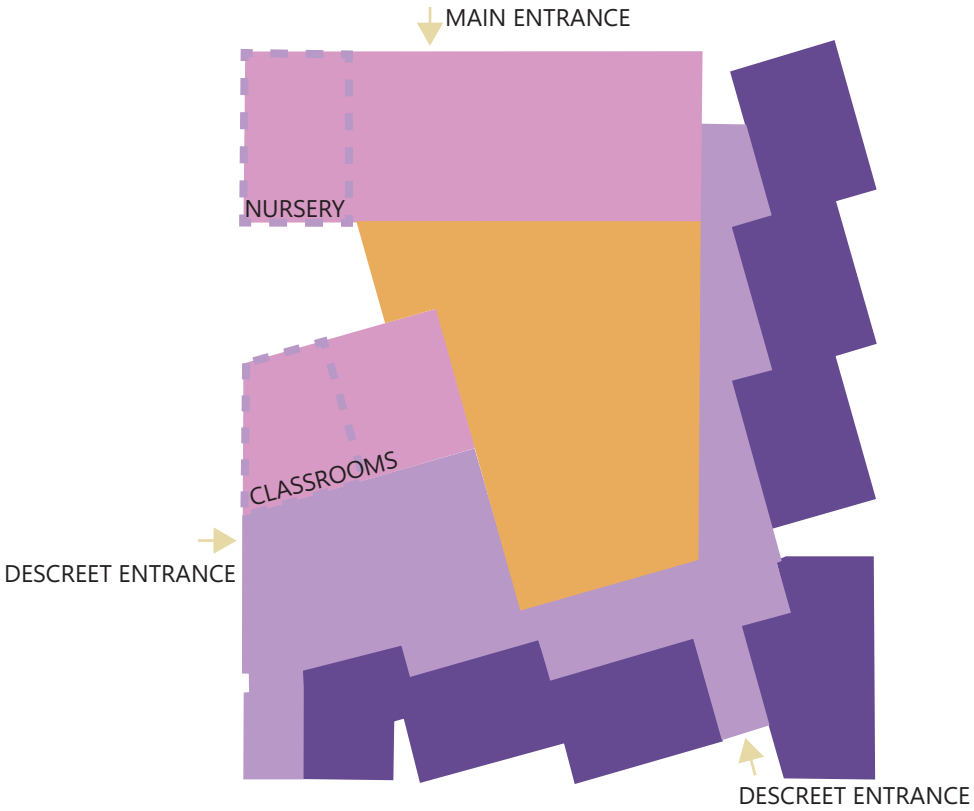
Admitting or realizing that one is a victim of domestic abuse is rarely straightforward. Abuse is almost never a single event but typically escalates over years, often beginning with occasional psychological manipulation in an otherwise seemingly loving relationship. Over time, it can evolve into other types of abuse, become normalized and part of every day life. (Rasmussen, 2020; Social- og Boligstyrelsen, 2023)

Some women also lose the ability to care for themselves and their children, which makes the desire to give their children a better life one of their main motivations for seeking help (Socialstyrelsen, 2022; 'Det starter med makeuppen', 2023).

Having lived in a constant state of fear, unpredictability, and loss of control, alternating between violence and reassurance, the women are at increased risk of developing PTSD, depression, or anxiety (LOKK, n.d.; 'Bare kom afsted', 2021). Consequently, many have not experienced a normal daily life for a long time, making every day routines at the shelter essential for regaining stability and preparing for the future (Socialstyrelsen, 2022).



Illu. 6: Timeline describing the different needs of the shelter's residents throughout the course of their progress.



Case study: Shelter for Victims of Domestic Violence

Architect: Amos Goldreich Architecture and Jacobs Yaniv Architects
Building year: 2018
Location: Tel Aviv-Yafo, Israel

Gaining knowledge from existing women's crisis shelters helps define the typology and create an overview of design possibilities.

The crisis shelter in Israel was developed in collaboration with the staff who work there (González, 2018). Upon arrival, women enter through the main entrance, which leads them through the administrative area, creating a sense of arriving at a place where they are cared for (see illustration 7). From this entrance, they have a view of the central courtyard and the activity they'll be part of after moving in. This area is the only part of the shelter that spans two floors, reinforcing a sense of protection while maintaining a human, home-like scale in the residential areas.

After settling in, women can use more discreet entrances that lead directly to the common areas, offering a homier arrival by bypassing the institutional functions.

The architects focused on supporting normal everyday routines through the layout, placing the nursery and playground as an extension of the nearly separate administrative wing, with classrooms and counseling rooms nearby. This encourages movement through the courtyard via a roofed, widened 'street', mimicking everyday activities like school drop-offs or counseling visits. Each woman also has her own small 'house' with private bedrooms and bathrooms (González, 2018). Unlike the bedrooms, shared spaces like the dining hall and offices have visual access to the courtyard, emphasizing the privacy of the living quarters and the option for solitude.

The building is arranged around a circular flow that offers multiple paths to different functions. Before reaching the private rooms, residents pass both intimate seating areas and larger communal spaces like the courtyard, dining room, and TV area, making it easy to engage with others either intentionally or spontaneously. The main hallway, which runs alongside the courtyard and is visually connected via large windows, acts as an indoor extension of the outdoor space, encouraging it to be seen as a gathering area rather than just a corridor. Thus, circulation throughout the building helps activate the common areas.

When designing a women's crisis shelter in this project, it's important to consider both the atmosphere upon arrival and the residential experience shaped by zoning and functional connections.

Illu. 7: The distribution of functions in Shelter for Victims of Domestic Violence.

Navigating society as a woman

Her role throughout history

Violence against women isn't a new phenomenon. Until the 1970's, it was often considered a natural part of family life in Denmark, as men were viewed as biologically more aggressive, while women were labelled as hysterical and sometimes even consented to the violence due to societal norms. Domestic violence was rarely recognized as actual violence, but rather as domestic disputes based on assessments by the police, leading to the lack of intervention and accountability. (Seidelin, 2022)

Gender can be seen as a cultural and fluid concept shaped by societal ideals, norms and behavioural expectations. Both historically and now, it impacts how society and the police perceive the severity of violence. This has led to debates about whether women should be viewed as victims or seen as passive agents who choose not to resist violence, speak out and seek help. Nevertheless, American studies indicate that many women at the time sought help from philanthropic organizations in an attempt to improve their lives, and in Denmark, many applied for separation from their husbands due to violence – however, often without any results on account of structural inequality. (ibid.)

Yet, with the increased rise of the Women's Rights Movement in Denmark during 1970, a larger focus was brought on men and their abusive tendencies. Where alcohol abuse was earlier seen as the blame, the violence was now linked to societal inequality and seen as a means for men to maintain control and authority over women. (ibid.) As a result, the slogan "the private is political" was used up through the 70's, and women houses, only accessible for women, were established and served as meeting places as well as centers for crisis counseling for female victims of domestic abuse. (Larsen, 2009; Larsen, 2013; LOKK, 2012)

In 1978, Denmark got its first women's crisis shelter in Ringsted to first and foremost create a safe space for battered women. Subsequently, in 1979 about 300 women squatted the Danner House in Copenhagen and later transformed it into a women's shelter as well. It became a symbol of what women can accomplish when standing together and inspired different groups of women to establish more local shelters around the country. (Oldrup et al, 2018; LOKK, 2012; Bertelsen & Sørensen, 2020)

Today, women's role in Danish society is still discussed, and with the wave of #MeToo came an increased focus on the repression of women, sexual violation and breaking with the culture of silence (Dahlerup & Borchorst, 2024).

Building on the research presented in this report, it becomes clear that societal norms have significantly influenced how women are perceived, and that a women's crisis shelter alone cannot address the root cause – that some men are abusive. Instead, the focus must be on alleviating the consequences of abuse and providing a space where women can begin to rebuild their sense of self-worth and confidence.

Etsablishing safety

One of the most important things when designing a women's crisis shelter is ensuring that the women are physically safe from their abusers.

As much of society is designed by men, most research, systems, products and environments have used the white male body as the human default. An example of this is Le Corbusier developing The Modular; a 183 cm man that he based the dimensions of his designs upon and that was later used as the standard when designing both architecture and industrial products. (Perez, 2019; ETHZürich, n.d.)

This tendency has led to the fact that, not only is the data from research not compliant with all of humans, but especially not women, resulting in them sometimes receiving the wrong medical treatment, having a 73% greater risk of injury in frontal car crashes, and experiencing challenges with bulletproof vests, kitchen counters, smartphones and the standard indoor temperature. Additionally, the urban environment and public transportation have long been adjusted to the needs of the "working man," assuming simple, twice-daily commutes. In contrast, women often travel with multiple stops for caregiving and errands, increasing their exposure to danger. (Perez, 2019; McFee, 2024; Barry, 2019; Kern, 2019)

Some of these things 'just' make life more inconvenient for women, but a lot of them, and many others, are a direct liability and physical safety concern. This puts women in vulnerable situations that are not only because of their gender and the target that creates, but because of their biological sex and evolutional development (Kern, 2019).

On top of this, battered women have to deal with the physical safety from abuse. To ensure this, many shelters in Denmark use fencing, surveillance cameras, night watching staff, and hand out personal attack alarms in case residents are going out (Kvindekrisecentrene, n.d.).

However, being physically safe is not the same as feeling safe, and aspects such as great lighting, clear unobstructed sightlines and the proximity of people can reduce the sense of fear - though they can't physically protect a person in danger – as hiding places and unpredictable harm can be avoided (Kern, 2019).

Perceived safety is therefore more difficult to define and design for. It is affected by art, rumours and media but also an individual's former experience, imagination, desires and fears. Studies show that women often perceive cities, nighttime, and strangers as primary threats, likely due to frequent experiences with catcalling and harassment in public. This perception persists despite evidence that most violence against women occurs in private spaces such as a home or workplace, committed by people they know. Media focus on stranger violence further reinforces this fear while downplaying domestic abuse, making it harder to report. (ibid.)

For this reason, men and women perceive the safety of spaces differently. Even though men do recognize some places as unsafe, for example a dark road or a closed space, crowded places are generally more feared by women due to the risk of harassment and the difficulty of escaping. Conversely, being alone, especially at night, can also feel unsafe as no one is around to help in case of danger.

This mistrust has sparked online debates, with many women stating they'd rather encounter a bear than a man alone in the woods, seeing the bear as more predictable and the worst thing it can do is kill you (Murray, 2024). Such fear limits women's freedom, making them avoid walking alone at night, speaking out and participate in enjoyable events. Many are hyperaware and mentally map safe and unsafe areas based on perceived danger and time of day, even though real risks often lie in private settings. (Kern, 2019)

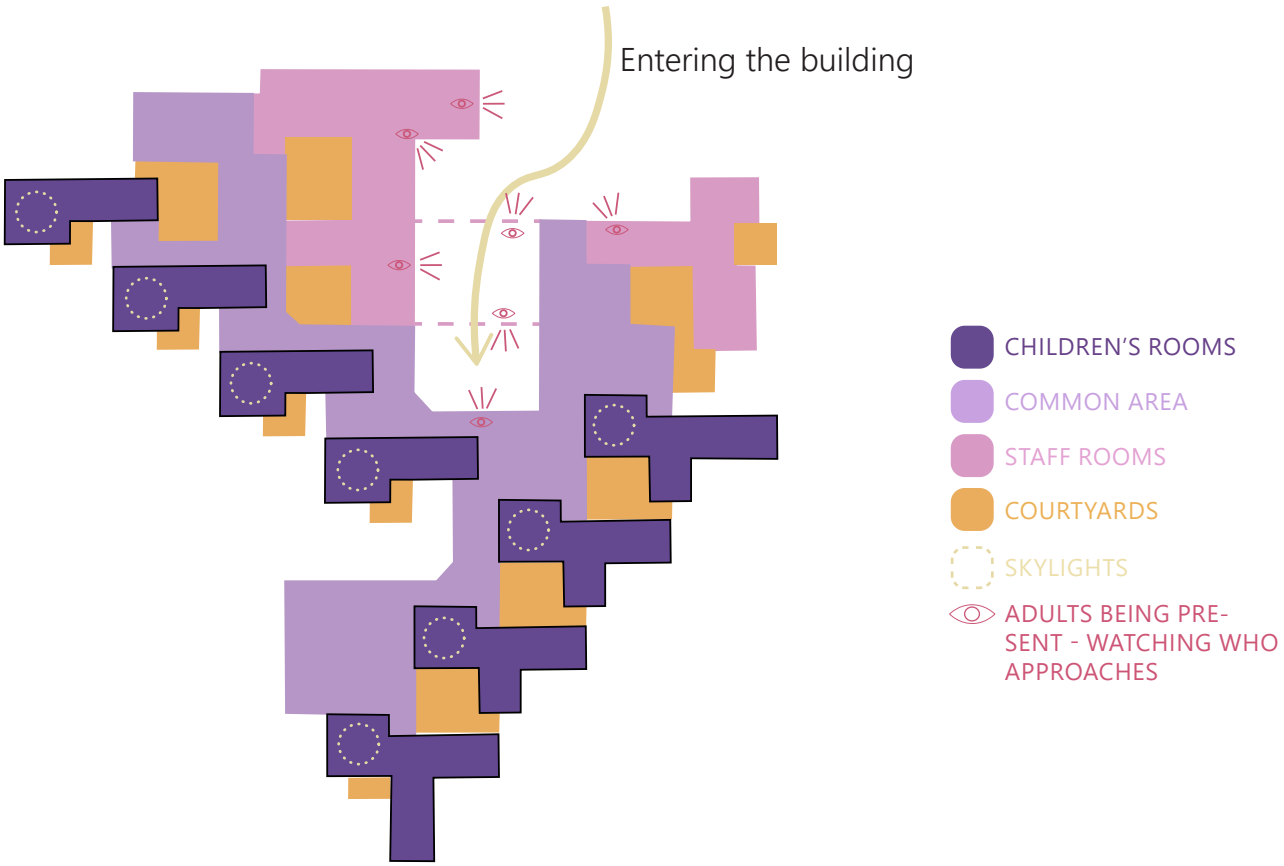
In the new women's crisis shelter in Aalborg, it'll therefore be essential to create a clear distinction between the non-daily users receiving ambulant counseling or post-care support and the daily users who stay at the shelter. Given that the women often arrive in a highly vulnerable state, perceived safety becomes just as important as physical protection, making finding the line between privacy and crowded places very important to secure a supportive environment.

Throughout this report, the two types of safety will therefore be defined as:

Physical safety: the actual protection from injury, danger or harm

Perceived safety: an individual's personal sense or feeling of being safe, regardless of actual danger.

Illu. 8: Cities, nighttime and strangers are often perceived as unsafe for women.



Case study: Amsterdam Orphanage

Architect: Aldo Van Eyck
Building year: 1960
Location: Amsterdam, the Nederlands

The Amsterdam municipal orphanage was designed as a home for 125 children of all ages and based on the concept of 'a house as a city, and a city as a house'. Organized along a diagonal grid, with smaller courtyards located in the negative spaces (see illustration 9). Upon arrival, visitors enter a courtyard by walking underneath a 'bridge' housing part of the staff rooms whereas the rest are located on the ground floor surrounding the entrance. Hereby, they're entering through the eyes of the adults which results in a feeling of oversight, enhancing the children's sense of safety. (Amsterdam Orphanage, 2020)

The main interior hallway, considered the building's public space, overlooks the courtyard and resembles a city street, The children's residential units give associations to individual houses with adjoining courtyards, creating smaller, familiar zones for groups of few people which promote a sense of belonging. (ibid.)

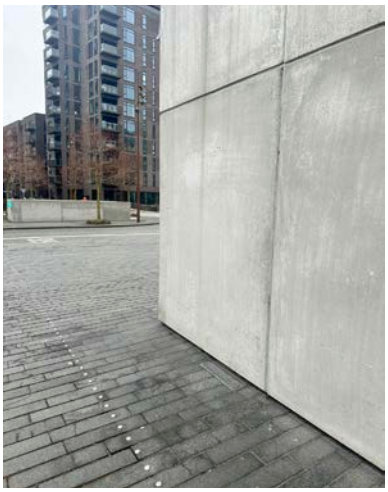
Through these layered spaces, the orphanage balances freedom and protection and allow for exploration of larger and smaller spaces, inside and outside. The skylights located around the entire building, and especially in the children's play-areas, help with the perceived safety in the building by letting in light while offering privacy. (ibid)

Illu. 9: The distribution of functions in Amsterdam Orphanage.

Corners

As a study of perceived safety in relation to building volumes, a study of different corners around Aalborg city centre was conducted. Walking around a corner can decrease the sense of safety, as the line of site is obstructed and the perceiver can't see who or what is on the other side.

For women who have already experienced trauma or suffer from PTSD, this can be even more frightening. When looking at the different types at illustration 10, it's clear that the differences in shape or amounts of glass affect the sense of perspective and flow which can be used to establish the spatial clarity inside the shelter as well.



Type 1: the corner a typical example of a 90-degree corner with no way of knowing who is on the other side.

Type 2: the balcony ensures a clear sightline of people approaching, though it's still a 90-degree corner

Type 3: here, the corner is cut off, making it possible to see more of what is going on around the corner.

Type 4: the corner is cut off as well, but the column creates distance, so you are able to see the other person before getting too close.

Type 5: the rounded shape creates a fluent flow around the building while still maintaining a clearer line of site compared to a 90-degree corner.

Type 6: is again a 90-degree angle but with windows, allowing people to see who is on the other side.

Illu. 10: Pictures of different corners taken around Aalborg.

De-institutionalisation

Healing architecture

Due to the women's vulnerable mental state upon arrival at the crisis shelter, it is explored how spaces and atmospheres may help improve their mental health to shorten their stay and better prepare them for life afterwards. Finding the balance between feeling at home at the institution that is the shelter and feeling protected by it is therefore crucial to establish a comfortable environment.

For that reason, design strategies from the term healing architecture are used as guidelines to de-institutionalize the shelter and make it feel more home-like. De-institutionalization aims to reduce the sterile or clinical feel often found in public care settings, replacing it with a sense of warmth and normality. (Shepley & Pasha, 2017)

It can be difficult to give an exact definition of what healing architecture is as no individual perceives a building the same way. However, most often it is described as physical surroundings that affect a person's well-being and thereby the healing process of both mental and physical illness. Architecture alone cannot cure illnesses, and it would be wrong to claim that a specific room can guarantee an accelerated healing process, but certain design choices in combination with actual treatment will enhance the chance of a faster recovery. (Frandsen et al, 2009; Simonsen & Højlund, 2018)

Some of the main variables in the healing process are the level of stress and anxiety that a person feels. It affects the mood and the feeling of calmness and comfortability which makes it difficult to focus on something positive and getting better. (Frandsen et al, 2009; Region Hovedstaden, 2010; Shepley & Pasha, 2017; Falk et al, 2016; Wagenaar et al, 2018)

In the context of this project, healing refers to rebuilding confidence, emotional strength and readiness to regain independence. Though healing architecture is often spoken of related to hospital design, its strong focus makes it highly relevant to the design of a crisis shelter as well (Frandsen et al, 2009; Simonsen & Højlund, 2018) The most prominent design strategies used in healing architecture are described below.

Hominess

To ease the stress and anxiety that residents may feel when leaving their old home and moving into an unfamiliar place, it is important to create an atmosphere of comfort and familiarity. A home is not just a physical space but is a place of choice and control where one sleeps, eats, plays, stores belongings and gathers with others. The feeling of hominess is therefore not tied to a specific aesthetic, especially not if the resident has negative emotions related to a former style or building typology. Instead, it can also be described as a safe and private place that grants shelter, access to nature, operable lighting, reduced noise, personal living space to conduct activities as well as soft and noninstitutional materials and furniture. (Shepley & Pasha, 2017)

In order for the residents of the women's shelter to gain a feeling of control, the power imbalance between them and the staff should be minimized through the building's layout and programming but also by making sure that social and private spaces encourage them to form trustful connections (ibid.)

When navigating a place, signage is often used. Graphical signs offer quick recognition while text is more precise, but both contribute to an institutional feel (Frandsen et al, 2009. A way to de-institutionalize a larger building and add a sense of hominess is, apart from having an intuitive layout, to use distinct architectural differences such as in the materiality to find one's way around. This will also help differentiate the personal spaces or rooms of the residents so that they create a stronger sense of ownership. (colour.education, 2021 a)

Social interaction

By participating in social interaction, the residents experience a lifestyle more similar to everyday life in the outside world. The building should allow for both one-on-one interaction and larger assemblies, and the social interaction does not only need to happen in common rooms but can also take place in hallways or at corners. (Shepley & Pasha, 2017; Frandsen et al, 2009)

Research in hospitals has shown that patients who form connections and share their experience with someone undergoing similar treatment will experience less anxiety, fear, nervousness and stress, leading to a shorter care trajectory (Koivula et al, 2002; Frandsen et al, 2009). Despite the women at the shelter not suffering from physical illness, the shared experiences and great conversations with others can help elevate the impression of their stay at the shelter (Falk et al, 2016).

However, social interaction can also result in a person feeling frustrated and stressed if the room is overcrowded as this will result in sometimes unwanted interactions and thereby decrease both the actual and perceived control and privacy of the environment. (Kumar & Ng, 2001)

Personal space

A personal space is a place for privacy and control of social interaction. It can either be a room, or a retired spot in a bigger space, where the occupier can be alone, or feel comfortable enough to share confidential information with staff or other residents. Most importantly, it creates a space for retiring, and having furniture that allows the occupier to decorate the space with their own belongings will make it easier to feel emotional attachment and ownership of the area. (Shepley & Pasha, 2017; Frandsen et al, 2009)

Spatial clarity and zoning

Being able to predict and find one's way around unknown physical surroundings have a great influence on the sense of comfort and stress but also affects the efficiency of prospective staff. Prioritizing an effective and transparent layout of the building that makes it easy to distinguish between private and public zones is therefore important to maintain personal and social space. Additionally, clearly indicating a room's intended use, creating different tactile and visual experiences by using various materials, and using lighting to help define spaces can decrease a person's stress level when navigating an unfamiliar space with multiple people (Kumar & NG, 2001; Shepley & Pasha, 2017; Frandsen et al, 2009).

Positive distraction

Distractions such as art, music, sports and recreational activities can help move focus from negative memories and the current situation, and onto more positive experiences through stimulation of senses and mental diversion. Art can be many things such as paintings, pictures of nature, colours on walls and ceilings, or architectural details. (Shepley & Pasha, 2017; Frandsen et al, 2009)

Light can also be used to create interesting details and experiences throughout the building by transferring colours from artwork in which case light may be seen as a material of the building (colour.education, 2021 b).

Nature

One of the major contributors said to reduce stress and anxiety is visual and physical contact with nature. Compared to looking at an urban environment, studies show that it contributes to a better mood and an increased feeling of relaxedness and calmness. Furthermore, it can minimize the feeling of being enclosed and offer a haven of different smells and impressions within the busy city. Nature can also be used as a space for social interaction or personal space which will help associate the building with a home or house. (Frandsen et al, 2009; colour.education, 2021 c; Shepley & Pasha, 2019)

In addition to greenery and garden, natural light has been proven to have a positive impact on symptoms of depression as it helps maintain a circadian rhythm which contributes to the feeling of normal everyday life. However, it may have the opposite effect as well if a person is exposed to glare or overheating and thermal discomfort. (Frandsen et al, 2009; Shepley & Pasha, 2019)

Sound

Sound can have both healing and aggravating effects on people trying to overcome mental of physical traumas. Noise often results in a higher level of stress, sleep disturbance and a decrease in the feeling of choice and control, so ensuring great acoustics, a strategic layout, and managing the number of people in a room is important. However, as mentioned above, sound can also be used as a positive distraction and to moderate stress through calming music or sounds. (Frandsen et al., 2009)

Case studies

To gain further knowledge about specific parts of a building that may become a challenge when designing a crisis shelter as well as explore projects where design strategies from healing architecture play a role, the following case studies were conducted.

Centre for Cancer and Health

Architect: NORD Architects
Building year: 2020
Location: Copenhagen, Denmark

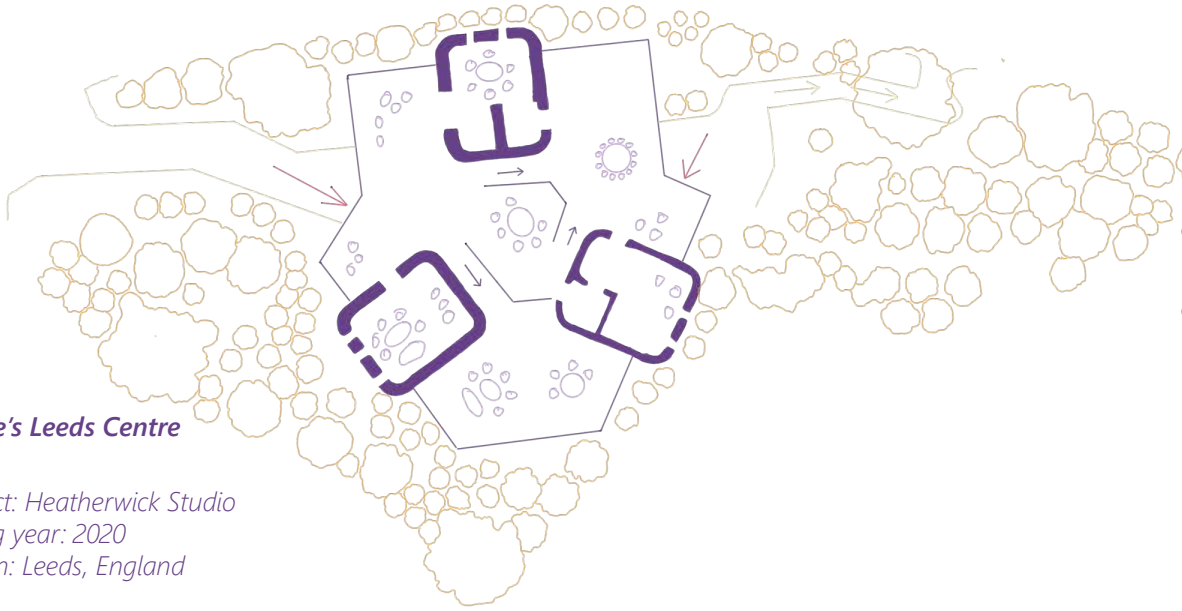
The Centre for Cancer and Health is an offer to patients, relatives and bereaved affected by cancer who can come in for counseling and other activities such as fitness, lectures and cooking classes (Center for Kræft og Sundhed, n.d. a; Center for Kræft og Sundhed, n.d. b).

The building runs parallel to a wide and trafficked road, and with a large tile-covered area for bike parking in front, it appears institutionalized and cold. The entrance is almost hidden as it's pushed far into the facade (see illustration 11) and only marked by tiled pavement as well as part of the facade being covered in wood and pushed a little in too. This adds a small amount of privacy together with the quite closed-off facade and small windows. However, it may also make it difficult to predict what's coming around the corner when stepping outside.

When entering the building, you go through a weather porch before arriving at the welcoming area. Here, you'll find a small kitchenette, dining table, seating area and access to the courtyard as the purpose is to offer a warm, active and welcoming atmosphere that differs from that of a hospital (colour.education, 2021 a). You're also met with a look up to the first floor which results in a tall and well-lit room that at the same time breaks with the human scale and creates a monstrous, and not so homely space and feeling. This is also partly due to the whiteness and hardness of the materials. To the left of the entrance, a long hallway leads way into different offices and meeting rooms.

All in all, the entrance area associations to an institutional building.

Illu. 11: Sketch of the entrance of the Centre for Cancer and Health.



Maggie's Leeds Centre

Architect: Heatherwick Studio
Building year: 2020
Location: Leeds, England

Illu. 12: The room layout of the Maggie's Leeds Centre.

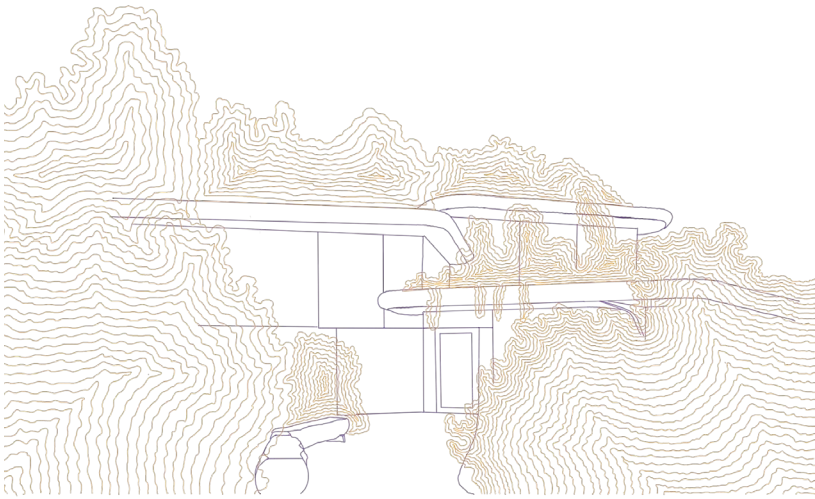
Placed on the campus of St James's University Hospital in Leeds, England, the Maggie's Centre works as a refuge from the sterile and white environment of the hospital for cancer patients. Here, they can gather with family or meet people in a similar situation. (Heatherwick, n.d.; Maggie's, 2024; Pintos, 2021)

The entrances are pushed back from the road and almost hidden by greenery enveloping the whole building (see illustration 13), making it less likely for people to enter without having an errand. This adds a kind of anonymity and the feeling of a safe haven to the place despite it being located in the middle of the city.

The main entrance is reached from a trafficked road and intersection which emphasizes that it's a semi-public building, whereas another much narrower path with a staircase leads to a second entrance (see illustration 12). From the first, main one, you arrive in a larger, open space on the first floor where you get an overview of the building and the different choices you can make; going to the ground or first floor via the staircases or the elevator, or sitting down in one of the many different niches. However, from the second entrance, you enter the smaller kitchen and quiet seating area on the second floor, making it a much more private and almost a house-like way of coming into the building.

Despite the large windows and glass doors, and the large floor-to-ceiling height which open up the building and contributes to an institutional feeling, the wooden material of the structural columns as well as the distance between and transversal shelfs on them help maintain a human scale and warmth in the building.

Illu. 13: Sketch of the entrance of the Maggie's Leeds Centre.



Maggie's Cardiff Centre

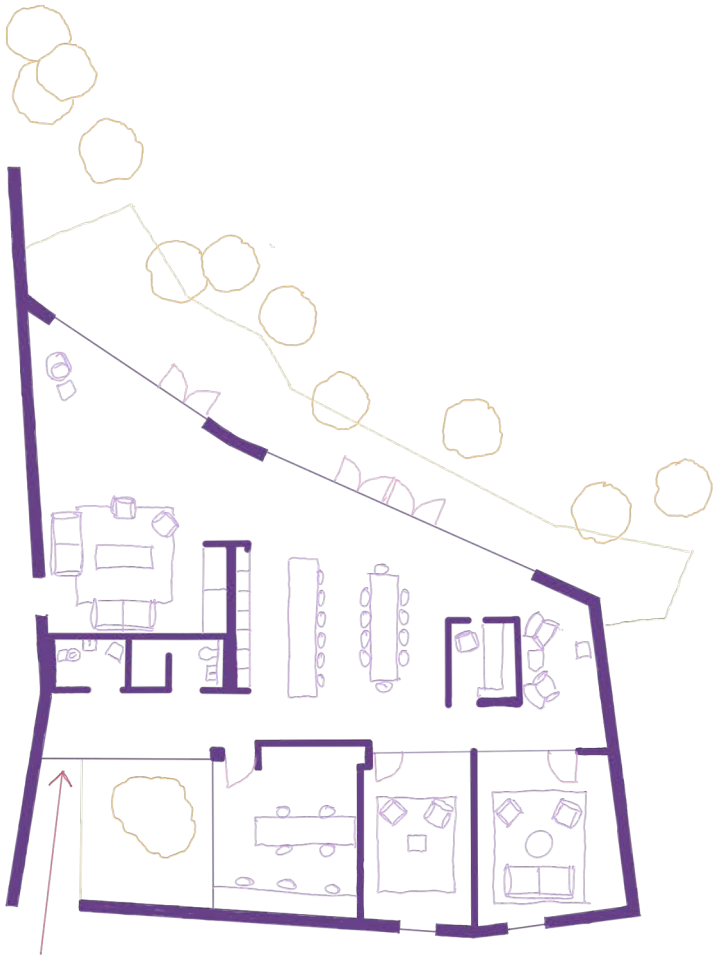
Architect: Dow Jones Architects
Building year: 2019
Location: Cardiff, England

Just like the former Maggie's centre, this cancer centre in Cardiff has the purpose of bringing people affected by the illness together (dline, n.d.).

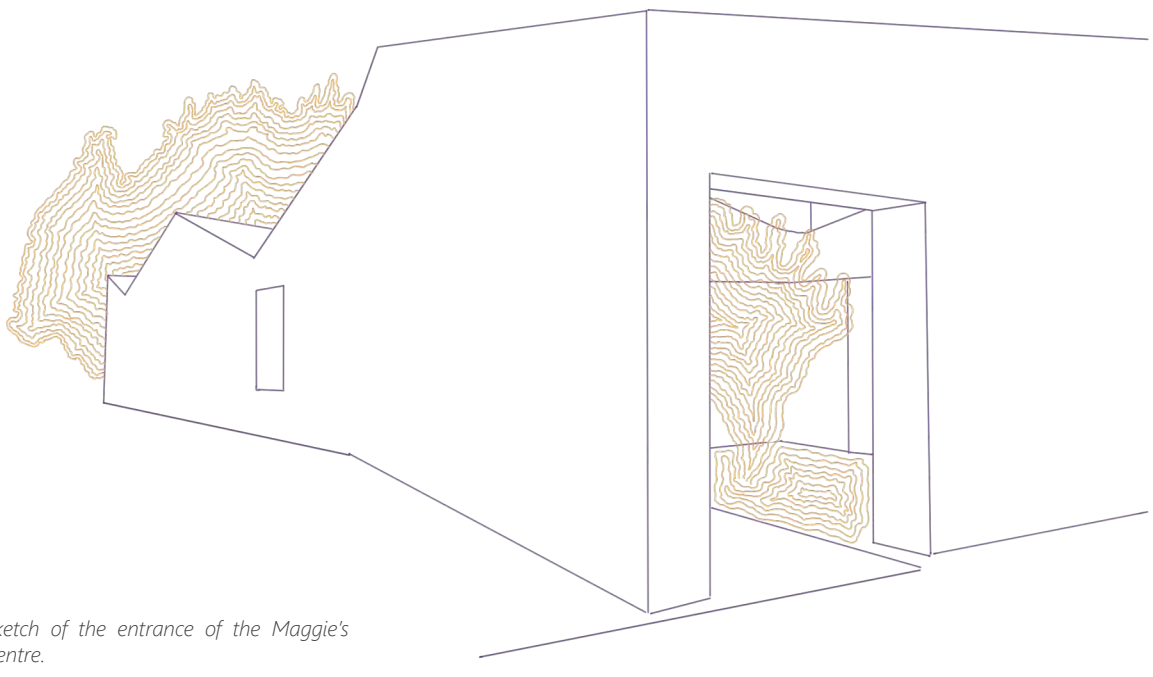
When arriving at Maggie's centre in Cardiff, England, you enter through a gate in the cladding that extends from the building's facade and encloses a small courtyard (see illustration 15). This creates a distance from the front door to the public road outside and, together with the human scale of the building, brings about the feeling of walking through a front yard similar to a single-family house, or entering a safe haven with quiet and piece. Large windows allow you to already get a sense of the atmosphere and the small entrance inside.

After having entered the building, you are met by a layout close to a single-family house (see illustration 14) with entry to bathrooms, an office, and a direct glimpse of the kitchen-dining area ahead.

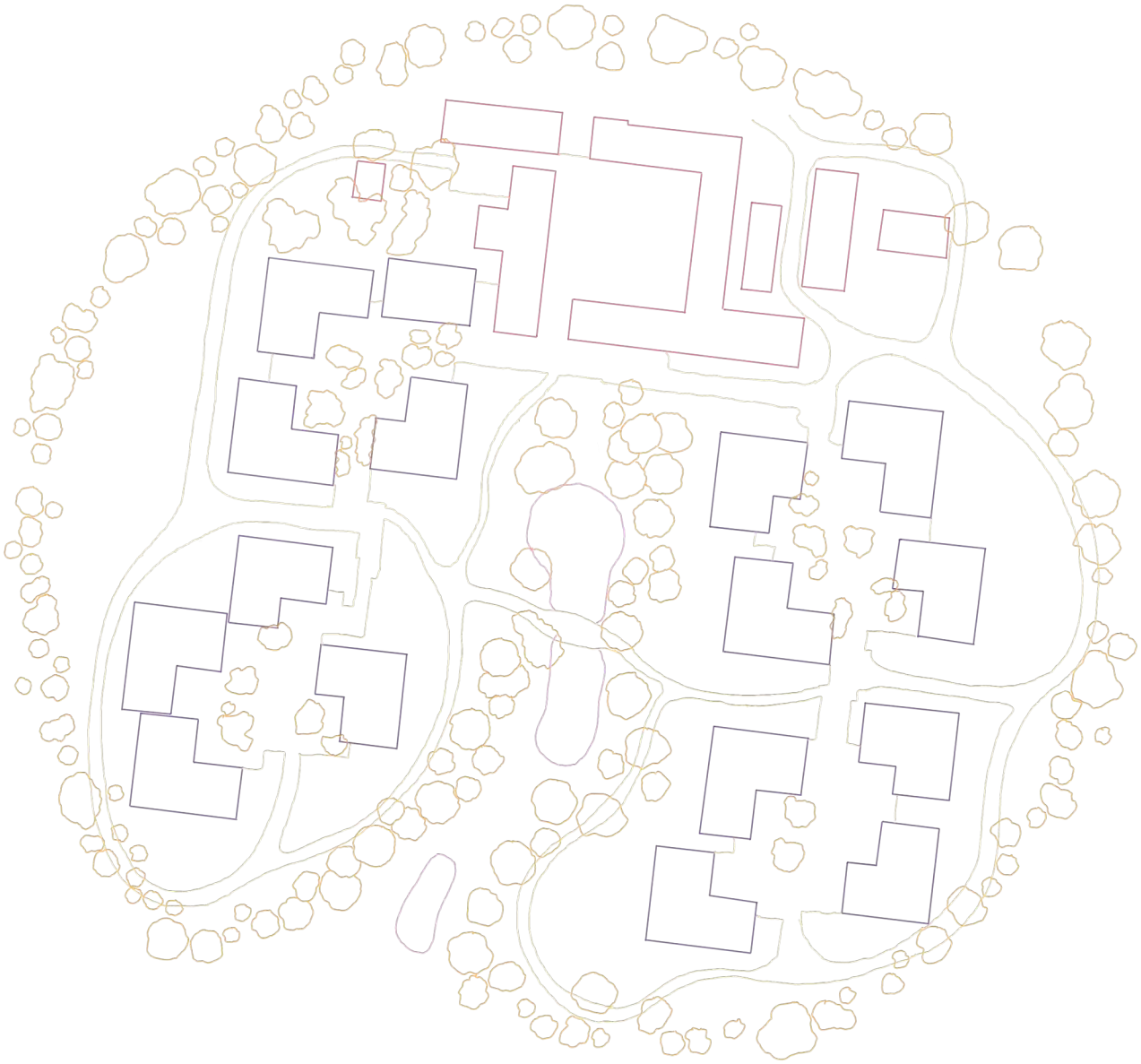
Due to the warm choice of materials such as the corten steel facade and the wood of internal walls and furniture, as well as the small and manageable scale and overview of the spaces, the building feels both homelike and safe.



Illu. 14: The room layout the Maggie's Cardiff Centre.



Illu. 15: Sketch of the entrance of the Maggie's Cardiff Centre.



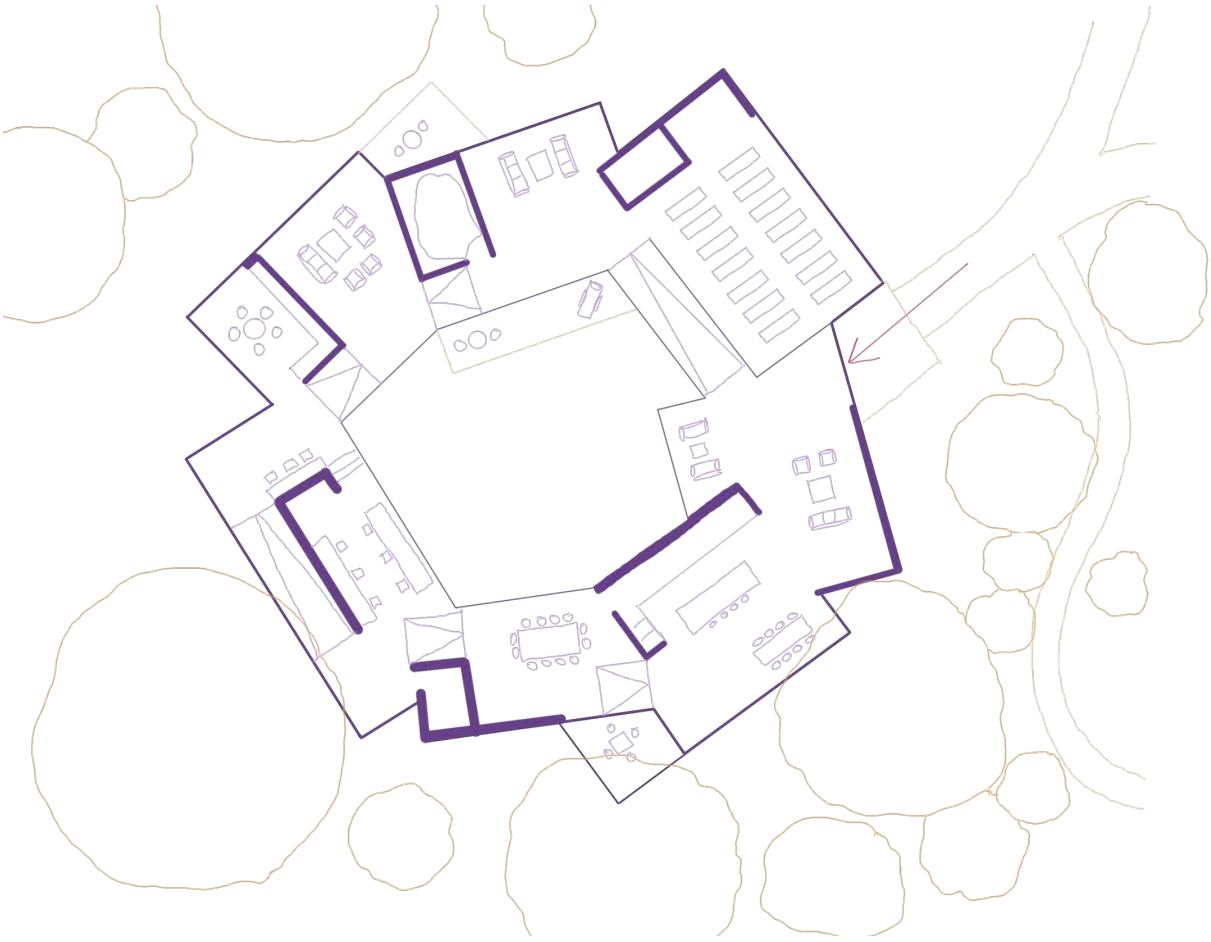
Alzheimer's Village

Architect: NORD Architects
Building year: 2020
Location: Dax, France

The Alzheimer's Village is a nursing home designed with a focus on breaking with the traditional, compact building volume. The aim has been to create an environment where the residents can live a normal everyday life for as long as possible before their illness progresses too much. (colour. education, 2021 a)

As a result, the development is divided into different zones with various levels of privacy. The residents live in small houses arranged in clusters (see illustration 16) where they each have their own bedroom but share a living room, dining area and kitchen. This means that they can slowly move from the privacy of their personal space to the semi-private common areas and smaller communal activities inside the house. If they want to join larger gatherings or meet with people from other houses, they can move into the semi-public courtyard in the centre of the clusters that form a communal area with pergolas, seating areas and nursery beds for social activities and relaxing. A system of walking paths connects the clusters to the public functions such as a library, grocery store and beauty parlour arranged around a plaza.

Illu. 16: The layout of the Alzheimer's Village in Dax.



Illu. 17: The room layout the Maggie's Gartnavel Centre.

Maggie's Gartnavel Centre

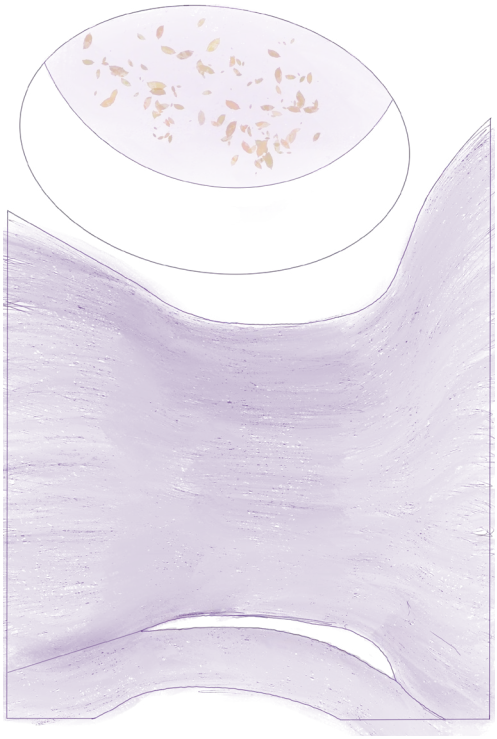
Architect: OMA
Building year: 2020
Location: Gartnavel, Scotland

Maggie's centre in Cartnaval, Scotland is an example of a circulation, where the hallway winds around open rooms that are alternately placed along the exterior and interior of a circle (see illustration 17). The building is surrounded by nature, partly hiding it from the outside, despite it being located in the city. Additionally, a plant-filled courtyard ensures that, almost no matter where you are in the building, you'll have a view of something green.

In the hallway, ramps follow the topography, while the winding path insists on a slow walk, creating a sense of discovering and wandering through the landscape to enjoy different views (Wagenaar et al, 2018). Open 'rooms' or L-shaped spaces allow for free and fluid circulation with few barriers, multiple walking paths, and constant glimpses of the different gatherings of people to join or just observe. This creates an in-between zone where you can sit alone without feeling lonely due to always being able to see people.

As a special retreat, a curved, softly shaped wooden room is located in the northern part of the building (see illustration 18). Offering only a view of the sky through a round window in the ceiling, it invites the user to drop by during their walk along the hallway and settle down for an almost sensory experience as well as a moment of rest and contemplation.

The many breaks in the hallways invite spontaneous encounters, and the various rotations of the L-shaped rooms help define their invisible boundaries. However, sliding doors make it possible to close off the counseling rooms and gain more privacy



Illu. 18: Sketch of the sensory room in Maggie's Gartnavel Centre.

Skejby Psychiatry

Architect: Arkitema
Building year: 2019
Location: Aarhus, Denmark

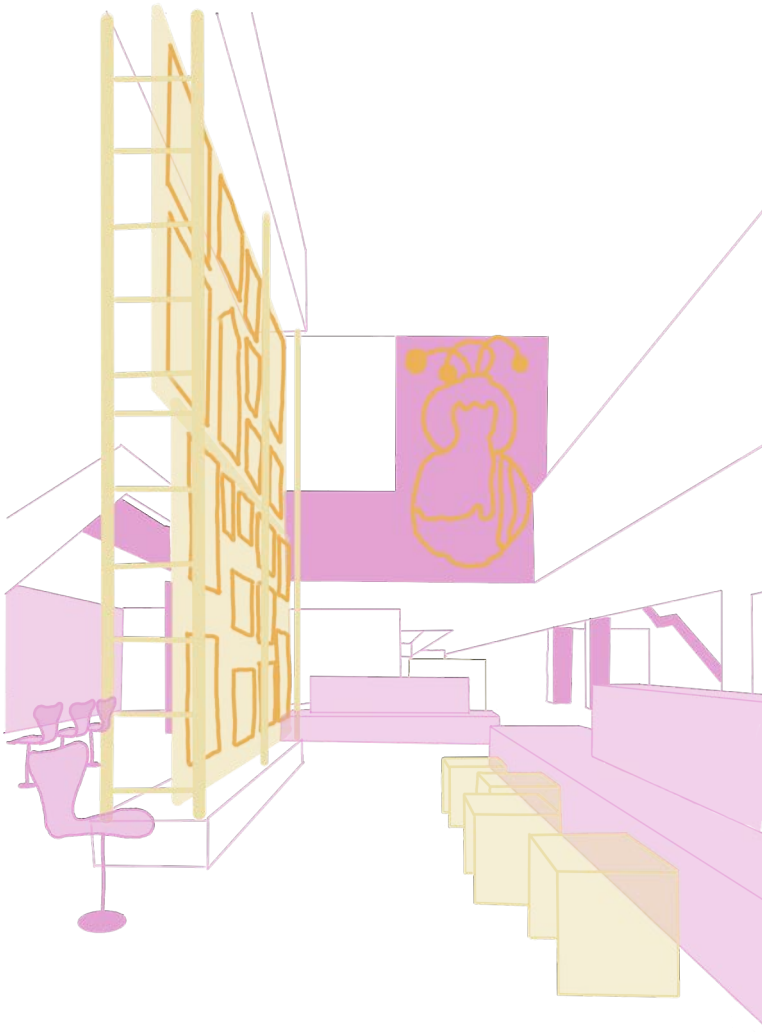
Skejby Psychiatry was built as an extension of the new super hospital and is based on the structure of a small city with streets, squares and a hierarchy in neighbourhoods. Another important focus has been to use art and colours to generate a cozy, calm, secure, and homey atmosphere, where you almost forget that you are at a hospital. The purpose is to see it as part of the healing process. (Arkitema, n.d.)

As a result, the colour pink dominates the waiting area (see illustration 19), unique furniture has been designed, and different art pieces attract one's attention. Huge room dividers made of wood and concrete split the room into smaller sections, making it more intimate, and numerous paintings of different sizes that make up gallery walls nearly resembling that of a home adorn it.

However, the room is also characterized by bombastic concrete columns, hard linoleum floors, double ceiling height, smooth, wide and tall concrete walls, and harsh, straight lines and corners. One wall is covered by bricks in grey nuances which adds a small amount of warmth and tactility but at the same time appears heavy due to the many large window openings. Though the sofas are made out of striped fabric which are in contrast with the hard materials, they still bear the mark of sharp edges and having been designed for a large number of people on the basis of both size and placement along the busy hallway. Other areas of the room are used for more traditional waiting area furniture where identical chairs are placed opposite each other in rows, giving a strong feeling of being at an institution.

All of this makes it seem like it was attempted to de-institutionalize a very institutional building by adding colours, art and soft materials as a mask after having built the building, and not using the architecture as a de-institutionalizing tool. Everything is on a non-human scale that may make a person feel small and overwhelmed by being surrounded by the numerous people the room is designed for, and thereby not using the art as a positive distraction from the vulnerable situation they're in.

Furthermore, an interview with a former patient illuminates that sensitive people may feel attacked by all the different sensory experiences (Kronborg & Lichscheidt, 2018).



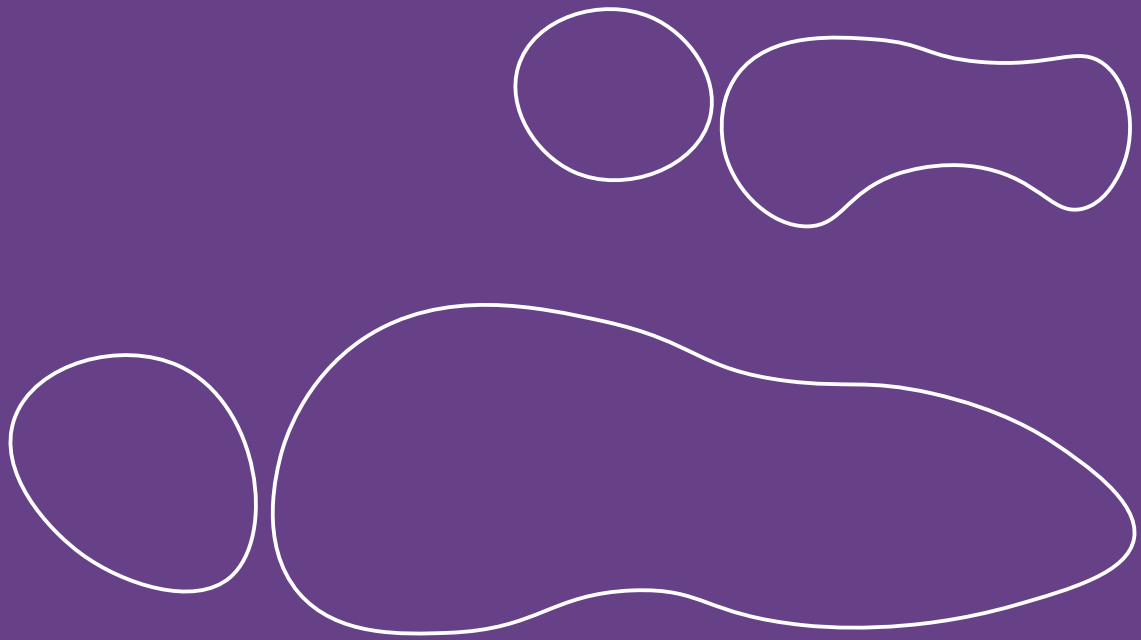
Illu. 19: Sketch of the pink waiting area at Skejby Psykiatri.

Sub-conclusion

When designing a women's crisis shelter, incorporating strategies of healing architecture and de-institutionalization together with principles for establishing perceived safety can create a more supportive environment. De-institutionalisation, with its focus on using healing architecture to ensure an atmosphere of normalcy and hominess as a way of accelerating the healing process, helps reduce anxiety and stress, laying a foundation for emotional recovery. At the same time, increasing perceived safety will contribute to the healing environment by granting the residents peace to focus on recovering.

It is important to recognize that some principles influence both concepts. De-institutionalizing the spaces by designing for spatial clarity with unobstructed sightlines and zoning that avoids overcrowding can increase perceived safety as well, as the residents are able to notice people from afar or escape if danger is approaching. Likewise, some principles may challenge each other, as the visible presence of staff and 'the institution' will enhance perceived safety but can reduce the feeling of hominess if not incorporated correctly into the spatial layout of the building.

This layered approach, balancing the emotional comfort of a home-like environment with the perceived sense of safety, will create spaces where women and their children can begin to heal and regain confidence.



Analytical foundations

Illu. 20: Picture of the hallway in the dormitory.

Design framework

To establish the starting point and setting the guidelines for the design of the crisis shelter, a suitable site was needed, both in location and in its potential to support the needs of the residents. Aalborg was chosen due to the current shelter's insufficient capacity, often forcing it to turn people away, for which reason the new site needed to contain a larger building yet avoid feeling institutional. Additionally, it needed to be located centrally and be easily accessible to both people from in and outside the city, while still maintaining some anonymity. With regard to the building itself, it should offer layered spatial qualities to ensure physical and perceived safety, as well as functional flexibility and the potential for a private garden.

These criteria led to the selection of 4. Maj Kollegiet – a 1950s building with solid materials and good spatial potentials, but in need of renovation to meet modern standards and the needs of its future residents.

THE SITE

EXISTING CRISIS SHELTER

INSTITUTIONS

CULTURAL ACTIVITIES

THE CITY CENTER

GREEN AREAS

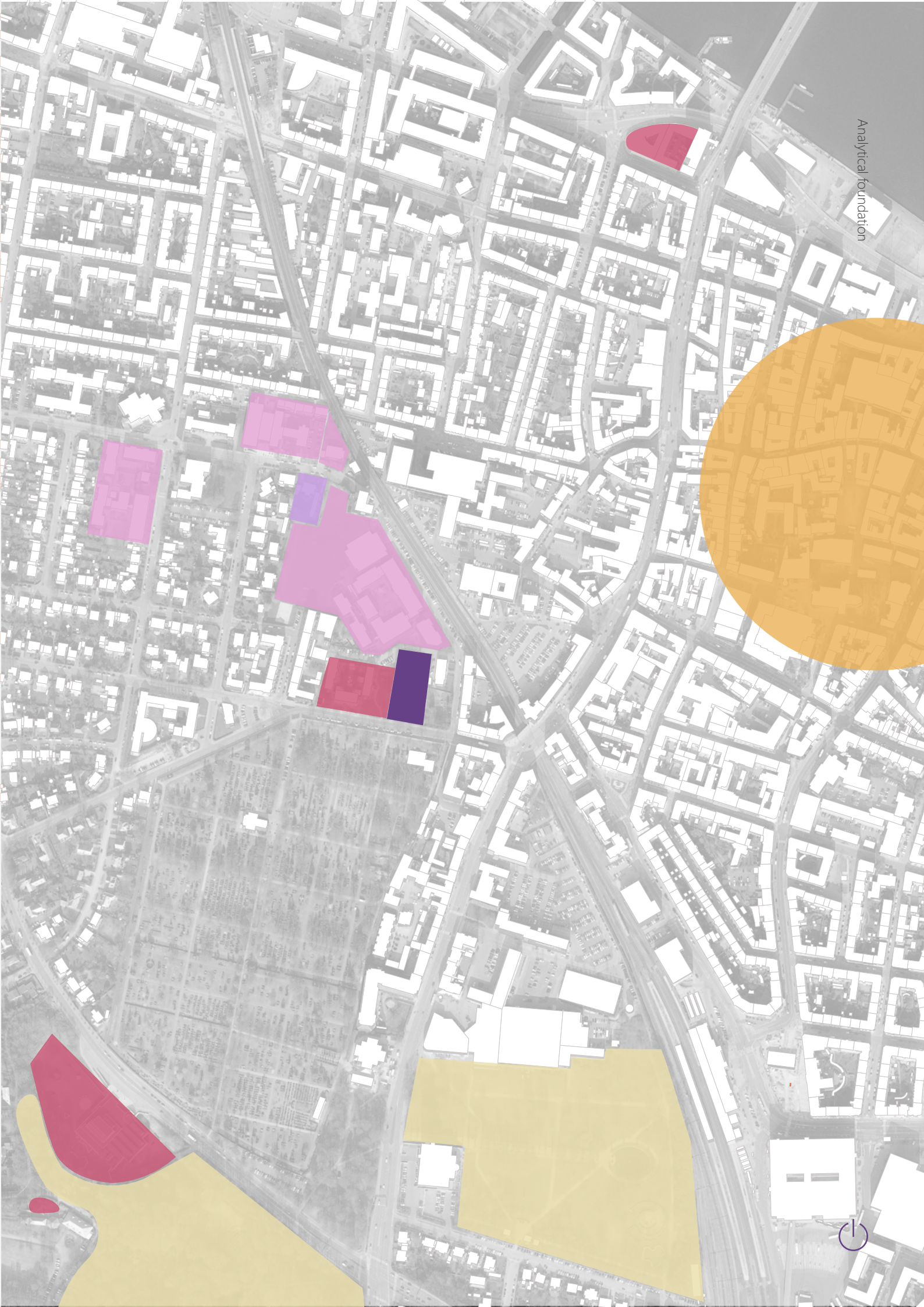
Functions

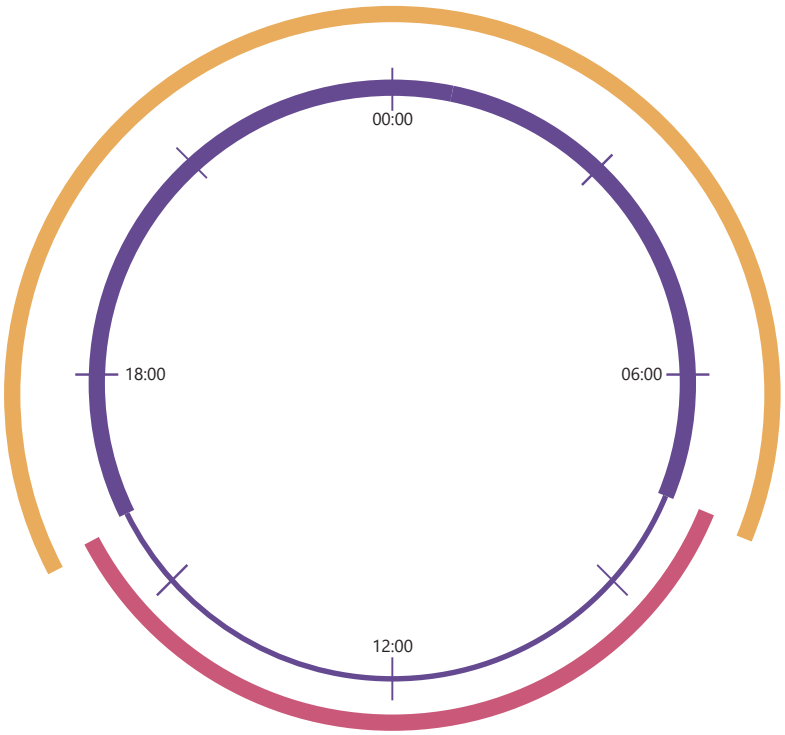
When choosing the building, the functions surrounding the site was investigated as they are key factors in ensuring that the crisis shelter will meet all needs.

The new site is located close to the current shelter as the area contains both cultural attractions, parks, childcare institutions and schools (see illustration 21). This makes everyday life easier for women arriving with children and offer valuable recreational and social opportunities for outings when space away from the shelter is needed. Moreover, it helps establish normalcy without having to travel to the other end of the city.

During an interview with the head of the current women's crisis shelter in Aalborg, it was mentioned that they are very satisfied with their location due to it being close to the above-mentioned functions. Being able to easily visit cultural attractions with paid entrances, where the abusers can't easily get in, as well as the presence of people throughout the day from the adjacent school contributes to the sense of safety. Some residents also don't leave the shelter, by which a location in the city is favourable as it reduces the feeling of loneliness. This information emphasized the benefit of remaining in the same area where accessibility and familiarity are already strong.

Illu. 21: Map of the surrounding area with functions displayed.





Users

Understanding the users of the crisis shelter is essential to creating a space that truly supports their needs. Therefore, an interview with the head of the shelter and the volunteer coordinator (see appendix 1) was conducted while also receiving a tour of the current spaces to map out the users' spatial challenges, wants and needs. This also resulted in the preliminary room program in appendix 2.

The crisis shelter offers both temporary residence, post-care support and ambulant counseling with five counseling rooms, though last-mentioned is currently located at another address. They are currently able to accommodate nine women and 10 children, divided between three singles and nine families. When expanding in the future, the aim is to have space for five singles and 10 families, resulting in an average of 31 residents while possibly reaching a maximum of 45. This also means increasing the number of staff members from 11 to 15. However, as they don't want to turn women away if space is available, a single woman may have to move into a family room or vice versa.

The length of the women's stays as well as the age of their children varies. Some find themselves compelled to leave few days after arrival even though they're not ready, but because they can't live in the chaotic environment of the current shelter. Yet, most residents maintain their everyday life by going to work and school while staying at the shelter which results in the occupancy of the building shown at illustration 22.

The staff ensures a great focus on mental health and self-development. Despite the initial hypothesis the women's safety from their abusers were at utmost importance, the shelter has never experienced them coming to the site. For this reason, they attach more importance to the perceived safety than the physical one while trying to avoid too much fencing and visible security measures.

On the next pages, the different user groups are explained more in detail.

Illu. 22: Diagram showing the occupancy of the home, with the women and children always being there in some capacity.

The women

Age
18+

Occupation
Most often maintains normal work-life while staying at the shelter

- Have an average of 1.6 children
- Live at the shelter for about 3-4 months
- 88% do not return after leaving the shelter
- Can't have an active substance abuse problem or untreated severe mental disorders when staying at the shelter

Needs

- A private bedroom and bathroom
- Common areas for socializing with other residents
- Anonymity outside the shelter
- A seperation between the home and the ambulant consultancy
- Better soundproofing to reduce stress levels

Wants

- An outdoor area for relaxing
- A 'living room' and sleeping area in side the private room
- A large storage space for personal belongings

The children

Age
0-18 years old

Occupation
Daycare, kindergarten and school in the area

- May have been exposed to violence, or witnessed violence against a parent

Needs

- Activity rooms for different age groups
- An outside area for playing

Wants

- A 'living room' and sleeping area in side the private bedroom

The staff

Age
18+

Occupation
Social and healthcase workers (contact persons), administrative staff, cook, janitor, cleaners and volunteers

- Don't perform treatments but councling and guidance
- Works in the ambulant consultancy while also functioning as contacts for the women

Needs

- Private bedrooms and bathrooms for volunteers
- Offices, meeting rooms and lunch room
- The ambulant consultancy should be part of the shelter

Wants

- Flexible bedrooms for the residents
- Both single and shared offices

Outpatients

Age
18+

Occupation
Maintainins normal worklife and doesn't live at the shelter, but need councling

- Is currently located at another address than the shelter

Needs

- Counseling rooms

  Location at the same adress as the shelter but with a seperate entrance

Wants

- Different types of counseling options

Visitors

Age
0+

Occupation
Authorities, family and friends

- Are not allowed inside the home

Needs

- Meeting rooms with access to lounge areas, a meeting table and computer

Aalborg Women's Crisis Shelter

Atmosphere

A visit was made to the shelter in order to experience the atmosphere of the place first-hand. Upon arrival, the place felt warm and home-like. There was a noticeable softness and informality to the space that contrasted the typical expectations of an institution. Rather than feeling clinical or structured, the environment offered a sense of familiarity and comfort, something lived-in and personal. It was clear that the space had been shaped not only for function but also to create emotional ease, offering a quiet reassurance to the residents living there.

However, the private rooms, despite offering a great view of the garden, are small and confined, with the only place for sitting being the bed. This, as well as the atmosphere of other spaces at the shelter, is described in illustration 23.

Illu. 23: Pictures taken during a visit to the existing women's crisis shelter in Aalborg, with observations about the hominees of the rooms.

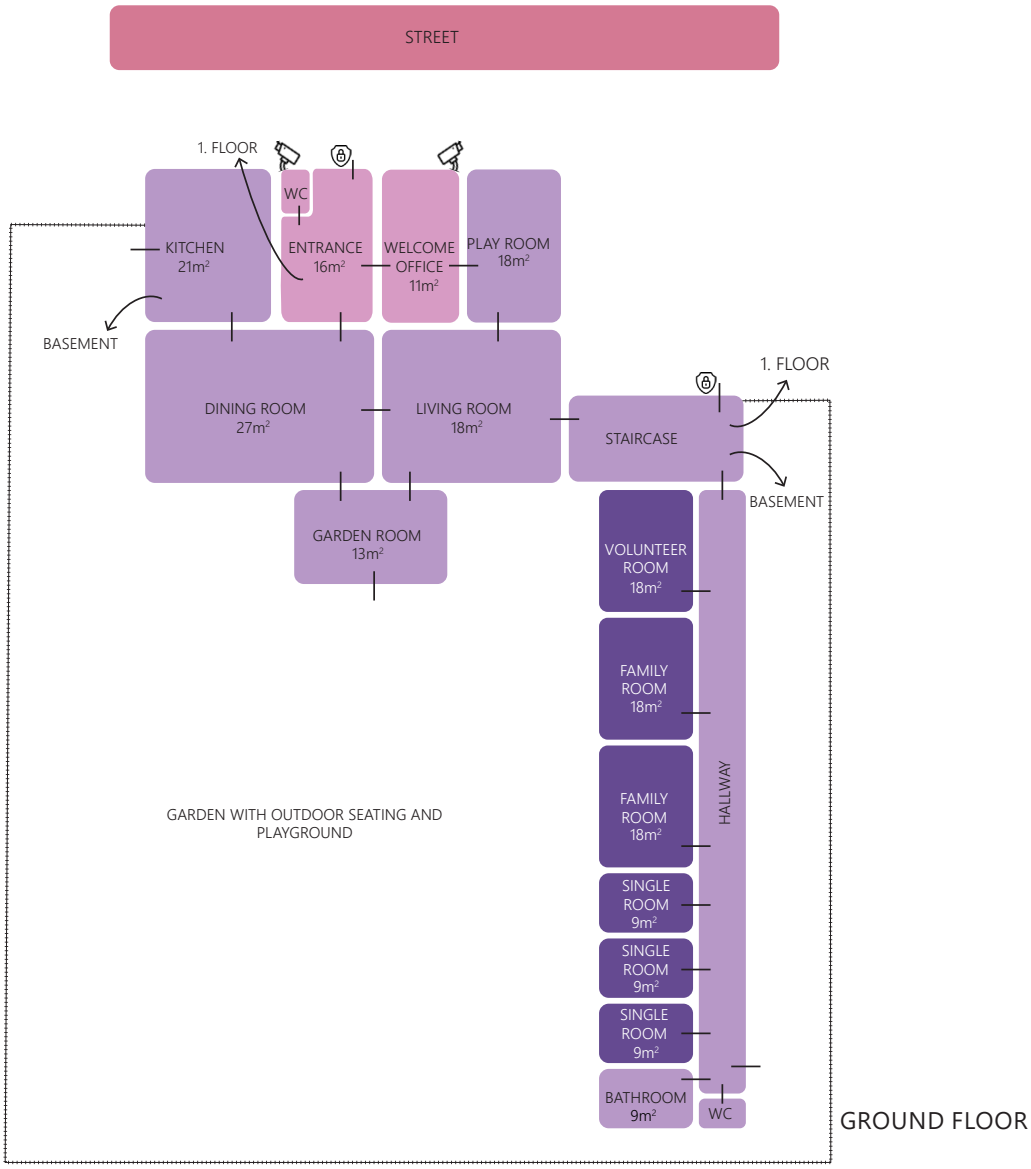
Hallway with bookshelves and storage space, makes it feel lived-in.

Small messy kitchen showing the frequent use of the room. Glass cabinets create a homier feeling by making it easier to find things.

The details in the dining room such as wall panels, coloured walls and mullions in the windows create a homey feeling, while the wooden tables, different chairs and knick-knacks in the window makes the space feel lived-in.

The small entrance with multiple layers facilitates a sense on hominess and security.

The rooms are small and seems empty and impersonal. The dark carpet and individually placed furniture creates an institutional feeling.



Zoning

To further understand the challenges, routines and well-functioning areas of the current shelter, the functions, room sizes, flows, level of publicness and connections were analysed. The shelter consists of an older villa with a larger extension for the rooms, originally only intended to accommodate singles whereupon some rooms were later combined to family rooms.

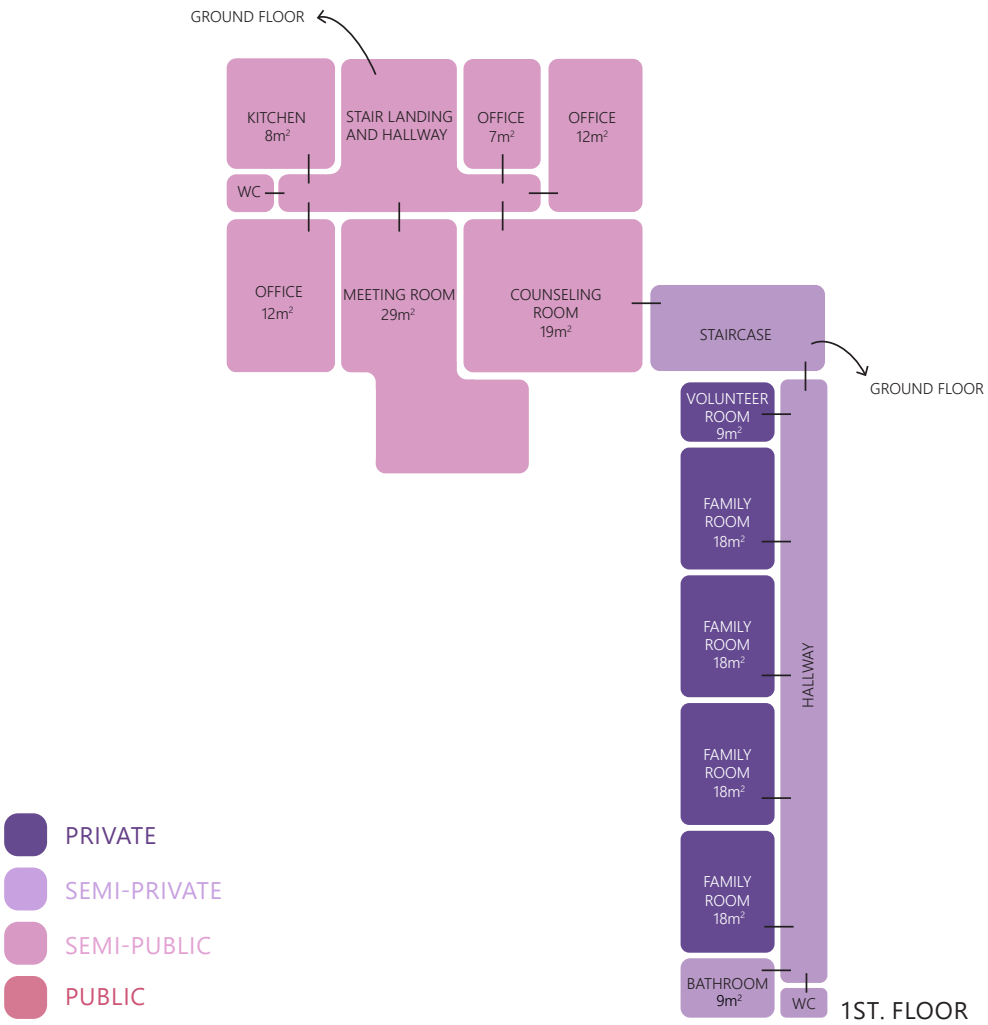
The function diagram (illustration 24) distinguishes between four types of areas regarding the level of publicness:

Private: the residents' own, personal space that they can control.

Semi-private: space shared by multiple residents but not accessible for non-daily users.

Semi-public: space accessible by all users.

Public: space accessible by users, and non-users from outside the shelter.

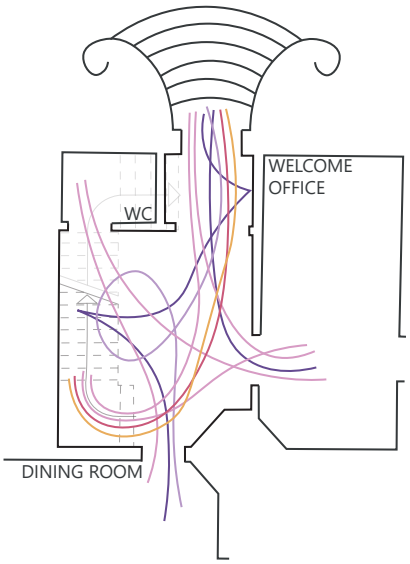


The common areas are therefore semi-private rooms as relatives, friends and authorities are not allowed in the house since the residents need their own space where they can feel comfortable. These are primarily located on the ground floor which makes it easy to access the garden and survey if there's gatherings of people to join. Moreover, it resembles the room placement in an ordinary home.

The residents are allowed to go to all semi-public spaces as well, including offices and staff rooms, to minimize the power imbalance between them and the staff and make them feel more at home. They're the ones living there even when the staff go home in the afternoon. The function diagram also illustrates that there's only one door separating the semi-public entrance and semi-private dining room as well as the welcome office and playroom, by which the meeting points becomes in-between zones where visitors may glimpse into the common areas and break with the privateness. However, the latter connection is essential, as the children can play, while the newly arrived women can have a confidential talk with the staff.

Additionally, it is noticeable that the northern facade of the house facing the public sidewalk contains surveillance cameras to keep strangers away. Entrances are locked at all times when not used which emphasizes that this is not a normal family house.

Illu. 24: Function diagram of the existing women's crisis shelter in Aalborg.



Flow

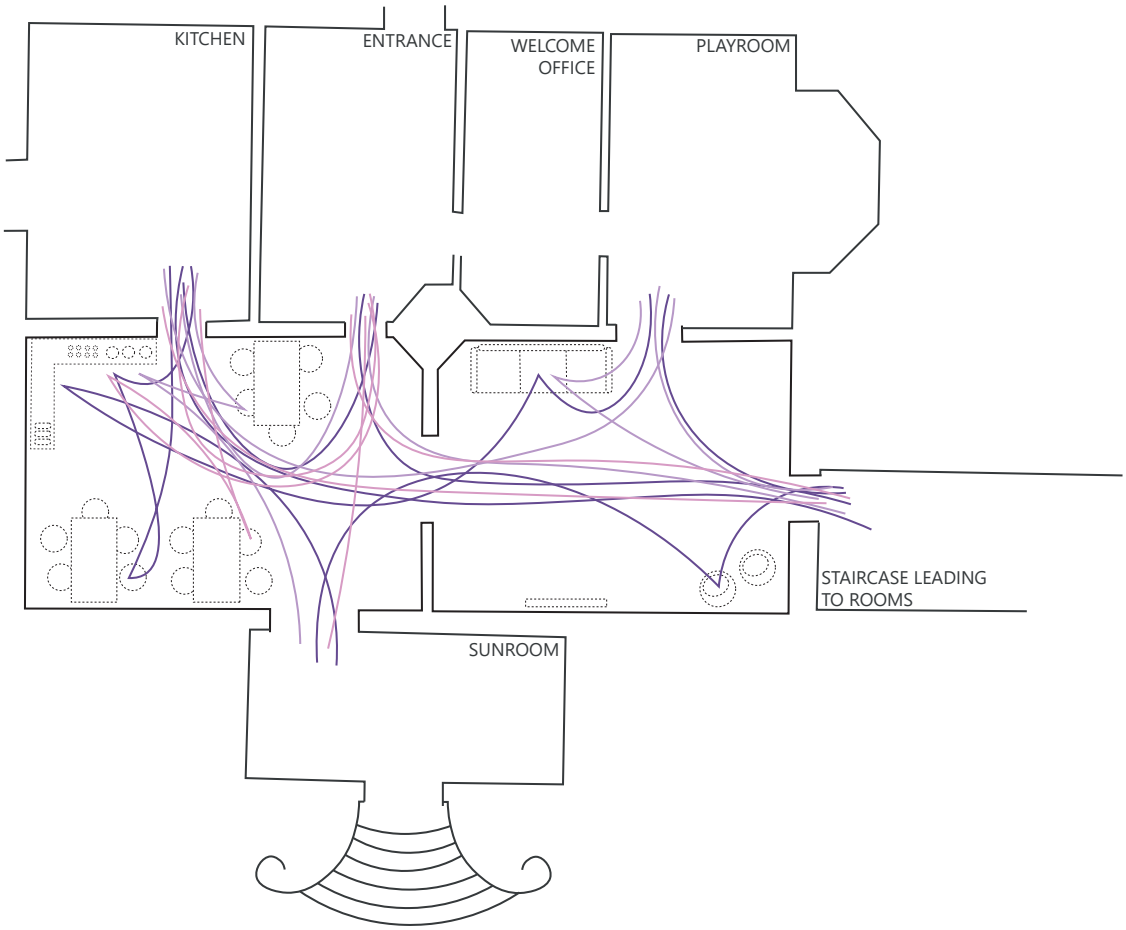
WOMEN
CHILDREN
STAFF
OUTPATIENT
VISITORS

To further understand the flow of the shelter and the meeting between different user groups, the most heavily trafficked areas (based on the experience during the visit) were investigated.

Entrance

The entrance is used by both residents, staff and visitors as it gains access to the home and the workplace. This creates a lot of movement in a small space (see illustration 25) and the potential for accidental meetings between women and strangers which challenges their anonymity. Some of the residents also store their belongings such as prams and outdoor clothing here, adding stops to the route of the residents in the otherwise high-speed area. New and vulnerable women arriving for the first time are thereby met by a chaotic atmosphere. Due to the wish to make the ambulant consultancy part of the shelter, the head informs that he imagines that they have a separate entrance to avoid additional clashes between user groups.

Illu. 25: Diagram of the entrance in the existing Aalborg Women's Crisis Shelter and the flow of the different users.

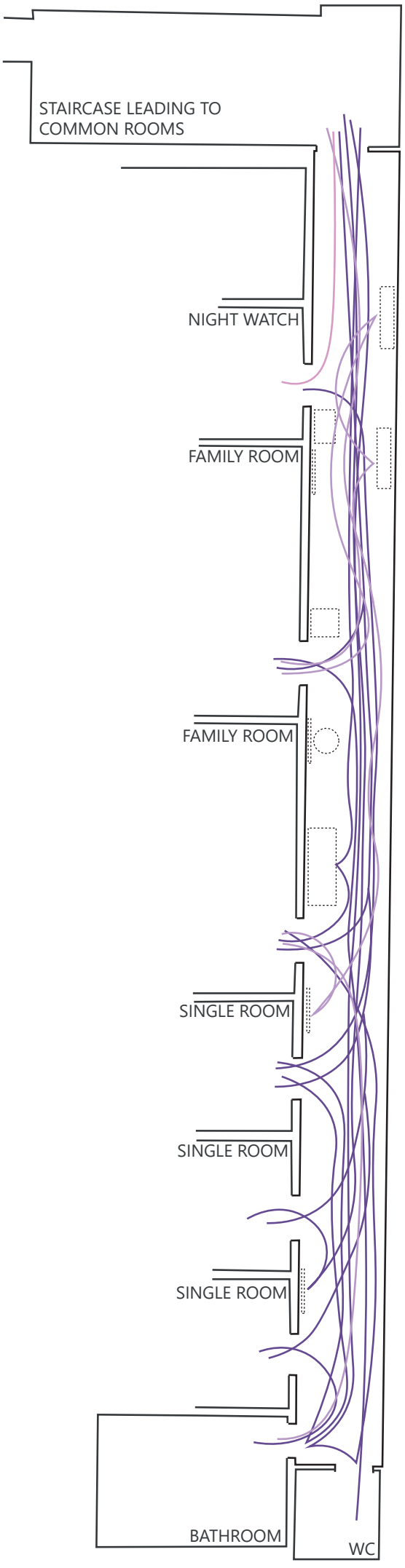


Dining and living room

The living room and dining room is the heart of the home, as it's connected to the entrance, the private rooms, kitchen and garden, and is where the residents eat and socialize. As can be seen on illustration 26, this results in numerous routes through the area when residents are getting food, going to their rooms, walking out into the garden or using the seating areas. Additionally, due to the connection to the playroom, the living room almost becomes an extension of this as children are running in and out while playing. To enter the playroom, you also have to walk in front of the tv, creating a disruption for the people watching and a meeting between different levels of activity; the people trying to relax in the couch and the children playing.

WOMEN
CHILDREN
STAFF
OUTPATIENT
VISITORS

Illu. 26: Diagram of the dining and living room in the existing Aalborg Women's Crisis Shelter and the flow of the different users.



WOMEN
CHILDREN
STAFF
OUTPATIENT
VISITORS

The hallway

The residents currently share bathrooms which gives the feeling of living in a commune and increases the level of stress when everyone have to get ready for bed during the evening and school or work in the morning. The hallway outside the rooms therefore becomes very busy (see illustration 27) and results in a lot of disturbing noise by the rooms closest to the bathrooms. When walking through the hallway, the pace also changes due to 'obstacles' such as shelves and laundry, making it difficult to walk in a completely straight line.

Illu. 27: Diagram of the hallway leading to the private rooms in the existing Aalborg Women's Crisis Shelter and the flow of the different users.

The hallway

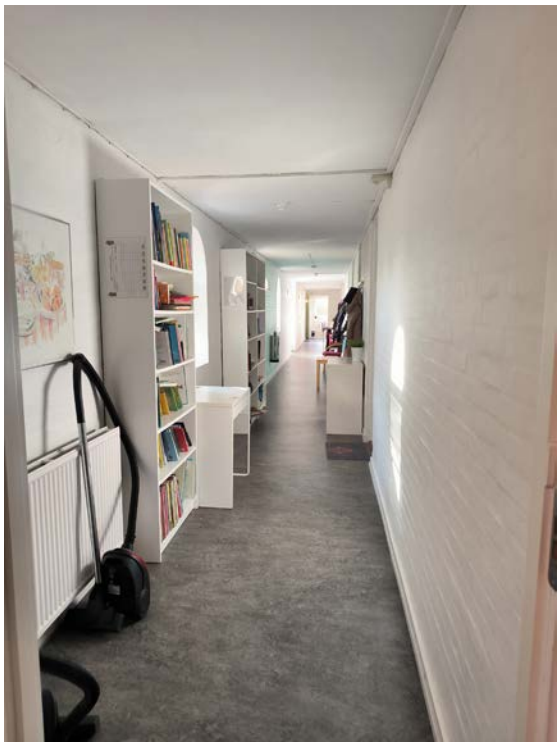
Before visiting the crisis shelter, the assumption was that a long hallway might feel intimidating or unsafe, particularly those with doors on both sides, reminiscent of hotels or apartment buildings (see illustration 29). These kinds of corridors often feel uninviting due to their length, uniformity, lack of natural light and unclear visibility of who or what is behind each door. However, this perception shifted after experiencing the hallway of the crisis shelter (see illustration 28) where even vulnerable users feel safe and at ease.

A few key differences explain this contrast. The hallway at the shelter has rooms on one side only, allowing the opposite wall to be lined with windows that provide natural light, creating a brighter and more open atmosphere. It is also activated with personal and communal elements like bookcases, seating, laundry and hanging coats, signaling that it's more than just a passageway. These additions make the space feel lived-in and social, offering opportunities for spontaneous interaction among residents. In contrast, the hallway on illustration 29 appears rough and lifeless with its bare concrete walls, symmetrical doors and industrial lighting.

Materiality further shapes the experience: the cold, hard surfaces of the concrete corridor feel institutional, while the white-painted brick in the shelter contributes to a sense of domesticity, despite the hallways being almost the same length.

At the shelter, the residents know each other which is not the case at the apartment building, and this plays a role too, making the doors and what could be behind much less scary.

This reveals the importance of designing hallways that are stimulating and integrated into the overall layout of the building, not simply as connectors.



Illu. 28: The hallway leading to the rooms in the existing women's crisis shelter in Aalborg.

Illu. 29: A hallway leading to student apartments in a residential building in Aalborg.

Key points

The key points from the interview and visit to the shelter can therefore be described as:

- Integrating the ambulant consultancy with the shelter to streamline the workstream of the staff. However, the 'home' and the ambulant consultancy should be divided as visitors and outpatients are not allowed to enter private and semi-private areas.
- The common areas should be divided into different zones for both women and children of different ages, supporting various communities.
- More storage, flexibility, individual bathrooms and better soundproofing in the private rooms.
- The shelter has to maintain the anonymity of the residents, by which the familiarity of the chosen building should be preserved in the neighbourhood.
- The perceived safety is attached more importance than the physical safety as they haven't been challenged by abusers coming to the site.
- The entrance can create a clash between different user groups and levels of privacy and publicness, for which reason the ambulant consultancy should have its own entrance.

The new building

The origin

The building selected for transformation in this project carries both historical significance and strong potential to serve as a crisis shelter. Originally built in 1950, it was established as a memorial to honour members of the Danish resistance movement from World War II. A support fund was created for the victims, and substantial donations enabled the construction of a meaningful monument. The youth were seen as the bearers of the fight for freedom, and it was therefore decided that the monument should take the form of student housing. (4. Maj Kollegiet Aalborg, n.d.)

Following World War II, there was a significant demand for new housing, and the 1950s became a defining era for social housing in Denmark. This period marked a revival for architects, who began to reassert their creative voices within the framework of functional design. The focus extended beyond structural quality to include orientation towards the sun, access to fresh air, and the integration of green spaces between the buildings, always with attention to the needs and wishes of the residents. (Bech-Danielsen et al., 2013)

The dormitory reflects these values. Built during this era, it features the hallmarks of 1950s residential architecture: simple, clear forms; efficient construction techniques; and durable, familiar materials like brick and wood. While the architecture is cohesive and restrained, subtle details prevent it from feeling monotonous, giving the building a quiet but distinct character. This strong architectural identity – rooted in functionality, material honesty, and human-scale design – makes the building an ideal foundation for its transformation into a crisis shelter. (ibid)

Today, they have space for 47 residents, and unlike typical dormitories, this one includes both a warden and a porter who not only provides support but also cooks meals. To live there, residents need a connection to the resistance movement or to have made a notable contribution to Denmark.

Preservation potentials

The building consists of two volumes connected by a central entrance space, offering a total of approximately 1900 m2 (see illustration 40 on the next page). The largest and eastern volume primarily contains the private rooms, with two separate staircases leading to three floors as well as a basement with storage and service functions. On the residential floors, smaller shared kitchens allow for community gatherings, and a larger common space functions as a place for watching tv and playing table football. The storage and service rooms can possibly largely be preserved in the transformation process to support environmental sustainability by minimizing demolition. Moreover, the entrance (see illustration 34), while seeming institutional due to the weather porch and large glass area, is easily readable in the facade, by which preserving most of it could be relevant for easy wayfinding.

The western volume houses the main common areas and offers larger rooms with generous ceiling heights such as the dining hall and tv lounge (see illustration 37 and 39). In the dining hall, large, arched windows adorn the western facade and steal all of the attention in the room, already preparing the ground for relaxation, reflection and view of the outdoor greenery. Preserving these would be valuable in the new design.

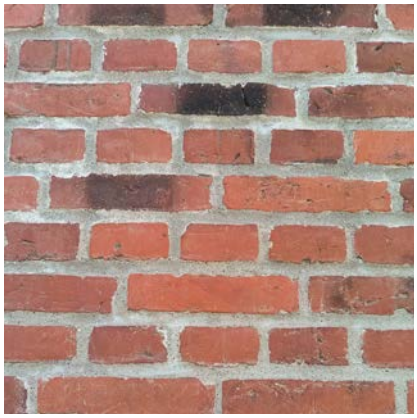
Additionally, the tv lounge allows for access to a large garden that becomes an extension of the common areas. Retaining the flow into the garden or even expanding it could offer a place for positive distractions and social activities. Due to the long hallways (see illustration 35), the stairways and the central main entrance, a natural flow is formed. To break with the long, monotonous and institutional hallways and offer a more stimulating flow, the building should be opened further up.

To reduce the economic and environmental cost of demolition and virgin materials, many of the floor materials (see illustration 30-33), the staircases for circulation, and as much of the internal walls as could be preserved.

Illu. 30: Brick flooring in the main entrance.

Illu. 31: Wooden flooring in the dormitory rooms.

Illu. 32: Tile flooring in the tv lounge and dining hall.



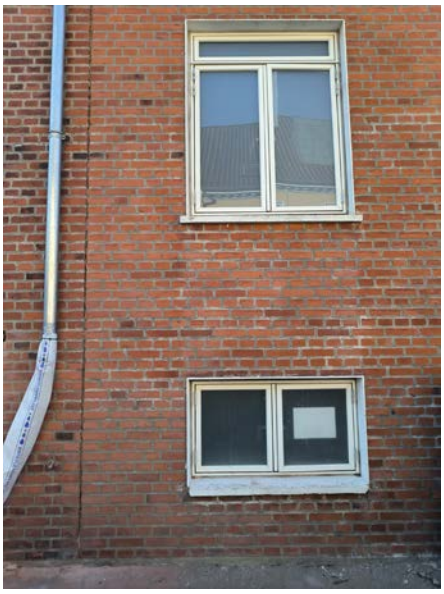
Illu. 33: Brick facade.

Illu. 34: Picture of the main entrance to the dormitory.

Illu. 35: Picture of the dormitory hallway.

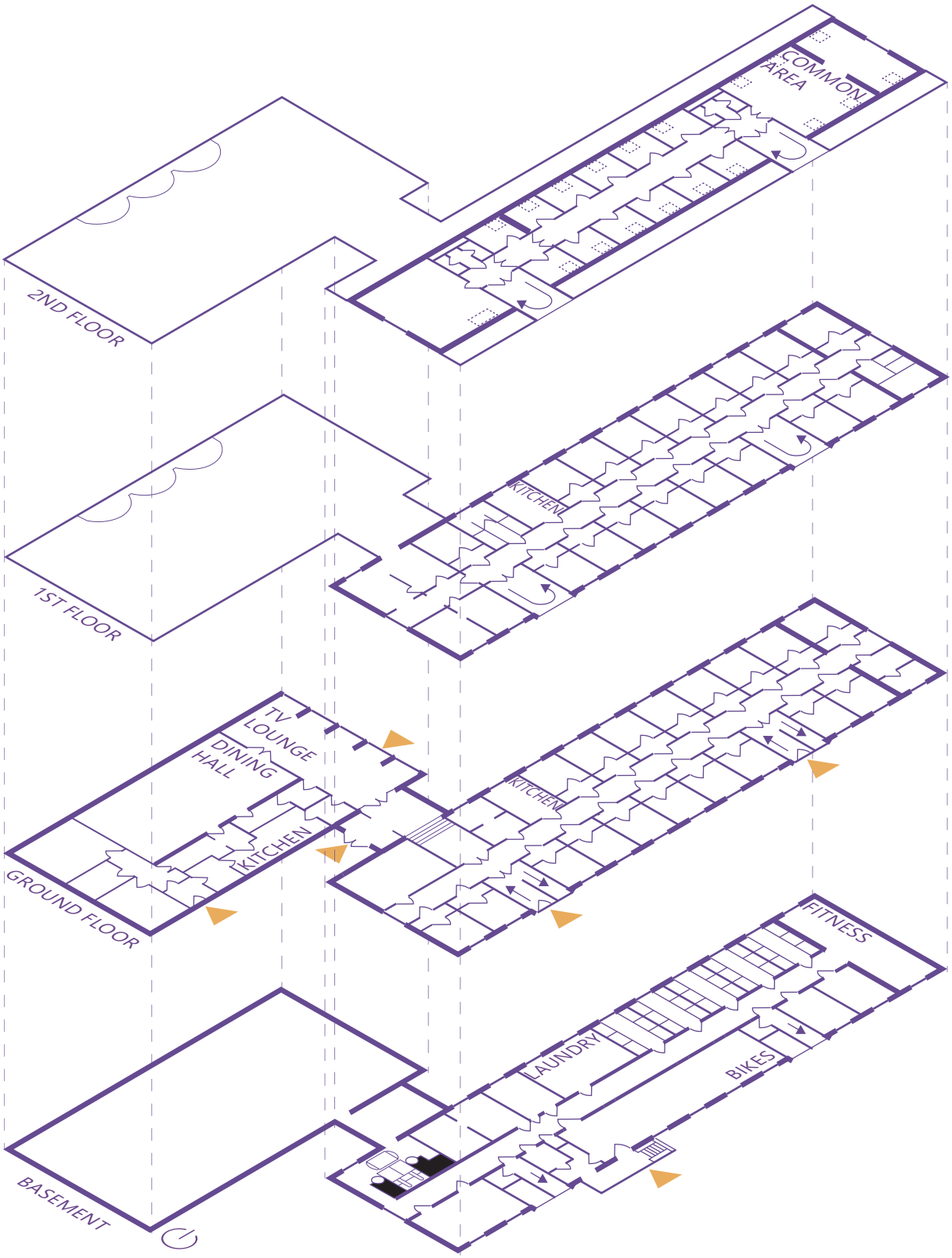
Illu. 36: Picture of the arch in the entrance.

Illu. 37: Picture of the arches in the dining hall.

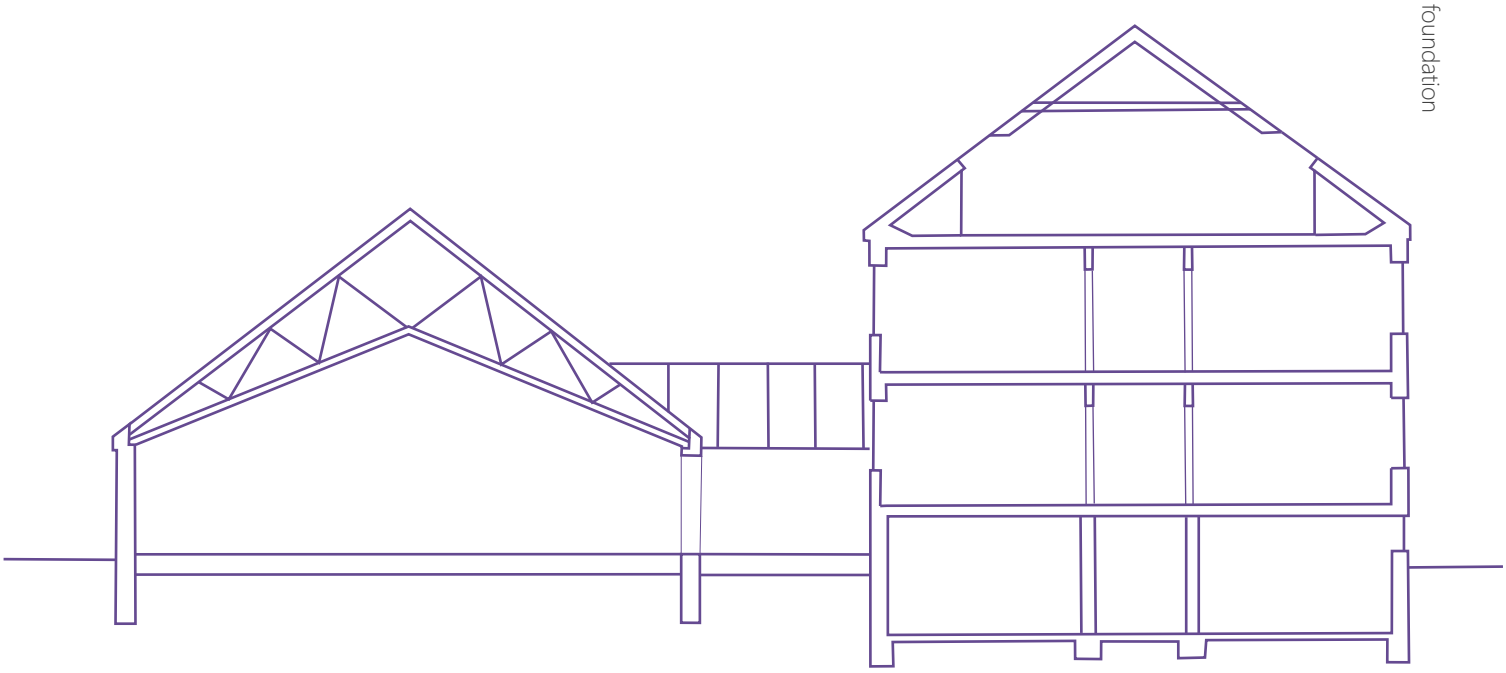


Illu. 38: Picture of the eastern facade on the eastern building volume.

Illu. 39: Picture of the tv lounge.



Illu. 40: Existing building layout of 4. Maj Kollegiet.



The structural system

The building is constructed with a cavity wall system consisting of two layers of brick. The eastern volume lacks insulation, while the western volume has been insulated, resulting in differing U-values between the two. In the eastern volume, the floor structure is made of reinforced concrete supported by load-bearing walls that extend from the basement. The roof, however, in both volumes is a tiled structure supported by a wooden truss system, meaning it does not rely on internal load-bearing walls. The windows, originally wooden, were replaced with plastic frames in 1988. (Aalborg kommune, n.d.) Since the basement floor is below ground level, no facades are fully facing open air, by which the basement is not habitable (Mikkelsen & Baltzer, 2025).

As part of the transformation, several upgrades are necessary. Insulating the exterior walls and replacing the existing windows will be essential to improve the U-value and enhance the indoor climate. A common method to improve thermal performance is to insulate externally and add a new facade, as it ensures a tight building envelope with few cold bridges. However, when working with buildings of historical or architectural value, preserving the original facade would be relevant. (Schjervig & Jensen, 2023) In such cases, cavity insulation becomes a more appropriate solution, even though it does not achieve the same energy efficiency as the external insulation, it allows the character of the building to be retained. Modifying the layout to open up the interior spaces presents a structural challenge as the load-bearing walls carry the weight and loads from the 2. floor and down to the foundation. However, with careful planning, some of these walls can be replaced by beams and columns to create a more open and flexible plan.

Illu. 41: The structural and load-bearing system in 4. Maj Kollegiet.

Sustainability

Sustainability is commonly defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. It is built on three interrelated and equally important pillars: economic, social and environmental. (Dalampira & Nastis, 2020) Intervening with one will therefore affect the others as well. However, this project focuses primarily on the social and environmental aspects of sustainability, both of which are essential when transforming a building into a women's crisis shelter.

Social sustainability in architecture involves creating spaces that promote well-being, equality, and social inclusion. It encompasses not only the fulfilment of basic needs such as housing, health, and safety but also a broader focus on facilitating positive interactions through the created environment in order to improve the quality of life, sense of place and emotional well-being. (Lami & Mecca, 2020; Ghisleni, 2023) In this project, the main user group, vulnerable women, has particular needs that require a deep understanding and a sensitive approach to design. Prioritizing their sense of safety and belonging is essential to support their healing process and long-term recovery.

Environmental sustainability is equally crucial in the context of the built environment. A key strategy in this project is the reuse and transformation of an existing building, which significantly reduces the environmental footprint. Adaptive reuse – transforming a building to serve a new function – is an effective way to extend a building's life, avoiding demolition waste and reduces the demand for extraction of new raw materials and energy-intensive manufacturing processes (Holmes, 2025). When reuse is not possible recycling materials is the next best option, although it still involves additional energy and processing. Both approaches help reduce construction waste and lower the overall energy consumption associated with demolition and new builds. (Gobbo et al., 2024)

Transformation projects vary depending on the type of building being transformed. In adaptive reuse, buildings, sometimes warehouses with little architectural but structural value, are given new functions, allowing for architectural contrasts to be added. In other cases, buildings with significant architectural or historical value are transformed with a greater degree of respect and care. (Holmes, 2025). In this project, the function of the building remains residential, but the new user group and their needs require a spatial and technical update of the shelter.

By combining social and environmentally sustainable design strategies, the project aims to create a shelter that not only supports its users but also contributes positively to the sustainable development of the built environment.

Case study: Hotel Ottilia

Architect: Arkitema
Building year: 2019
Location: Copenhagen, Denmark

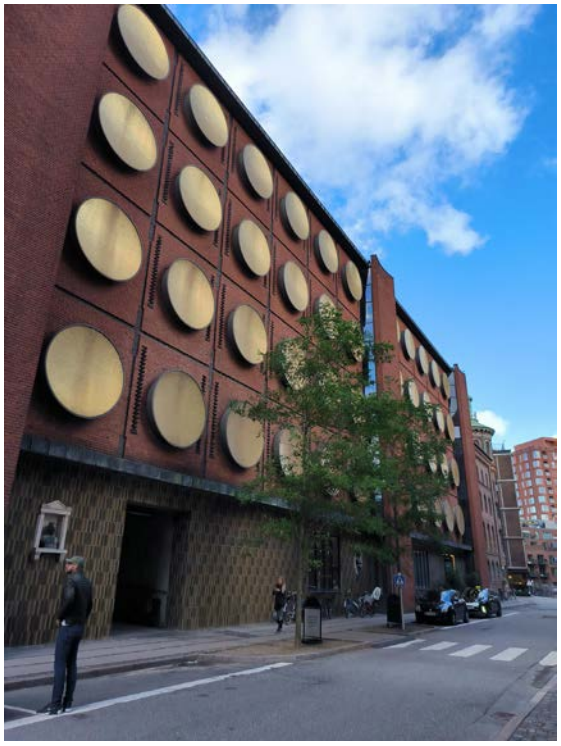
An example of a transformation project where they are balancing architectural and historical preservation with functional renewal is hotel Ottilia in Copenhagen. It was originally built in 1969 by architect Svenn Eske Kristensen, known as 'Kælder 3' and part of the Carlsberg brewery, functioning as a storage building for over six million litres of beer in horizontal tanks. The facade towards the street reflected these, featuring round, gold shields, while the facade towards the plaza contained a brick pattern mimicking the same round panels. (Arkitekturbilleder, n.d. a; Arkitekturbilleder, n.d. b)

Between 2015-2019, the building was transformed into Hotel Ottilia, and while most of the interior underwent a significant transformation to support the new functions and facilities, the exterior was preserved and adapted with respect to its historical and architectural value. The gold shields were retained as a signature feature. To improve daylight and indoor climate, subtle vertical holes were introduced by removing bricks, integrated discreetly to appear as if they've always been there. On the plaza-facing facade, a more noticeable intervention was made by replacing the brick circle patterns with round windows. (ibid.)

Inside, areas such as the guest rooms were completely redesigned, while other spaces preserved visible elements of the original structure and emphasized the building's tall ceilings to preserve its industrial character.

This change maintains part of the language of the original building while adapting to the need of the new hotel function.

Illu. 42: The plaza-facing facade with new round windows.

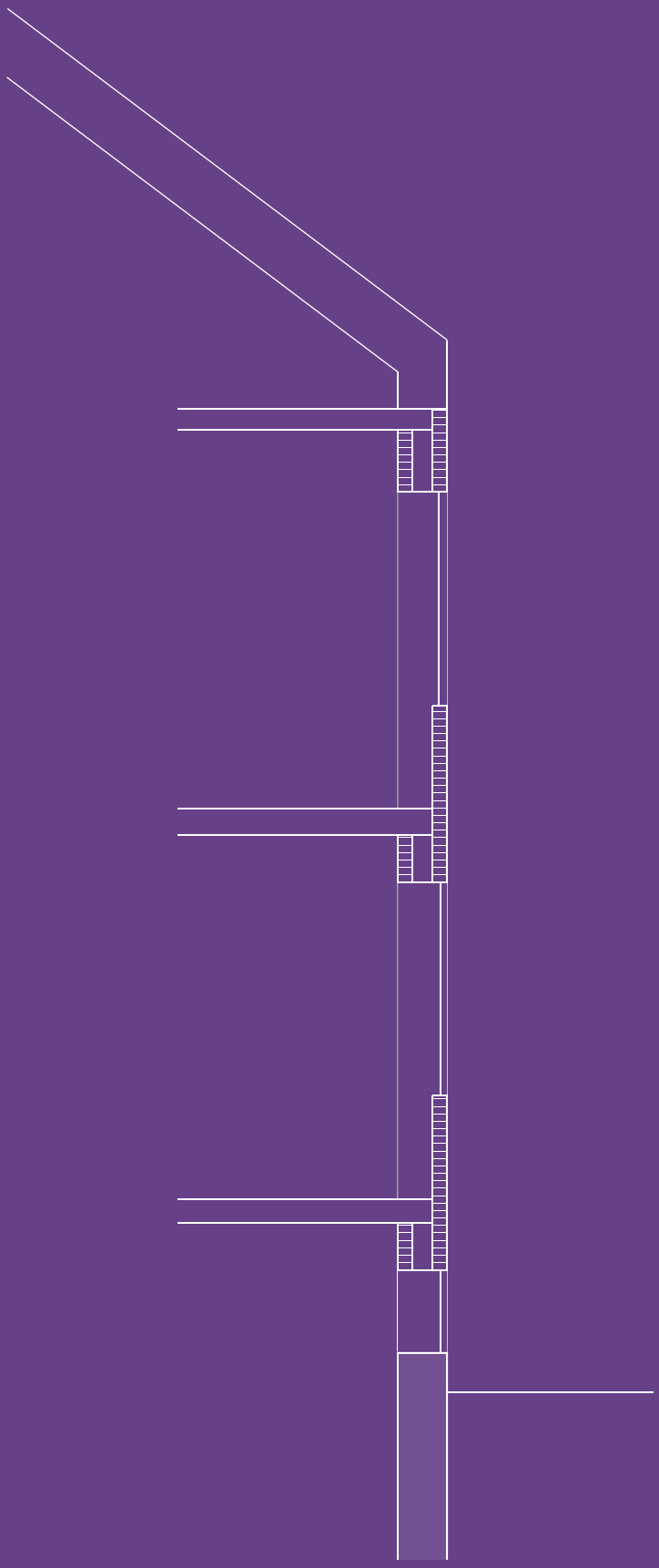


Illu. 43: The facade facing towards the street featuring round, gold shields reassemble the old beer tanks.

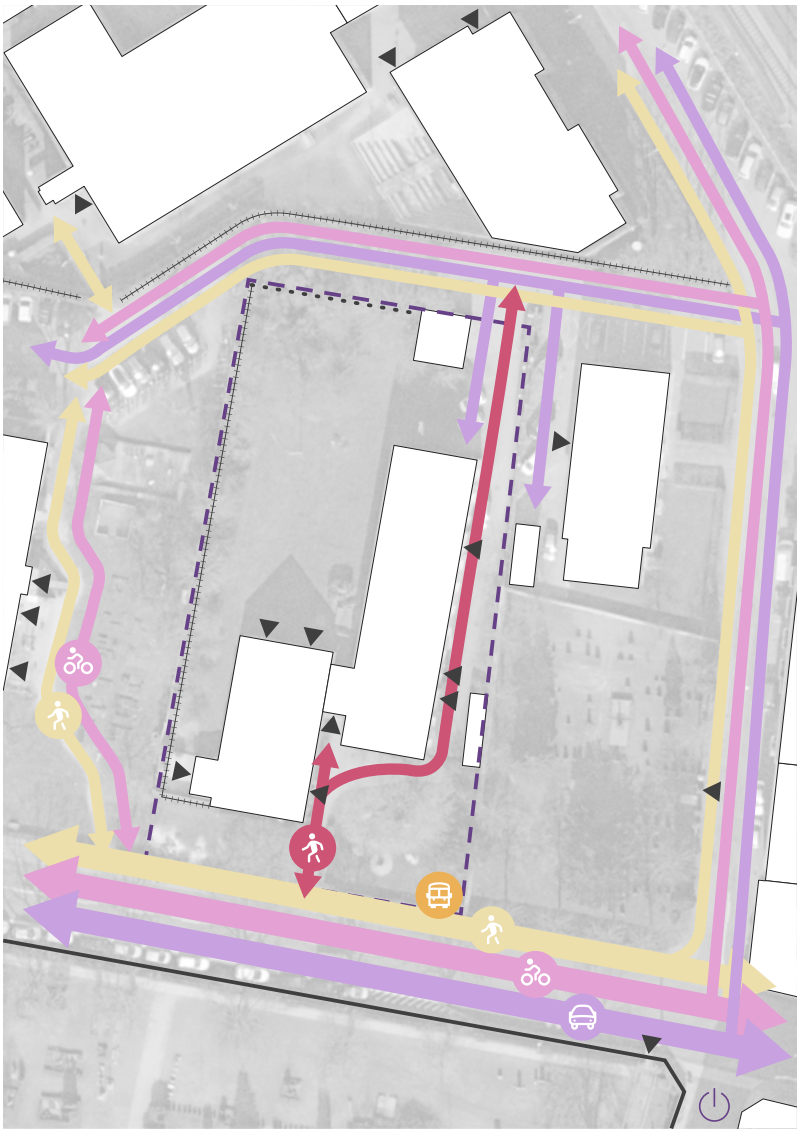
Sub-conclusion

When transforming an existing building and changing its functions and users, interventions most often need to be made. Preserving the original structure and character of the 1950s dormitory minimizes demolition and environmental impact but also contributes to retaining anonymity of the shelter and the women living there. Reimagining the more institutional features (like the entrance, long hallways, and shared bathrooms) will contribute to more homelike and nurturing spaces.

Illu. 44: Construction section of the dormitory cavity wall.




SITE
TRAIN STATION
BUS STATION



Illu. 46: Map showing the infrastructure in the area - 1:500

Site context

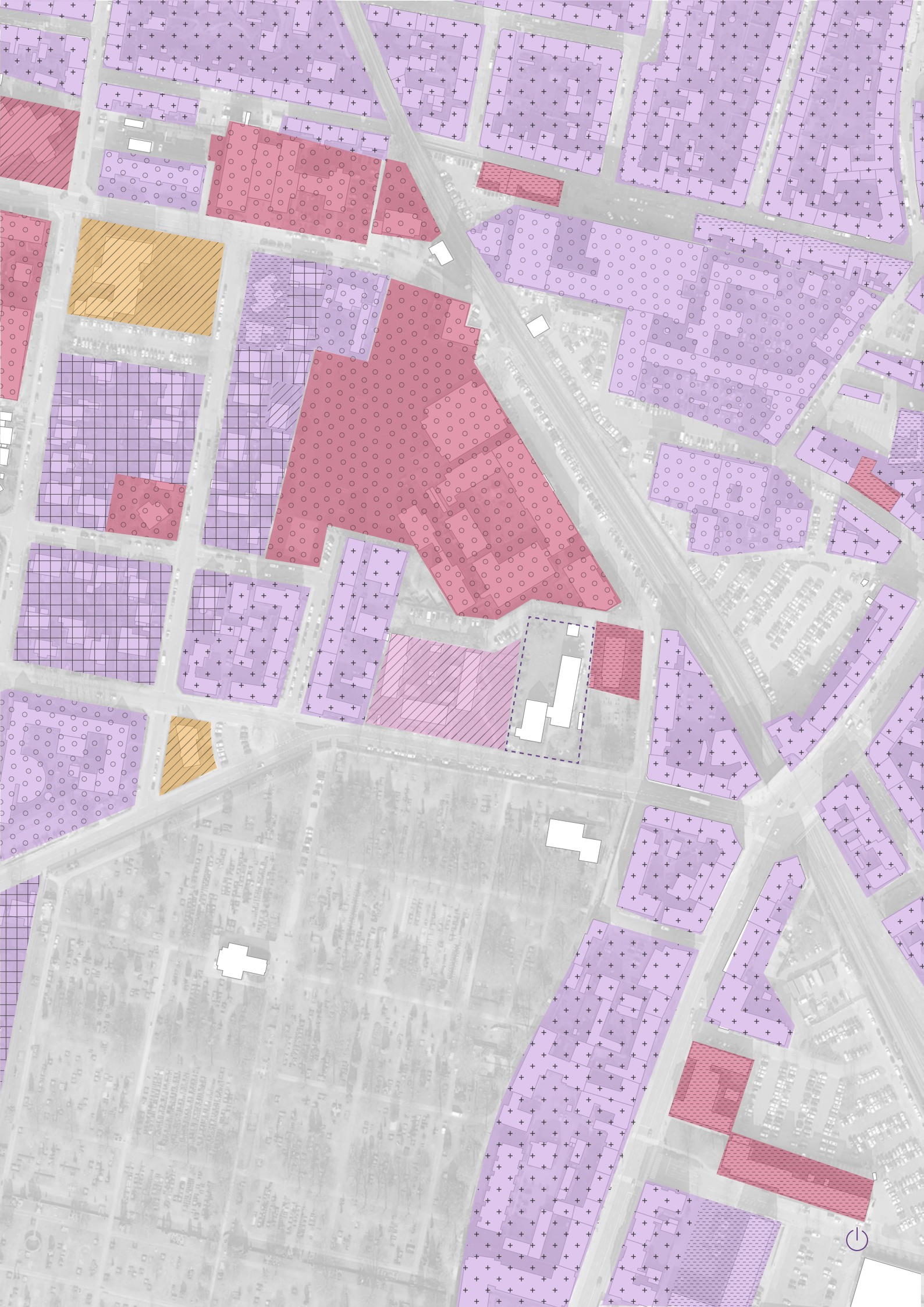
Infrastructure

The site is located in a trafficked neighbourhood near the city centre where both cars, public transportation, bicycles and pedestrians affect the noise and activity level as well as the feeling of privacy. Bus stops just outside the site makes it easy for the residents of the shelter to reach the bus and train station to leave or arrive. However, due to the location near the high school and Vesterbro, they also create a hotspot for pedestrian activity as people are using the smaller paths on and around the site.

This challenges the privateness of the eastern and southern building facades, as well as the anonymity when leaving or entering. The view into the garden from west and north is obstructed by greenery.

Placing more public functions towards south could help maintain the anonymity of the residents. Furthermore, it would be necessary to close the site entrance from north to avoid that the students from the school use the site as a shortcut.

Illu. 45: Map showing the infrastructure in the area - 1:5000



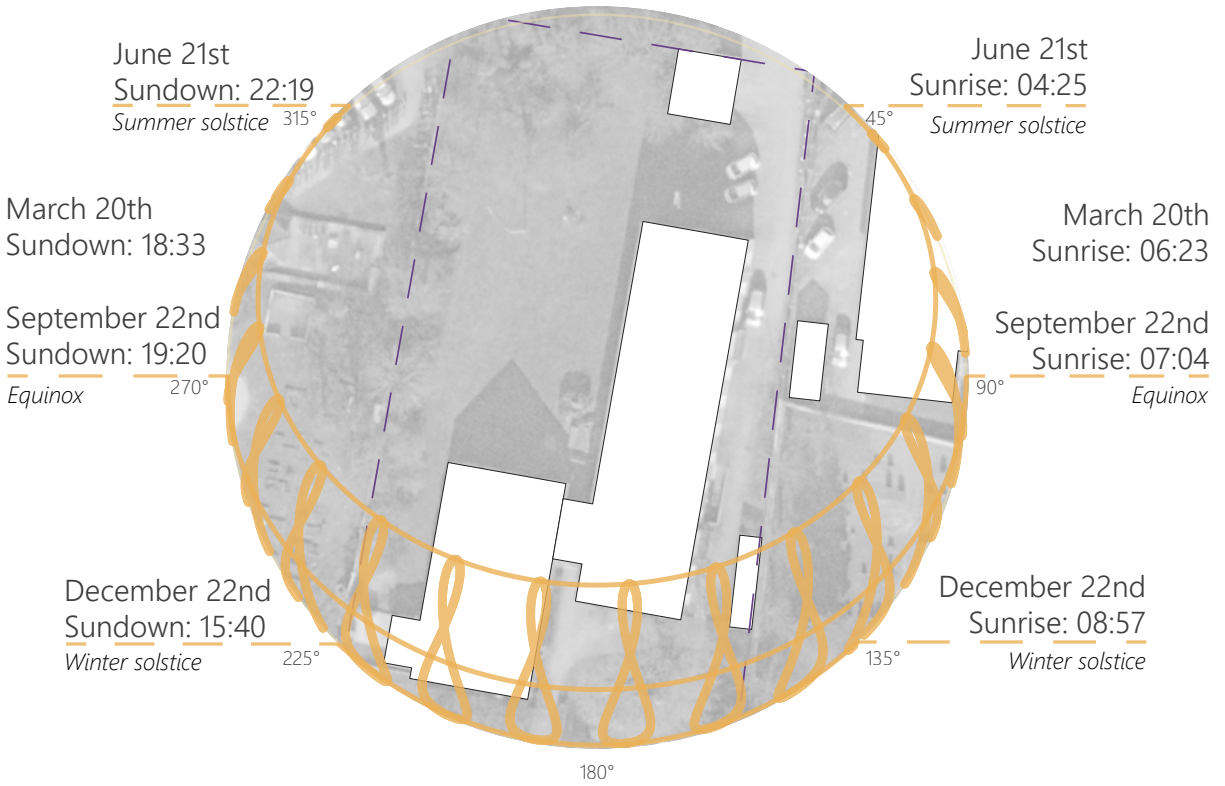
Neighbourhood activity

The activity of the surrounding area plays a key role in understanding the perceived safety of the site by indicating when people are typically present. Illustration 47 shows the occupancy patterns of nearby buildings as well as their typologies. Closest to the site are a school and a business, both active during the daytime, along with a cultural centre that remains open into the evening.

Further out, the site is surrounded by functions that ensure a steady presence of people throughout the day and night, ranging from residential building like apartments and single-family homes to institutions such as a hospital.

Illu. 47: Map showing the activity in the area based on the typologies and occupancies.

From this, it can be concluded that, while the buildings immediately adjacent to the site may not always be in use, the area as a whole maintains a consistent human presence. This contributes positively to the perceived safety of the site by ensuring that people are frequently nearby, whether walking, cycling or driving past.

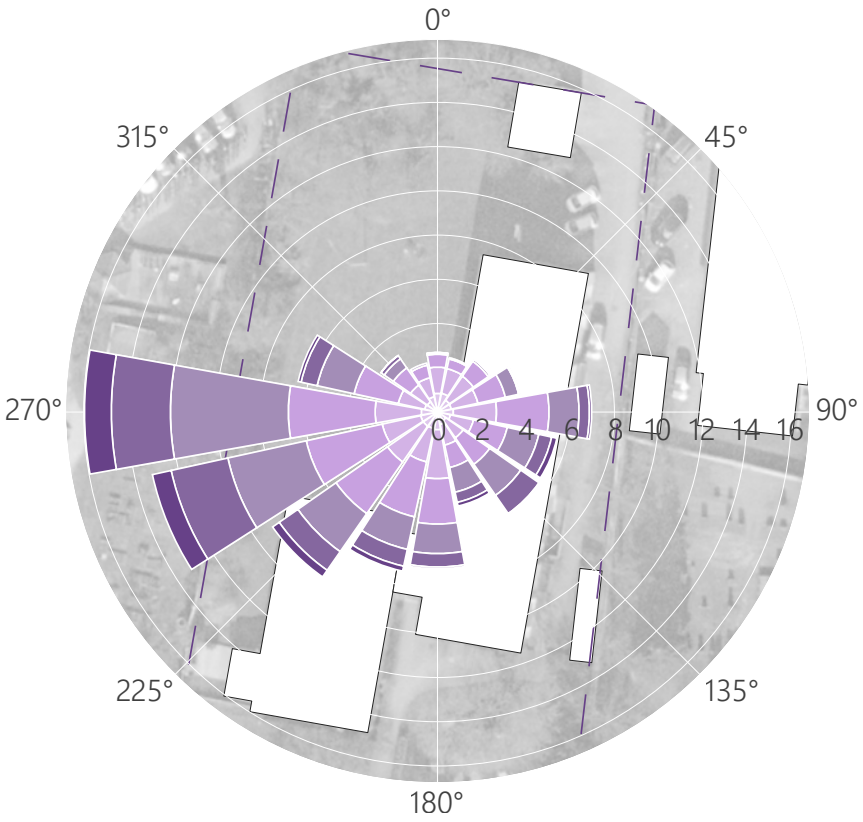


Sun

The relationship between the sun path and the orientation of the windows plays a big role in maintaining the circadian rhythm of the residents and staff which contributes to a sense of normalcy despite the chaotic situation they're in. The sun path analysis therefore helps guide the spatial organisation of the building according to how much daylight exposure each function needs. A proposal to fulfil this could be to adapt the interior layout according to the time of day, for example by positioning the spaces for breakfast towards east to benefit from the morning sun, and dining areas might face the evening sun in west and northwest. Additionally, the current user of the building informed that the garden receives ample evening light, which can also be seen on illustration 48, making it great for outdoor dining and communal activities during the summer. (CBE Clima tool, 2024 a)

The sun is also an important factor in achieving a healthy indoor climate. To compensate for higher U-value when only insulating the cavity wall, the roof and replacing the old windows, utilizing thermal mass to regulate the thermal climate by storing and releasing solar heat would be relevant.

Illu. 48: Sun path analysis.



Wind

Just like the sun, the wind and natural ventilation is essential in ensuring a comfortable thermal environment as well as giving the users a sense of choice and control of their surroundings. As can be seen on illustration 49, the strong western wind is partly blocked by tall trees and other greenery, reducing the cooling effect. Differing the sizes of window openings is therefore important to possibly utilize both single-sided and cross ventilation for warmer and colder months. (CBE Clima tool, 2024 b)

However, the greenery shelters the garden, creating a comfortable outdoor environment for social gatherings.

Illu. 49: Wind rose.

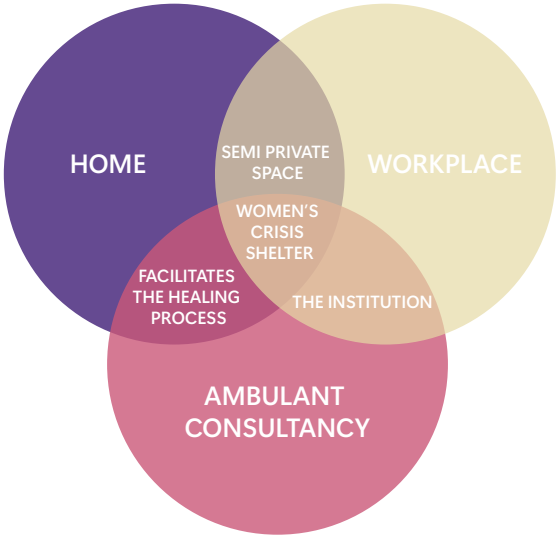
- 0,5 - 1,5 M/S
- 1,5 - 3,3 M/S
- 3,3 - 5,5 M/S
- 5,5 - 7,9 M/S
- 7,9 - 10,7 M/S
- 10,7 - 13,8 M/S

Recapitulation

Illu. 50: Picture of the staircases in the eastern building volume.

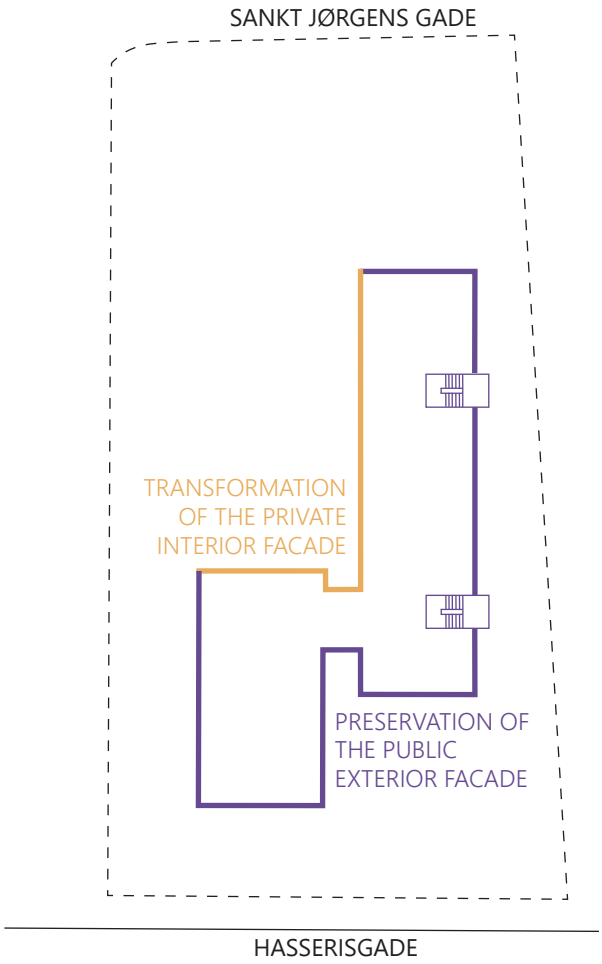
How do we design a women's crisis shelter that increases the perceived feeling of safety through healing architecture, while transforming and de-institutionalizing an existing building, in order to ease the rehabilitation of the women?

How can the building foster a feeling of homeliness for the women while also serving as both a workplace and a counseling facility?



Illu. 51: Concept diagram of the three terms that will be used to define the zoning of the shelter.

Vision



Illu. 52: Concept diagram showing the vision for the transformation of the building.

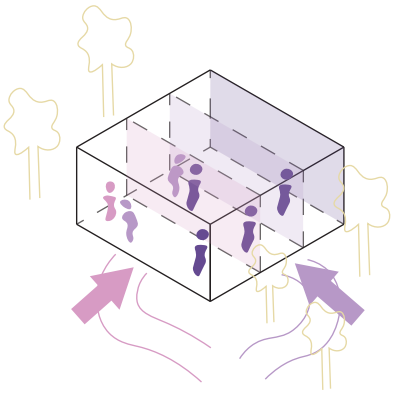
Through thoughtful transformation, the shelter will integrate the functions of a home, workplace, and ambulant consultancy, each supporting the other to create a holistic and healing environment. By de-institutionalizing the building and typology, the design fosters a homelike atmosphere that reduces the residents' high stress and anxiety levels, supporting their ability to focus on recovery. The staff's visible presence will furthermore increase the sense of perceived safety, reassuring the residents that help and support is always close by.

To honor the history of the building and ensure that the shelter remains blended in with the neighbourhood, the building's outer more public facade will be preserved. This approach supports the anonymity of the women by avoiding unwanted attention while retaining a familiar presence.

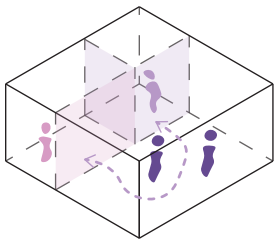
At the same time, the more private, interior-facing facades and garden will be reimagined as a healing experience and retreat; a space that connects the building volumes and their social activities.

In this way, the project balances transformation, de-institutionalization and the increase of perceived safety, creating not just a shelter, but a place of empowerment and renewal.

Safety

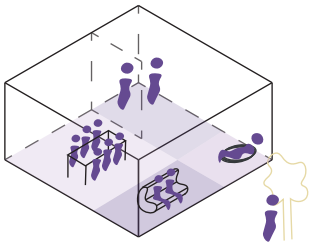


The building should contain three types of zones – private, semi-private and semi-public – to maintain the anonymity of the women and create a separation to the visitors.

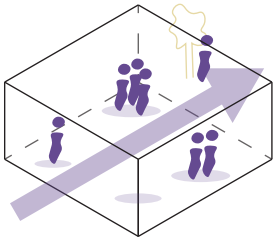


The placement of the offices and ambulant counseling should promote staff visibility and movement throughout the house, thereby reducing the power imbalance, and fostering a safe and home-like atmosphere for the residents.

Healing architecture

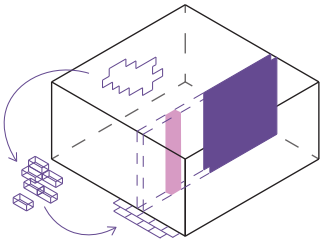


Semi-private areas must be divided into zones of varying scales and functions to enable the residents to form diverse types and sizes of communities by which their sense of belonging is enhanced.

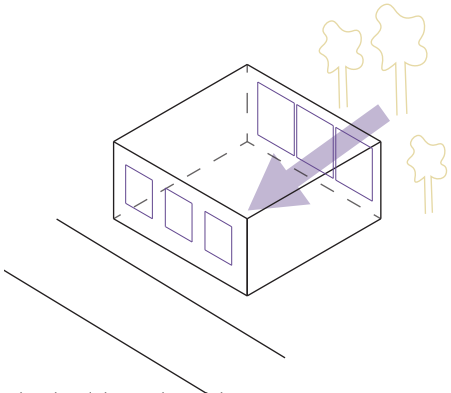


The spatial layout should support an intuitive flow through clear sight lines, encouraging residents to engage with communal life while providing opportunities for retreat and reflection along the way, thereby enhancing a sense of control.

Transformation

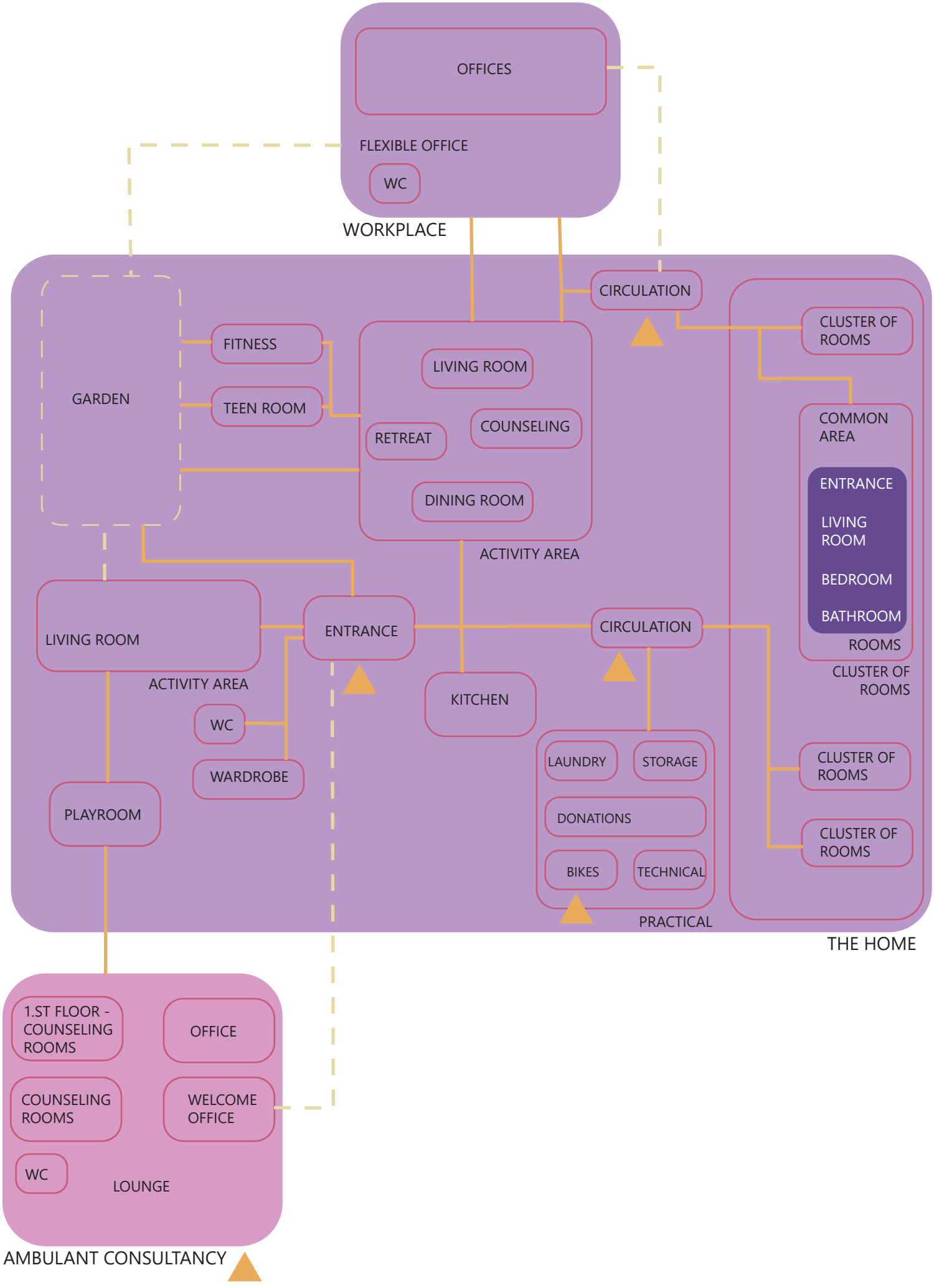


Building materials should first and foremost be reused, then recycled, and if new materials are required, they should be biodegradable to ensure a low GWP.



The building should maintain anonymity by transforming the exterior facades with respect to the historic architectural details, while opening the interior façade to foster connection and transparency within the private garden.

Illu. 53: Design parameters.


OFFICES
FLEXIBLE OFFICE
WC
WORKPLACE
CIRCULATION
GARDEN
FITNESS
TEEN ROOM
LIVING ROOM
COUNSELING
RETREAT
DINING ROOM
ACTIVITY AREA
CLUSTER OF ROOMS
COMMON AREA
ENTRANCE
LIVING ROOM
BEDROOM
BATHROOM
ROOMS
CLUSTER OF ROOMS
LIVING ROOM
ENTRANCE
CIRCULATION
ACTIVITY AREA
WC
WARDROBE
KITCHEN
PLAYROOM
LAUNDRY
STORAGE
DONATIONS
BIKES
TECHNICAL
PRACTICAL
CLUSTER OF ROOMS
CLUSTER OF ROOMS
THE HOME
1.ST FLOOR - COUNSELING ROOMS
OFFICE
COUNSELING ROOMS
WELCOME OFFICE
WC
LOUNGE
AMBULANT CONSULTANCY

Function diagram

Based on the knowledge gained up until now, a function diagram was developed (see illustration 54) to create a common understanding and overview of the connections between different zones. For further insight into the functions see the final room program in appendix 2.

To increase the perceived safety of the shelter, the institution is the eye of the building, always looking out at people entering or arriving. However, a separation between the ambulant consultancy and their entrances ensures that the home maintains an atmosphere of normalcy. Still, it is connected to the workplace to reduce the power imbalance between staff and residents, both user groups sharing dining area, bathrooms and communal facilities.

The private bedrooms are detached from the main common areas to foster a calmer environment where the residents can retire. Smaller spaces for gatherings create an in-between zone where cautious residents can meet with fewer people before deciding to join the larger communities.

As part of the common areas, smaller nooks or niches are dispersed to offer spontaneous sensory experiences throughout everyday life. This shapes places for reflection and contemplation in order for the residents to process their traumatic experiences.

Illu. 54: Room diagram defining the connection between the functions in the design proposal.

Design process

Illu. 56: Room diagram defining the connection between the functions in the design proposal.

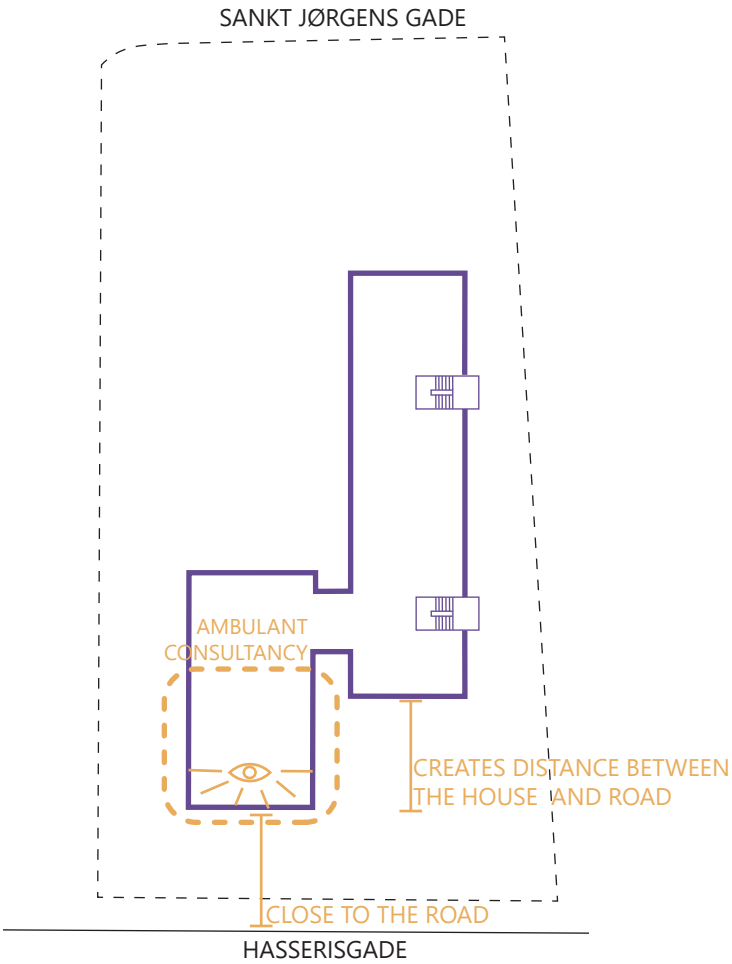
The starting point

Initial layout

When starting the design of the building, it was quickly decided to use the ground floor for the communal activities of the home and contain the private rooms to first and second floor of the western building volume which would further enhance the feeling of privacy. This would allow for easy access to the garden and have them visible when entering the building.

Ambulant consultancy

Due to the publicness of the southern facade and the protrusion of the western building volume, placing the ambulant consultancy here would push the residential rooms towards the garden and away from the eyes of the street. In addition, it would be easily accessible and visible for people arriving for the first time.

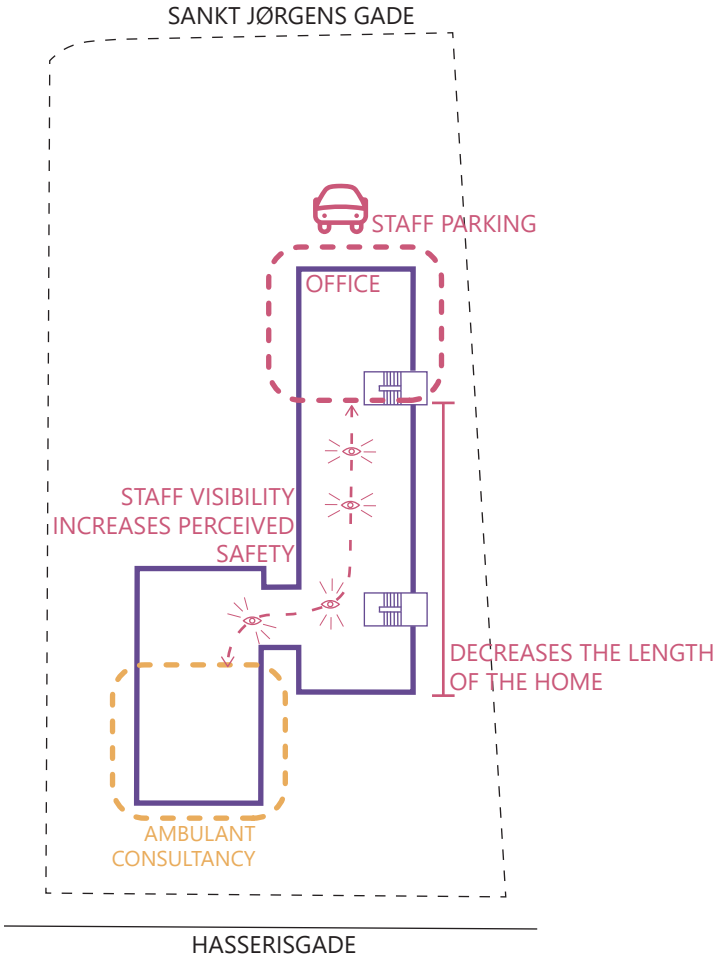


Illu. 57: Placement of the ambulant consultancy.

The workplace

After this, it was suggested to locate the offices in the northern part of the eastern building volume to concentrate the everyday communal functions of the home – such as kitchen, dining and living areas – into a central, compact zone. This not only minimizes the feeling of institutional presence within the heart of the building but also support oversight by allowing staff to observe the arrival and movement of visitors and residents from multiple vantage points. Furthermore, it would foster activity, familiarity and an increased sense of perceived safety as the staff walk between the two workspaces. Since parking space is already established in the northern end of the site, this would also make it easy for the staff to get to work.

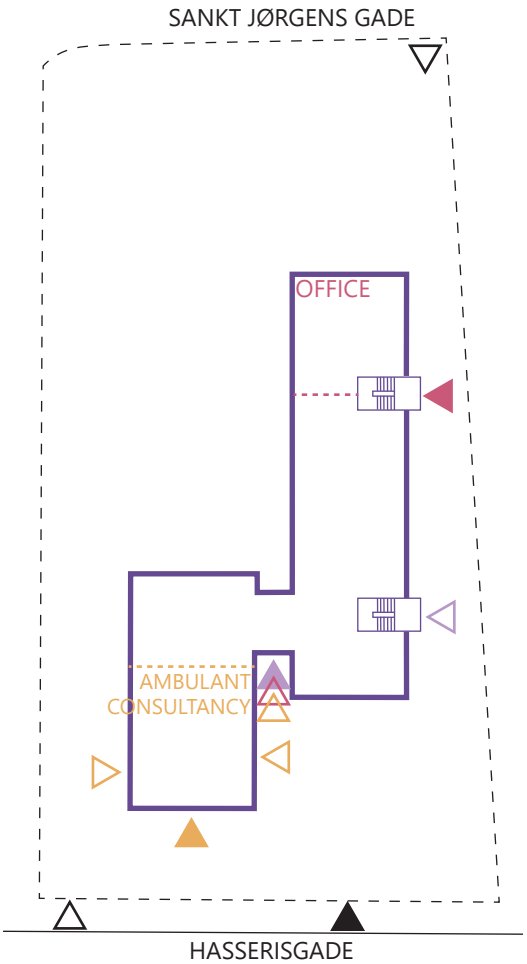
It was briefly considered whether the staff offices should be located in the southern part of the eastern building volume, be distributed throughout the building or be placed together with the ambulant consultancy. Dispersing the offices could help reduce the perceived power imbalance between staff and residents by making their presence feel more integrated. However, this approach would result in unoccupied rooms during evenings in areas intended for social activity and community. On the other hand, placing the offices together with the ambulant consultancy could reinforce the presence of the institution, potentially distancing the staff from the daily life of the shelter.



Illu. 58: Placement of the workplace.

Arriving

After deciding on the overall placement of the ambulant consultancy, the workplace and the home, the entrances were further investigated to establish the initial flow of the building.



Proposal 1 - chosen staff entrance
Makes it more convenient to enter from the parking space contrary to having to walk around the whole building

Proposal 2 - staff entrance
Using it as a secondary entrance enhances the visibility of the staff and the institution, increasing perceived safety

Proposal 1 - resident entrance
Would make it seem like the residents are using a secondary entrance as the main one even though they're the main users and it's their home

Proposal 2 - chosen resident entrance
Utilizes the possibility of creating a view of different communal activities to join when entering, and increases the sense of hominess as they enter through what is architecturally decoded as the main entrance of the house

Proposal 1 - ambulant entrance
By placing it here, the former tv area and dining hall that was deemed of high architectural value would have to be included as part of the ambulant consultancy

Proposal 2 - ambulant entrance
Places the entrance too close the resident's as they get a clear view into the home, challenging the privateness and annonymity

Proposal 3 - chosen ambulant entrance
Places the public entrance away from the residents', enhancing the privateness and annonymity

Proposal 4 - ambulant entrance
Would make it difficult to decode where to enter the ambulant consultancy and not the house when arriving at the site for the first time

Proposal 1 - site entrance
Using this as the main entrance would make it more difficult to spot as people would have to enter from a smaller street

Proposal 2 - chosen site entrance
Moving the current site entrance a little east would, together with greenery, help avoid visitors using the straight path to the main entrance of the home

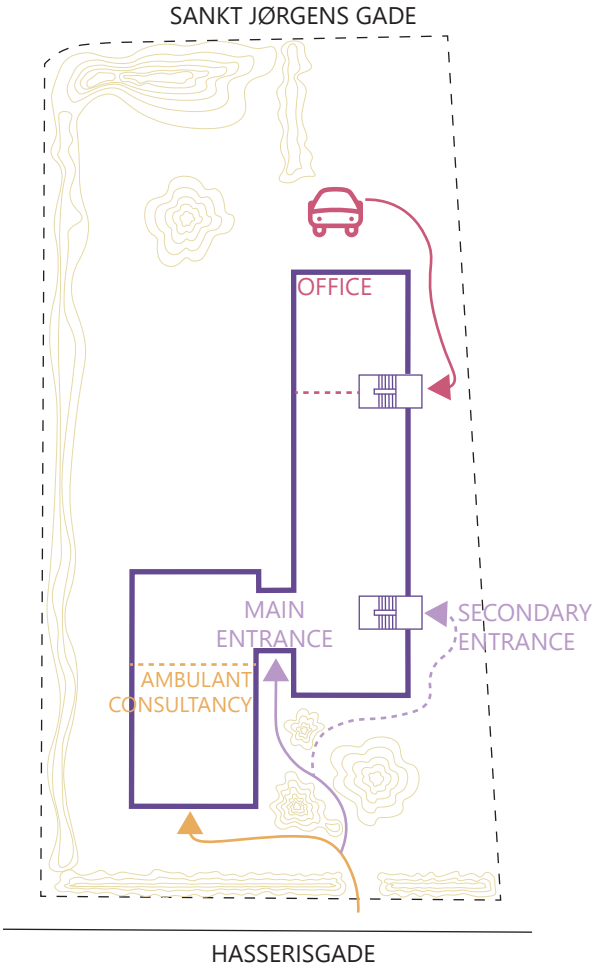
Proposal 3 - site entrance
Having more than one site entrance from Hasserisgade would possibly confuse people arriving for the first time, by which a hierarchy would have to be established

Illu. 59: Placement of the entrances with multiple proposals.

As can be seen on illustration 59, multiple proposals were considered, mainly reusing the original entrances. It was assumed that most users would arrive from Hasserisgade with the bus as not all women have a car. The current main entrance, pulled back a little further from the street than the rest of the facades, was therefore a natural way of entering the building, immediately giving the person arriving a great overview of the place and its activities. It was therefore preserved, and one of the main questions was then who should enter through it. Due to its large glass area and institutional look, it was shortly discussed if all users should use it whereafter they would go to their separate parts of the building. However, this would create the same chaotic clash between different levels of privacy and publicness as in the current shelter.

There was a wish to use the former tv room and dining hall for sensory experiences available to the women, by which the entrance for the ambulant consultancy was later placed in the southern part of the western building volume (see illustration 60). Entering from west might make it difficult to naturally be led towards the door as it would be difficult to see from the entrance of the site. It was therefore discussed if the ambulant consultancy should have its own site entrance as well, but this could make wayfinding even more difficult.

A central aim of the layout and flow was to gently encourage residents to engage with one another to foster casual encounters and a sense of community. Insights from the interview with Aalborg Women's Crisis Shelter emphasized the importance of the residents passing through or maintaining visual connection to communal areas before reaching their private rooms. For this reason, most residents should enter through the main entrance, which was challenged by the existing secon-



Illu. 60: The decided entrance and the paths leading to them.

Illu. 61: Sketch proposal of the entrance with inspiration in the Leeds Maggie's Centre.

dary entrances, allowing direct access to the private rooms upon arrival. However, it was decided to preserve the stairways because of fire safety and the high financial and environmental cost of removal. Instead, these were reimagined as part of the main circulation, extensions of the common areas that can support informal encounters.

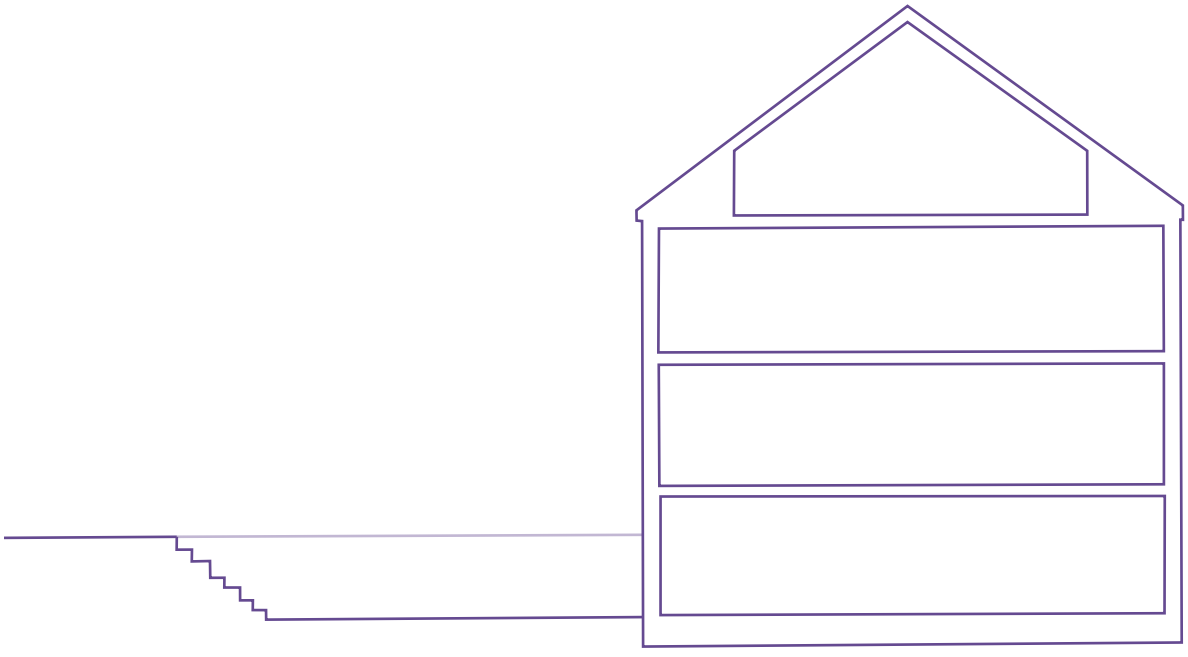
To ease the workstream of the staff arriving by car more efficient, an entrance in the northern part of the eastern building volume was prioritized. If arriving with bus, they would still be able to use the main entrance of the residents which would increase familiarity between the two user groups.

At last, the paths towards the entrances were shaped with inspiration from both Maggie's Centre in Leeds and Cardiff (see illustration 60 and 61). The curved path leading to entrance of the residents, branching out from the more public one for the ambulant consultancy, is partly hidden by greenery to obstruct the sightlines into the shelter, establish a stronger sense of arriving at a traditional house with a front yard.

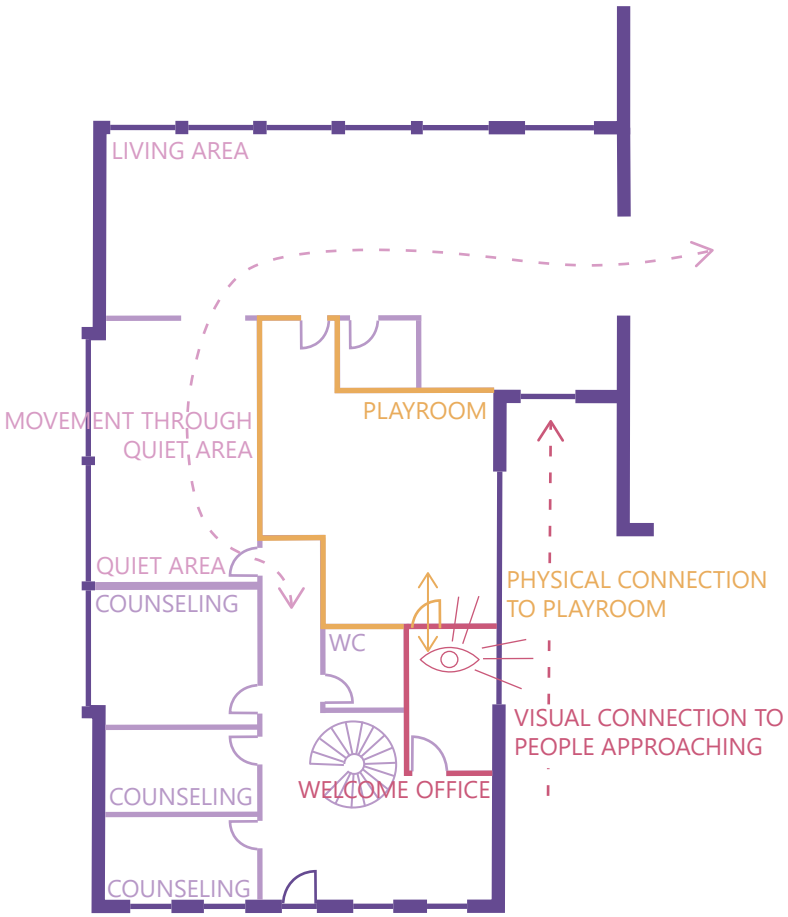
Building layout

To ensure the shelter remains active and welcoming throughout the day, and to avoid areas feeling deserted or unsafe, it was essential that most spaces be multifunctional. This raised questions about how much different user groups should share: for example, should the staff have a separate meeting and lunchroom like they have in the current shelter, or instead share the dining area with the residents? Sharing these spaces was favoured to strengthen connections between the two user groups and reduce institutional boundaries.

To further enhance visibility and create a stronger flow between spaces, the ground floor of the eastern building volume was opened up. However, as the basement was not initially liveable and regulations limited its use to non-residential functions, additional space was needed. Several options were considered: extending the building like it had been done before, constructing a new separate volume, or digging out some of the garden to bring part of the basement above ground level. The latter was chosen, as it preserved more of the buildings original architecture and allowed the basement to accommodate communal areas. This approach also enabled the creation of a lowered garden terrace, improving outdoor access and introducing natural zoning in the garden.



Illu. 62: Section showing the lowered terrace in relation to the garden and building.

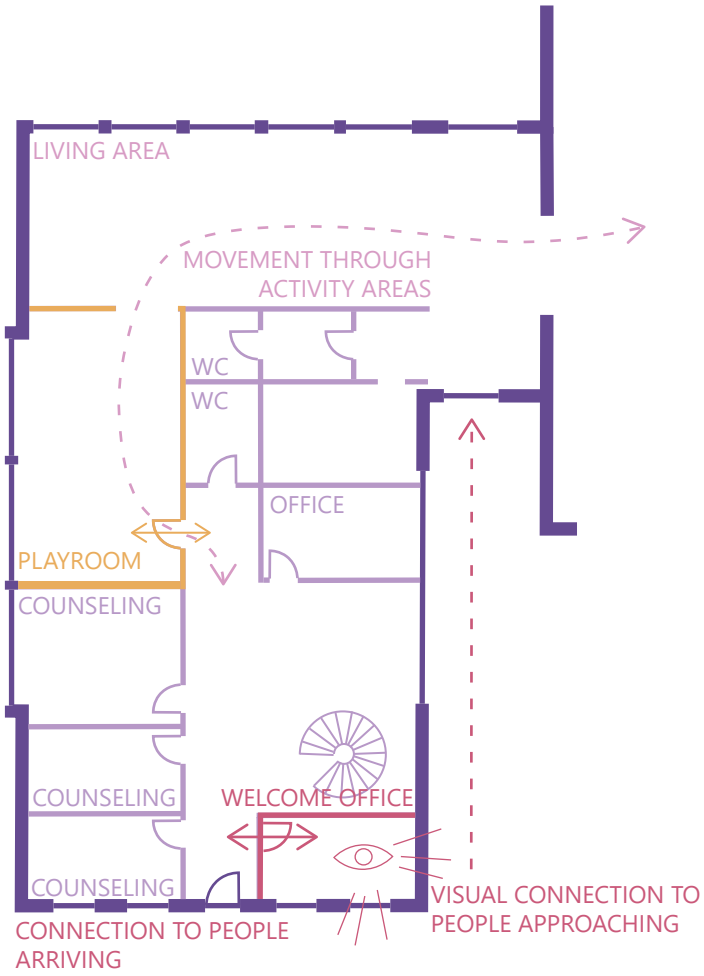


The institution

After identifying the optimal location for the ambulant consultancy, the necessary functions were carefully considered. Based on insights from the interview, it was estimated that the consultancy required seven counseling rooms and a welcome office. It was important that the latter have visual access to both the shelter and consultancy entrance, ensuring oversight of people approaching, and be situated near the playroom to support situations where a woman may need to talk privately while her child is cared for nearby.

In proposal 1, the layout allowed the welcome office to oversee the main entrance of the home. However, this proposal raised concern as the residents needed access to the ambulant consultancy when meeting with authorities or other visitors. The idea was that they should be able to enter without going outside, just like newly arrived women should be able to go directly into the home to immediately feel welcomed. The route between the two passed through a designated quiet sensory zone, which disrupted the intended calm atmosphere. An alternative option was to redirect the flow through the playroom, which felt more appropriate as children may not be as easily affected by the presence of strangers.

Illu. 63: Proposal 1 - The programming of the ambulant consultancy and its relation to the playroom and access to the home.

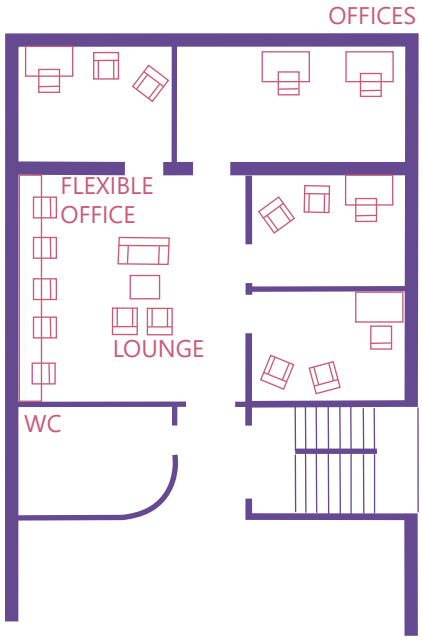


Proposal 2 responded to these issues by relocating the playroom to the former dining hall, though it was originally intended for sensory experiences due to the estimated architectural value of the arched windows. Yet, it was argued that children need sensory experiences as well and that it could foster an almost magical, playful and adventurous atmosphere. At the same time, it freed up space around the main entrance and created a more direct and secluded connection between the home and consultancy.

In this version, the welcome office is located closer to the consultancy entrance as it serves as the first point of contact when entering the space. This balances the access, supervision and need for spatial clarity.

As for the counseling rooms, they were conceived with varied purposes in mind. Some needed to accommodate formal meetings for meetings with the municipality or police, while others should offer a more informal, lounge-like atmosphere to support therapeutic conversations and visits.

Illu. 64: Proposal 1 - The programming of the ambulant consultancy and its relation to the playroom and access to the home.



At the opposite end of the building, the connection between the institution and the shelter should be open and seamless, with minimal distinction between the two. This allows the residents easy access to staff for instance to reach their contact person when needed. Although integrated into the residential environment, the offices still need to function as a professional workspace. Placing them at the far end of the building helps maintain a quieter atmosphere supporting focused work.

Just outside the offices, a multifunctional, flexible space was created. Earlier in the process, this area was used for staff meetings and lunch, but by relocating those activities to the shared residential dining room, the space could be transformed into a lounge and open office space. The lounge could serve as a quiet, calming area for smaller gatherings during the evening, ensuring activity in the far end of the building as well, while the office space can be used by staff or residents looking for housing or job opportunities.

When meetings are necessary, staff can use the dining room during the day, when most residents are typically out, or one of the counseling rooms for more confidential conversations. Moreover, bathrooms are shared between staff and residents, further supporting the sense of equality and community.

Illu. 65: Programming of the office area.

Kitchen-dining area

The placement of the kitchen was carefully considered, drawing inspiration from its traditional role as one of the first and most central spaces in a home; a place of gathering, warmth, and daily rhythm. Even though a chef will prepare dinner for the residents and the kitchen therefore needs to be a functional space, it was also thought of as a social hub with a large kitchen island that provides room for shared activities, like baking with children, helping the chef or simply gathering informally, which helps strengthen the sense of community. Because of this, the kitchen was placed close to the main entrance so that residents are greeted by the comforting smell of food when they come home.

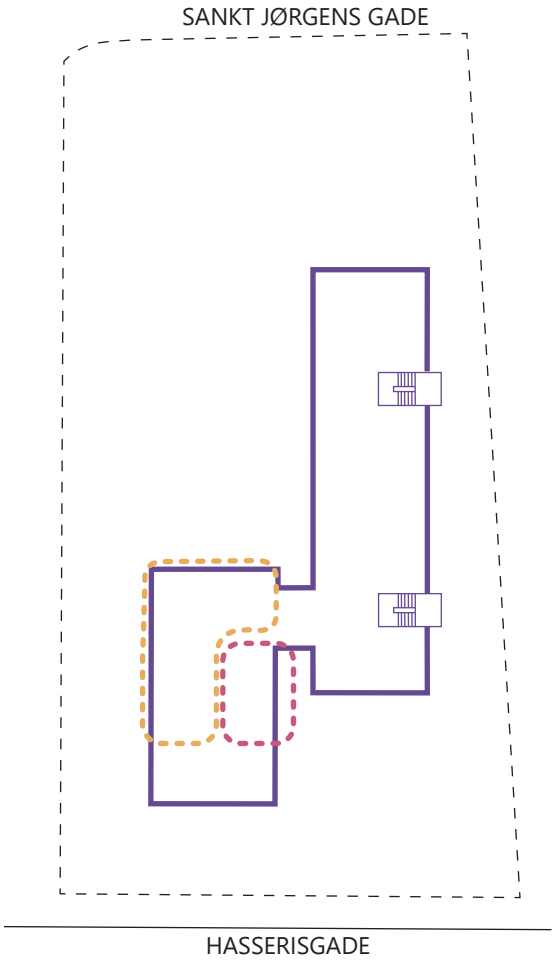
Three overall proposals for the placement were developed.

KITCHEN

DINING ROOM

Proposal 1: the kitchen and dining area kept in their original location to reuse existing plumbing and maintain closeness between the functions. This also allowed the dining to benefit from the arched windows and create an extraordinary experience during an everyday activity. However, this conflicted with other priorities, such as the placement of the playroom in relation to the welcome office and the need for a more spacious and varied dining layout that didn't resemble a cafeteria.

Illu. 66: Kitchen and dining room - proposal 1

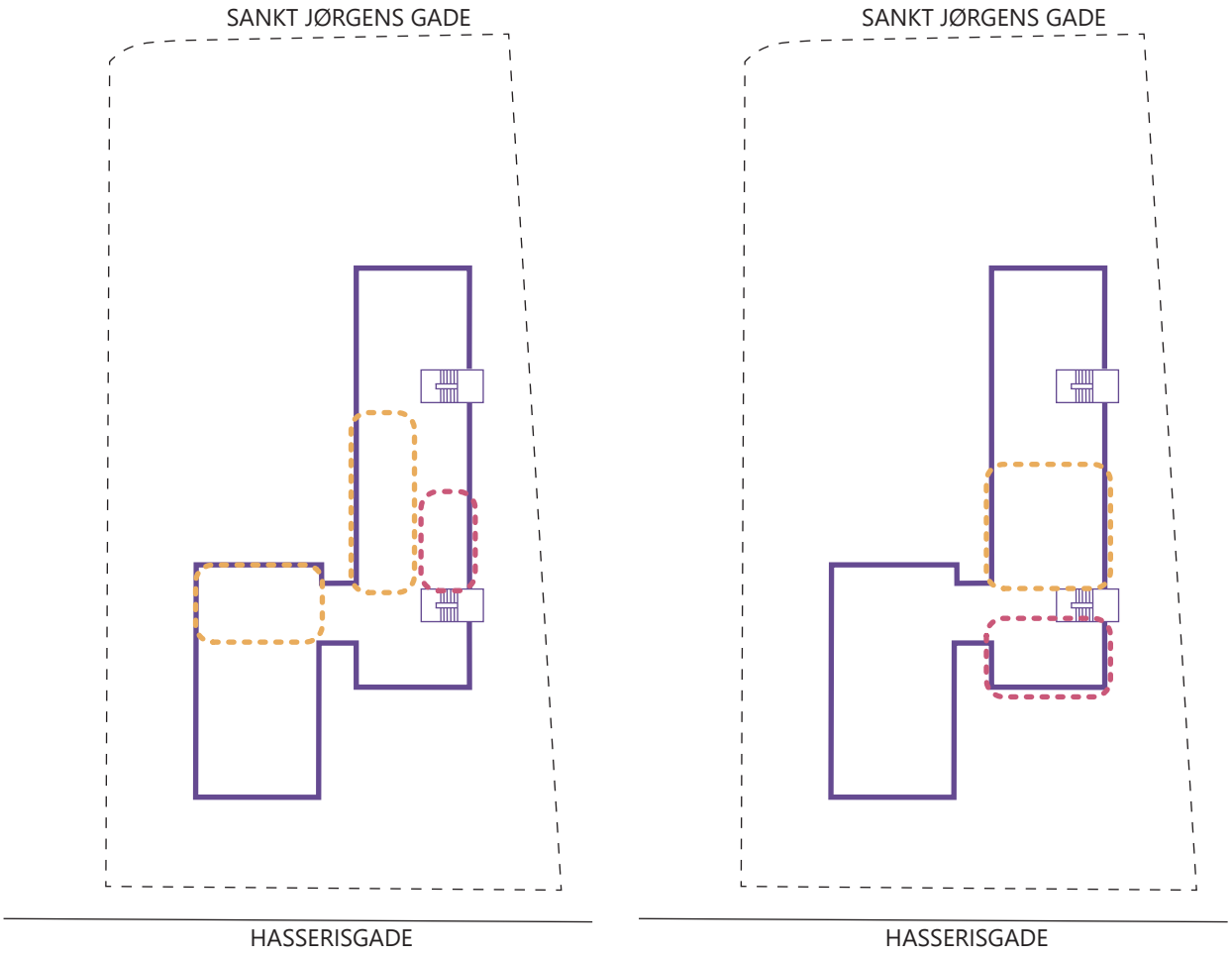


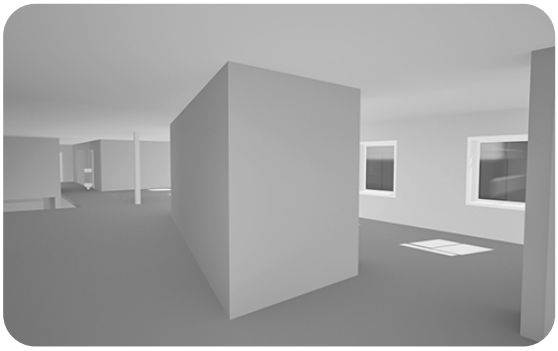
Proposal 2: the kitchen is placed along the eastern facade of the eastern building volume with dining facing west and possibly located in the basement to allow level-free garden access. But keeping the kitchen visible and accessible on the ground floor better supported a home-like environment and moving food between floors seemed impractical. At the same time, the combined kitchen-dining area created the sense of a cafeteria.

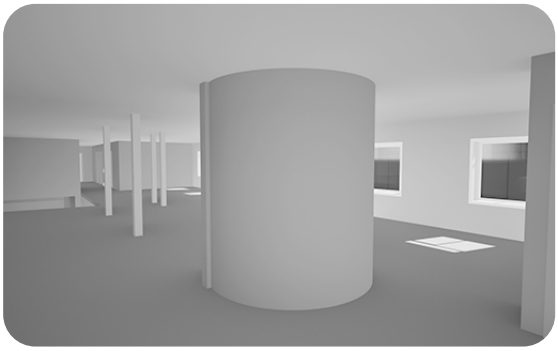
Illu. 67: Kitchen and dining room - proposal 2

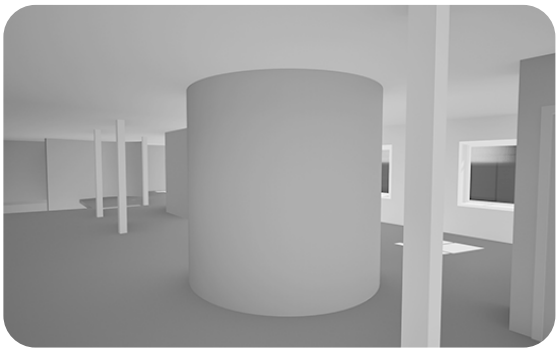
Proposal 3: the kitchen is located at the southern end of the eastern building volume which made it a distinct but connected space due to the direct flow from the main entrance to the stairway creating an invisible barrier. The placement increases the perceived safety as it allowed people working in the kitchen to see others approaching the building. On the other side of the barrier, the dining area was placed, offering a view of the garden.

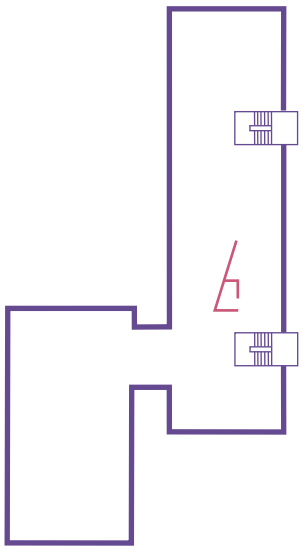
Illu. 68: Kitchen and dining room - proposal 3

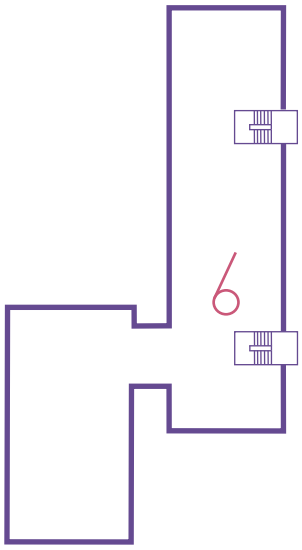


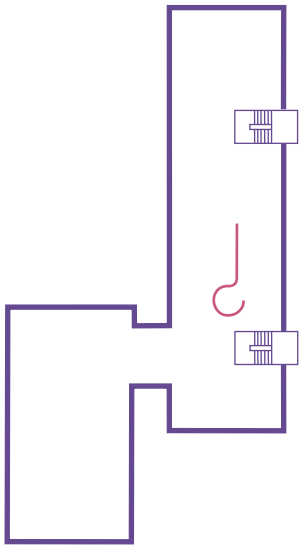










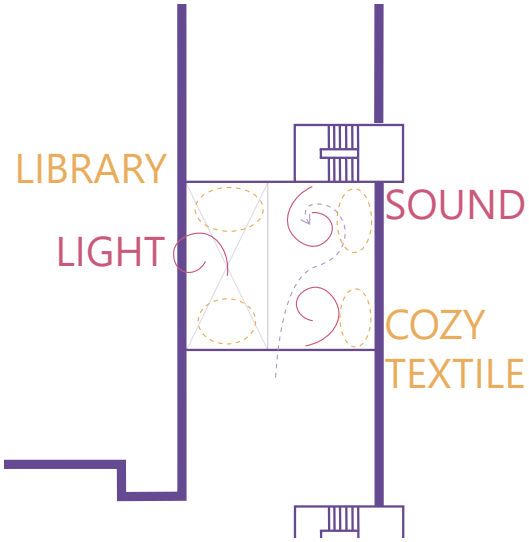


Room divider

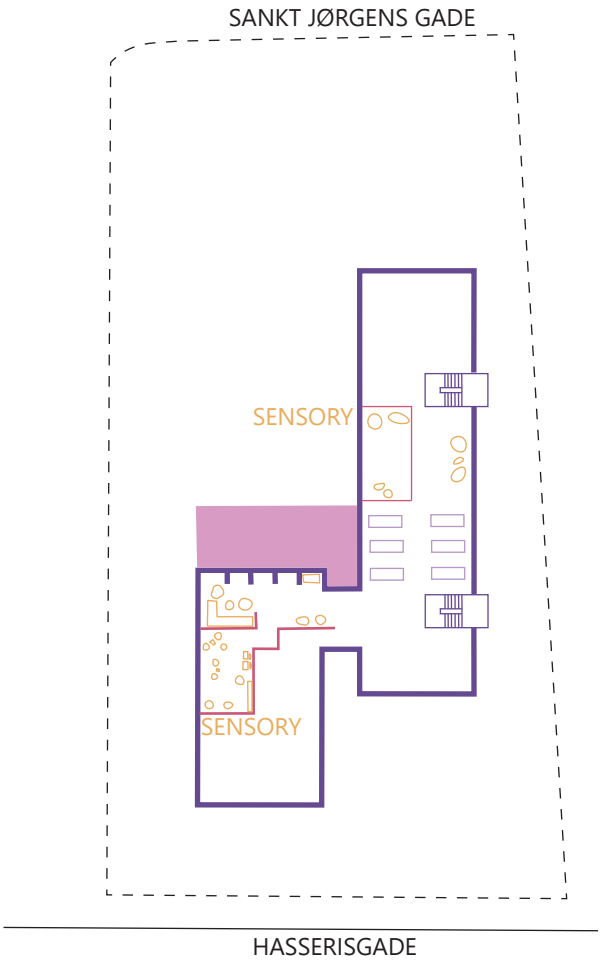
The dining area later evolved from simply being an eating space to also accommodating creative workshops, games or casual conversations. To make the space more comfortable and less institutional, it was considered using the existing load-bearing structure to divide the space, offering cozy corners or nooks for retreat while keeping an open and social atmosphere.

Different iterations of the divider were made, all with the purpose of also leading the eye towards the northern part of the building when entering the kitchen-dining area. Ultimately, soft curves were chosen to lower the speed of the flow and offer more nooks for seating or storage.

Illu. 69: Iterations of the room divider in the dining room.



Illu. 70: Proposal for the sensory area and a way of creating specific experiences.



Illu. 71: Placement of the sensory area.

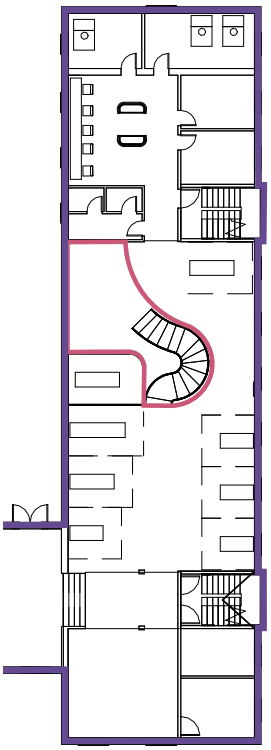
The activity area

To enhance the sense of safety and encourage use of the common areas, a part of the ground floor in the eastern building volume was removed to create a double-height space. The purpose was to provide clear sightlines between the basement and ground floor, making the building feel more active and connected. Furthermore, it allowed natural light from west to possibly contribute to sensory experiences and filter deeper into the structure, prompting the idea that this could serve as a space defined by light, materiality and connection to nature.

Based on the case study of the Centre for Cancer and Health in Copenhagen which concluded, due to materiality and scale, that the double-height space resulted in an unhomely, institutional space, attention was paid to avoid this. The cut in the floor was therefore positioned centrally in the building to make room for an exit from the residents' main entrance to a terrace that could be used for dining during the warmer months.

At this point, a sensory area was also placed in the western building volume to utilize the architectural value of the former dining hall and tv area. To differentiate between this and the other, it became the 'quiet' sensory zone with space for reflection and retreat. In contrast, the eastern double-height space was imagined as a more active zone with a higher activity level. It was further explored if the zones should be swapped as it created a conflict with the adjacent activity level of the playroom. Insights from Skejby Psychiatry emphasized the delicate balance between therapeutic impact and maintaining a homely environment. Overdesigning sensory experiences could compromise the everyday feel of the shelter, while under-designing could limit their psychological benefit. Therefore, the concept was further developed as it was also questioned if the children would be able to differentiate between quiet and active, and if the larger rooms was something that was going to be used.

Instead of larger, designated sensory zones, smaller nooks and niches should be integrated throughout the building to offer moments of pause and emotional grounding in everyday transitions. The double-height space was turned into a multifunctional activity room for both retreat and social gatherings, becoming the heart of the house. The square opening was reimagined with different proposals for softer, more dynamic forms to reflect the intended mood and atmosphere of the space. A third staircase was introduced to centralize the flow and invite people into the basement.

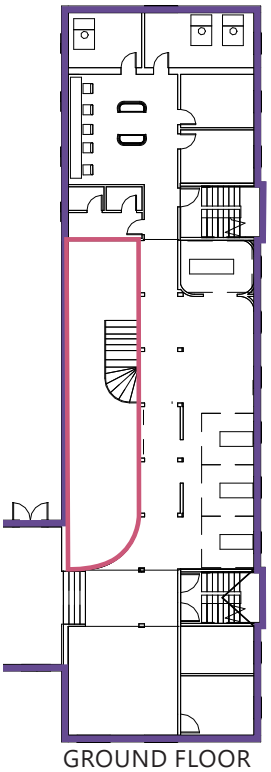


GROUND FLOOR

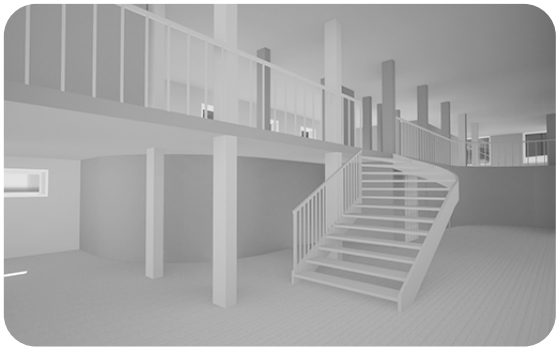
Illu. 72: The staircase and cut-out in the ground floor - Proposal 1.

Proposal 1

The staircase was seen as the central gathering place of the house. The curves are in contrast to the mainly strict lines of the existing building, drawing the attention of the residents and inviting them downstairs. To establish a barrier between the activity zone and dining area and reduce the scale of the space, a room for both dining and counseling was placed towards south. This proposal ended up being rejected to find a more cohesive idiom.



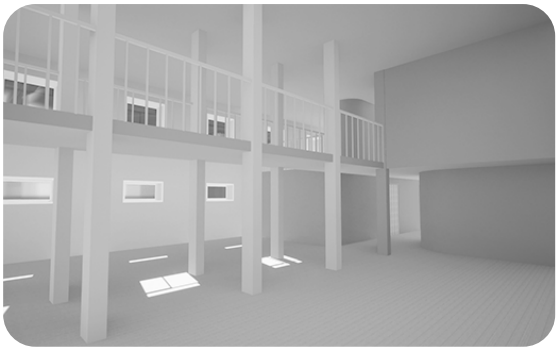
GROUND FLOOR



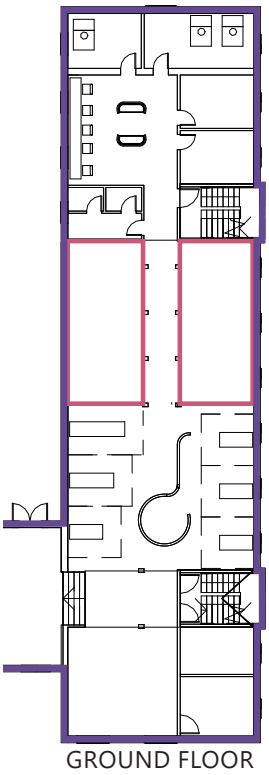
Illu. 73: The staircase and cut-out in the ground floor - Proposal 2.

Proposal 2

The cut was extended along the western facade to create an even greater connection between the basement and ground floor. This makes the double-height space larger, more prominent in the room, and immediately visible when entering. However, the area in the basement was deemed too narrow and the space very open, making it difficult to find a calm space and retreat. It also resulted in part of the dining needing to be in the basement, and the feeling of a very institutional space.



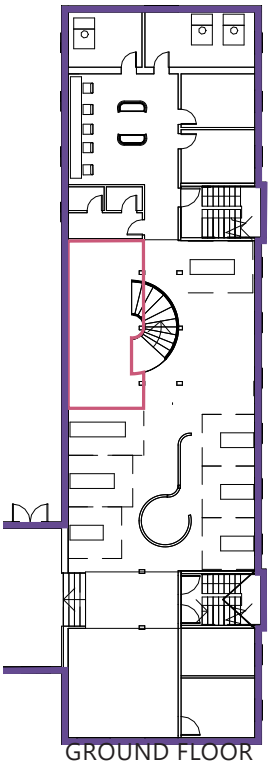
Illu. 74: The staircase and cut-out in the ground floor - Proposal 3.



Proposal 3

To attain a wider space in the basement and make the experience of walking through the area on the ground floor more exciting, a walkway was created. This left little room for the dining area on the ground floor, and just like proposal 2, the space was fairly open. A line between having double-height space, clear sight lines and semi-privacy for retreat therefore needed to be found.

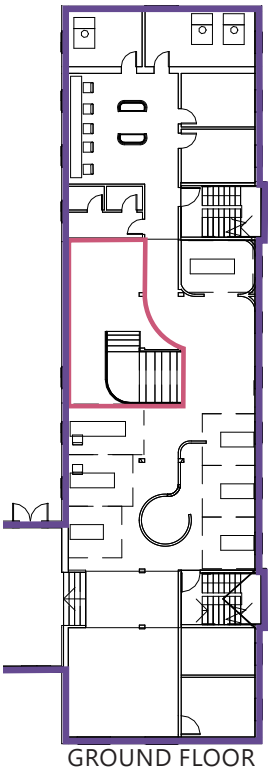
Illu. 75: The staircase and cut-out in the ground floor - Proposal 4.



Proposal 4

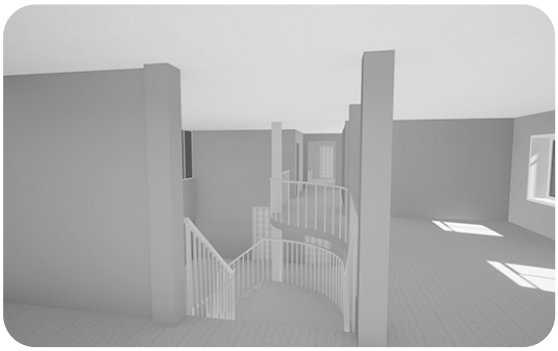
A half-circle staircase was breaking the straight line of the former hallway and creating a more symmetrical space. The area behind the staircase in the basement prepares the ground for a slower activity level as it's located away from the main flow of the staircase while the lowered ceiling results in a cozy atmosphere. The route down the staircase did however not follow the flow created by the room divider in the living room.

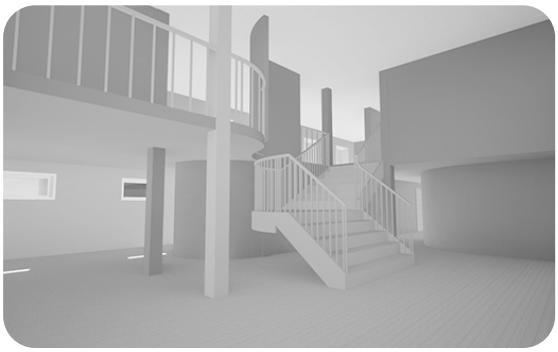
Illu. 76: The staircase and cut-out in the ground floor - Proposal 5.



Proposal 5

In this proposal, one of the main focuses was to have the staircase reflect the shape of the room divider in the living room and the flow following it. The result was a mix of straight and curved lines where the wider part invites for spontaneous meetings. A wall breaks with the long look through the building, minimizing the scale but at the same time breaking the overview of the room. The basement is entered from the east to activate this part of the building.

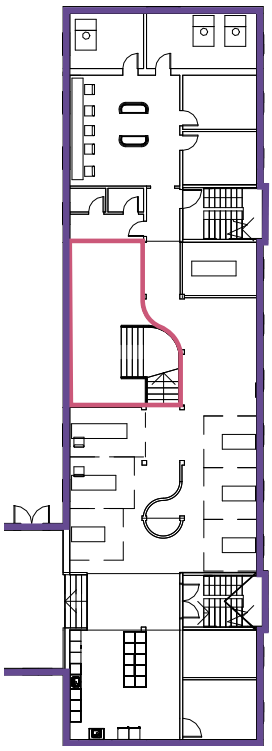




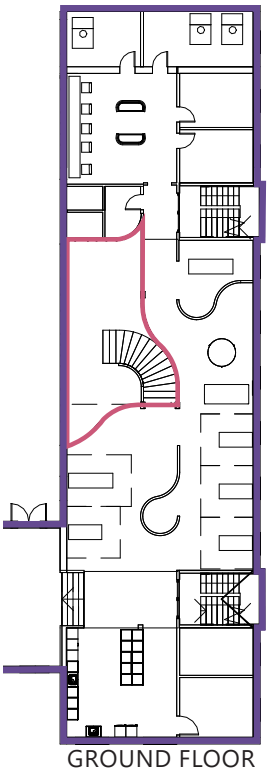
Illu. 77: The staircase and cut-out in the ground floor - Proposal 6.

Proposal 6

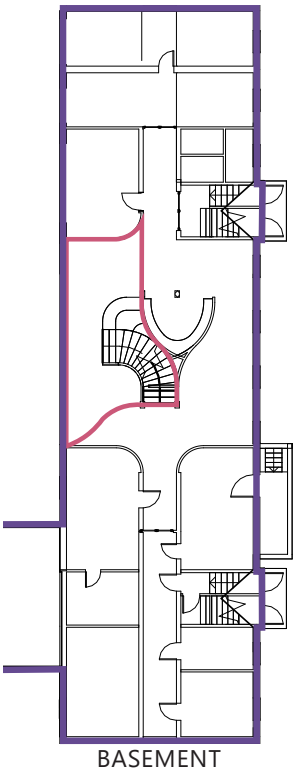
The same language is used for the staircase and cut in the floor as in proposal xx. However, instead the staircase works as an extension of the 'hallway' or walking path naturally created by the room divider. This makes it visible from the entrance to the dining-kitchen space but also results in a more natural way to go to the basement when coming from the main entrance. The sight line to the offices is maintained to make it possible to spot the staff or light during the evening, making the shared flexible office more attractive.



GROUND FLOOR



GROUND FLOOR



BASEMENT

Illu. 78: The final proposal for the staircase and cut-out in the ground floor.

Proposal 7

The wall between the dining area and the double-height space is removed to establish a clear view into the space, even from the entrance to the kitchen-dining area. Additionally, a more fluid staircase softens the flow whereas the curved shapes of the cut reflect the dynamic and playful atmosphere of the space.

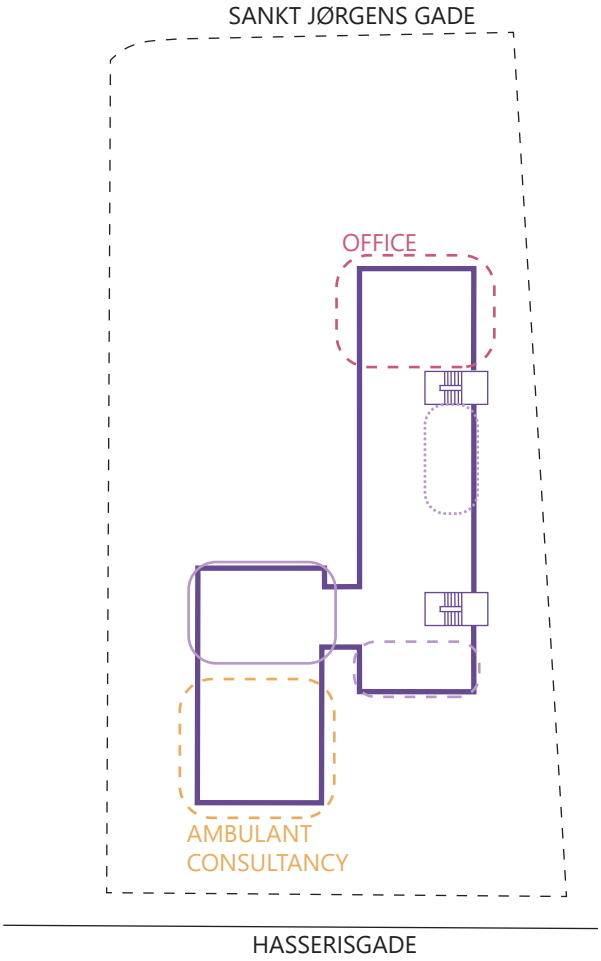
Living room

The living room underwent an extensive design process to define its purpose and scale. A key challenge was balancing the wish to accommodate all residents with the need to maintain a homely, non-institutional atmosphere.

A major consideration was whether the living room should serve as a quiet retreat or as a TV lounge. A television is often seen as a central feature in a traditional home, but the noise that comes with it raised concerns about how it would affect the atmosphere. It was therefore suggested that it should be a separate enclosed room, but this created a sense of detachment from the communal life of the house. Instead, the TV was incorporated within a multifunctional living space, reflecting a typical family home.

It was then tested if the living area should be in direct connection with the dining area, but this would create conflicts between different noise levels. For this reason, it was placed in the existing TV lounge of the dormitory, allowing mothers to relax and watch TV while still being close to their children.

Illu. 79: Proposals for the placement of the living room.



The private rooms

The private rooms are one of the most essential aspects of the shelter as they provide the only fully personal space where the residents can feel comfortable, relax and be themselves. In the current crisis shelter, the rooms are fairly small and function solely as bedrooms, and together with the shared bathrooms, they foster an institutional and stressful environment.

The focus was therefore on creating larger rooms following the succeeding aims:

Separation between living and sleeping zones: the rooms should offer both a sleeping area and a living zone to allow residents to spend time privately outside of their bed which supports a home-like environment. Storage space is essential as residents may arrive with their belongings or accumulate items to prepare for moving out

Flexible room layouts: each room should be designed to be adaptable with multiple layout options. This allows the residents to personalize their space and adjust it to suit their needs, whether it's a single woman or a mother with her children.

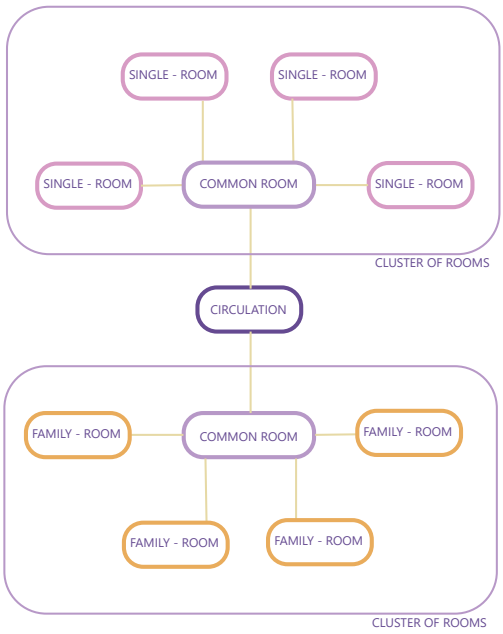
Intimate common spaces: small, inviting communal areas should be placed along the western facade to take advantage of the garden view. These spaces offer a softer transition between private and semi-private zones, encouraging smaller gatherings that help activate the facade.

Zoning by user type: To support the different needs and circadian rhythms of different users, family rooms and single rooms are separated by stairways or located on different floors (see illustration 80). This reduces noise levels for the women without children and creates communities of people with similar lifestyles.

Short corridors: in contrast to the existing structure of the private rooms, shorter hallways or clusters of rooms should form smaller, more manageable communities to increase the familiarity and reduce the number of people residents have to relate to when being closest to their private zone.

Repetition of room types: the layout should be consistent and feature similar room types on each floor for simplification as well as streamlining construction and ease wayfinding.

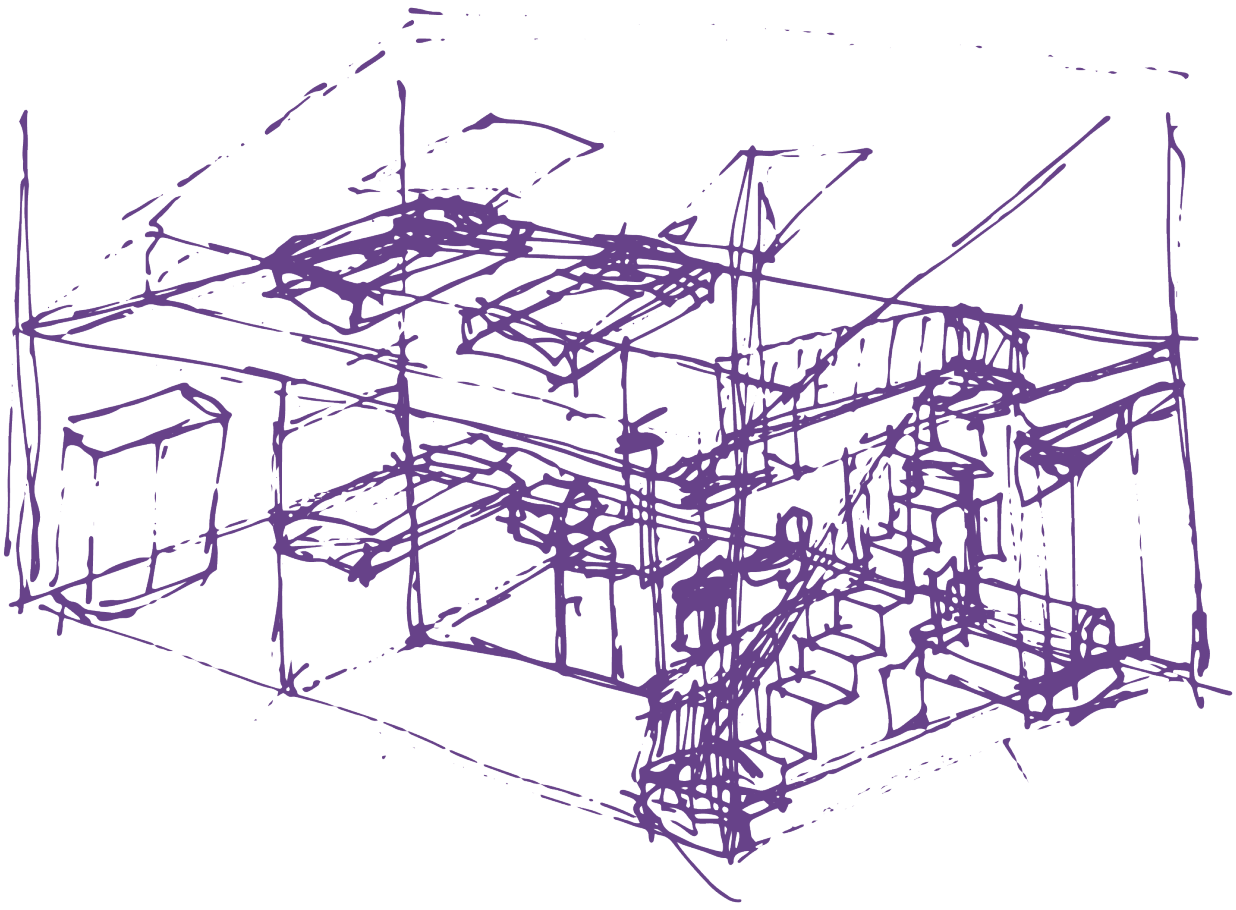
Preservation of existing load-bearing walls: preserving as many existing structural walls as possible should be prioritized to minimize demolition and reconstruction costs and reduce environmental impact. Where changes are necessary, interventions should if possible be planned to fit the existing structure.

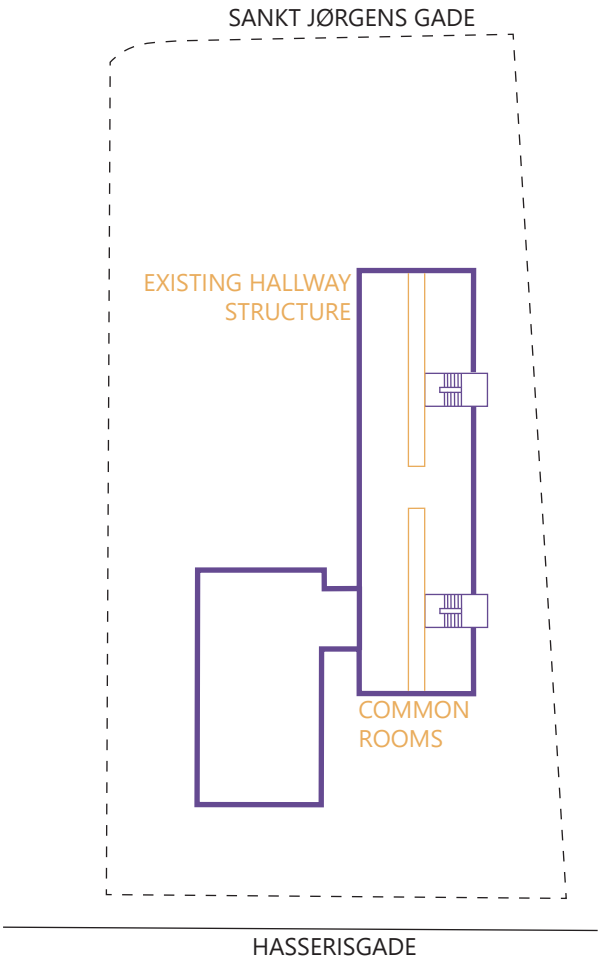


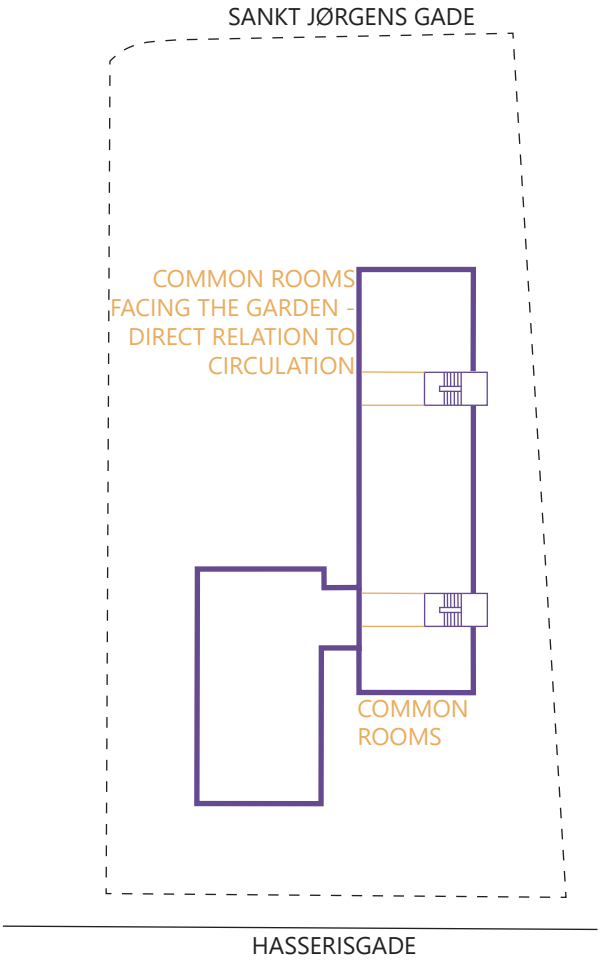
Illu. 80: Diagram of the desired cluster formations with family and single rooms seperated.

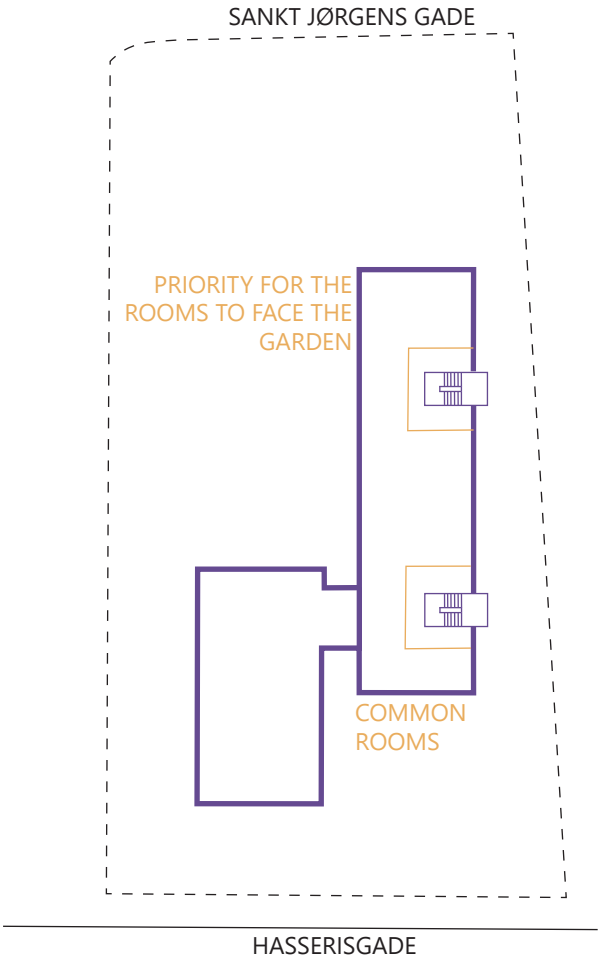
Different room designs were tested – both single and double storied (see illustration 81) to utilize the sloped ceiling which challenged the comfortability and possibilities for the rooms on the second floor. The building was divided in two and each stairway serviced two clusters of rooms to support smaller communities.

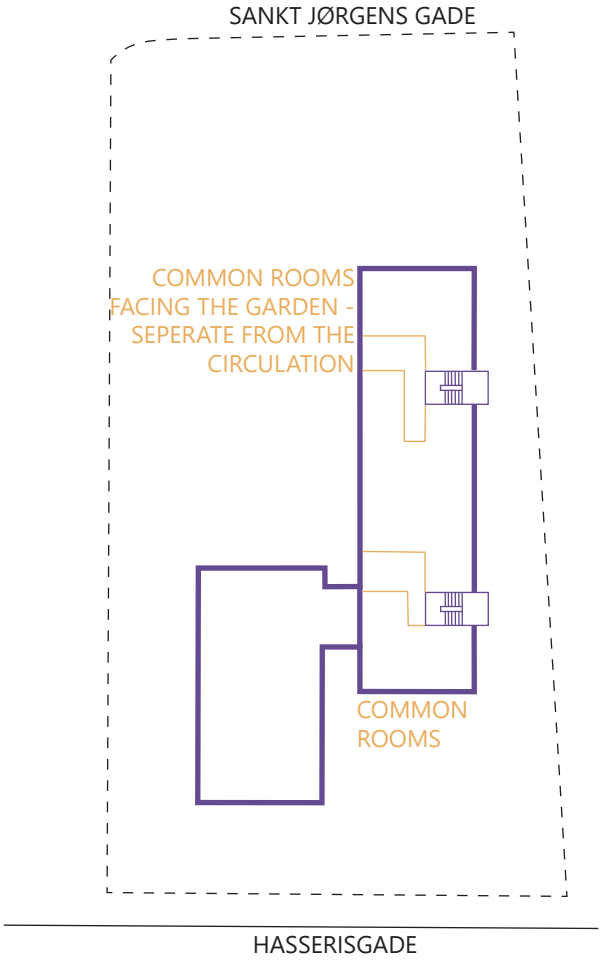
Illu. 81: Sketch proposal of a two storey familiy room.



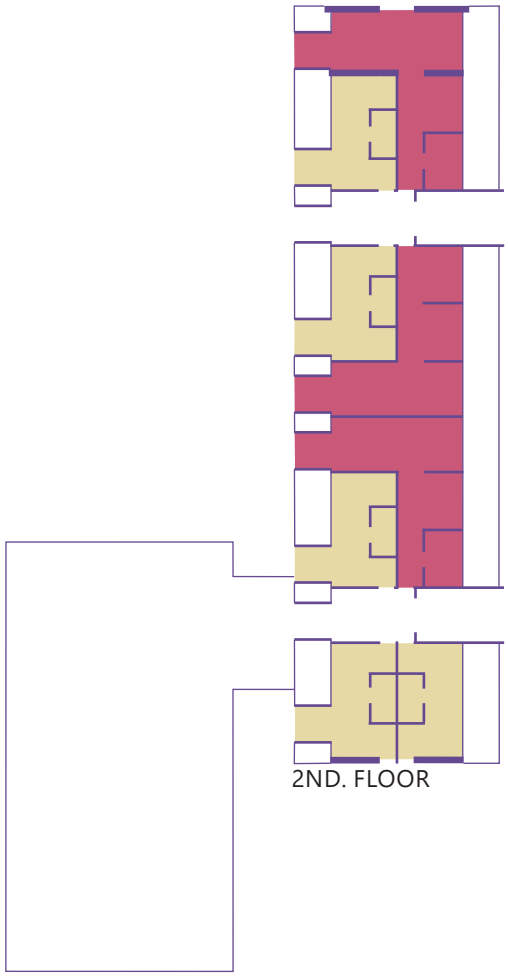


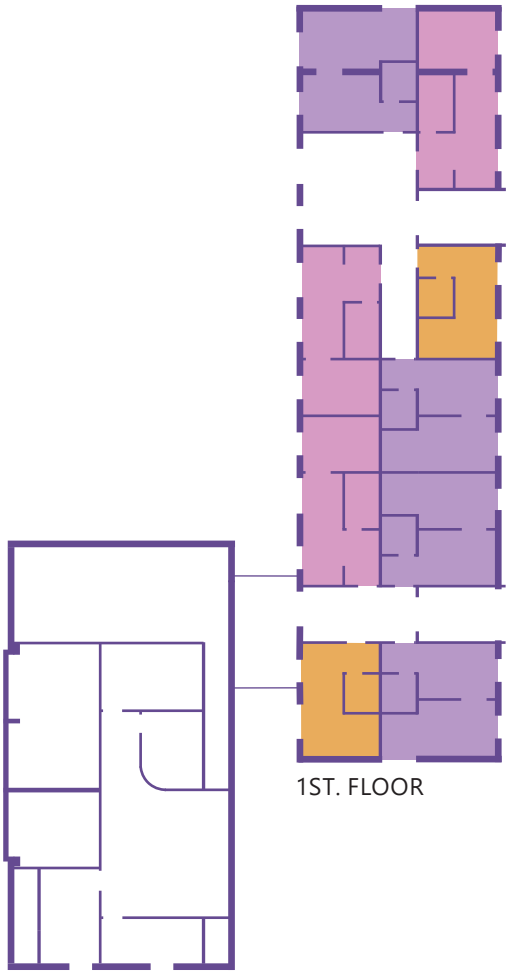






Illu. 82: Diagram og the desired cluster formating with family and single rooms seperated.





FAMILY ROOM - TYPE A

FAMILY ROOM - TYPE B

FAMILY ROOM - TYPE C

SINGLE ROOM - TYPE A

SINGLE ROOM - TYPE B

The common areas were, after several tries (see illustration 82), placed as extensions of the stairways, streamlining the layout and creating visible connections to areas when walking up and down the stairs.

Inside the rooms, the bathroom was centralized, utilizing the existing internal walls and at the same time using it as a room divider. This also left the facades open for light to come inside. Two main types of rooms were developed: family rooms (suitable for a woman and up to three children) and single rooms. A family room may be given to a single woman if no other space is available and single rooms can also be used for a woman with one child. Sofa beds enhance flexibility and make space for families of different sizes.

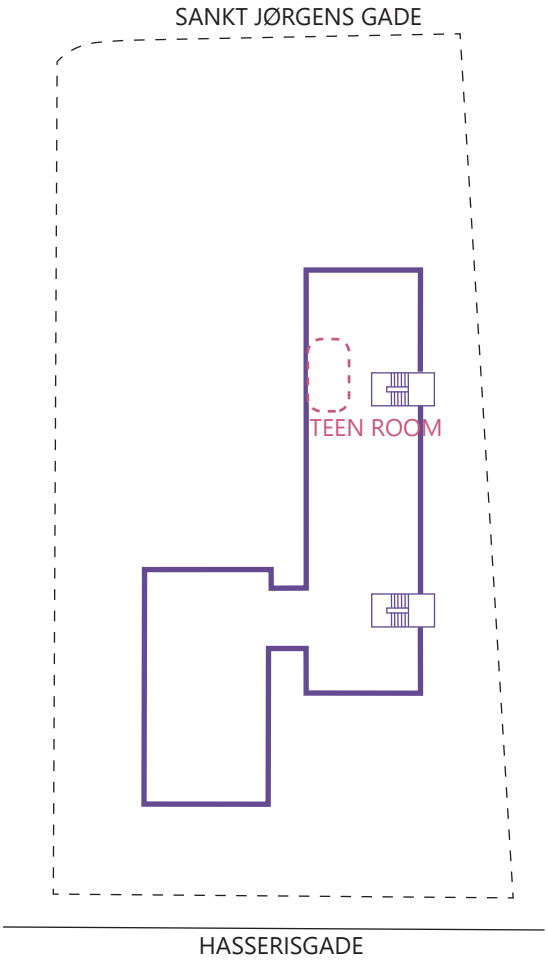
This resulted in the floor plans seen on illustration 83.

Illu. 83: Floor plans showing the placement of the different room types.

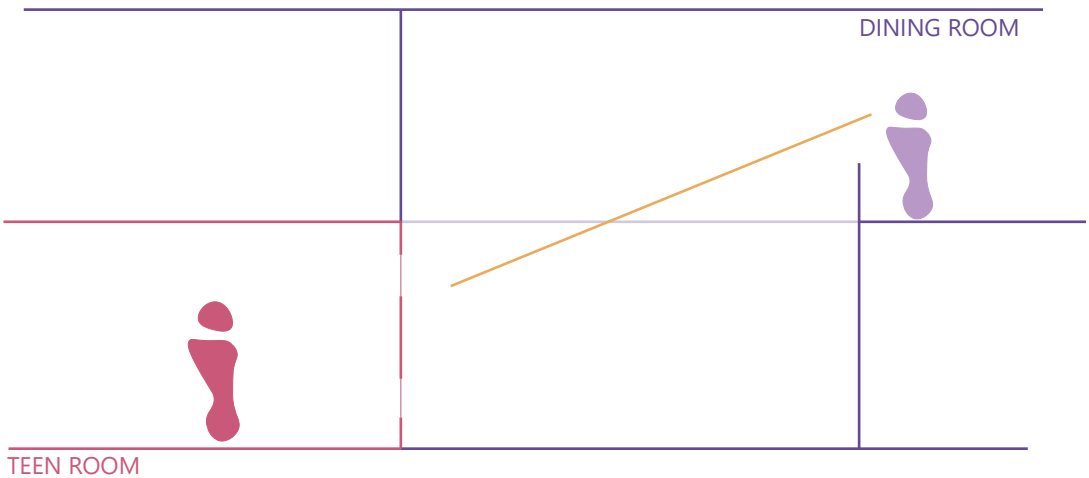
Teen room

Teenagers, like younger children, are often deeply affected by the experiences of domestic violence and need a space where they can retreat and feel a sense of autonomy (Socialstyrelsen, 2022). Since the private rooms are shared between the mother and her children, the level of privacy can be limited, especially for older children, making it essential to provide a separate area adjusted to their needs. The head of Aalborg Women's Crisis Shelter suggested during the interview that a space for gaming on a PlayStation and watching TV would be favorable.

The teen room was designed to offer a balance between privacy and subtle supervision. While it was at some point considered placing it on the ground floor for visibility, this location made it easy for younger siblings or adults to disturb. The room was therefore relocated to the basement, adjacent to the double-height activity space. This not only provides a more private and independent setting but also connects the teen room to one of the most vibrant communal areas in the house, allowing them to spill into the activity space and contribute to the life of the shelter when desired. Additionally, the proximity to both the garden, fitness and yoga room supports the formation of social relationships across different activities.



Illu. 84: Placement of the teen room.

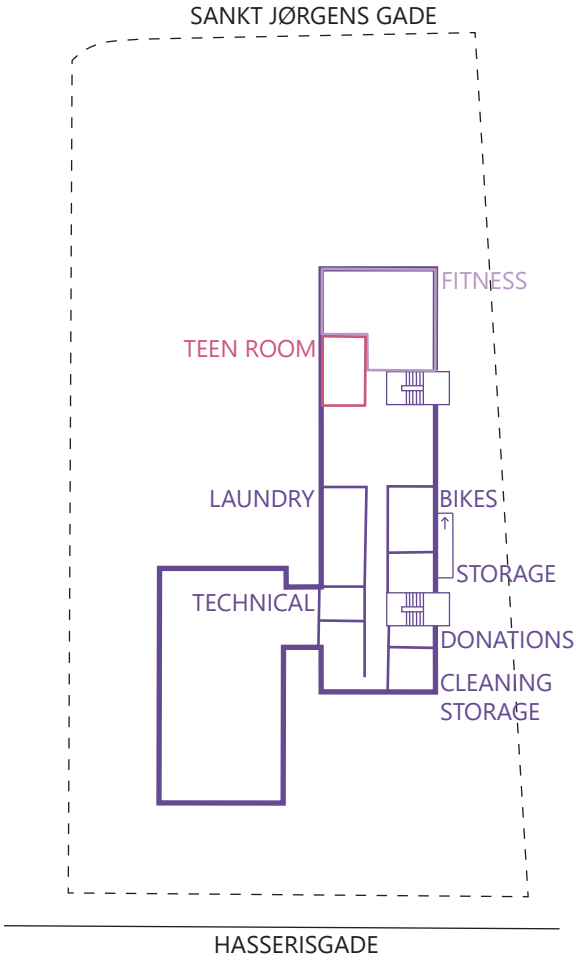


Illu. 85: Sketch showing the overview of the teen room from the ground floor.

Practical rooms

Given the scale of the building and the number of residents and staff, there was a need for practical functions such as technical rooms, general storage and laundry facilities. Many of these are currently present in the basement and will be preserved in the part of the basement only usable for non-residential functions. Adjacent to the kitchen on the ground floor, a pantry and cleaning storage are located for easy access.

Illu. 86: Room placements of the pratical rooms in the basement.



Atmosphere

Establishing a comfortable atmosphere where the residents feel at home from the time of entering to leaving, despite the tragic situation, they're in, has been one of the main focus areas. To do this, there was a focus on ensuring deinstitutionalisation despite the institution and the staff being prominent in the building. The following text therefore describes the detailing of the shelter.

The entrance

The entrance posed a challenge, as it must meet practical demands while projecting a warm and home-like feeling. Initially, the idea was to include both stroller parking, mailboxes and coat racks in the entrance area, but this quickly became cluttered. The entrance was therefore divided into two zones: a separate wardrobe space to handle more utilitarian functions and a main entrance area that opened up into the living room and kitchen-dining area. While it might resemble the practicality of an institution, it ensures that, together with the direct view of the garden, the first impression the residents will get when entering the building is one of calmness and social activity.

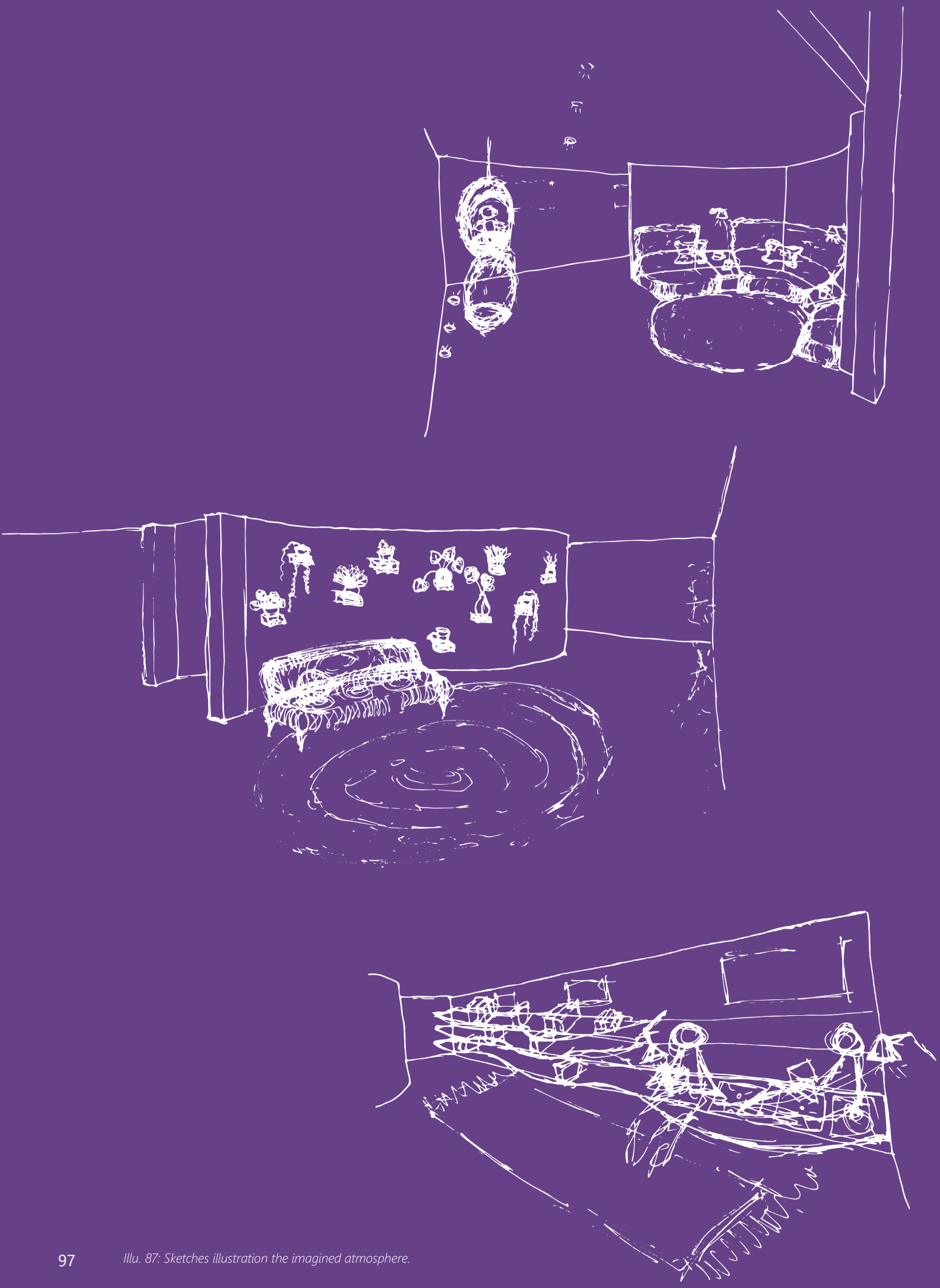
The heart of the shelter

Upon entering the kitchen-dining area, the existing circulation towards the closest stairway was preserved. This encouraged the residents to pass through the communal spaces, possibly inviting them to join ongoing activities, while still allowing them the opportunity to go directly to their private rooms if preferred. However, a glass door into the stairway should remain open to promote the flow both from and towards the rooms.

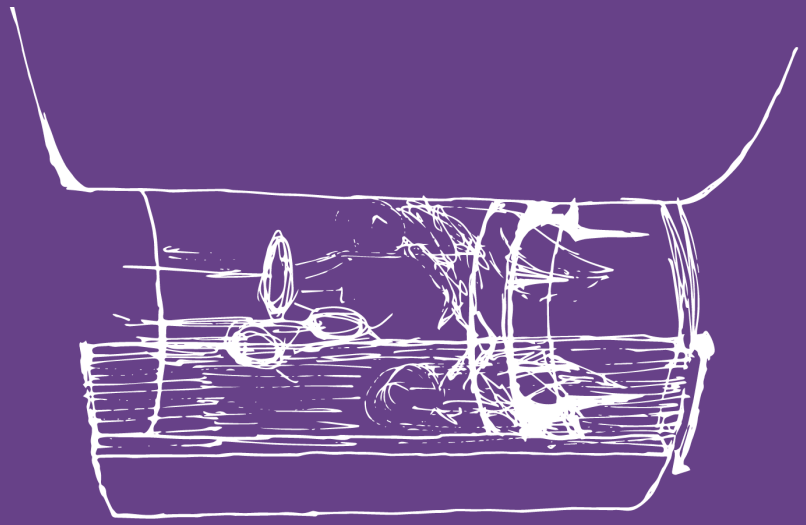
To establish a homely atmosphere in the dining space, it was imagined that a mix of furniture types and sizes would foster a more intimate and comfortable space, contributing to the de-institutionalization of the rather large area. Both ordinary dining tables and lounges should support the thought of it being a multifunctional, creative space as well as a place for dining, meetings and larger gatherings.

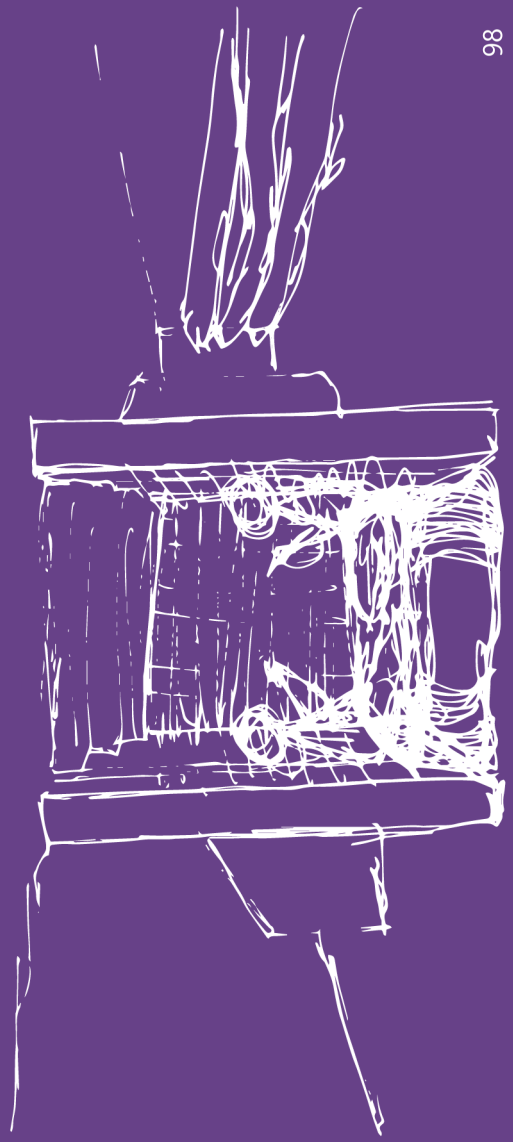
In parallel with the concept for the room divider, curved walls were introduced as an architectural tool to guide movement, ease wayfinding and create moments of sensory experiences. This was particularly used for and around the staircase in the double-height space. While the staircase had initially been envisioned as the heart of the shelter, the design evolved into something more sculptural and spatially dynamic, by which a large piece of 'furniture' became the central focal point. Curved walls guide people down the stairs which offer integrated seating and a view of the garden outside. The room is thereby divided into smaller more intimate alcoves, offering spaces for reading alone or gathering in small groups. The western part of the activity zone should blur into the garden and lowered terrace by use of greenery on one of the walls and large glass areas.

Various sketches were made to explore potential sensory experiences throughout the shelter which can be seen on illustration 87.



Illu. 87: Sketches illustration the imagined atmosphere.





This phase of the design process also explored the openness and enclosure of the double-height activity space. In earlier iterations, the visual connection between the dining area and activity zone had been blocked to reduce the perceived scale of the dining area. However, the sightline between zones were later used to enhance the overview of activity in the space. A lounge area was therefore positioned with a view of the activity space, making the presence of people on the ground floor visible from the basement as well.

To ensure that the residents have access to familiar and comfortable counseling spaces within the home itself, a multifunctional room was placed on the ground floor. This could function as a quiet dining area, lounge or counseling room depending on the need. When not in use for private meetings, a sliding door would allow it to remain open, offering a view into the activity zone and out towards the garden.

When opening up the building as much as is done, the structure of the building is challenged, as large parts of the load-bearing walls are demolished. Therefore, beams and columns would have to be added which influenced the placement of new walls to avoid having too many columns (see illustration 88). The beams were later hidden by lowering part of the ceiling, making space for ducts while also working as a guidance through the room and reminder of the former use of the building.

Illu. 88: Plan of the new load-bearing structure.

Materiality

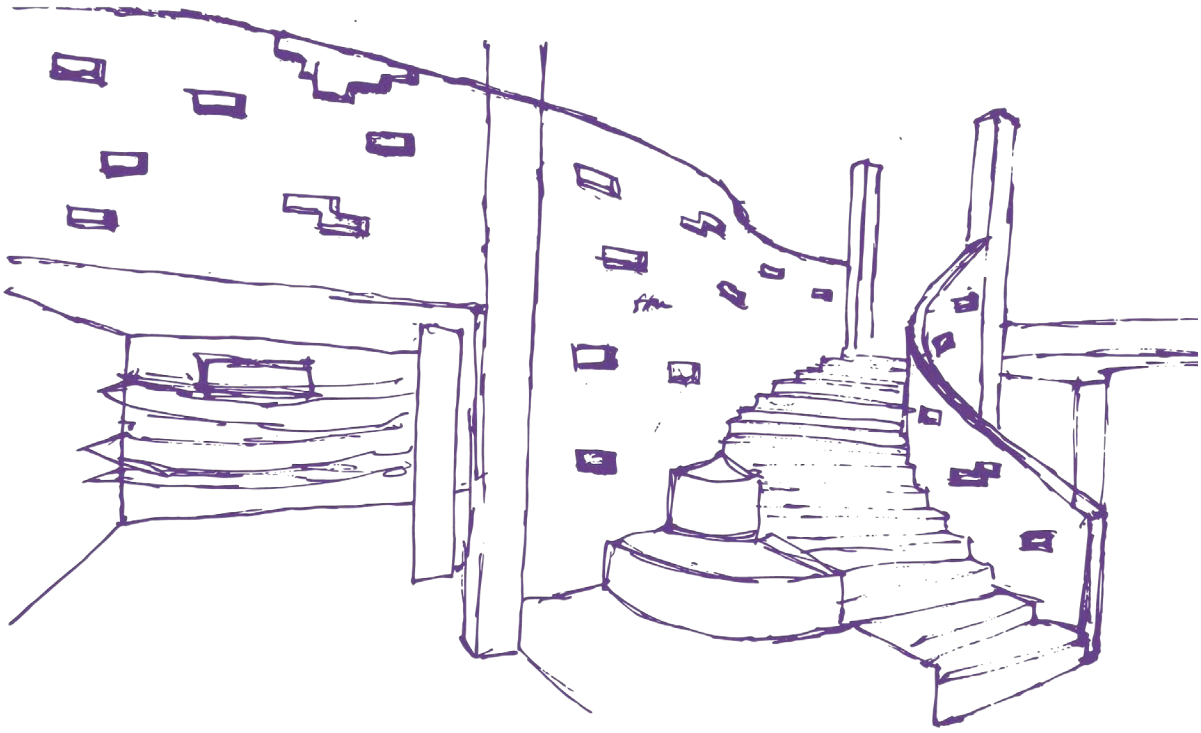
The materials influence the atmosphere greatly, by which different combinations for especially the activity zone were explored. It was discussed whether the staircase should be part of the sculptural furniture piece or if it should stand out as its own element. Red bricks were used to reflect the external walls. However, as it was not possible to reuse the bricks removed from this building due to the cement mortar used, they would have to be transported from somewhere else, possibly a torn down building in Aalborg.

Proposal 1:
The abundance of brick unified the sculptural furniture piece and staircase, supporting the thought of the entire element being the heart of the shelter. To establish contrast, the columns were made of wood. However, the materials seemed imbalanced due to the different amounts of 'light' and 'heavy', and the brick therefore became too substantial in the room.

Illu. 89: Materiality for the stair case and columns - Proposal 1.

Proposal 2:
To add more lightness to the space, the curved walls were constructed of wood. This made the staircase stand more out, but together with the columns, it felt detached from the rest of the 'sculpture'. The brick steps also gave off more of an institutional vibe because of their hardness, while still being warm. Moreover, they seemed impractical in case children are running up and down and fall.

Illu. 90: Materiality for the stair case and columns - Proposal 2.



Illu. 93: Sketch of the brick wall with bricks removed .

Proposal 3:

In this proposal, the staircase became an almost entirely separate element, while seeming much warmer and home-like, and as a visible connector between the two floors. Moreover, there was a great balance between wood and brick.

Illu. 91: Materiality for the stair case and columns - Proposal 3.

Proposal 4:

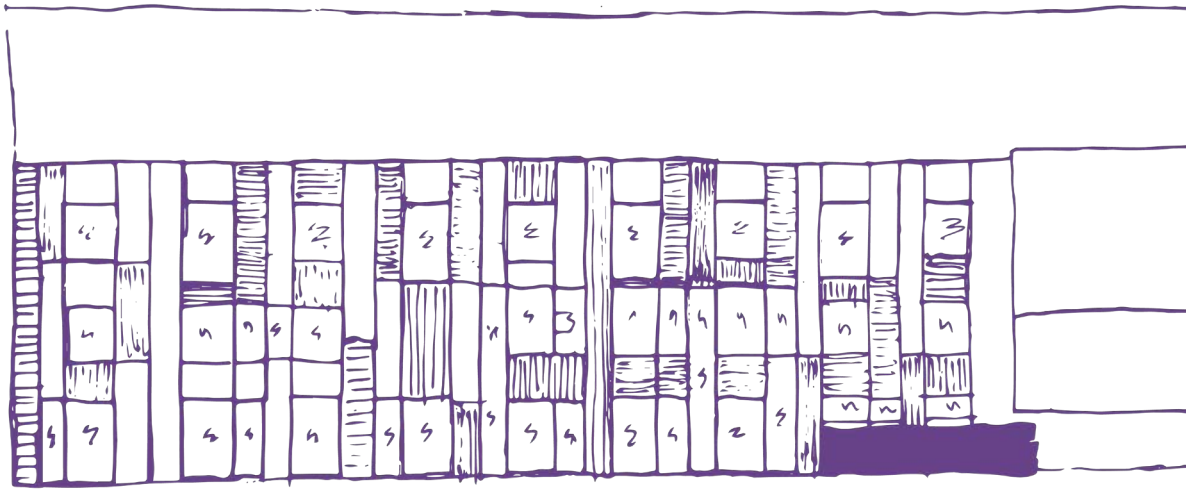
The railing of the staircase was made from brick, blending with and becoming part of the sculptural furniture piece. The staircase stands more out than when made of brick, giving a comfortable sense of warmth and familiarity amidst the hard stone. However, the sculpture seems more cohesive while drawing the attention in the room without being too dominating. To maintain sightlines through the rather obstructive brick, some could be removed (see illustration 93). This could let light through and make people visible behind it.

Illu. 92: Materiality for the stair case and columns - Proposal 4.

The ambulant consultancy

Just like the shelter, the consultancy should display a sense of warmth and hominess, though it still needed to function as an institution, where the women are taken care of. The same curved language was therefore repeated, and the staircase was used to divide the larger waiting area into smaller spaces of different levels of intimacy. By making an opening in the first floor, the two stories are connected, creating a more coherent space. The isolation of one of the arched windows provided the possibility of having larger group consultations while enjoying the calm atmosphere of the soft curves.

Illu. 94: The stair case in the ambulant consultancy.

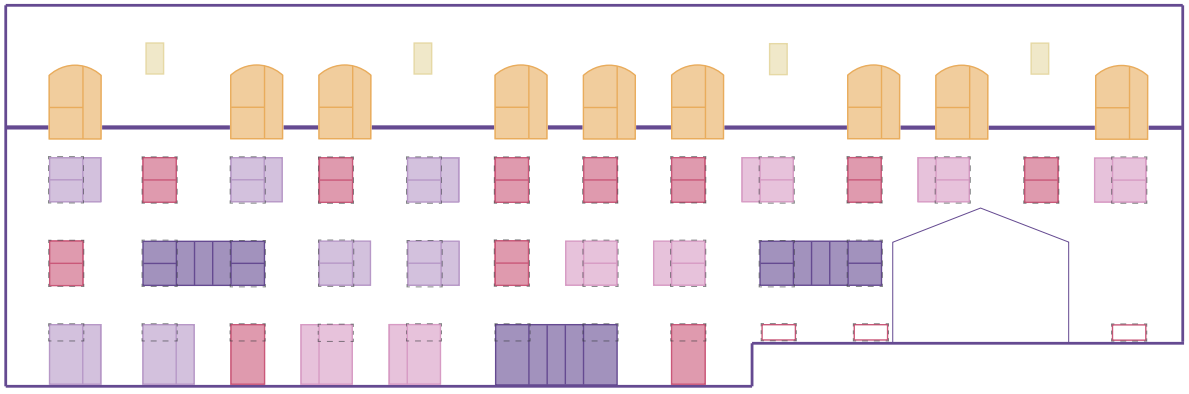


Illu. 95: The initial pattern for the western facade of the eastern building volume, based on the existing window placements.

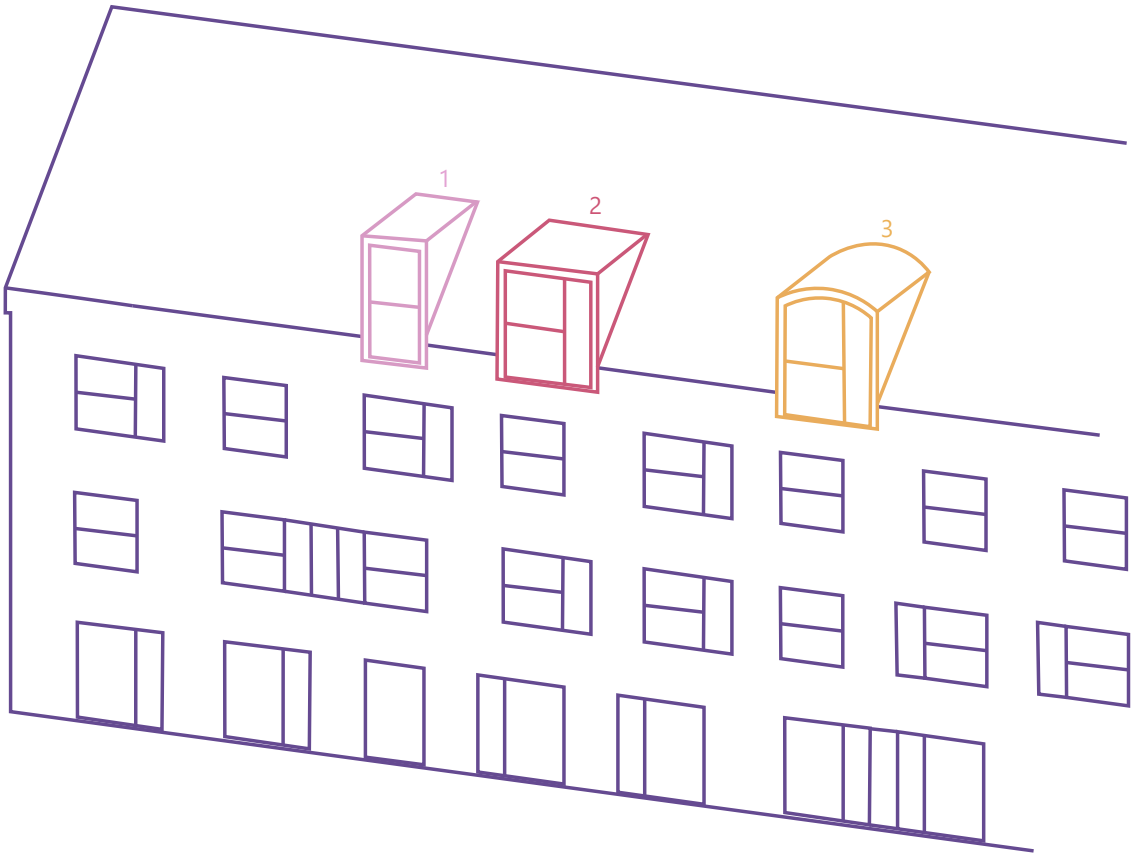
Facade

To maintain the concept of preserving the building's architectural value and expression, the exterior and more public-facing facades were preserved, unless interventions supported essential interior functions and would blend in with the rest. On the interior facades, the aim was to retain as much of the existing window openings as possible, reducing the need to either remove bricks or fill in former openings, which would leave visible traces. This would also maintain a connection to the exterior, while new interventions supported interior functions and enhanced the connection to the garden.

As seen on illustration 95, the patterns of the facades were identified, which was used as a starting point for the window placement. On both ground floor and basement level, larger openings were introduced in the western facade of the eastern building volume, inviting natural light deep into the building and enabling direct access to the outdoor areas from the activity zone (see illustration 96). It was discussed if traditional or French balconies should be introduced to the first floor to increase visual connection to the garden, but the idea was later turned down to maintain a more logical and rigorous window pattern.



Illu. 96: The final pattern for the western facade of the eastern building volume.



Dormers

The second floor of the dormitory primarily contained skylights and sloped walls, offering confined spaces and minimal visual connection to the garden. As a result, different dormers were explored to open up the rooms and create a more comfortable atmosphere.

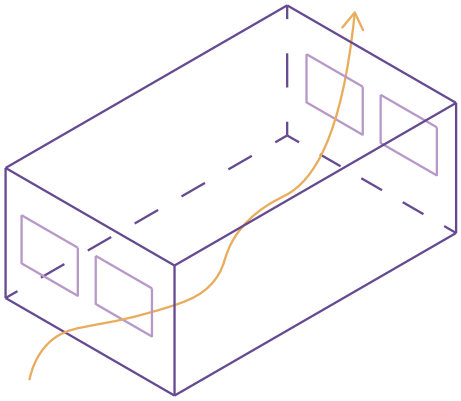
Proposal 1: the sharp lines follow the square shape of the windows but contributes to a fairly modern look resembling that of new apartment buildings. Additionally, it didn't improve the interior space much due to the narrow shape.

Proposal 2: the wider shape resulted in a more prominent dormer that improved the quality of the interior space but reinforced the modern look.

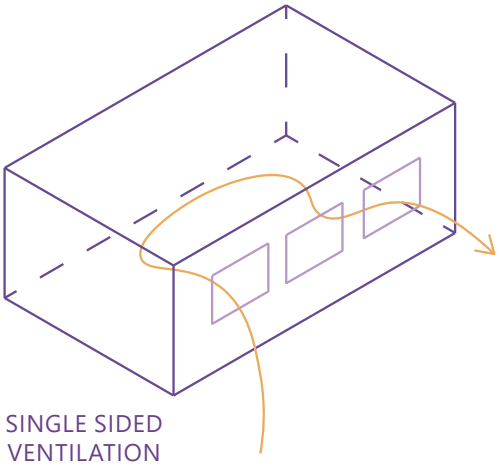
Proposal 3: the rounded roof similar to the arched windows of the playroom created a more traditional look that worked well with the architectural style of the building while offering a wider and more open interior space.

Illu. 97: Proposals for the dormers on the eastern building volume.

Re-insulating to achieve a tighter building envelope while increasing the glass area for a better interior experience may contribute to an increase in the indoor temperature and possibly overheating. For this reason, various subdivisions (see illustration 96 and 97) are made in the windows to allow for both cross and single sided ventilation during warmer and colder months (see illustration 98). The thermal mass of the internal walls, which will be described further in a later section, helps regulate the variations in temperature due to its large heat capacity and great exposure to sunlight throughout the day. Thereby, heat is absorbed by the materials during the warmer hours of the day and released during the night when the outdoor temperature gets colder. (Lindgren et al, 2024)



CROSS VENTILATION



SINGLE SIDED
VENTILATION

Illu. 98: Diagram of cross and single sided ventilation.

LCA

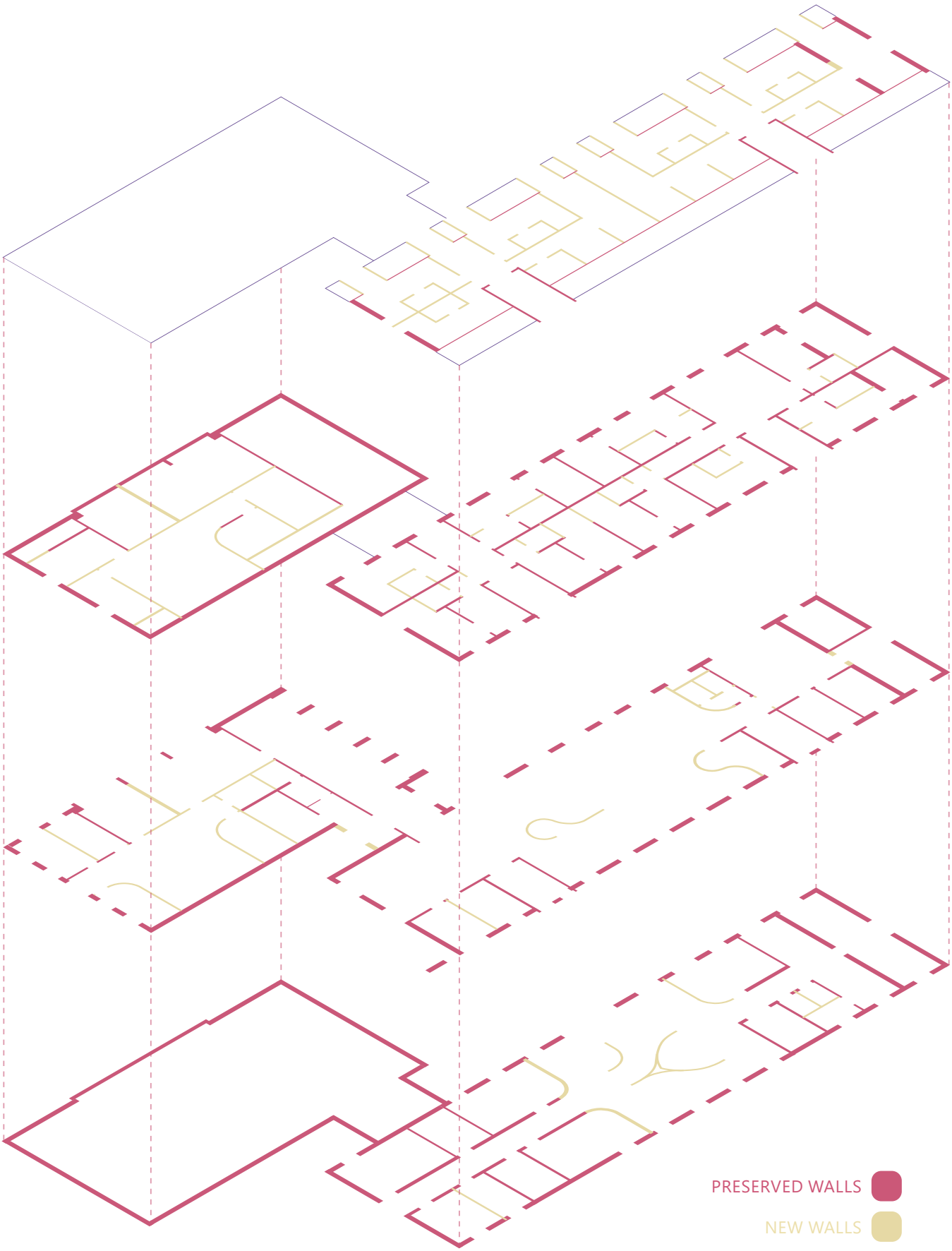
A Life Cycle Assessment (LCA) is a commonly used tool to understand the environmental impact of a material or a building throughout its life cycle. The impact is calculated as Global Warming Potential (GWP) which is measured in kg CO_2-equivalent, indicating the magnitude in the emission of multiple greenhouse gasses in one number. At first, the material is extracted as raw resources that subsequently go through a production process to be prepared for use. It is eventually demolished and either disposed of, reused or recycled. (Boding, 2025) This highlights how crucial material choices are in reducing environmental impacts as well as the effect of each phase.

Transforming the old dormitory building into a women's crisis shelter has resulted in the need for alterations and improvements in the layout, materiality and building envelope. The main focus areas have therefore been to:

Decrease heat transmission by replacing old windows and re-insulating the cavity wall to preserve the original facade

Preserve, demolish and build new internal walls to secure an optimal layout

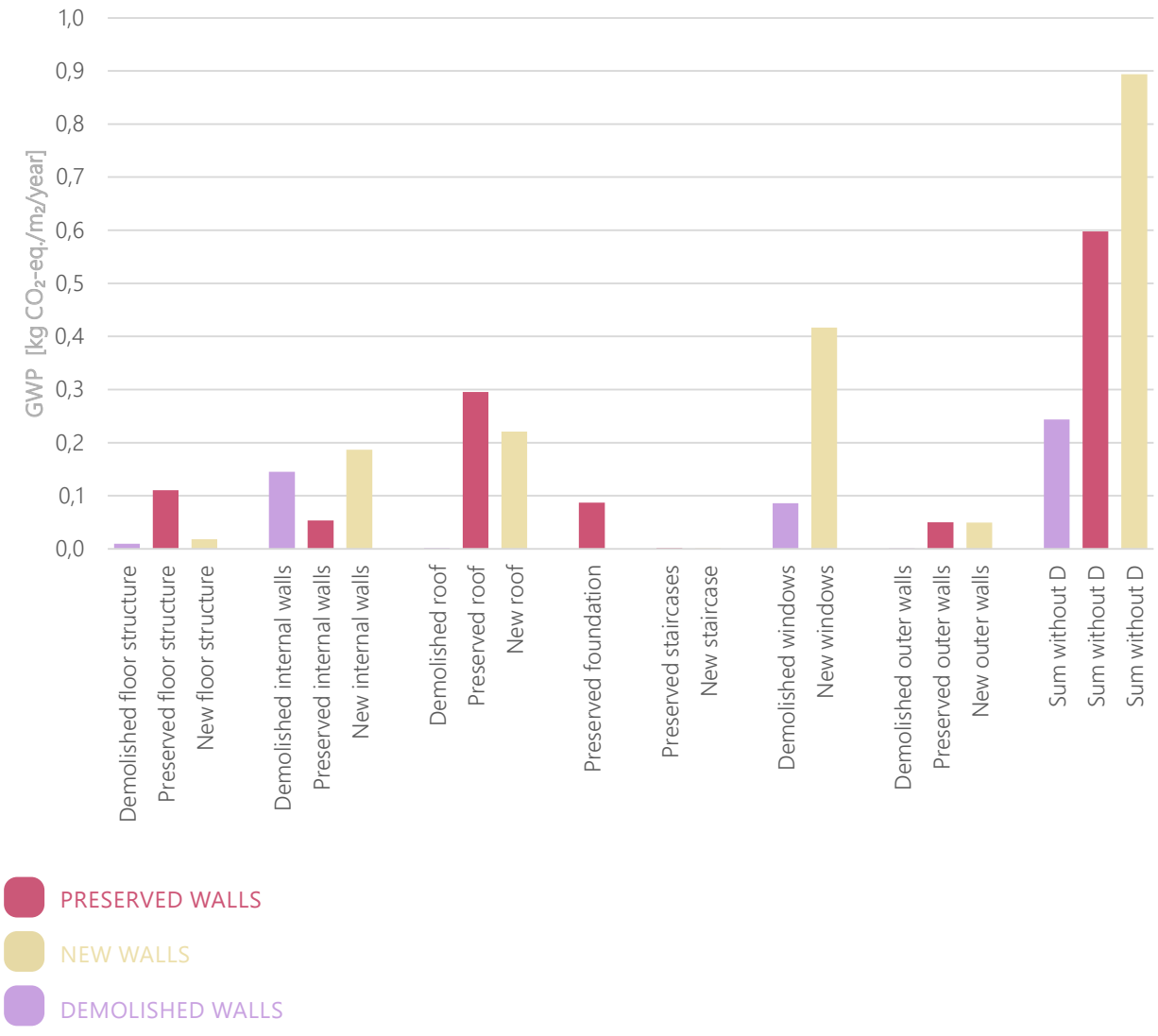
A LCA has therefore been made to explore the environmental impact of the interventions and the possibility of decreasing it while at the same time paying regard to the architectural quality, atmosphere and functionality (see appendix 4 for final results). All building parts have been divided into categories of preserved, demolished and new, and the assessment is based on a 50-year time perspective. Looking at illustration 99, the different categories of internal walls have been marked on the floor plan for the final proposal of the design.



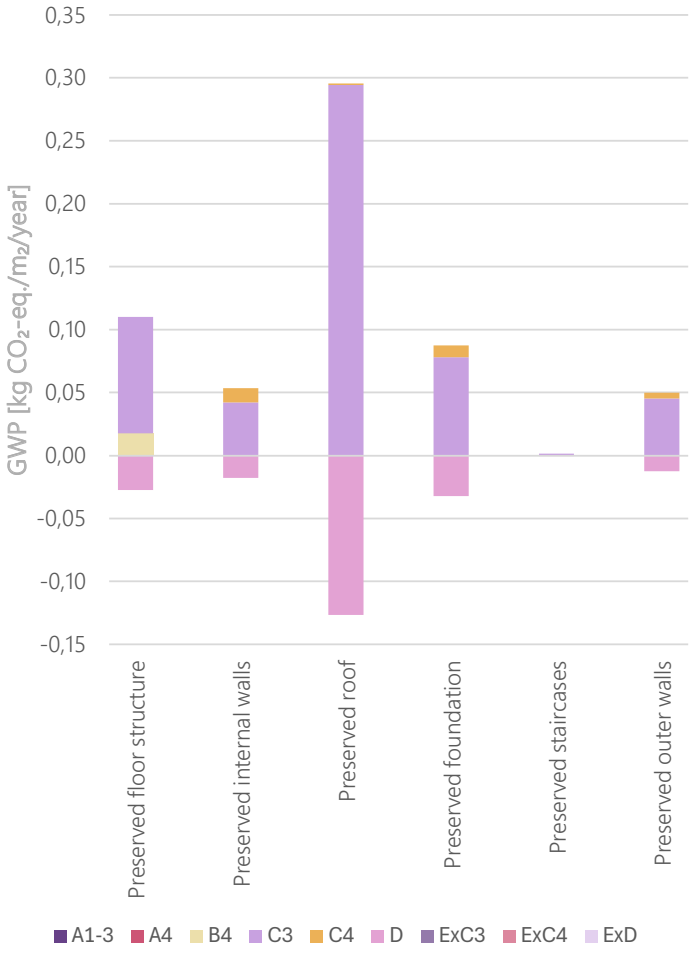
Illu. 99: Isometric drawing of the building with new and preserved walls marked.

Looking at illustration 100, the addition of new building parts contributes most to the GWP. However, it was deemed throughout the design process that the interventions help improve the quality of the building which is why the higher GWP - compared to having preserved more of the building - was accepted.

When preserving building parts, the production phase (A1-3) is removed from the calculations since they are already on site and are being reused. It is assumed that the building will have to be demolished in 50 years, for which reason the start of the demolition process (C3-4) is delayed. Throughout these years, replacements and maintenance of certain materials may happen, which adds to the total.



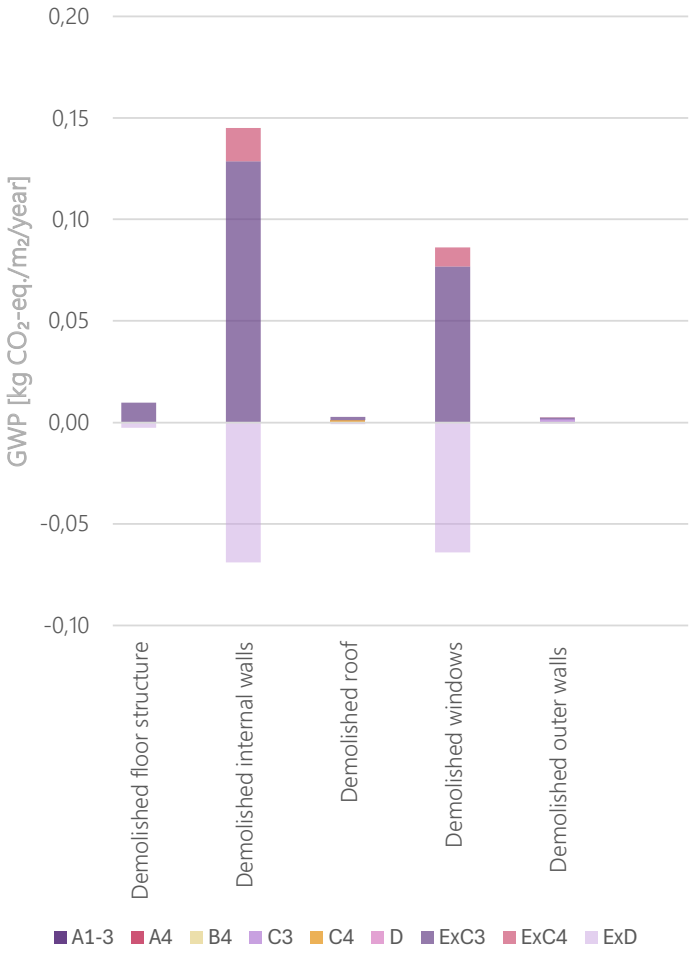
Illu. 100: Bar chart of the LCA for the entire building.



C3, where the materials are prepared for disposal, accounts for a large part of the GWP from preserved building parts and specifically the roof (see illustration 101). Biogenic materials such as the wood of the trusses and cellulose insulation of the roof construction absorb and store CO2 during their growth period, by which a negative carbon footprint is typically noted in the production phase (A1-3). The CO2 is released when the biogenic materials are disposed of, and the positive impact is documented in C3. (Andersen et al, 2021)

Additionally, D is shown as a substantial negative value for the roof as climate profits are gained from using the biogenic materials as renewable energy sources when incinerated, or reusing and recycling them for other projects by which the use of virgin materials can be reduced (Astrup et al, 2022; Sæhl, 2024).

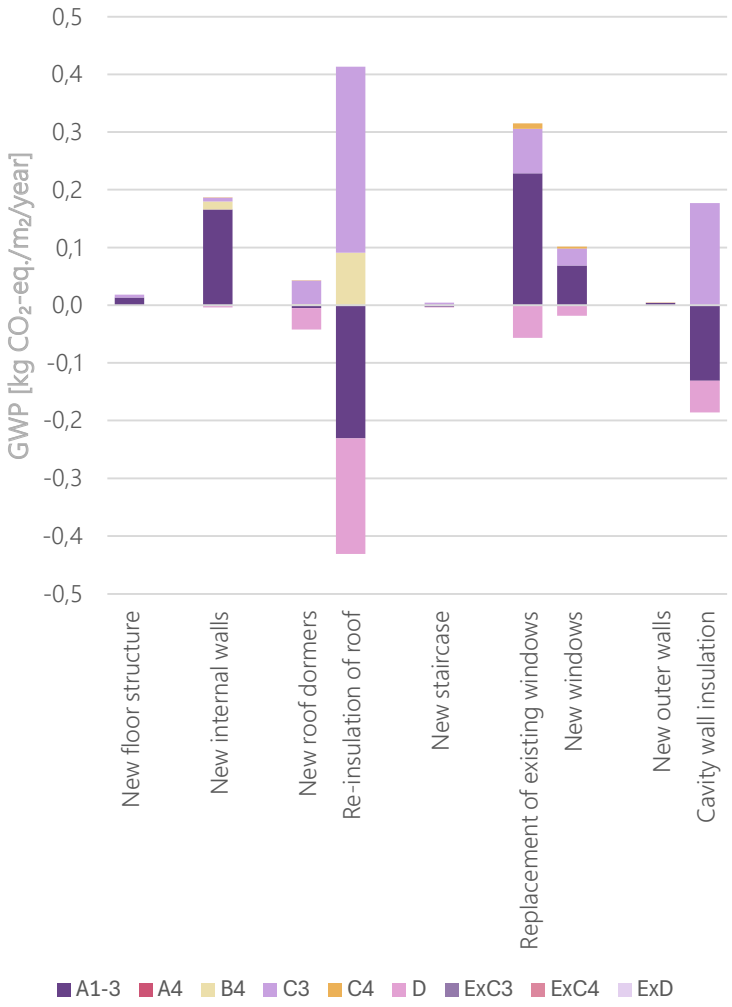
Illu. 101: Bar chart showing the different phases for the preserved materials.



Demolishing the old windows and the altering the layout of the building are the big contributors to the ExC3 phase (see illustration 102). Here, the carbon footprint from preparing materials from an existing building for disposal is documented (Lund et al, 2022). Again, biogenic materials have a substantial impact, as well as the brick as they are difficult to separate due to strong cement mortar (Moesgaard, 2020).

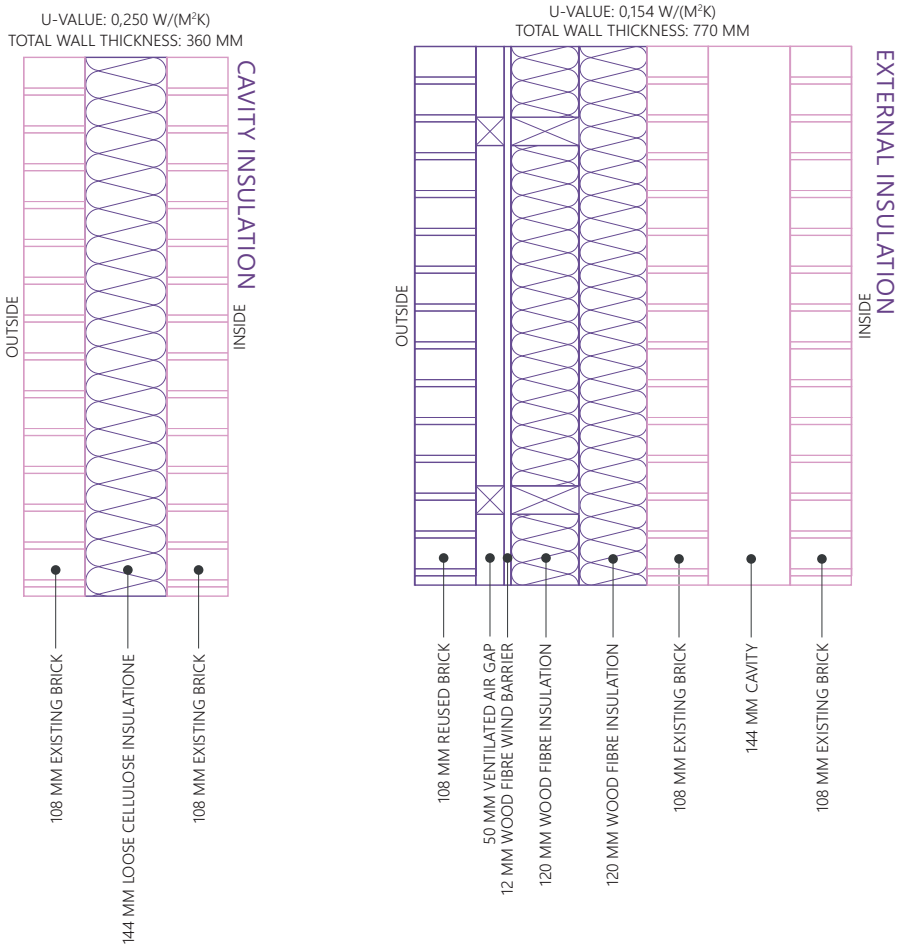
If the brick from the internal and outer walls were to be reused at the project site as for example a terrace in the garden, the disposal phase (ExC4) could be removed or postponed, and ExC3 reduced. However, energy would have to be used for cutting the brick into suitable pieces and laying them out at the site.

Illu. 102: Bar chart showing the different phases for the demolished materials.



Re-insulating the old walls and roof as well as replacing the existing windows with new ones have a large environmental impact (see illustration 103) but will reduce the heat transfer and the energy demand for heating. The biogenic insulation materials have a negative impact on the production phase (A1-3) but is equivalently added in the disposal phase (C3).

Illu. 103: Bar chart showing the different phases for the new materials.

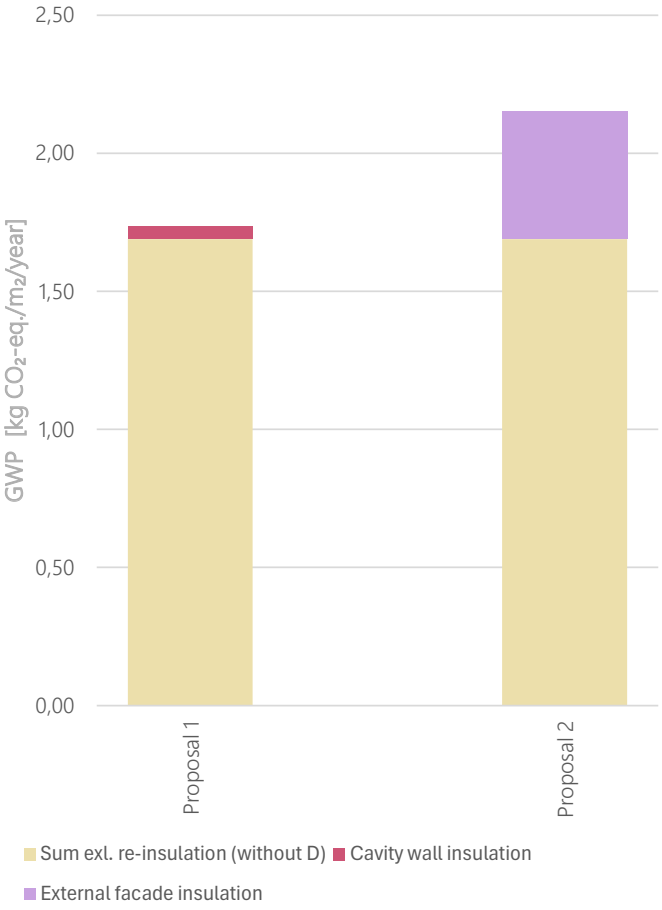


Illu. 104: Cavity insualtion and external insulation.

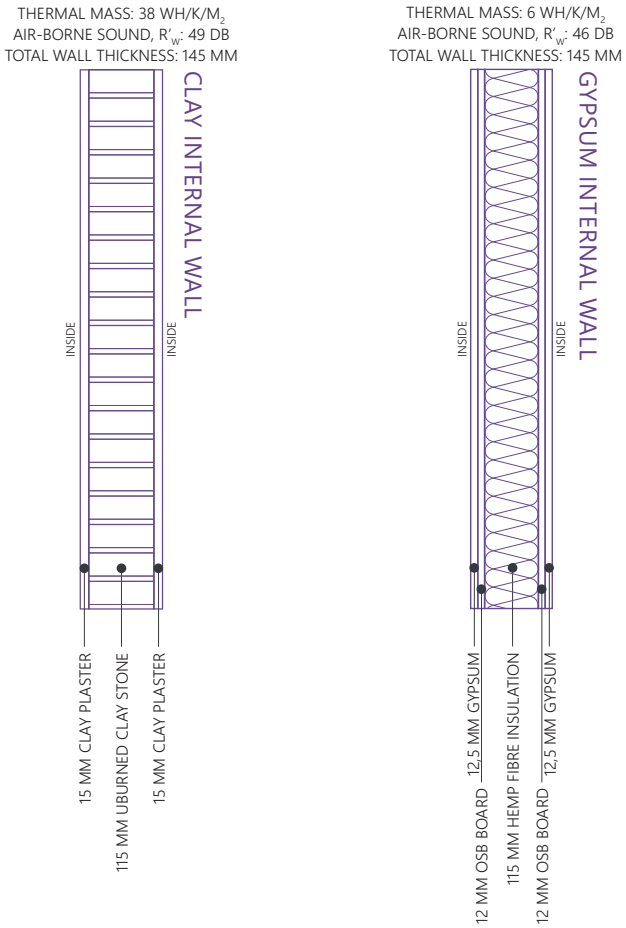
To maintain the architectural value and recognizability of the building in the neighborhood, it was decided to insulate the cavity wall instead of the external facade. For this, cellulose was chosen due to its low-pollution production, where recycled paper from, for example newspapers, is cut into smaller pieces and chemicals are added to increase resistance against fire, mold and rodents (Bisp & Jensen, 2024).

However, doing external re-insulation would result in a lower u-value which would contribute to a tighter building envelope and a lower heat demand (see illustration104). At the same time, the GWP from materials would be 10 times as high as the ones for the re-insulation of the cavity wall (see illustration 105) as an entirely new facade is needed, though reused brick and biogenic materials have been considered.

The climate footprint from materials and architectural value was therefore deemed more valuable than the reduced heat demand.



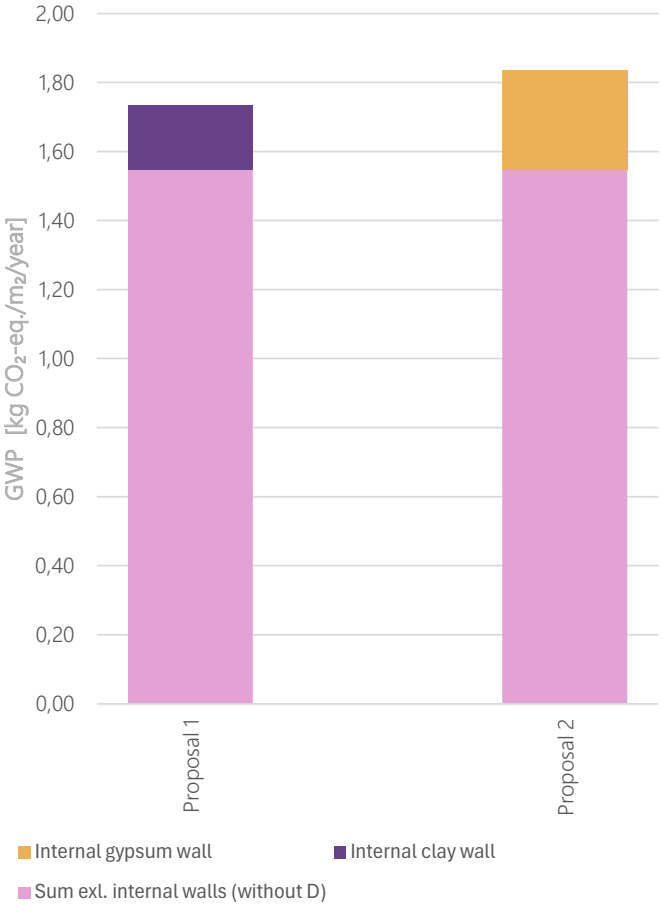
Illu. 105: Bar chart showing the difference in GWP when insulating the cavity wall and the external facade compared to the total gwp for reinsulation.



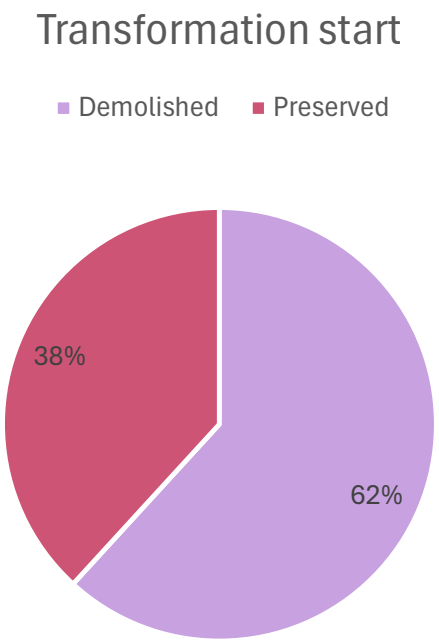
Illu. 106: Clay internal wall and gypsum internal wall.

When deciding on the materials of the new internal walls, a more traditional gypsum wall was compared to a biogenic clay construction (see illustration 106 and 107). Non-fired clay bricks are made from compressed clay soil which needs minimal processing and has a low climate impact. Due to their high thermal capacity, great sound insulation and ability to absorb and release moisture, they can contribute to a healthier indoor climate where the residents can relax and feel more at home despite the size and function of the building (Lindgren et al, 2024; Bæredygtigt Byggeri DK, n.d.). Furthermore, the GWP is 35% smaller than that of the gypsum wall and accounts for only 11% of the total.

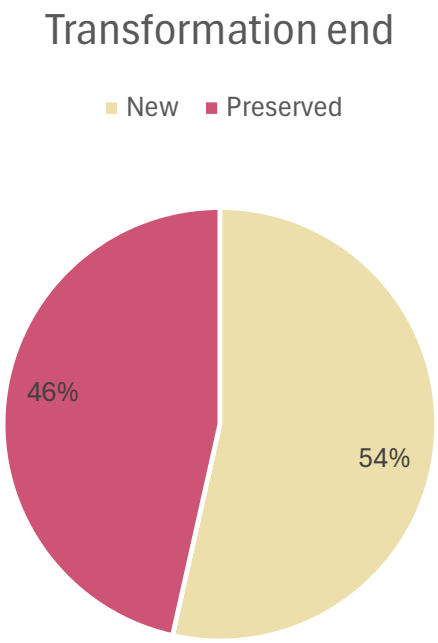
Though the gypsum wall consists of more biogenic materials and are almost just as good at sound insulating, the higher GWP and the low thermal mass resulted in proposal 1 being chosen.



Illu. 107: Bar chart showing the difference in GWP when using internal gypsum walls and internal clay walls compared to the total GWP for internal walls.

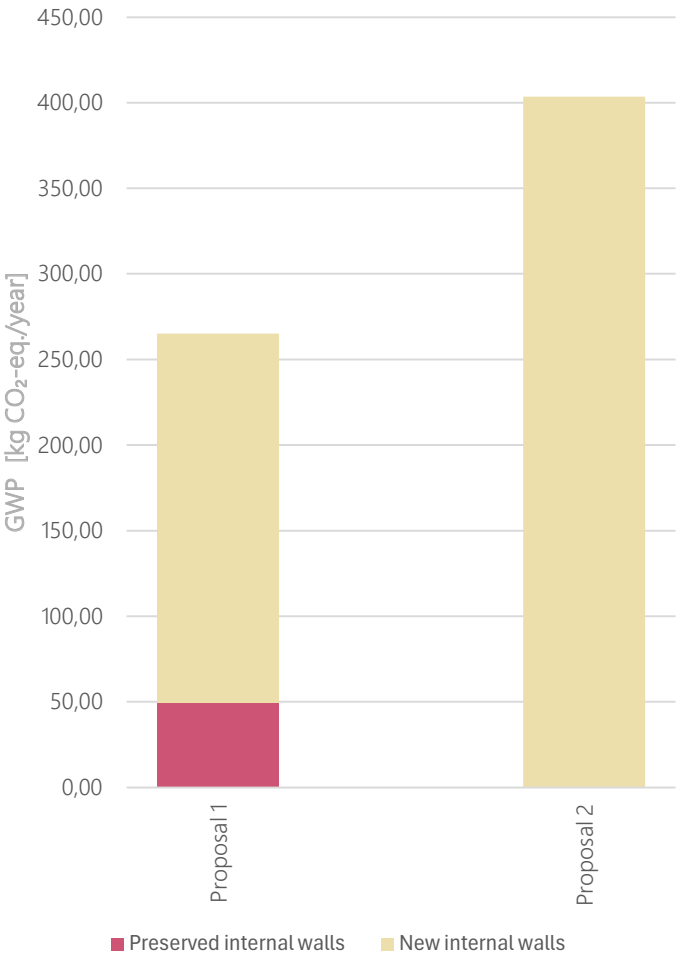


Illu. 108: Pie chart of the amount of existing internal walls being preverved and demolished in the design proposal.



Illu. 109: Pie chart of the amount of internal walls- preserved and new in the design proposal.

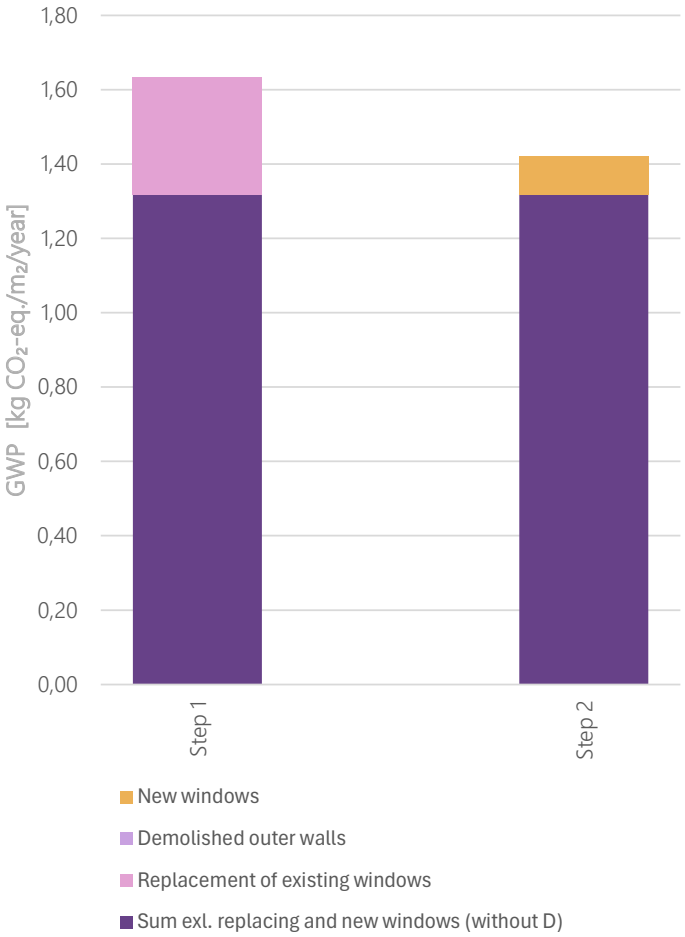
Another way of reducing the GWP when looking at the internal walls has been to preserve as many of the existing ones as possible while still altering and improving the layout so that it fits the new functions. 62% of the internal walls were therefore demolished (see illustration 108) as the floor plan was opened further up, contributing with 0,15 kg CO2/m2/year. At the end of the transformation, the existing walls represent 46% of all internal walls (see illustration 109) which means that the GWP has been reduced by 34% compared to proposal 2 on illustration 110, where all internal walls are demolished and new ones are built.



Illu. 110: Bar chart showing the GWP for the internal walls when preserving some and building all new.

At last, another big process of transformation has been to replace all the windows. To improve the indoor and thermal climate, new windows have been added as well, which contributes to the total GWP (see illustration 111). Making no changes to the existing building envelope would have resulted in the lowest environmental impact from materials but in a more closed building with reduced connection to the garden. Furthermore, it only comes to 6% of the total GWP from inserting new windows.

Illu. 111: Bar chart showing the GWP for the process of replacering the existing windows and creating new.



Presentation

Illu. 112: Picture of the arches in the dining hall.

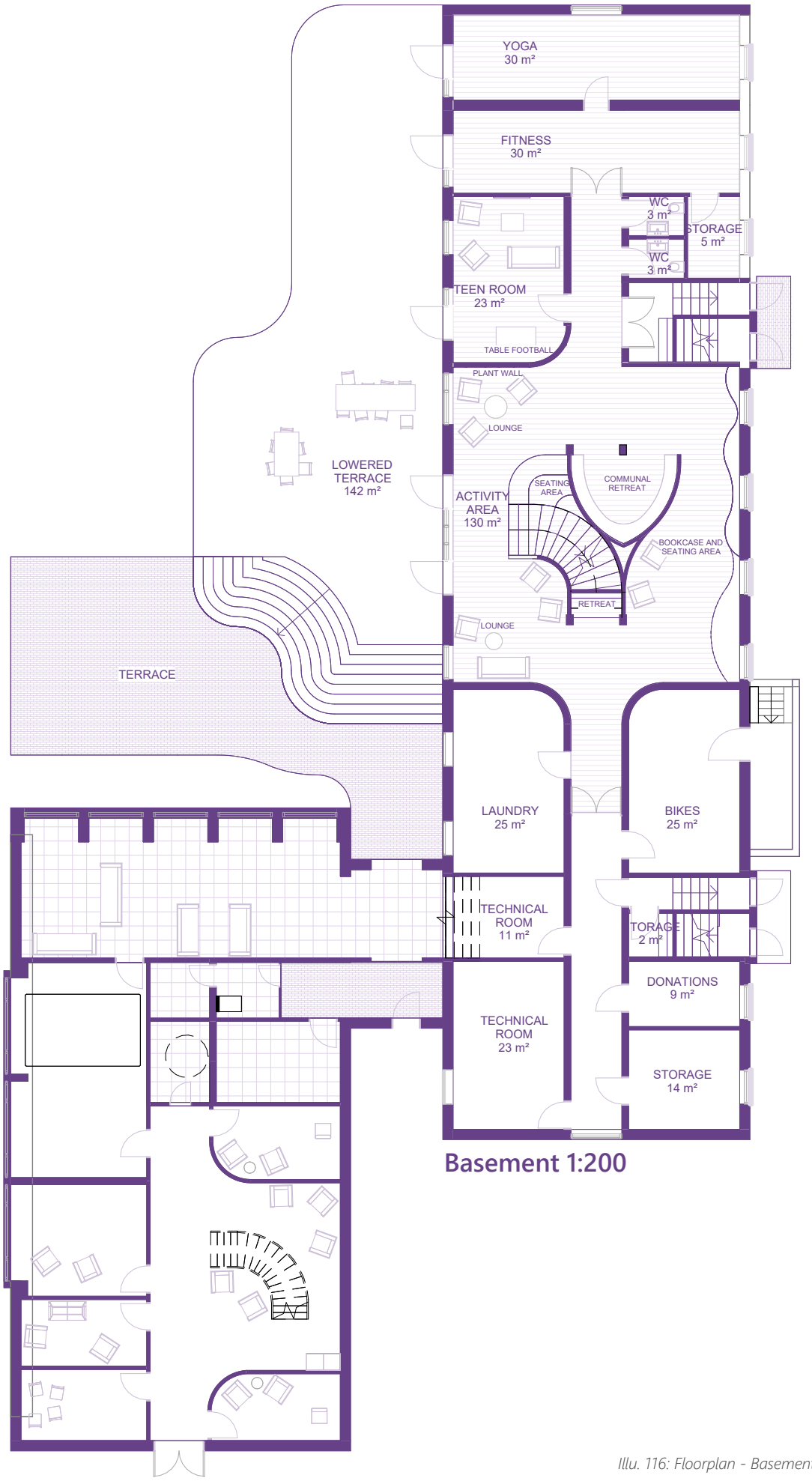
Illu. 113: Masterplan 1:400.

Arriving at the dining area, you are presented with different options of where to go. Unobstructed sightlines allow you an overview of the entire space, inviting you to participate in communal gatherings before going to your private room. A multifunctional room divider separates the space into smaller, more intimate areas while also offering a sensory retreat for taking a break and laying down in between everyday activities. At the same time, it functions as storage for creative projects or board games, which makes the dining area useful for multiple activities throughout the day.

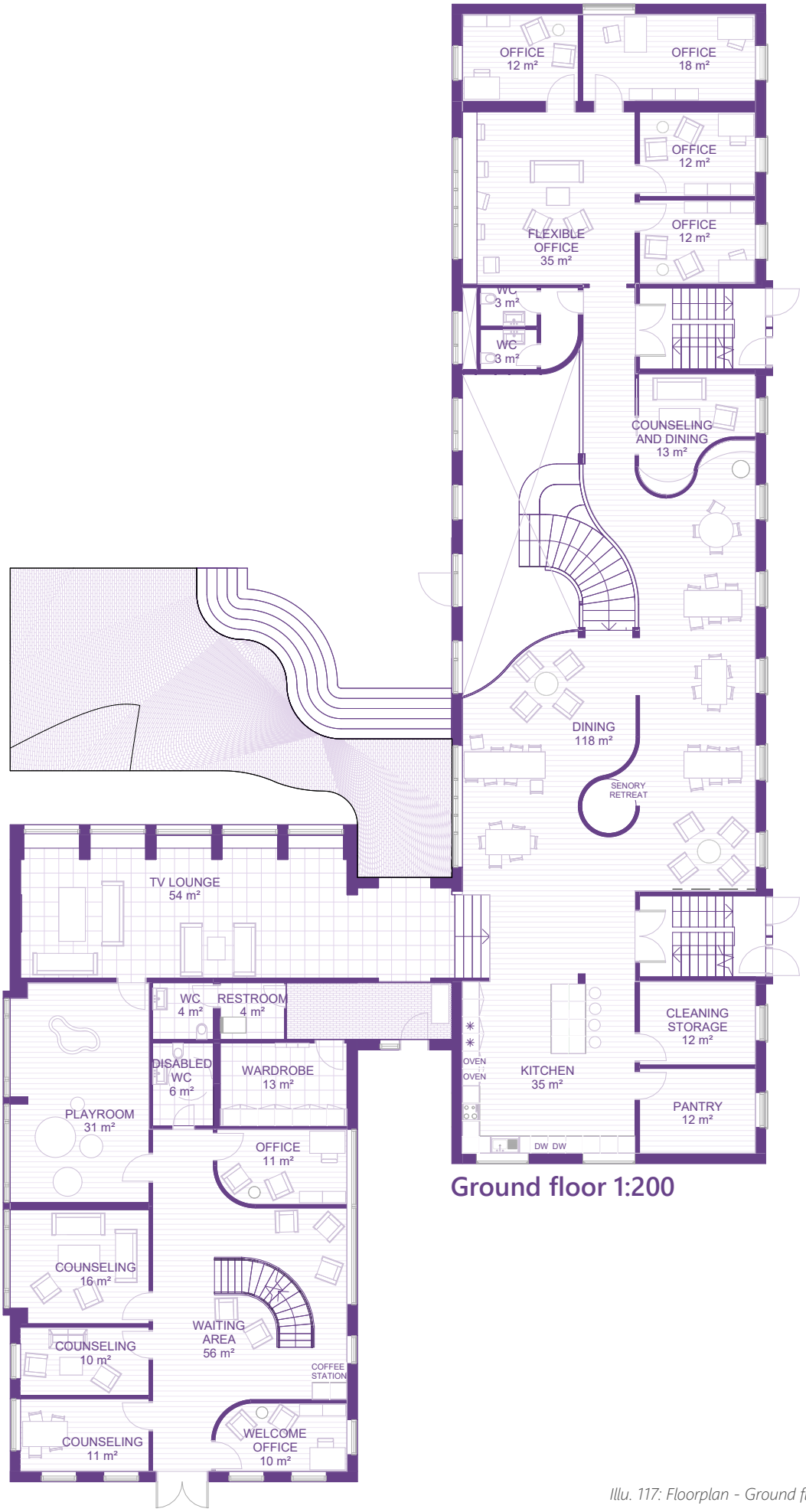
When moving further into the house, you arrive at the activity area and the heart of the house. Walking down the staircase, you're offered a view of and access to the lowered terrace and garden. A multifunctional sculptural furniture piece creates different spaces for social gatherings and retreat, tying the room together.

Illu. 114: Visualization of the dining area.

Illu. 115: Visualization of the activity area.



Illu. 116: Floorplan - Basement 1:200.



Ground floor 1:200

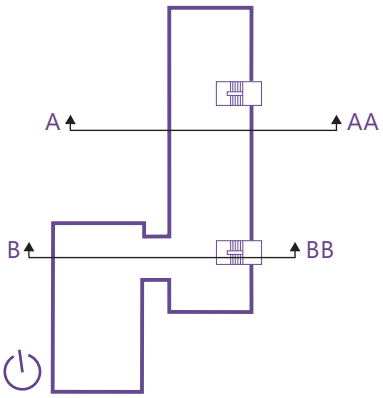
Illu. 117: Floorplan - Ground floor 1:200.

1st floor 1:200

Illu. 118: Floorplan - 1st floor 1:200

2nd floor 1:200

Illu. 119: Floorplan - 2nd floor 1:200

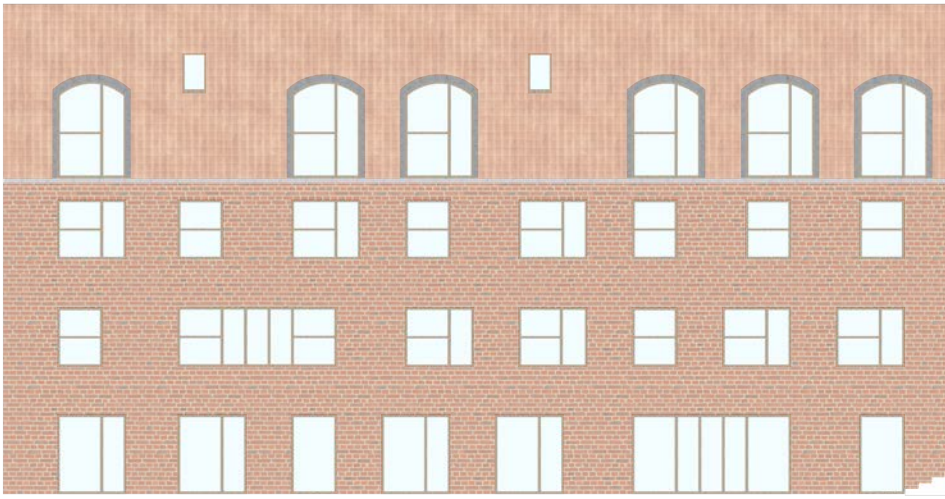


Illu. 120: Section A-AA 1:200

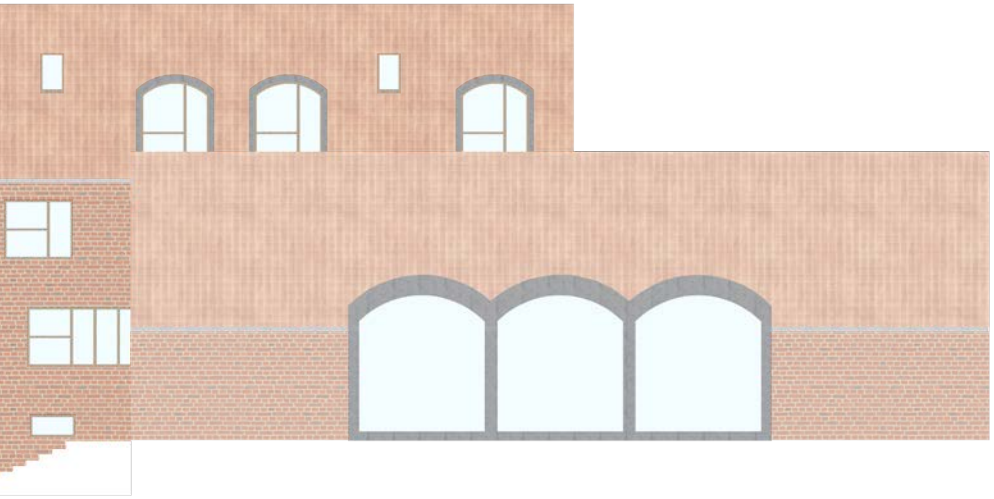
Illu. 121: Section B-BB 1:200

Illu. 122: Visualization of the activity area from the staircase.

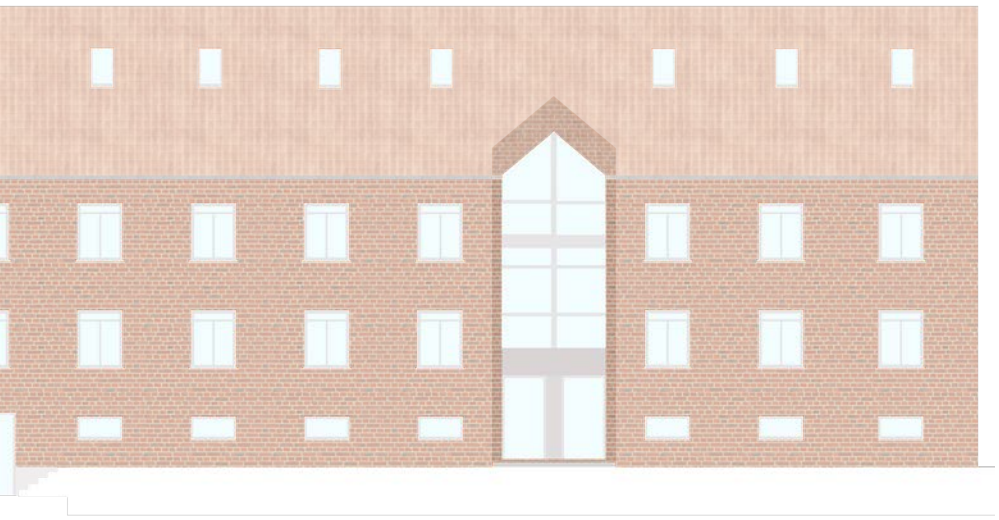
West 1:200



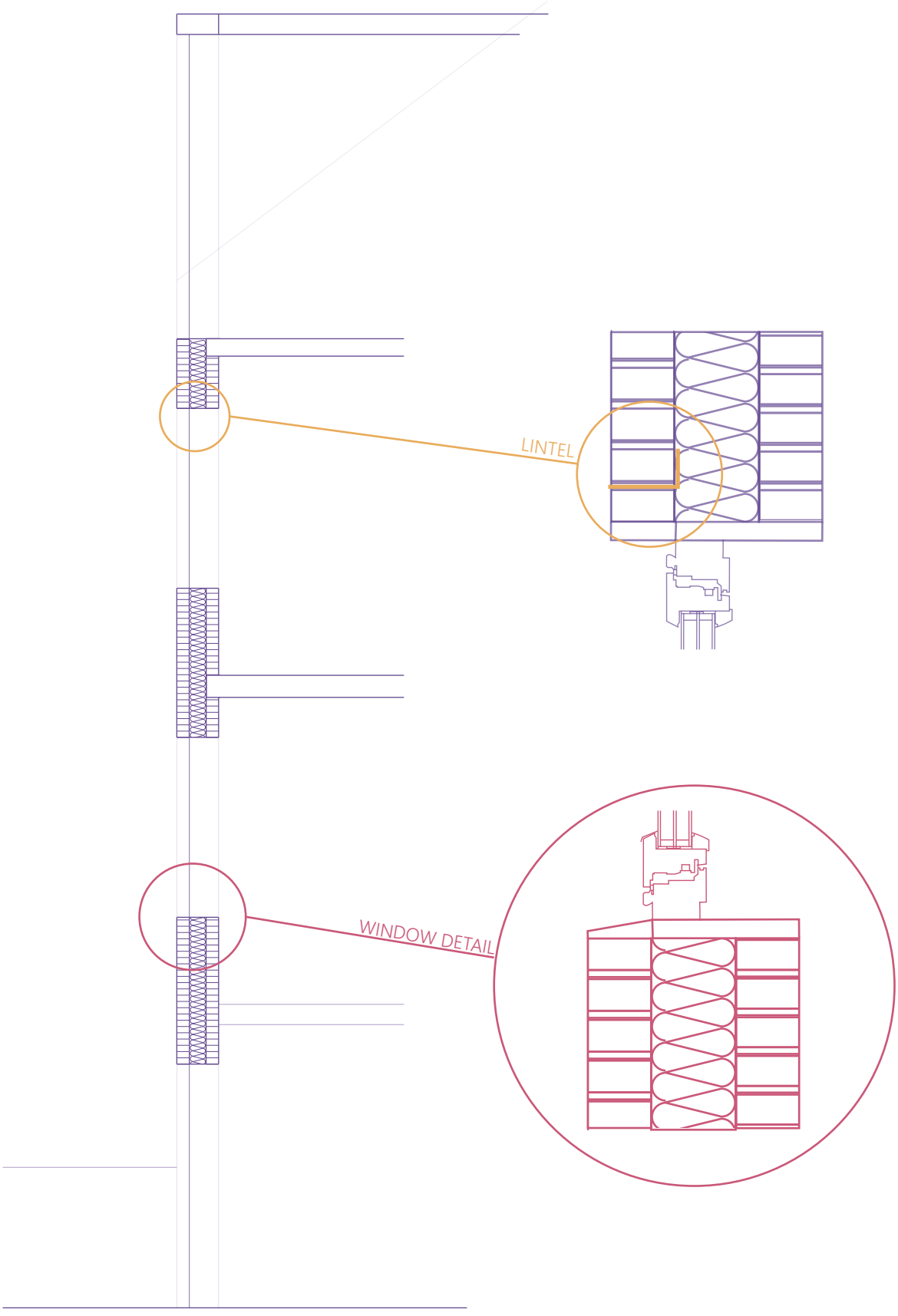
East 1:200



Illu. 123: Elevation - west 1:200



Illu. 124: Elevation - east 1:200



Illu. 125: Construction detail of the wall and windows.

The dormer in the private room opens up the space and creates a visual connection to the garden.

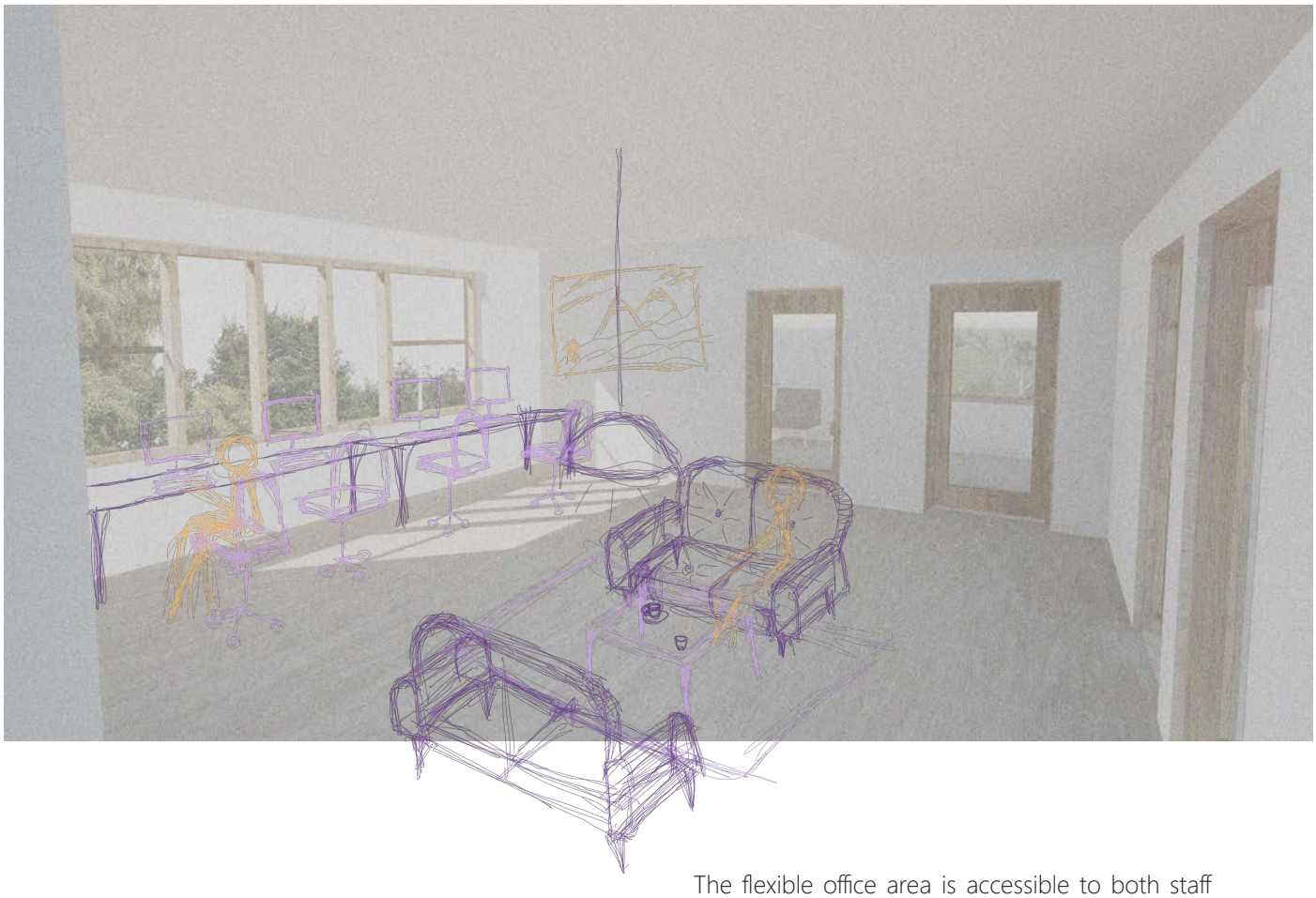
Illu. 126: Visualization of the family room type c, on the 2nd floor.

The living area offers a place for watching TV or gathering near the playroom so mothers can be near their smaller children while relaxing. Seating areas in the windows allow for a close view of the garden, and together with the heigh ceiling, a light and comfortable atmosphere is shaped.

Illu. 127: Visualization of the living room.

The playroom offers an almost magical and marvellous atmosphere as arched windows shape the view of outside. This room is connected to the ambulant consultancy and therefore functions as a buffer zone for women going from and to the shelter.

Illu. 128: Sketch visualization of the play room.



The flexible office area is accessible to both staff and residents. Furthermore, it encompasses a lounge where residents can wait for their contact person or come together in smaller communities. Glass doors allow for a view into the staff offices, demystifying their work and creating a stronger connection between the home and the workplace.

Illu. 129: Sketch visualization of the flexible office.

Right as you enter the ambulant consultancy, the welcome office and your first contact point is visible. Additionally, the same curved language as used in the house is visible to support a softer, more fluent flow. The staircase functions as a room divider, creating waiting areas with different levels of intimacy and privacy.

Illu. 130: Sketch visualization of the ambulant consultancy.

Epilogue

Illu. 131: Picture of the TV lounge.

Conclusion

Concluding on the success of the project before it has been completed is inherently challenging. The project's foundation is the problem statement which defines what is necessary to design Aalborg Women's Crisis Shelter for women who have experienced domestic violence. This includes enhancing perceived safety through healing architecture and de-institutionalization and balancing this with the needs of a workplace and ambulant consultancy.

In the proposal for the new shelter, different zones of publicness have been established to support spatial clarity and thereby the sense of perceived safety. The residents have their own private rooms, meanwhile the workplace and the common areas functions as semi-private spaces for social activities. The ambulant consultancy is categorized as semi-public as it allows non-daily users such as visitors and outpatients to participate in counseling or meetings.

To further enhance the perceive safety, the ambulant consultancy and workplace are placed in each their end of the shelter, resulting in the movement and visibility of staff when moving between the different functions. This makes it clear to the residents that support and help is always available if needed.

To avoid overcrowding and make space for different types and sizes of gatherings, the semi-private common areas are divided into various spaces for retreat or social activity throughout the building. Clear sightlines increase spatial clarity as they allow for a view of the different activities from afar. Additionally, round corners support a fluent flow, encouraging movement.

Preserving as much of the building as possible while still meeting the needs of the new users has been a goal throughout the project, contributing to the reduction of the GWP compared to building new. To retain the anonymity of the women living at the shelter and maintaining familiarity in the neighbourhood, the exterior, public facade has been preserved whereas the interior, more private one face enhances physical and visual connection to the garden.

In essence, this project aims to create a safe and welcoming environment that supports healing and community for vulnerable women, all while respecting the existing building and ensuring a sustainable future.

Reflection

Designing a building always involves navigating uncertainty, as there is no single right answer and no way of knowing precisely how the project will turn out. The outcome is shaped by the many decisions made along the way and based on research, thoughtful consideration, and the needs of the users. With intention behind each choice, the project has aimed to create and safe and supportive environment for women who have experienced domestic abuse, where their physical and mental needs are met.

In the next couple of sections, the project and the decisions made along the way will be evaluated further.

De-institutionalisation

One of the guiding themes throughout the project has been the concept of 'de-institutionalisation' to support a homey environment. This was prioritised as it contributes to the healing process and maintaining a familiar routine at the shelter which is important to prepare the residents for the life afterwards. Given the large scale of the building, and the typology's triple function as both a home, workplace and ambulant consultancy, achieving a homelike atmosphere has been a challenge. At the same time, it has been explored at what degree the shelter should be de-institutionalized as the presence of staff can enhance the feeling of being taken care of when in a vulnerable situation.

The dining room illustrates how these goals were balanced. Making space for every resident was deemed less institutional than creating a smaller area where they would have to eat in turns, as the latter would reduce choice and control and contribute negatively to the presence of the institution. Various layouts were considered: a long narrow space felt too institutional, like a cafeteria where the residents had to walk long with their plate of food, so a more square plan with a room divider was chosen. This creates two more intimate spaces within a larger room, allowing multiple activities to happen simultaneously without being overwhelming.

Establishing the right scale and atmosphere of the entrance while meeting the practical needs challenged the sense of hominess. To increase privacy and obstruct the view into the shelter from the street, the glass area was minimized, creating a more intimate experience when arriving. Though hanging coats and shoes provide the sense of a home that's lived in, the number of residents would result in a crammed and messy space, unless making it fairly large. It was therefore decided to hide it away in the separated, more institutional wardrobe, used for coats, strollers and mailboxes, to create a smaller, more welcoming entrance area.

Activity area

The idea of offering sensory experiences to accelerate the healing process was based on theory and analyses. The initial concept of separate, enclosed rooms was revised during the design process, although a dedicated sensory experience seemed important to accentuate the healing effect. However, integrated sensory elements throughout the house would better align with daily lives of the residents. This decision created a more cohesive and home-like environment, allowing sensory experiences to emerge naturally in the flow of everyday life.

Still, it raised the question if it was possible to attain the desired effect of retreat and reflection while being surrounded by communal gatherings. At the same time, it is considered whether the sensory experience developed in the project is enough to contribute to the acceleration of the healing process. Specifying them further by use of light or details in the materiality, would enhance the experience of the space. Yet, the sensory experience should not stand out as the main focus of the space and be something the residents have to actively focus on to fully utilize, but rather subtly support residents' comfort and well-being in the background.

The creation of the double-height activity zone became a defining feature of the project. Initially explored in various sketches and 3D models, this space developed into an opportunity for retreat and gathering. While its scale and materiality required significant environmental and atmospheric considerations to avoid unnecessary demolition and institutionalization, and the very open scale challenges the scale of an ordinary single-family home, the final design proposal balances these concerns with the need for meaningful and dynamic social space, increasing the sense of perceived safety by the presence of others.

Privacy versus community

During the interview with the head of the shelter, the importance of the women forming a community was highlighted as this can be as critical as the physical facilities. This raised the question of how to balance shared spaces with the private rooms as they are the only place with complete privacy. The process therefore focused on giving the residents enough private space to feel comfortable, but not too much so that they won't use the common spaces. While the clusters of rooms share small common spaces to create intermediate zones, helping the women transition from privacy to larger social interactions, it was considered if they should share even more functions such as a small kitchenette, the entrance or a smaller living room. However, this idea was ultimately rejected to ensure that the women have complete choice and control of a space and their belongings.

Transformation

A key goal of the transformation was to preserve the building's architectural value while adapting it to the needs of the new users. As the existing habitable floors of the building wasn't enough space to accommodate all functions, a lowered terrace made it possible to utilize part of the basement. Due to this big intervention, it was considered if the building was really suitable for the project as, in reality, a larger building would probably have been chosen, and more research would have been done before deciding the building to transform. However, the limitations of the existing building in this project, combined with its unique qualities, have shaped spaces and connections that might not have emerged in new build.

Completion

Reflecting on the process, it's clear that while gender inequality and societal biases against women are larger issues beyond the scope of a single architectural thesis, architecture still has a role to play. Though it cannot solve these systematic challenges, it can address their consequences and create spaces that offer safety, empowerment and healing. This project has therefore aimed to develop a place specifically designed for women in crisis - a home where they can feel supported and surrounded by an environment that nurtures community, independence and the possibility of a brighter future.

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Appendix

Transformation: reimagining Aalborg Women's Crisis Shelter

MSc04 ARC June 2025
Aalborg University

Kamilla Tind Kristensen
Pernille Bjerregaard

THESIS TITLE PAGE

This form must be submitted for all theses written in programs under the Study Board of Architecture and Design, and it should be placed at the beginning of the appendix section of the assignment.

A printed copy of the form must be submitted along with the printed copy of the thesis.

The information given in this form must also be available in PURE.

(All fields must be filled out)

Program: **Architecture** ☒ **Industrial Design** ☐ **Urban Design** ☐
This thesis was written by (full name):
Kamilla Tind Kristensen
Pernille Bjerregaard
Title of the thesis: Transformation: reimagining Aalborg Women's Crisis Shelter
Supervisor´s name: Joel Peter Weber Letkemann
Submission date/year: 2 June 2025
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External collaboration* **Yes** ☐ **No** ☒
External collaboration partner (name of company/organization):
Contact at external collaboration partner (title, name og email):

What is an external collaboration? Read more here.

Title page

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Group
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Kai Kanafani

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Kamilla Tind Kristensen

Pernille Bjerregaard

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Appendix 1

Interview with Aalborg Women's Crisis Shelter

Interview notes with Aalborg Women's Crisis shelter, not directly quoted.

General

Is there a particular reason why you chose this location?

How many residents can you accommodate, and how many are currently staying here?

Number of children vs. Women?
There is room for 9 women and 10 children
There are three single rooms (9m2) and six double rooms (20 m2) with enough space for a woman with three children (average of 1,6).

Are there times of the year when there is more need for help than others?

There isn't a specific time when they are more in demand.
Summer holidays and Christmas tend to be quieter, as people often have plans and want to get through the period first.

We've read that you turn away up to 200 women a year. Ideally, how many should the shelter be able to accommodate? Can there be too many residents at one shelter?

Ideally: 15 spaces. Many also come from other municipalities, 60/40 split. Would require 4 extra staff.

How long do women typically stay, and why do they come here? Is there a difference in the needs of women who have experienced psychological vs. physical violence?

They typically stay between 3-4 months, but some up to 14 months.

88% of women don't return, others have been there 3-4 times.

Safety

How do you balance security with creating a homely and safe atmosphere?

They try to avoid too much fencing and visible security measures.
A sense of safety is a feeling; security can be created.
They have good contact with the police and security companies.
They do not advertise that it is a women's shelter. It is anonymous.

How much freedom do the women have to leave the center during their stay? Are the doors locked?

The women are free to come and go as they want, they have a key and the locked doors are for their own protection.

Do you often experience unauthorized individuals trying to contact the women?

Perpetrators of violence do not to the crisis shelter.

How do you manage the entrance/reception area and visits to the shelter to avoid disturbing the residents?

Outpatient counseling – 90 cases. They come in 1–2 times a week, but it also takes place in a different building because there are so many.
They have too few spaces available. Five counseling rooms.

Anonymity and security are important.
The women shouldn't have to run into visitors all the time.
In a new building, there could be one entrance for the outpatient service at one end, and another at the opposite end.
Relatives are not allowed inside the main house.

Residents can have their own space privately.

Spaces and Functions

Are there any new or existing rooms/functions you wish you had more space for?

They would like to have activity rooms for different age groups.
They have a garden room with limited space. Not everyone can sit in the living room.
Most women want to spend time together as time goes on, but it can be difficult in the beginning.
Everyone knows why they are here, and that creates a shared understanding and a sense of openness.
Everyone should be able to have a seat in the dining room.

Physical activity. It is connected to well-being.
PlayStation, game room, creative room, it's nice to be able to immerse yourself in something.

The bathroom can be a point of conflict. They try to maintain as much normalcy as possible, which creates stress in the evenings and mornings. The rooms located near the bathroom experience a lot of traffic. It's difficult living in a communal setting because you have to adapt to others' habits and routines. Some women rush to move into their own apartment because they can't cope with the shared environment here.

How does daily life work in terms of meals, group activities, school, privacy, and work?

They have a chef employed because they have very limited space. Previously, they had shared meal days.
If all facilities are in the rooms, the women never come out.

There is a large kitchen and a common living room where they can be together.
There is a good sense of community where people make room for each other. This community is important because the women can be very isolated and have a small network.

It is important that they participate in activities and leave their rooms to become stronger and able to move on. Strengthening their mental health is key.

It is good that the shelter is close to the city. The city is like their garden where they can do activities. It is easy to get here by public transport for women who do not have a car.
Otherwise, it becomes too isolating and the shelter is the only place they are. It doesn't feel as bad to be here when the shelter is located within the city.

Are there any rooms or spaces that are used a lot or not at all?

They do not have room that are not in use.

How important is access to outdoor areas?

Some women don't leave the shelter, so a small garden is valuable.

They receive guidance on where they can go, but it's their own decision.
Some have evening or night jobs.
They organize outings where safety is ensured, places with entry fees.

Are there any functions you believe should be located close to one another?

The playroom should not be close to the rooms because of noise. Acoustic ceilings; the pictures are made on sound-absorbing panels.

How do you handle room allocation for women with children vs. those without?

They would like to have a separate section for single women, but they don't want to turn anyone away, so it's difficult to create separate sections.

Shared bathroom and kitchen.
There is a lot of noise in the hallway with the rooms. It doesn't have to be soundproof, but it would be nice if it were quieter.

Staff

What backgrounds and education do staff and volunteers have?

11 staff members. 7 work directly with the residents.
There is the management, consultants, janitor and chef. Not all of them are full-time employees, in terms of hours, there are 8 of them.
They act as contact persons.
Social and health care assistants, pedagogues, and healthcare professionals.

70 volunteers. They come in the afternoon hours. They sleep there at night (from 1-7) so that the staff can go home.
If the centre grows, they would like to hire awake night staff so that there is something for them to do.
The shelter must be staffed around the clock.
Volunteers can help with this. Their presence alone provides a sense of security. Everyone can call them as well.

What rooms and facilities are available for staff and volunteers?

Meeting room / staff room / 2 workstations. Secretary's office, kitchenette, toilet, wardrobe.

Visitor room / counseling room (table, sofa, computer) – the computer is also used as a workstation. Cozy atmosphere. Not every room needs to have every function.
Welcome office with seating, this is where they come when they first arrive. It's important that someone is nearby to open the door.

There are two duty rooms, and they are staffed with volunteers every night. Just a small bed and a nightstand, one of them has a bathroom. They appreciate having their own section.

How do you work to build trust between the staff and the women at the center?

Everyone is assigned a contact person. The manager and consultant do not handle casework.
Everyone should say hello, greet, and be visible. It's ordinary practice.

The top floor is administration, but they have counseling rooms here to balance the power gap. The residents live here; the staff go home so the residents should feel welcome everywhere.

What is the most difficult aspect of working at a women's shelter?

The most difficult thing for the staff is those who move in for 2–3 days and then move out again, the regrets, or when the structure or environment in the house is the reason, they move out.

Treatment

Do you have special rooms or areas for treatment? What kind of treatment?

Counseling rooms for conversations.
They also have NADA (acupuncture) and massage. Wellness rooms.

Would like sensory rooms.

How do you help? Guidance, shelter/safety, community? Getting away from a dangerous situation or reintegration into society?

They do not provide treatment but offer counseling and guidance. The women have the right to psychological help, which takes place concurrently.
They assist with safety and protection, as well as other issues that arise, such as finding new housing and legal aid.
There is nothing that works for everyone; it varies from person to person.

They contact authorities if needed and coordinate counseling, lawyers, healthcare professionals are involved if necessary.
Coordination happens as needed. Sometimes they do it on behalf of the women, other times the women just need motivation.
Sometimes safety consultants attend meetings. They call people in as needed.

The contact person acts as the coordinator for everything. Sometimes they just need to listen, other times they help articulate issues.
Social workers, integration counselors, pedagogues, and midwives function as contact persons.

They do not provide healthcare services, and the women are expected to manage their own health.
The hospital has tried to pressure them so they can discharge women quickly.
They don't want to do everything for them, as it's a very short period in their lives, so they need to be able to be independent.

No daycare facility.
They have a pedagogue who can talk with the children about their experiences, but it is not a childcare service.
They do not want it integrated, as they then come under the supervision law.

Are the women supported after they leave the shelter? What can society do to better protect women affected by violence?

Aftercare when people move out, for as long as they need. 130 ongoing cases. Some visit the house. Others are visited outside.

Other

What is the financial basis for your work – do you receive enough support from the state?

They are tax-funded, with a daily rate, half from the state, half from the municipality. 559 DKK for adults, nothing for children.
The woman is charged "rent" by her home municipality. If her financial situation doesn't allow it, she can be exempt.

Internet, food, and cleaning are also charged. The shelter can adjust the rate themselves.

Some municipalities charge more than others.
Some women become financially very strained.
Municipal budgets only run for 12 months, so things tend to get overlooked

Do you notice anything from the nearby high school?

They do not experience any problems with the high school. Most think it is nice that there is life around.
Car traffic doesn't matter. It's just part of the conditions. The most important thing is the people, not the surroundings.

We are considering organizing courses for women who have previously stayed at the shelter to ease the transition into a new life and to create a network of women who understand what they're going through and can support each other. Would this be challenging for the current residents?

Other comments:

The basement needs renovation.

Sleeping area and living space are combined in the rooms. They need storage space. The rooms can be locked, and staff are not allowed to enter without permission. Women are advised to lock their rooms when they go out.

They cannot accommodate people in wheelchairs.

At one point it was mainly women with children under 8, but it differs if there are also teenagers. They only have their rooms right now and need some other space.

There is something in the healing process about being able to relax in other areas. It gives them mental space to focus on why they are here. Cleaning and lack of space can become distractions or avoidance mechanisms.

Interview with:
Karina Kidmose
Niels-Jacob Ulstrup

Appendix 2

Initial room program

Category	Rooms	m2	Number of people	Amount
Bedrooms				
	Single (with bathroom)	25	1	5
	Family (with bathroom)	40	4	10
	Night watches (with bathroom)	25	1	2
Common rooms				
	Dining room	72,47	51	1
	Living room(s)	100	51	1
	Workout	70	30	1
	TV and playstation	20	7	1
	Playroom	30	15	1
	Creative room	40	20	1
	Sensory rooms	10	3	4
	Computer room		5	1
	Kitchen			
Treatment rooms				
	Counseling			
	Wellness (Massage & nada)			
Meeting rooms				
	Counseling, visitors and ambulant counseling	10	3	7
	Toilet	6	1	2
	Courses			2
Administration				
	Meeting	35	15	1
	Printer, storage (and kitchen)	10		1
	Welcome office	13	2	1
	Office (single)	10	1	4
	Office (shared)	15	2	2
	Toilet	2,5	1	2
	Wardrobe	2		1
	Disabled toilet	5,75	1	1
Practical				
	Cleaning supplies	15		1
	Donations	10		1
	Donations(open)	10		1
	Washing facilities	30		1
	Food storage	20		1
	Storage	15		1
	Technical room	30		1
	Entrance			
Outdoor				
	Bike parking			
	Playground			
	Terrace/outdoor dining			
	Lounge			
	Smoking area			

Final room program

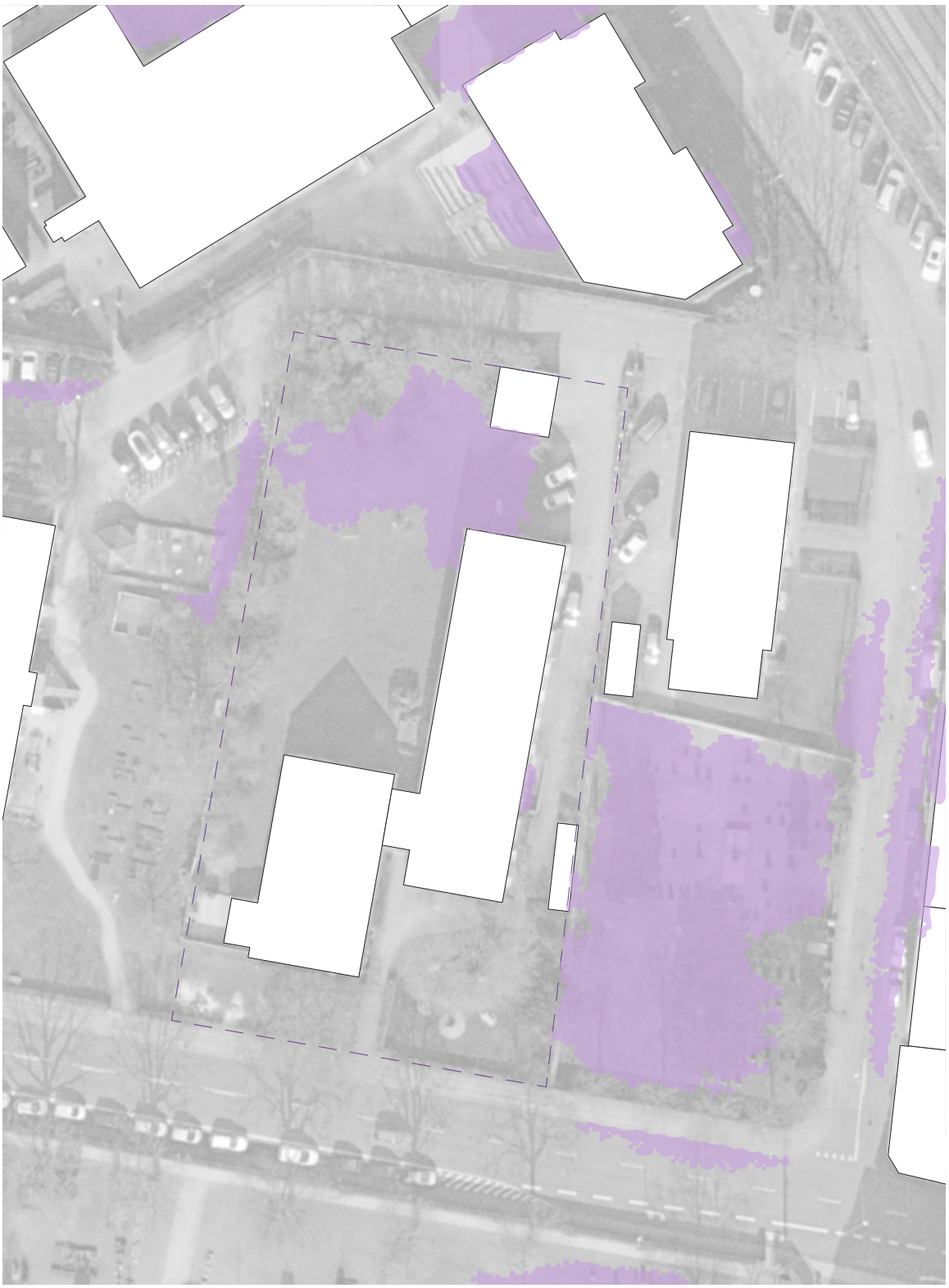
The ambulant consultancy					
Rooms	*m2*	*Amount*	*Number of people*	*Privacy*	*In close relation to*
Welcome office	10	1	3	Semi public	The entrance of the ambulant consultancy which is located closest
Bigger counseling rooms	16	2	7	Semi public	Waiting area
Smaller counseling rooms	9-13	5	4	Semi public	Waiting area
Waiting area	56	1	6	Semi public	
Office	11	1	3	Semi public	Waiting area
Disabled wc	6	1	1	Semi public	Waiting area

The home					
Rooms	*m2*	*Amount*	*Number of people*	*Privacy*	*In close relation to*
Entrance	23	1		Semi private	Wardrobe and wc
Wardrobe	13	1		Semi private	Entrance and wc
Restroom	4	1	1	Semi private	Entrance and common spaces
Wc	4	1	1	Semi private	Entrance and common spaces
TV lounge	54	1	23	Semi private	Playroom, kitchen and dining
Playroom	31	1	15	Semi private	The ambulant consultancy and TV lounge
Kitchen	35	1	8	Semi private	Dining and pantry
Dining room	118	1	45	Semi private	Kitchen and the activity area
Pantry	12	1		Semi private	Kitchen
Cleaning storage	12	1		Semi private	Kitchen and dining
Counseling room	13	1	5	Semi private	Dining and offices
Activity area	130	1	25	Semi private	Dining and garden
Teen room	23	1	8	Semi private	Activity area
Fitness	30	1		Semi private	Circulation, activity area and garden
Yoga	30	1		Semi private	Garden
Storage for fitness	5	1		Semi private	Fitness
Wc	3	2	1	Semi private	Activity area
Laundry	25	1		Semi private	Circulation
Bikes	25	1		Semi private	
Technical room	34	1		Semi private	
Storage	14	1		Semi private	
Donations	9	1		Semi private	
Medium common area by rooms	17	1	5	Semi private	Rooms and circulation
Small commen area by rooms	8	2	4	Semi private	Rooms and circulation
Big common area by rooms	46	1	8	Semi private	Rooms and circulation
Family room type A	35	4	4	Private	Common area
Family room type B	35	3	4	Private	Common area
Family room type C	37	3	4	Private	Common area
Single room type A	23	2	1	Private	Common area
Sinlge rom type B	23	5	1	Private	Common area

The Wokplace					
Rooms	*m2*	*Amount*	*Number of people*	*Privacy*	*In close relation to*
Wc	3	2		Semi private	Dining and offices
Single office	12	3	3	Semi private	Flexible office
Double office	18	1	4	Semi private	Flexible office
Flexible office	35	1	9	Semi private	Dining and offices

Appendix 3

Bluespot - 10 year incident



Appendix 4

LCA - Table of the results from LCAbyg

Building part	Construction	Preserved (P), demolished (D) or new (N)	Products	EPD	Amount	Unit	GWP (kg CO2-eq/m2/year)
Demolished floor structure		D					0,0097
	B2_ground_floor_wood	D			65,0000	m2	0,0097
		D	Laminate floor 8 mm		1,0000	m2/m2	0,0093
		D	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0004
New floor structure		N					0,0181
	B1_first floor_wood	N			31,0000	m2	0,0181
		N	Laminate floor 8 mm		1,0000	m2/m2	0,0027
		N	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0154
Preserved floor structure		P					0,1102
	B1_1_floor_wood	P			91,0000	m2	0,0136
		P	Laminate floor 8 mm		1,0000	m2/m2	0,0131
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0006
	B2_1_floor_linoleum	P			193,0000	m2	0,0086
		P	Linoleum (thickness 0.0025 m)		1,0000	m2/m2	0,0074
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0012
	B2_1_floor_wood	P			189,0000	m2	0,0283
		P	Laminate floor 8 mm		1,0000	m2/m2	0,0271
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0012
	B2_2_floor_linoleum	P			63,0000	m2	0,0028
		P	Linoleum (thickness 0.0025 m)		1,0000	m2/m2	0,0024
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0004
	B2_2_floor_other	P			127,0000	m2	0,0008
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0008
	B2_2_floor_wood	P			192,0000	m2	0,0288
		P	Laminate floor 8 mm		1,0000	m2/m2	0,0275
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0012
	B2_ground floor_brick	P			9,0000	m2	0,0001
		P	Aerated concrete P4 05 reinforced		0,1750	m2/m2	0,0001
		P	Facing brick		0,0540	m3/m2	0,0001
	B2_ground floor_linoleum	P			205,0000	m2	0,0091
		P	Linoleum (thickness 0.0025 m)		1,0000	m2/m2	0,0078
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0013
	B2_ground floor_wood	P			121,0000	m2	0,0181
		P	Laminate floor 8 mm		1,0000	m2/m2	0,0174
		P	Aerated concrete P4 05 reinforced		0,1750	m3/m2	0,0008
New clay internal walls		N					0,1866
	B1_145mm_new	N			217,0000	m2	0,0361
		N	Clay plaster		0,0150	m3/m2	0,0033
		N	Clay plaster		0,0150	m3/m2	0,0033
		N	Adobe		0,1150	m3/m2	0,0259
		N	Lime paint	https://oekobaudat.de/OEKOBAU.DAT/datasetdetail/process.xhtml?uuid=198223f3-acee-40be-93bb-0e7b365cacfc&version=20.24.070&stock=OBD_2024_I&lang=en	0,2000	kg/m2	0,0018
		N	Lime paint	https://oekobaudat.de/OEKOBAU.DAT/datasetdetail/process.xhtml?uuid=198223f3-acee-40be-93bb-0e7b365cacfc&version=20.24.070&stock=OBD_2024_I&lang=en	0,2000	kg/m2	0,0018
	B2_145mm_new	N			893,0000	m2	0,1486
		N	Clay plaster		0,0150	m3/m2	0,0137
		N	Clay plaster		0,0150	m3/m2	0,0137
		N	Adobe		0,1150	m3/m2	0,1066
		N	Lime paint		0,2000	kg/m2	0,0073
		N	Lime paint		0,2000	kg/m2	0,0073
	B2_60mm_new	N			25,0000	m2	0,0020
		N	Clay plaster		0,0150	m3/m2	0,0004
		N	Clay plaster (Clone)		0,0150	m3/m2	0,0004

		N	Adobe	0,0300	m3/m2	0,0008
		N	Lime paint	0,2000	kg/m2	0,0002
		N	Lime paint	0,2000	kg/m2	0,0002
Demolished internal walls		D				0,1450
	B1_120mm_demolished	D		38,0000	m2	0,0011
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Cement mortar	0,0231	m3/m2	0,0003
		D	Facing brick	0,1080	m3/m2	0,0006
	Middle layer, timber skeleton, non-bearing, mineral wool	D		66,0000	m2	0,0039
		D	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0001
		D	Gypsum fibre board (thickness 0.01 m) (Clone)	1,0000	m2/m2	0,0001
		D	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0071	m3/m2	0,0036
		D	Mineral wool (partition walls insulation)	0,0700	m3/m2	0,0001
	B1_240mm_demolished	D		47,0000	m2	0,0020
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Cement mortar	0,0231	m3/m2	0,0003
		D	Facing brick	0,1080	m3/m2	0,0007
		D	Facing brick	0,1080	m3/m2	0,0007
	B1_360mm_demolished	D		1,0000	m2	0,0005
		D	Lime-cement plaster	0,0100	m3/m2	0,0000
		D	Lime-cement plaster	0,0100	m3/m2	0,0000
		D	Cement mortar	0,0231	m3/m2	0,0000
		D	Facing brick	0,1080	m3/m2	0,0002
		D	Facing brick	0,1080	m3/m2	0,0002
	B1_60mm_demolished	D		25,0000	m2	0,0054
		D	Reinforcement steel wire	2,0000	m3/m2	0,0000
		D	Reinforcement steel wire (Clone)	2,0000	m3/m2	0,0000
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Lime-cement plaster (Clone)	0,0100	kg/m2	0,0001
		D	Construction wood, pine and spruce, Planed (Incineration EoL)	0,0270	kg/m2	0,0052
	B2_120mm_demolished	D		622,0000	m2	0,0175
		D	Lime-cement plaster	0,0100	m3/m2	0,0018
		D	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0018
		D	Cement mortar	0,0231	m3/m2	0,0045
		D	Facing brick	0,1080	m3/m2	0,0094
	B2_160mm_demolished	D		217,0000	m2	0,0094
		D	Lime-cement plaster	0,0100	m3/m2	0,0006
		D	Lime-cement plaster	0,0100	m3/m2	0,0006
		D	Cement mortar	0,0231	m3/m2	0,0016
		D	Facing brick	0,1080	m3/m2	0,0033
		D	Facing brick	0,1080	m3/m2	0,0033
	B2_240mm_demolished	D		96,0000	m2	0,0042
		D	Lime-cement plaster	0,0100	m3/m2	0,0003
		D	Lime-cement plaster	0,0100	m3/m2	0,0003
		D	Cement mortar	0,0231	m3/m2	0,0007
		D	Facing brick	0,1080	m3/m2	0,0015
		D	Facing brick	0,1080	m3/m2	0,0015
	B2_360mm_demolished	D		14,0000	m2	0,0000
		D	Lime-cement plaster	0,0100	m3/m2	0,0000
		D	Lime-cement plaster	0,0100	m3/m2	0,0000
		D	Cement mortar	0,0231	m3/m2	0,0000
		D	Facing brick	0,1080	m3/m2	0,0000
		D	Facing brick	0,1080	m3/m2	0,0000
	B2_60mm_demolished	D		471,0000	m2	0,1011
		D	Reinforcement steel wire	2,0000	kg/m2	0,0000
		D	Reinforcement steel wire (Clone)	2,0000	kg/m2	0,0000
		D	Lime-cement plaster	0,0100	m3/m2	0,0014
		D	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0014
		D	Construction wood, pine and spruce, Planed (Incineration EoL)			

Preserved internal walls		P				0,0535
	B1_120mm_preserved	P		65,0000	m2	0,0018
		P	Lime-cement plaster	0,0100	m3/m2	0,0002
		P	Lime-cement plaster	0,0100	m3/m2	0,0002
		P	Cement mortar	0,0231	m3/m2	0,0005
		P	Facing brick	0,1080	m3/m2	0,0010
	B1_160mm_preserved	P		35,0000	m2	0,0015
		P	Lime-cement plaster	0,0100	m3/m2	0,0001
		P	Lime-cement plaster	0,0100	m3/m2	0,0001
		P	Cement mortar	0,0231	m3/m2	0,0003
		P	Facing brick	0,1080	m3/m2	0,0005
		P	Facing brick	0,1080	m3/m2	0,0005
	Middle layer, timber skeleton, non-bearing, mineral wool	P		3,0000	m2	0,0002
		P	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0000
		P	Gypsum fibre board (thickness 0.01 m) (Clone)	1,0000	m2/m2	0,0000
		P	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0705	m3/m2	0,0002
		P	Mineral wool (partition walls insulation)	0,0700	m3/m2	0,0000
	B1_240mm_preserved	P		28,0000	m2	0,0012
		P	Lime-cement plaster	0,0100	m3/m2	0,0001
		P	Lime-cement plaster	0,0100	m3/m2	0,0001
		P	Cement mortar	0,0231	m3/m2	0,0002
		P	Facing brick	0,1080	m3/m2	0,0004
		P	Facing brick	0,1080	m3/m2	0,0004
	B1_250mm_preserved	P		10,0000	m2	0,0003
		P	Lime-cement plaster	0,0100	m3/m2	0,0000
		P	Lime-cement plaster	0,0100	m3/m2	0,0000
		P	Cement mortar	0,0231	m3/m2	0,0001
		P	Facing brick	0,1080	m3/m2	0,0002
	Entrance_360mm_preserved	P		10,0000	m2	0,0004
		P	Lime-cement plaster	0,0100	m3/m2	0,0000
		P	Lime-cement plaster	0,0100	m3/m2	0,0000
		P	Cement mortar	0,0231	m3/m2	0,0000
		P	Facing brick	0,1080	m3/m2	0,0002
		P	Facing brick	0,1080	m3/m2	0,0002
	B1_60mm_preserved	P		5,0000	m2	0,0011
		P	Reinforcement steel wire	2,0000	kg/m2	0,0000
		P	Reinforcement steel wire (Clone)	2,0000	kg/m2	0,0000
		P	Lime-cement plaster	0,0100	m3/m2	0,0000
		P	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0000
		P	Construction wood, pine and spruce, Planed (Incineration EoL)	0,0270	m3/m2	0,0010
	B2_120mm_preserved	P		234,0000	m2	0,0066
		P	Lime-cement plaster	0,0100	m3/m2	0,0007
		P	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0007
		P	Cement mortar	0,0231	m3/m2	0,0017
		P	Facing brick	0,1080	m3/m2	0,0035
	B2_160mm_preserved	P		329,0000	m2	0,0142
		P	Lime-cement plaster	0,0100	m3/m2	0,0009
		P	Lime-cement plaster	0,0100	m3/m2	0,0009
		P	Cement mortar	0,0231	m3/m2	0,0024
		P	Facing brick	0,1080	m3/m2	0,0050
		P	Facing brick	0,1080	m3/m2	0,0050
	B2_240mm_preserved	P		96,0000	m2	0,0042
		P	Lime-cement plaster	0,0100	m3/m2	0,0003
		P	Lime-cement plaster	0,0100	m3/m2	0,0003
		P	Cement mortar	0,0231	m3/m2	0,0007
		P	Facing brick	0,1080	m3/m2	0,0015
		P	Facing brick	0,1080	m3/m2	0,0015
	B2_360mm_preserved	P		82,0000	m2	0,0030
		P	Lime-cement plaster	0,0100	m3/m2	0,0002
		P	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0002
		P	Cement mortar	0,0231	m3/m2	0,0000
		P	Facing brick	0,1080	m3/m2	0,0012
		P	Facing brick	0,1080	m3/m2	0,0012
	B2_60mm_preserved	P		89,0000	m2	0,0191
		P	Reinforcement steel wire	2,0000	kg/m2	0,0000

		P	Reinforcement steel wire (Clone)	2,0000	kg/m2	0,0000
		P	Lime-cement plaster	0,0100	m3/m2	0,0003
		P	Lime-cement plaster (Clone)	0,0100	m3/m2	0,0003
		P	Construction wood, pine and spruce, Planed (Incineration EoL)	0,0270	m3/m2	0,0186
Demolished roof		D				0,0017
	Roofing, roof tiles	D		22,0000	m2	0,0017
		D	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0097	m3/m2	0,0016
		D	Roof tile	1,0000	m2/m2	0,0001
New dormers		N				0,0381
	Dormer, piched roof, per m2 window	N		40,0000	m2	0,0381
		N	Damp insulation PE (thickness 0.0002 m)	3,4500	m2/m2	0,0028
		N	Gypsum plaster board (perforated board) (12.5 mm)	3,4500	m2/m2	0,0022
		N	Gypsum plaster board (impregnated, moisture resistant) (thickness 0.0125 m)	2,4300	m2/m2	0,0002
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0300	m3/m2	0,0006
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0700	m3/m2	0,0014
		N	Spruce plywood, uncoated (Incineration EoL)	0,0300	m3/m2	0,0018
		N	Mineral wool (partition walls insulation)	0,6300	m3/m2	0,0111
		N	Zink, patinated	20,1800	kg/m2	0,0179
Preserved roof		P				0,2954
	Middle layer, lattice rafters, mineral wool and cellulose insulation	P		328,0000	m2	0,1123
		P	Damp insulation PE (thickness 0.0002 m)	0,2000	kg/m2	0,0019
		P	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0011	m3/m2	0,0028
		P	Mineral wool (partition walls insulation)	0,0705	m3/m2	0,0003
		P	Cellulose fibre blowing insulation material	0,3107	m3/m2	0,1073
	Saddle roof, wooden rafters on a tap 45°, 400 mm insulation	P		532,0000	m2	0,1178
		P	Damp insulation PE (thickness 0.0002 m)	0,1540	m2/m2	0,0005
		P	Damp insulation PE (thickness 0.0002 m)	0,8690	m3/m2	0,0027
		P	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0150	m3/m2	0,0617
		P	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0035	m3/m2	0,0144
		P	Construction wood, pine and spruce, wet and sawn (Incineration			

			Mineral wool (partition walls insulation)			
		P		0,2610	m3/m2	0,0017
	Roofing, roof tiles	P		838,0000	m2	0,0653
			Construction wood, pine and spruce, wet and sawn (Incineration			
		P	EoL)	0,0097	m3/m2	0,0626
		P	Roof tile	1,0000	m2/m2	0,0027
Re-insulation of roof		N				0,1829
	Post-insulation of sloping roof in accessible roof space, cellulose	N		860,0000	m2	0,1829
		N	Damp insulation PE (thickness 0.0002 m)	0,2000	kg/m2	0,0175
		N	Clay panel (thickness 0.02 m)	1,0000	m2/m2	0,0009
		N	Cellulose fibre blowing insulation material	0,3500	m3/m2	0,1645
Preserved foundation		P				0,0873
	B1_foundation_brick	P		7,0000	m2	0,0013
		P	Cement screed	16,0000	kg/m3	0,0000
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0002
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0004
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0000
		P	Sand 0/2	300,0000	kg/m2	0,0002
		P	Facing brick (Clone)	0,5400	m3/m2	0,0005
	B1_foundation_linoleum	P		58,0000	m2	0,0083
		P	Cement screed	16,0000	kg/m3	0,0001
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0014
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0030
		P	Linoleum (thickness 0.0025 m)	1,0000	m2/m2	0,0022
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0003
		P	Sand 0/2	300,0000	kg/m2	0,0012
	B1_foundation_other	P		12,0000	m2	0,0013
		P	Cement screed	16,0000	kg/m3	0,0000
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0003
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0006
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0001
		P	Sand 0/2	300,0000	kg/m2	0,0003
	B1_foundation_tiles	P		140,0000	m2	0,0150
		P	Cement screed	16,0000	kg/m3	0,0004
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0035
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0072
		P	Stoneware tiles glazed (thickness 0.01 m)	1,0000	m2/m2	0,0002
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0008
		P	Sand 0/2	300,0000	kg/m2	0,0030
	B1_foundation_wood	P		62,0000	m2	0,0155
		P	Cement screed	16,0000	kg/m3	0,0002
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0015
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0032
		P	Laminate floor 8 mm	1,0000	m2/m2	0,0089
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0003

		P	Sand 0/2	300,0000	kg/m2	0,0013
	B2_Foundation	P		434,2500	m2	0,0459
		P	Cement screed	16,0000	kg/m3	0,0011
		P	Ready-mixed concrete, C25/30 (exposure classes X0, XC1)	0,2000	m3/m2	0,0108
		P	PE-HD with PP fleece zur sealing	1,0000	m2/m2	0,0224
		P	Aerated concrete P2 04 non-reinforced	0,2000	m3/m2	0,0024
		P	Sand 0/2	300,0000	kg/m2	0,0093
New staircase						0,0014
	Stairs in wood, per floor	N		1,0000	pcs.	0,0014
		N	Clay plaster	436,9650	kg/pcs.	0,0005
		N	Timber pine (12% moisture / 10.7% H2O content)	60,3100	kg/pcs.	0,0002
		N	Timber pine (12% moisture / 10.7% H2O content)	165,0000	kg/pcs.	0,0006
Preserved staircases		P				0,0015
	Stairs in concrete, per floor	P		0,3000	pcs.	0,0014
		P	Precast concrete part, stairs, (1,1 m wide, 9 steps each 16 cm)	1,9000	pcs./pcs.	0,0014
	Stairs in concrete, per floor	P		5,0000	pcs.	0,0001
		P	Precast concrete part, stairs, (1,1 m wide, 9 steps each 16 cm)	1,9000	pcs./pcs.	0,0001
Demolished windows		D				0,0861
	Frame, windows, plastic	D		249,0000	m2	0,0861
		D	EPDM sealing for aluminium section	5,7750	m/m2	0,0173
		D	Insulated glazing, double pane (Clone)	0,8000	m2/m2	0,0039
		D	Window fitting for double sash window	0,5200	kg/m2	0,0000
		D	Window frame PVC-U	2,8700	m/m2	0,0298
		D	Window sash PVC-U	2,7600	m/m2	0,0352
New windows		N				0,1016
	Frame, windows, plastic	N		29,0000	m2	0,0423
		N	EPDM sealing for aluminium section	5,7750	m/m2	0,0030
		N	Insulated glazing, triple pane (thickness: 0.036 m)	0,8000	m2/m2	0,0151
		N	Window fitting for double sash window	0,5200	kg/m2	0,0014
		N	Window frame PVC-U	2,8700	m/m2	0,0108
		N	Window sash PVC-U	2,7600	m/m2	0,0120
	Window,timber with 3-layer pane	N		66,0000	m2	0,0594
		N	EPDM sealing for aluminium section	5,7750	m/m2	0,0069
		N	Insulated glazing, triple pane (thickness: 0.036 m)	0,8000	m2/m2	0,0344
		N	Window fitting for double sash window	0,5200	kg/m2	0,0031
		N	Window frame (spruce)	2,8700	m/m2	0,0074
		N	Window sash (spruce)	2,7600	m/m2	0,0075
Replacement of existing windows		N				0,3152
	Frame, windows, plastic	N		170,0000	m2	0,2478
		N	EPDM sealing for aluminium section	5,7750	m/m2	0,0178
		N	Insulated glazing, triple pane (thickness: 0.036 m)	0,8000	m2/m2	0,0886
		N	Window fitting for double sash window	0,5200	kg/m2	0,0081
		N	Window frame PVC-U	2,8700	m/m2	0,0631
		N	Window sash PVC-U	2,7600	m/m2	0,0701
	Window,timber with 3-layer pane	N		75,0000	m2	0,0675
			EPDM sealing for			

			Insulated glazing, triple pane (thickness: 0.036			
		N	m)	0,8000	m2/m2	0,0391
		N	Window fitting for double sash window	0,5200	kg/m2	0,0036
			Window frame (spruce)			
		N		2,8700	m/m2	0,0084
		N	Window sash (spruce)	2,7600	m/m2	0,0086
Cavity wall insulation		N				0,0460
	Cavity wall insulation	N		1168,0000	m2	0,0460
			Cellulose fibre blowing insulation material			
		N		0,1440	m3/m2	0,0460
Demolished outer walls		D				0,0010
	B1_360mm_demolished	D		8,0000	m2	0,0003
		D	Lime-cement plaster	0,0100	m3/m2	0,0000
			Mineral wool (partition walls insulation)			
		D		0,1440	m3/m2	0,0000
		D	Cement mortar	0,0231	kg/m2	0,0000
		D	Facing brick	0,1080	m3/m2	0,0001
		D	Facing brick	0,1080	m3/m2	0,0001
	B2_360mm_demolished	D		23,0000	m2	0,0008
		D	Lime-cement plaster	0,0100	m3/m2	0,0001
		D	Cement mortar	0,0231	kg/m2	0,0000
		D	Facing brick	0,1080	m3/m2	0,0003
		D	Facing brick	0,1080	m3/m2	0,0003
New outer walls		N				0,0039
	B2_360mm_new	N		3,0000	m2	0,0039
		N	Lime-cement plaster	0,0100	m3/m2	0,0001
		N	Cement mortar	0,0231	kg/m2	0,0000
		N	Facing brick	0,1080	m3/m2	0,0019
		N	Facing brick	0,1080	m3/m2	0,0019
Preserved external walls		P				0,0499
	B1_360mm_preserved	P		320,0000	m2	0,0112
		P	Lime-cement plaster	0,0100	m3/m2	0,0009
			Mineral wool (partition walls insulation)			
		P		0,1440	m3/m2	0,0005
		P	Cement mortar	0,0231	kg/m2	0,0000
		P	Facing brick	0,1080	m3/m2	0,0049
		P	Facing brick	0,1080	m3/m2	0,0049
	B2_360mm_preserved	P		1145,0000	m2	0,0380
		P	Lime-cement plaster	0,0100	m3/m2	0,0033
		P	Cement mortar	0,0231	kg/m2	0,0000
		P	Facing brick	0,1080	m3/m2	0,0174
		P	Facing brick	0,1080	m3/m2	0,0174
	Entrance_360mm_preserved	P		20,0000	m2	0,0007
		P	Lime-cement plaster	0,0100	m3/m2	0,0001
			Mineral wool (partition walls insulation)			
		P		0,1440	m3/m2	0,0000
		P	Cement mortar	0,0231	kg/m2	0,0000
		P	Facing brick	0,1080	m3/m2	0,0003
		P	Facing brick	0,1080	m3/m2	0,0003
New gypsum internal walls		N				0,2881
	B1_145mm_new	N		217,0000	m2	0,0623
		N	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0077
		N	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0077
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL)	0,0071	m3/m2	0,0008
		N	Oriented Strand Board, OSB	0,0120	m3/m2	0,0141
		N	Oriented Strand Board, OSB (Clone)	0,0120	m3/m2	0,0141
		N	Wood fibre insulation	7,7000	kg/m2	0,0179
	B2_145mm_new	N		893,0000	m2	0,2204
		N	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0317
		N	Gypsum fibre board (thickness 0.01 m)	1,0000	m2/m2	0,0317
		N	Construction wood, pine and spruce, wet and sawn (Incineration			

		N	Oriented Strand Board, OSB		0,0120	m3/m2	0,0579
		N	Oriented Strand Board, OSB (Clone)		0,0120	m3/m2	0,0579
		N	wood fibre insulation		7,7000	kg/m2	0,0380
	B2_60mm_new	N			25,0000	m2	0,0055
		N	Gypsum fibre board (thickness 0.01 m)		1,0000	m2/m2	0,0009
		N	Gypsum fibre board (thickness 0.01 m)		1,0000	m2/m2	0,0009
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL)		0,0071	m3/m2	0,0001
		N	Oriented Strand Board, OSB		0,0120	m3/m2	0,0016
		N	Oriented Strand Board, OSB (Clone)		0,0120	m3/m2	0,0016
		N	wood fibre insulation		7,7000	kg/m2	0,0003
		N					
External re-insulation		N					0,4617
	External re-insulation	N			1168,0000	m2	0,4617
		N	Damp insulation PE (thickness 0.0002 m)		0,2000	m2/m2	0,0024
		N	PE/PP fleece		1,0000	m2/m2	0,0390
		N	Used Bricks	MD-23007-EN	178,2000	kg/m2	0,0516
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL)		0,0240	m3/m2	0,0143
		N	Construction wood, pine and spruce, wet and sawn (Incineration EoL) (Clone)		0,0050	m3/m2	0,0030
		N	Cement mortar		0,0231	m3/m2	0,1074
		N	Wood fibre insulation		0,2400	m3/m2	0,2440
		N	Medium density fibreboard, MDF		0,0120	m3/m2	0,0000

Appendix 5

Copyright

Text approval from Johanne Baagøe Schønberg to use her private pictures of 4. Maj kollegiet.

Approval from Bim Object to use items from their website in the 3D model.

Hey, yes you can absolutely use our objects for your project!
Just to be sure, we have a reference here:

https://business.bimobject.com/terms-of-service-eula
Section 4.4 is specifically for students!

Good luck and let me know if you need anything else!
Isabelle

--
Med vänliga hälsningar/Kind regards,

Zoë Algurén-Laager
People Experience Partner at Bim.com
+46 (0) 720 43 95 11
Malmö, Sweden

On Thu, Apr 03, 2025 at 08:32 AM, Kamilla Tind Kristensen <ktkr20@student.aau.dk> wrote:

Hi,

We're students from Aalborg University in Denmark finishing our Master Thesis in Architecture. Our project is going to be published and publicly available, so we have some questions regarding copyright.

In our project, we have to include renders and would therefore like to use some of the furniture and other objects from your website. However, we can't find anything about if we are allowed to use them without getting in trouble with copyright.

Is it allowed to use the objects from your website in published work?

Thanks in advance for your help.

Kind regards,

Kamilla Tind Kristensen and Pernille Bjerregaard