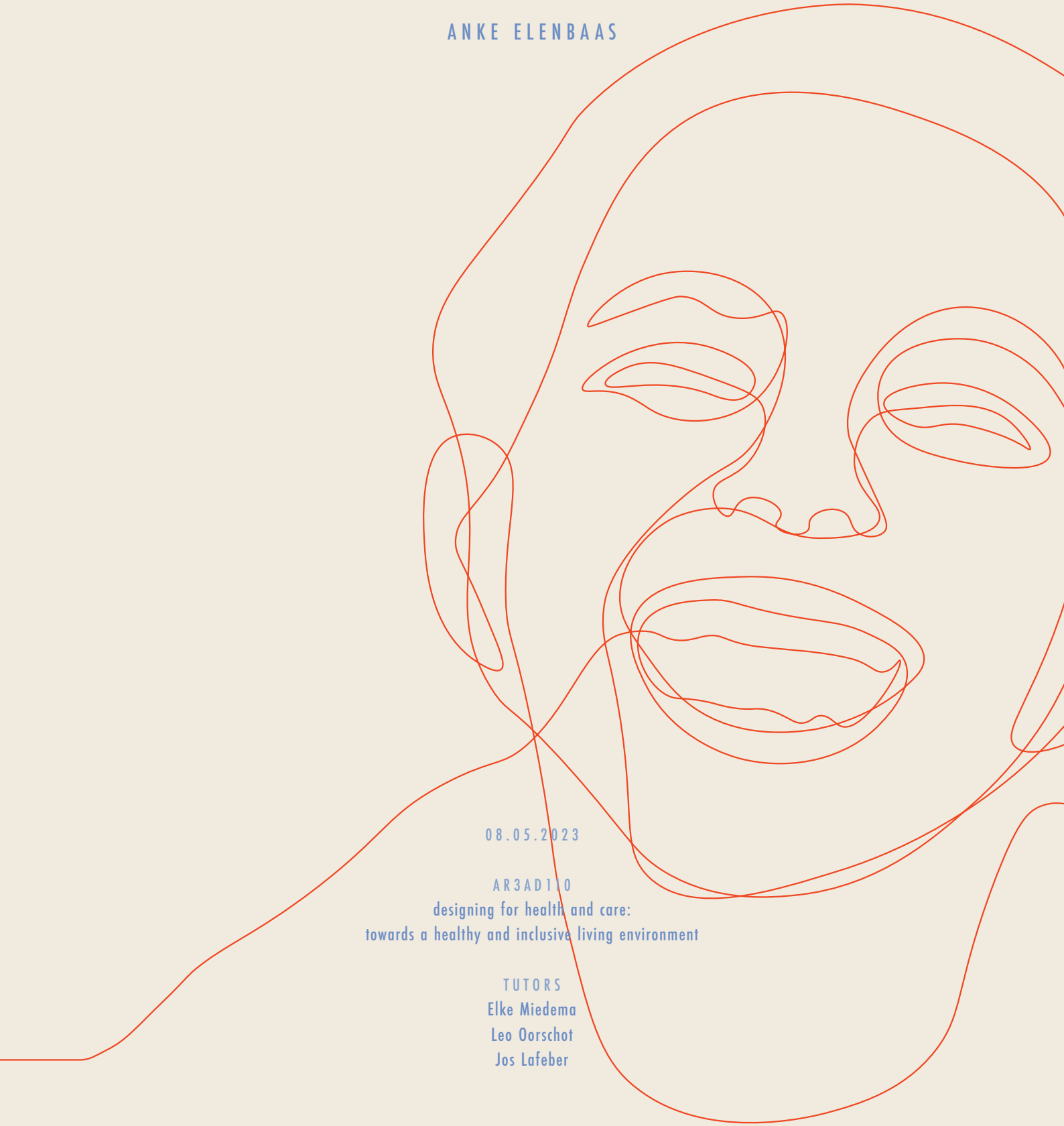
GROWING (UP) TOGETHER

THE DESIGN OF SMALL-SCALE YOUTH CARE FACILITIES

THESIS

ANKE ELENBAAS



08.05.2023

AR3AD110
designing for health and care:
towards a healthy and inclusive living environment

TUTORS
Elke Miedema
Leo Oorschot
Jos Lafeber

Research Booklet
Anke Elenbaas
4589300

08.05.2023

Delft University of Technology
Faculty of Architecture and the Built Environment

Dwelling Graduation Studio 2022/2023
Designing for Health and Care: Towards a Healthy and Inclusive Living Environment
AR3AD110

Tutors:
Elke Miedema
Leo Oorschot
Jos Lafeber

ABSTRACT

Keywords: *small-scale residential youth care, mental health care, facility design, autonomy, social integration*

Youth care has undergone a significant transformation in 2015. Secure residential youth care is one of the areas that is currently experiencing difficulties as a result. Research has shown that the conditions in secure facilities often negatively affect the residents (Stichting het Vergeten Kind, 2022). Furthermore, young adults often find it difficult to adjust to independence once they leave the facility. Youth care organisations are currently closing these large secure institutions, and creating small, more customized alternatives called small-scale residential youth care. This type of care accommodates minors who are unable to make use of lighter types of care due to their complex problems and behaviour (Van Schie et al., 2020).

Many have studied the design of healthcare environments (Schweitzer et al., 2004; Ulrich et al., 2008, 2010). Others have concentrated on the design of mental healthcare facilities or healthcare environments for children and young adults. However, the majority of research still appears to be focused on the design of hospitals and other formal healthcare settings, such as psychiatric facilities. Research on the design of residential care for young adults with mental and behavioural disorders is scarce. There is a need for more specific research and knowledge on this topic. Therefore, this research aims to discover: What location conditions and architectural and built environment features can support the design of open and secure small-scale residential facilities for youth care and increase user autonomy and social interaction? During this research, the following themes will be discussed: location conditions, architectural features, level of autonomy and social interaction.

Four small-scale youth care homes were visited. Analysis of the buildings, semi-structured interviews with caretakers and conversations with residents were conducted. The research showed that users preferred a neighbourhood setting close to public transport and general amenities. Architectural features included spaces that are flexible and adaptable to different users, a domestic and normalised setting, the right balance between privacy and security, sufficient facilities for leisure and materials that are low maintenance. The research showed that autonomy could be enhanced by including safety measures to prevent (self-)injury, as few security measures as possible, security measures as invisible as possible, adaptable and customisable security and safety levels and easily personalisable spaces. Social interaction could be improved by providing opportunities to meet with neighbours and to interact with the social network and other users.

CONTENT

CHAPTER 1

INTRODUCTION

1.1 DUTCH YOUTH CARE SYSTEM

HISTORY OF YOUTH CARE

The foundation for the current youth care system dates back to the late 19th century when child labour was still common. This changed with the introduction of *Het Kinderwetje van Van Houten* in 1874 and *De Leerplichtwet* in 1901 (Figure 1). These laws prohibited child labour and implemented compulsory education for children under the age of twelve (Vereniging Canon Sociaal Werk, n.d.). As a result, child labour was put to an end.

In 1905, *De Kinderwetten* were introduced (Dekker et al., 2012). These child laws still form the foundation for the current youth care system. Judges were given the option to remove parental authority from children who had been physically or emotionally neglected. Moreover, it introduced a separate criminal law for minors up to the age of eighteen. Civil child law underwent a signification change in 1922 with the introduction of a measure called *ondertoezichtstelling (OTS)*. This allowed the judge to restrict parental authority rather than remove it. *OTS* is still the most common measure today (Vereniging Canon Sociaal Werk, n.d.).

After The Second World War, there were many children in need of care. As a result, the number of residential facilities and foster care grew (Dekker et al., 2012). In this period, Dutch society was still highly pillarized. Religious organisations predominated in societal activities such as politics, education and healthcare. This was also the case for child protection services. In the 1960s, the development of child protection services started to clash with cultural revolutions. People were convinced that rather than using religion to differentiate, it was necessary to choose an institution based on the problems of a child. The criticism caused problems within the youth care system, which forced many residential institutions to close their doors. Although many residential institutions were forced to close their doors as a result, these developments also encouraged the field to come up with innovations: the structure changed from pillarized institutions to agglomerations of institutions, living groups were downsized and new residential concepts were introduced (Dekker et al., 2012).

The pillarized structure further disappeared in the 1980s. After years of criticism and bankruptcies, homes for children of different genders emerged. Due to the government's budget cutbacks, existing institutions were forced to collaborate and develop more specialized care. Alternative types of care such as daycare and supported living emerged as a result (Dekker et al., 2012).

In 1989, a new law was enacted. This law emphasized the need for care to be as light as possible, as short as possible and as close to home as possible (Vereniging Canon Sociaal Werk, n.d.). Heavier types of care were substituted for lighter ones, and care groups became smaller. Moreover, organisations started to merge and new care providers appeared. Organisations started to focus on various types of treatment rather than just one (Dekker et al., 2012). This development was reinforced by *De Wet op de Jeugdzorg* in 2005, which strived for a more client-centred and coherent youth care system (Ministerie van Volksgezondheid, Welzijn en Sport & Ministerie van Justitie, 2005). The responsibility for youth care shifted from the government to provinces and regions, and organisations were forced to collaborate (Vereniging Canon Sociaal Werk, n.d.).

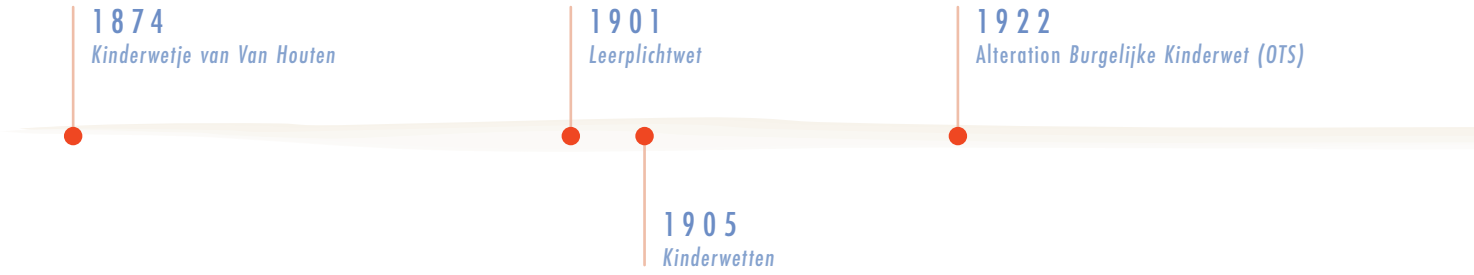


Figure 1: Timeline Dutch youth laws 1870 - 2030

PROBLEMS IN SECURE RESIDENTIAL YOUTH CARE

The most recent change was made in 2015 when many changes took place in the social domain of the Netherlands. With the introduction of De Jeugdwet, municipalities became responsible for youth care (Rijksoverheid, 2019). This so-called decentralisation was intended to both economize and improve youth care by assigning responsibility to those who were closer to the children (Rekenkamer Den Haag, 2014). However, in 2019, the media started to report on the unsatisfactory and insufficient functioning of youth care; the quality of care for minors with severe mental disorders in particular was inadequate and harmful to both the minors and caretakers (IGJ, 2019). Although the Minister of Health, Welfare and Sport announced a funding allocation along with the restructuring of the youth care system in late 2019, the problems still appear to be present (De Jonge & Dekker, 2019; NOS, 2022). In fact, the calls for help are louder than ever. Due to the high workload and staff shortage, professionals are unable to give minors the time and care they require, which ultimately results in even bigger mental problems and costs (NOS, 2022).

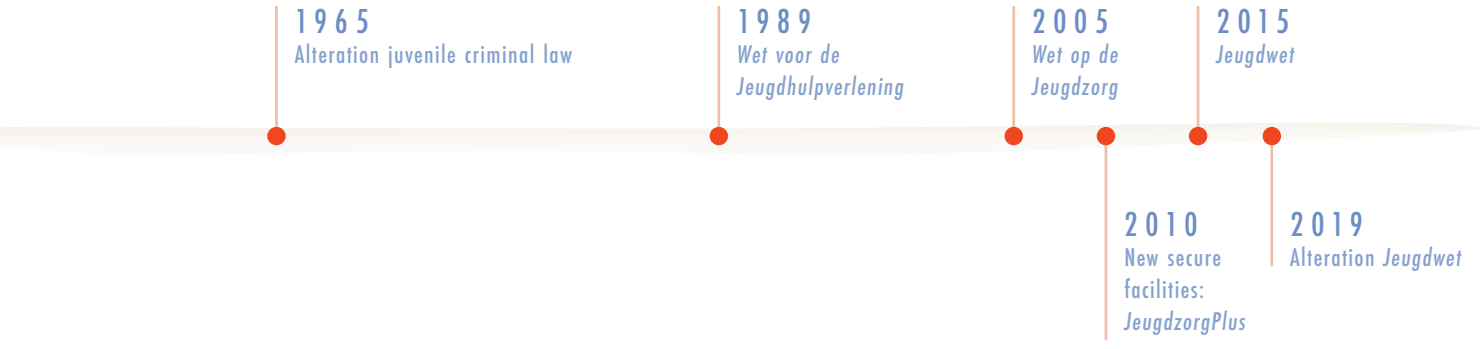
One of the areas within youth care that experiences many difficulties is secure residential youth care (also known as JeugdzorgPlus). It treats minors that are considered to be a danger to themselves or others, or are endangered by others (Jeugdzorg Nederland, 2022). Research shows that secure care is often chosen because there are no alternative types of care available (Bhugwandass et al., 2022). It is therefore being used as a last resort, while instead, a decision should be made based on the most suitable type of care for a minor.

Research shows that secure residential youth care often provides minors with unsafe and even damaging surroundings. Many minors deal with violence between group members and residents are still being fixated (to be restrained by caretakers). Moreover, most minors do not receive the right type of treatment. These conditions often worsen their mental health (Stichting het Vergeten Kind, 2022).

Moreover, the transition out of a youth care home can be challenging. Young adults often struggle with aspects of 'the normal world', such as finding an apartment to rent. This increases the risk of relapse and often leads to replacement in secure care (Hanzon & Van Veluw, 2019). In 2021, twenty-four per cent of the minors placed in secure residential care had been there before (Jeugdzorg Nederland, n.d.). This indicates that secure residential youth care was not successful for almost a quarter of all minors placed there.

Different factors contribute to the difficulties these minors experience after leaving secure care (Figure 2). First of all, they have trouble dealing with freedom and autonomy. During their stay in a secure facility, they often do not learn how to make their own decisions (Hanzon & Van Veluw, 2019). They are usually not allowed to leave the building, facility grounds and sometimes even their bedrooms (Stichting het Vergeten Kind, 2022).

Minors express feeling excluded from society during their stay, making the transition back into society a big step (Stichting het Vergeten Kind, 2022). They feel as if life is placed on hold. As a result, they feel



insecure to leave the facility (Hanzon & Van Veluw, 2019). In addition, contact with friends and family in secure care is often limited (Stichting het Vergeten Kind, 2022). Research has shown that family engagement in therapy is important since family dynamics are often part of the problem (Broekhoven et al., 2019). Moreover, the absence of a supportive social network often forces young adults into a negative social network when leaving the facility (Van Schie et al., 2020).

Three young adults that experienced the malfunctioning of closed youth care themselves, wrote the position paper Stoppen met Gesloten Jeugdzorg (Bhugwandass et al., 2022). According to them, secure youth care needs to stop. They claim that several criteria must be met for this transition to succeed. The most significant one is the development of new alternatives for specialised care. Hanzon & Van Veluw (2019) recommend finding more open alternatives for secure care, where freedom and security go hand in hand. According to them, this will lead to an inclusive living environment: a place where minors can be part of society, practise with autonomy and stay in touch with their social network.

FROM SECURE TO SMALL-SCALE

Currently, youth care organisations are developing new residential concepts as an alternative to secure care. One of those alternatives is small-scale residential youth care. Although research on this subject is still limited, Van Schie et al. (2020, p. 16) provide the following definition:

"a residence within a secure or open residential youth care facility, situated on institutional grounds or in a residential area, for a maximum of six, preferably four children and/or young adults between the age of eight and twenty-three years old, in a domestic setting. They should be guided by an invariable team of caretakers with a minimum ratio of one to four and should receive extensive, customized treatment, for as long as they need. The treatment should focus on dwelling, care and education or labour during and/or after their stay".

GOAL

The starting point of a small-scale facility is to provide more individualized care, in contrast to secure facilities that follow the 'one size fits all' principle. Working in smaller groups enables caretakers to offer minors more individualised attention, continuity, and a safer and calmer living climate. As a result, the use of restraint and freedom restrictions can be reduced, and minors have more opportunities to start and rebuild durable relationships with their caretakers and network (Van Schie et al., 2020). The goal is to offer social safety, by creating a normalized domestic living environment that resembles family life (Mourits & Addink, 2021; Van Schie et al., 2020).

TARGET GROUP

Small-scale residential care focuses on minors who are unable to live at home, in foster care or in family homes. These minors often have severe and complex problems and engage in problematic behaviour, such as suicidal and self-harming behaviour, inappropriate sexual behaviour, aggression or delinquency. These disorders are frequently based on underlying trauma and familial problems (Van Schie et al., 2020).

In youth care, minors are typically divided into two age groups: minors under the age of twelve and minors between the ages of twelve and eighteen. These children and young adults usually do not live in the same home. Although youth care is typically focused on minors, occasionally an exception is made for young adults between the ages of eighteen and twenty-three to receive youth care (Ammerlaan et al., 2022). In this research, the following definitions are in place:

- Children: 0-12 years old
- Young adults: 12-23 years old
- Minors: 0-18 years old

TYPE OF CARE

Small-scale residential facilities can offer both secure and open care. Minors who have authorisation for secure placement should be placed in facilities that offer secure care. Minors without this authorisation receive open residential care (Mourits & Addink, 2021).

GROUP SIZE & COMPOSITION

Small-scale groups that exist today are composed of two to six minors (Mourits & Addink, 2021; Van Schie et al., 2020). Van Schie et al. (2020) conclude that small-scale groups should contain preferably four members. According to minors living there, these smaller groups are less tense and stressful, which allows for mental rest.

Minors that live in small-scale groups can be differentiated based on their level of intelligence, gender, age and need for care (Van Schie et al., 2020). When determining the group's diversity, there are certain factors to take into account. Research by Nijhof et al. (2020) showed that groups with minors who were of the same age and gender and experiencing the same behavioural problems did not function successfully, as children and young adults dragged each other into problematic situations (Mourits & Addink, 2021). Ammerlaan et al. (2022) state that the aim is for minors to live as normally as possible. Specialising care groups is therefore not desirable since doing so would result in the exclusion of certain groups of people. Therefore, groups are preferably mixed in terms of gender. However, in some cases, it is desirable to separate homes for girls and boys, for instance in the case of problems with loverboys. Some organisations consider behavioural contra-indications such as addiction, forensic problems, aggression and severe psychiatric issues. Additionally, they consider declining minors who might provoke or encourage harmful behaviour in others, such as suicide attempts or self-harming (Ammerlaan et al., 2022).

1.2 PROBLEM STATEMENT

Van Schie et al. (2020), Mourits and Addink (2021) and Ammerlaan et al. (2022) have made the first step in defining what alternative dwellings for residential youth care should look like. However, their description is still quite broad. Although topics such as location, housing and layout, atmosphere, autonomy and social interaction are discussed, the amount of research remains limited. Specific architectural principles are not being discussed.

To learn more about designing for this target group, architectural research can be conducted. Many researchers have already addressed the design of healthcare environments, such as Schweitzer et al. (2004) and Ulrich et al. (2008). They discussed topics such as light, sound, nature and safety. Others have more specifically focused on the design of mental healthcare facilities (Aljunaidy & Adi, 2021; Connellan et al., 2013; Jovanović et al., 2019), and on the design of healthcare environments for children and young adults (Gaminiesfahani et al., 2020). However, the majority of research still seems to be focused on the design of hospitals and other formal types of healthcare, such as psychiatric facilities. Moreover, little research specifically addresses the age group of young adults.

To improve the design of small-scale residential buildings for youth care, more research needs to be conducted on how to design residential care environments for young adults with mental and behavioural disorders.

1.3 RESEARCH AIM

This research studies alternative small-scale living concepts for minors with mental healthcare needs, with a focus on increasing the level of autonomy and social interaction through building design, while taking into account the capabilities and needs of the users (Figure 2).

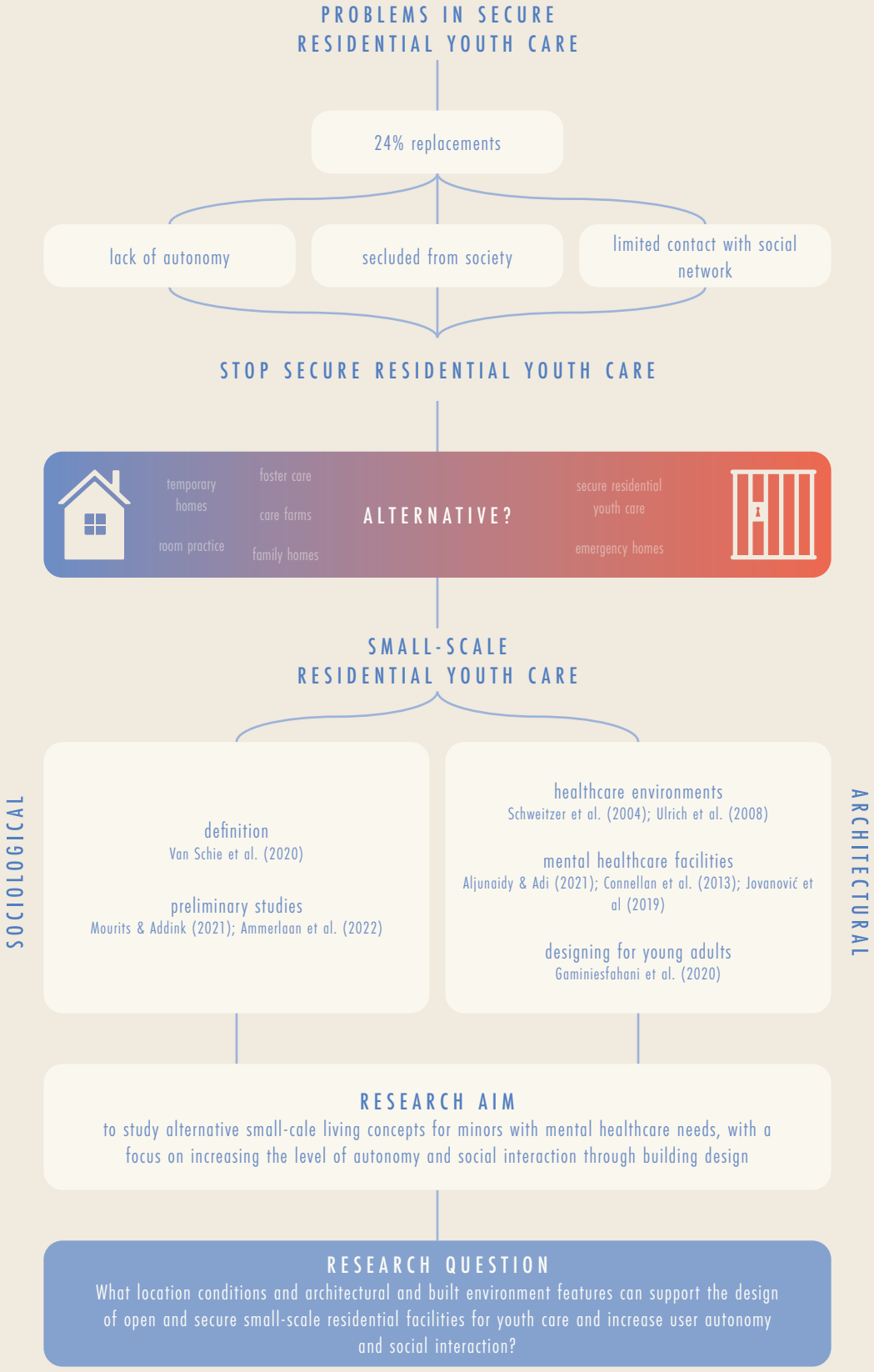


Figure 2: Problem statement

1.4 THEORETICAL FRAMEWORK

Three research areas were identified from the literature: the design of small-scale residential youth care facilities, the design of mental healthcare environments for young adults and improving autonomy and social interaction through building design (see chapter 2). The output of this research is positioned in the middle, seeking to connect all research areas (Figure 3).

SMALL-SCALE RESIDENTIAL YOUTH CARE

Three studies in particular form the basis for research on small-scale residential youth care. Van Schie et al. (2020) took the first step in defining this type of care. Their definition (see paragraph 1.1) covers a variety of subjects, such as group size and location. Ammerlaan et al. (2022) follow this definition as well and connect it to practise. They conducted a preliminary exploration of existing small-scale facilities and evaluated the quality of these groups by interviewing parents, caregivers and minors. Although Van Schie et al. (2020) and Ammerlaan et al. (2022) mention the physical environment, information on this subject is limited. Mourits & Addink (2021) have conducted additional research on small-scale youth care. These three studies are highly relevant and will therefore be used as the starting point for this research.

MENTAL HEALTH ENVIRONMENTS FOR YOUNG ADULTS

This research subject relies on four main studies that discuss the design of mental healthcare environments (Aljunaidy & Adi, 2021; Connellan et al., 2013) and the design of healthcare environments for children and young adults (Gaminiesfahani et al., 2020; Sherman et al., 2005). Other studies provide more general knowledge about the design of healthcare environments (Schweitzer et al., 2004; Ulrich et al., 2008, 2010).

PROMOTING AUTONOMY AND SOCIAL INTERACTION

The third field of study focuses on research that has addressed the design of healthcare environments in relation to autonomy and social interaction. Two studies form the basis: Zhu et al. (2020) discussed how autonomy can be achieved in healthcare design and Jovanović et al. (2019) researched design interventions that can increase the level of social interaction of users.

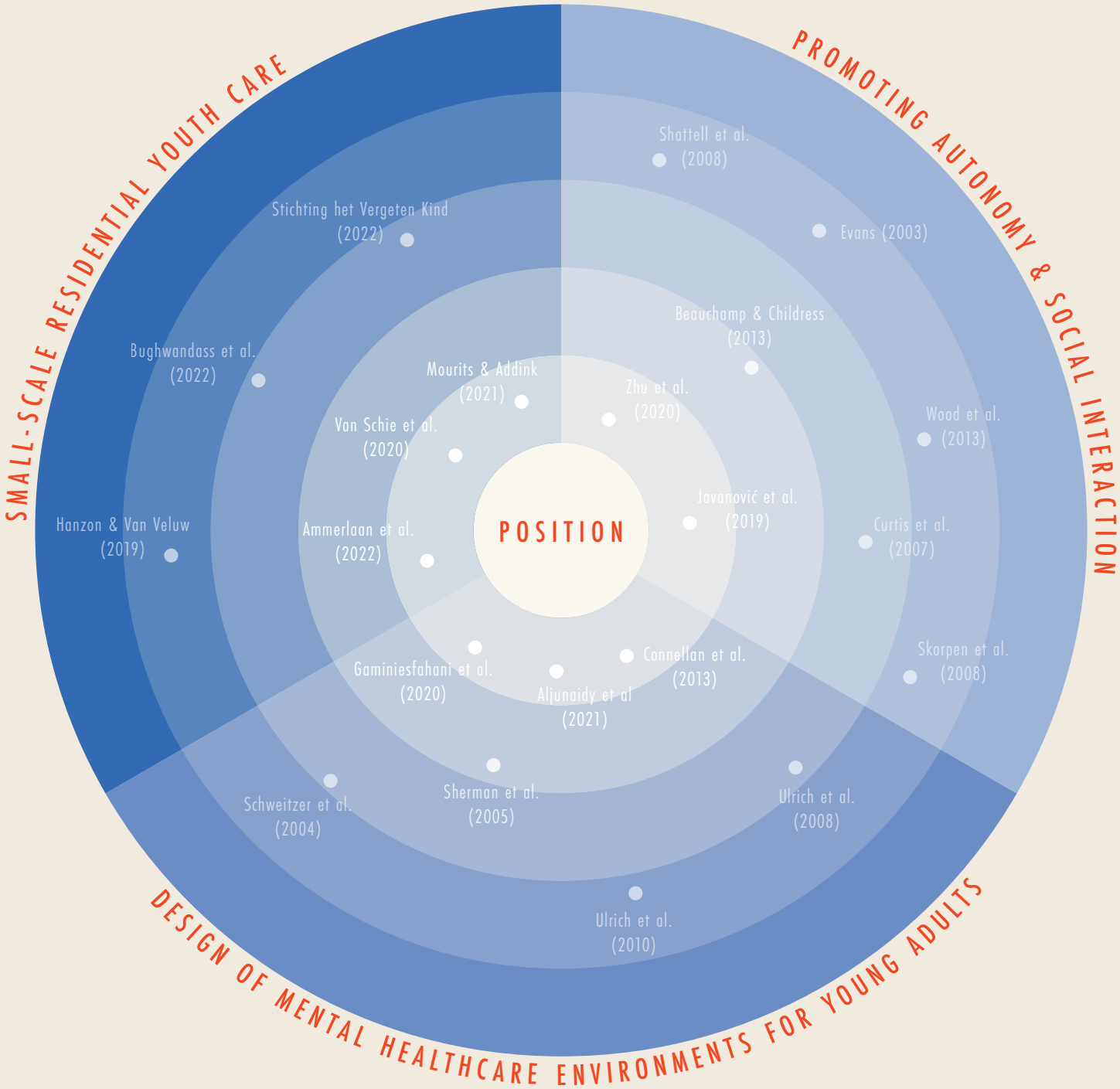


Figure 3: Theoretical framework

1.5 DESIGN HYPOTHESIS

The target group of small-scale residential youth care is diverse. Due to problematic behaviour and severe and complex problems, these minors are unable to live with their parents, in foster homes or other care groups. However, their problems differ. In some cases, minors are considered to be a danger to themselves, such as those who engage in suicidal and self-harming behaviour. Others can be a danger to others, for instance when they show severe aggression or inappropriate sexual behaviour. Some minors might be endangered by others if they are for instance involved with loverboys (Van Schie et al., 2020).

It is expected that this research will lead to both conceptual and practical architectural and built environment features. It is anticipated that the conceptual guidelines can be applied to different types of small-scale residential facilities since they are general. However, as the target group is diverse and each care group is different, it is expected that the practical guidelines cannot be applied to each case, since they are specific. Instead, caretakers should be able to decide which features to apply in their particular situation, depending on the problems and behaviour of the minors in the care group.

1.6 RESEARCH QUESTION

This research will focus on the following research question: What location conditions and architectural and built environment features can support the design of open and secure small-scale residential facilities for youth care and increase user autonomy and social interaction?

To answer this question, the following sub-questions are to be researched:

1. What location conditions are of importance when designing small-scale residential youth care facilities?
2. What architectural and built environment features are of importance when designing small-scale residential youth care facilities?
3. What architectural and built environment can lead to the increase of autonomy for residential youth care?
4. What architectural and built environment can lead to an increase in social interaction for residential youth care?

1.7 DEFINITIONS

AUTONOMY

Parmelee & Lawton (1990, p. 465) describe autonomy as "a state in which a person feels capable of achieving life goals", which implies "freedom of choice, action, and self-regulation of one's life space – in other words, the perception of and capacity for effective independent action".

DESIGN GUIDELINE

A conceptual diagram supported by a short written description, which communicates a strategy for resolving a design challenge by proposing general architectural solutions.

LOCATION CONDITION

A written statement that provides insight into what conditions in the urban context (both city and neighbourhood scale) could lead to an optimisation of the building's user experience.

SOCIAL INTERACTION

Jovanović et al. (2019, p. 50) have defined social interaction as "a process whereby people engage one another in mutually responsive ways".

1.8 SCOPE

The youth care system is divided into three categories: youth help, youth protection services and youth probation services (Figure 4). Youth protection is applied in case of threats to the safety and development of a child. Youth probation services supervise children and young adults that have been in contact with the police (Bakker, 2018).

Youth help, which concerns the care for minors in cases of parenting difficulties, mental disorders or mental disabilities, will be the subject of this study. It is divided into two categories: care with and without residence. This research will focus on alternative forms of residential care. Other types of residential care include foster care, family-centred care or secure placement (Bakker, 2018).

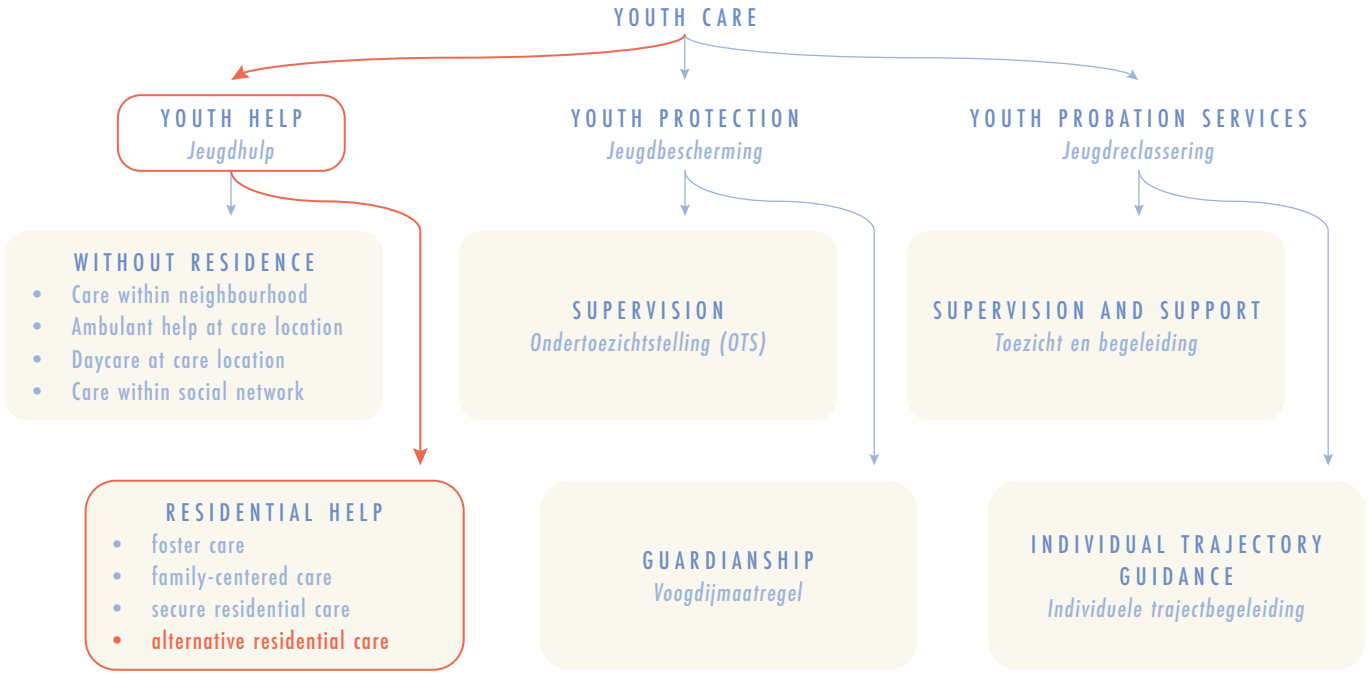


Figure 4: Dutch youth care system (Bakker, 2018)

1.9 METHODS

To answer the sub-questions, four small-scale youth care homes were visited. Moreover, several interviews with caretakers and conversations with building users were conducted (Figure 5).

INTERVIEWS

Two interviews were conducted with the caretakers of two small-scale youth care homes. The first interview took place with the team leader and treatment coordinator of a small-scale facility in Amsterdam. It accommodates six girls between the ages of twelve and eighteen and is situated in the city centre. The facility offers open care, meaning that the girls are allowed to leave the building during the day. The semi-structured interview took place online and lasted for approximately an hour. During the interview, general information about the facility was collected. Moreover, questions were asked about the location and design of the facility and the level of autonomy and social interaction of the users was discussed.

The second interview was conducted with the team leader and care coordinator of a small-scale facility in Duivendrecht. This facility concerns secure residential care, which means that young adults are not allowed to leave the building unaccompanied without permission during the day. This facility accommodates six young adults between the ages of twelve and eighteen and is situated on a facility terrain. There are several other (residential) care groups located on the same property. The semi-structured interview took place online and lasted approximately an hour. General information and input about the design and location of the facility and the level of autonomy and social interaction were gathered.

Additionally, one interview took place with a man who spent several years in different types of residential youth care. This semi-structured interview took place online, lasted approximately an hour and was focused on the research themes of location, architecture, autonomy and social interaction.

STUDY VISITS

Four small-scale residential groups of two youth care organisations were visited. These facilities were located in IJmuiden, Haarlem, Amsterdam and Duivendrecht. All visits were scheduled in the late afternoon, as it was expected that most young adults would be home. About five hours were spent on each visit. The visit to Duivendrecht was primarily focused on an informal conversation with the treatment coordinator. Therefore, no in-depth observations of the behaviour of the users were made. During the other visits, observations on user behaviour were made. These observations primarily centred around the living area, where the caretakers usually spend their time during the day. The observations were documented in drawings and sketches.

Apart from Duivendrecht, the visits included having dinner with the caretakers and young adults, which allowed for informal conversations with the users. These conversations gave insight into how the users perceived the buildings and location.

During all visits, tours were given by one of the caretakers. During these tours, sketches and photos were made to collect and document information about the layout of the buildings. After the visit, floor plans were created based on received drawings or photos of fire escape plans. The buildings were analysed based on the following themes: program, atmosphere, privacy, sightlines, acoustics, light and condition of the building. However, not all themes were relevant for each case study.

OUTPUT

The research output was visualised in annotated drawings and floor plans, supported by written text. All advantages, disadvantages and recommendations were then combined to create an overview of the results. Next, these notes were translated into a design library which compiles all architectural and built environment features that were found during the research. Based on the design library, key themes were identified and translated into design guidelines and location conditions, which describe conceptual solutions and recommendations for the design of small-scale youth care homes. The design guidelines and location conditions were visualised by conceptual diagrams, supported by a brief description. The location conditions were used for the site selection. The design guidelines served as input for the building design.

RQ

What location conditions and architectural and built environment features can support the design of open and secure small-scale residential facilities for youth care and increase user autonomy and social interaction?

SQ

LOCATION

What location conditions are of importance when designing small-scale residential youth care facilities?

ARCHITECTURE

What architectural and built environment features are of importance when designing small-scale residential youth care facilities?

AUTONOMY

What architectural and built environment features can lead to the increase of autonomy for residential youth care?

SOCIAL INTERACTION

What architectural and built environment features can lead to an increase in social interaction for residential youth care?

RESEARCH

CASES

IJmuiden | Parlan

Haarlem | Parlan

Amsterdam | Levvel

Duivendrecht | Levvel

Interview

METHODS

Interviews

Study visits

OUTPUT

OUTPUT

LOCATION CONDITIONS

DESIGN GUIDELINES

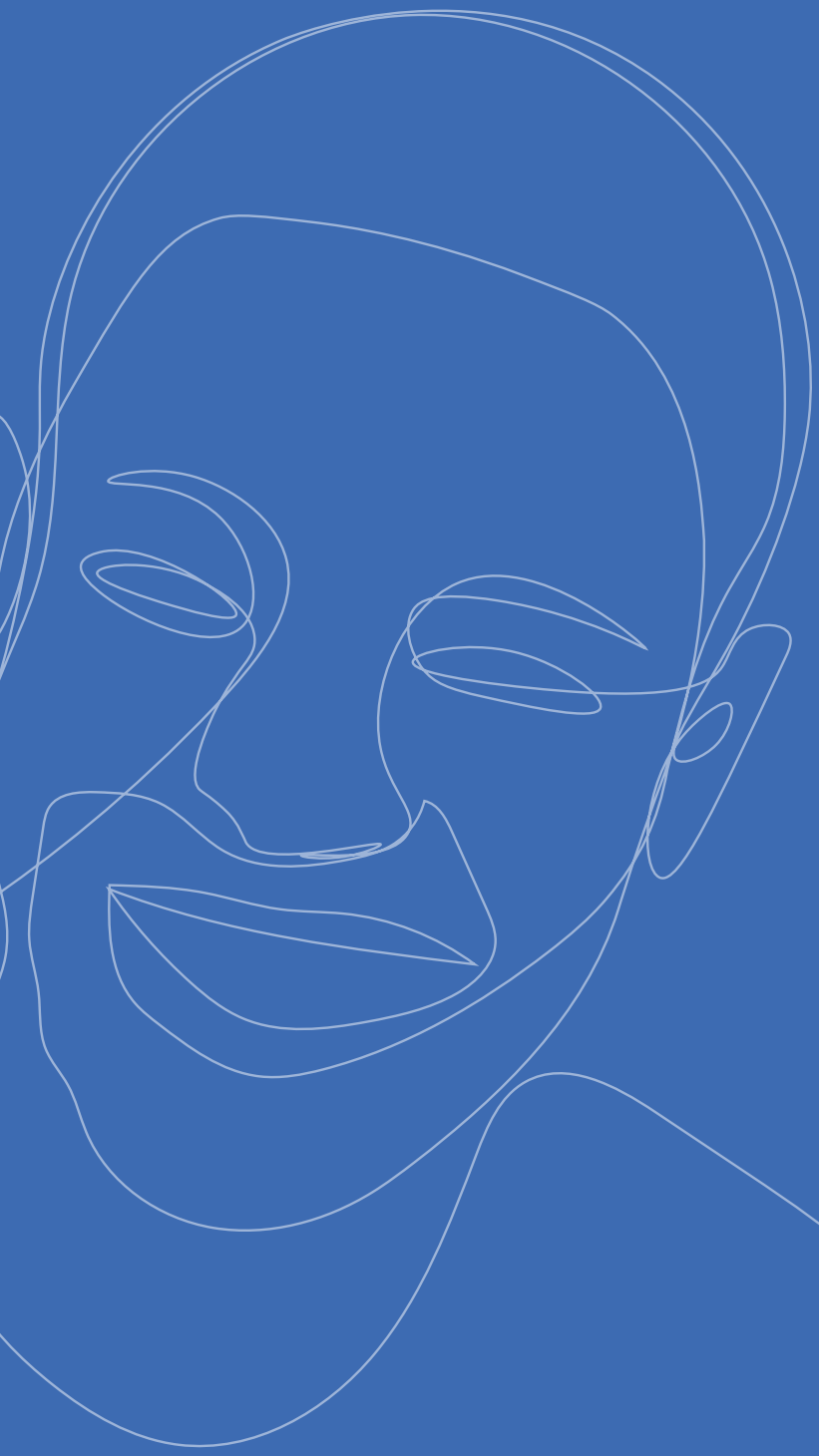
SITE SELECTION & RESEARCH

BUILDING DESIGN

Figure 5: Methods

CHAPTER 2

LITERATURE



2.1 DESIGNING (MENTAL) HEALTH ENVIRONMENTS

This literature research will focus on research concerning the design of healthcare environments, and in particular healthcare environments for people with mental disorders and/or young adults. The literature review is divided into three parts. The first section will briefly describe the reviewed literature on the design of healthcare environments. The second section will elaborate on the following key research themes that emerged: light and lighting, sound, nature, art, colour, safety, social interaction and autonomy. The third section will elaborate on research conducted on the design of small-scale residential facilities for youth care.

Schweitzer et al. (2004) conducted a literature review on aspects of the built environment that were most frequently associated with being healing or health-promoting. The second part of their study is relevant to this research in particular, as it presents several aspects that have influenced healthcare design, such as light, colour, nature and personal space. They concluded that although attention was paid to the design of healing environments, the majority of the data supporting these aspects were still anecdotal or understudied. Another literature review was conducted by Ulrich et al. (2008), who used evidence-based healthcare design as a starting point for their literature review. They found several design strategies that can improve healthcare outcomes for patients and staff, such as reduced pain, improved patient sleep and reduced depression. They concluded that most research focused on how to reduce the frequency of hospital-acquired infections. Based on this literature review, Ulrich et al. (2010) presented a conceptual framework intended to capture the field of evidence-based design in healthcare. The design variables were divided into nine categories. Ulrich et al. (2010) noted that most studies on EBD conducted to that date were focussed on hospital environments. They concluded that "EBD research needs to encompass to a much greater degree ambulatory care, long-term care, and other nonacute healthcare facilities" (Ulrich et al., 2010, p. 110).

A literature review by Connellan et al. (2013) focused on the impact of the architectural design of mental health facilities on its users. They identified thirteen key themes that they believed to be essential for improving mental health outcomes. They point out that only 25 out of 165 of the reviewed research articles generated evidence-based numerical data. Aljunaidy and Adi (2021) examined available studies regarding the effect of architectural design on mental disorders. They discovered that some mental disorders, in particular dementia and autism, received more attention in architectural research than others. Whereas research on autism tended to focus on teaching facilities, studies on dementia were mainly conducted in the context of housing facilities. Some mental disorders were not discussed in any architectural peer-reviewed studies. Overall, light was the most studied design element. The authors conclude that there is a lack of research on how the built environment can avoid triggers of several mental disorders. Jovanović et al. (2019) conducted a literature review on design strategies that can foster positive social interactions between various users of psychiatric facilities. Several themes emerged from the literature, such as the location of the facilities and interior design interventions. They concluded that further research should concentrate on the role of outdoor spaces, outpatient settings and supported living.

Gaminiesfahani et al. (2020) conducted a scoping review of studies on the impact of architectural design on the health and well-being of minors. They identified several main design elements from the literature, including noise, music, lighting, gardens and nature, colour and art. They pointed out that gardens and nature are the most frequently mentioned design elements. They concluded that there is a need for further research, given the small number of studies that were included in the sample size.

2.2 KEY DESIGN ELEMENTS

Next, some key design elements that emerged from the literature are discussed. Elements that are primarily focused on hospitals or other healthcare facilities, such as nursing stations, are outside the scope of this study and therefore left out. This is also the case for research on specific target groups, such as elderly, people with dementia or children between the ages of zero and eleven.

LIGHT AND LIGHTING

Research has shown that exposure to daylight and appropriate lighting can lead to improved patient outcomes in hospitals, such as reduced pain levels, less stress, improved patients' sleep and reduced depression. According to several studies, hospitalised patients with depression recover more quickly if they are assigned to a room with more daylight. Identical results have been obtained using bright artificial light (Ulrich et al., 2008). Some studies discovered that particularly morning light has great benefits for depressed patients (Connellan et al., 2013).

Over the past few years, studies on the effects of light on physiology have concentrated on circadian rhythms (Connellan et al., 2013; Schweitzer et al., 2004). The circadian system controls feelings of sleepiness and wakefulness throughout a twenty-four-hour period (Joseph, 2006). Research has shown that healthy circadian rhythms can enhance patients' sleep. According to BaHammam (2006) and Wakamura & Tokura (2001), this can be achieved by designing patient rooms that receive natural daylight.

In paediatric settings, a direct link between light and health outcomes has been found. Sherman et al. (2005) found that exposing paediatric patients to natural light decreased their stress levels and pain and improved their sleep quality. Research showed that the quality and intensity of ambient light played a crucial role in the design of healthcare facilities for minors (Fricke et al., 2019). In a study by Birch et al. (2007), children appeared to want to control the amount of artificial light in hospitals. Moreover, they discovered that minors considered excessive light to be unpleasant.

SOUND

Research has shown that patients who are exposed to noise in hospitals may experience stress and disturbed sleep (Ulrich et al., 2008). Trapanotto et al. (2004) found that noise exposure to newborns leads to negative physiological and behavioural effects. Ulrich et al. (2010) state that there are several ways to implement noise-reduction measures, including minimising the noise source, introducing sound-absorbing materials and noise blocking, which can be achieved by for instance wall separations (Gabor et al., 2003). Studies have shown that noise reduction measures lead to improved patients' stress, sleep and satisfaction levels in hospitals (Ulrich et al., 2008).

According to Ulrich et al. (2010), the audio experience in healthcare environments can also be improved by introducing comforting sounds. It has been proven that audio interventions such as relaxing music or nature sounds can alleviate stress and pain (Sarkamo et al., 2008). Moreover, research has shown that music can positively affect children during treatment. For instance, Butt and Kisilevsky (2000) discovered that playing music calmed down minors during hospitalization. Primary research has shown that music has a stress-relieving effect and can positively affect the health of both children and young adults (Sherman et al., 2005).

NATURE

Research has shown that exposing patients to nature can alleviate pain, reduce stress, improve social functioning and create a sense of control (Gaminiesfahani et al., 2020; Sherman et al., 2005). According to Gaminiesfahani et al. (2020), healing gardens are considered to be beneficial in both adult and paediatric healthcare. Sherman et al. (2005) found that nature improved the mood and satisfaction of paediatric patients. Several studies have shown that providing patients with views of nature, whether real or simulated, can cause stress relief within a short period of time (Ulrich et al., 2008).

Access to nature can be gained both directly, through for instance gardens, indoor plants and views of nature, and indirectly, through artwork and digital displays of nature scenes. However, research has shown that direct exposure appears to have stronger effects than indirect exposure (Kahn et al., 2008; Ulrich et al., 2010). Ulrich et al. (2010) therefore concluded that views of nature should be implemented in the design of patient, waiting and treatment rooms, where people often deal with high pain levels.

ART

Daykin et al. (2008) conducted a systematic literature review on the effect of art, design and the environment on mental health care. According to this review, few studies addressed the use of art. They found evidence that patients who were exposed to art showed lower levels of depression and anxiety compared to those who did not. Nanda et al. (2008) studied the impact of visual art on the anxiety and agitation levels of patients in a mental health facility. Their study revealed that the type of artwork affected the amount of anxiety and agitation measured: most patients showed a preference for realistic art depicting nature scenes, whereas stylized or abstract art was generally disliked. This is consistent with research by Ulrich and Gilpin (2003), who concluded that viewing no art at all showed better results than exposing patients to abstract art. According to them, abstract art is consistently disliked by patients. They state that when selecting art, elements such as ambiguity and emotionally distressing themes should be avoided. Eisen et al. (2008) researched the effect of arts on paediatric patients. According to their study, realistic art depicting nature was preferred by all age groups.

COLOUR

Karlin and Zeiss (2006) researched the preference for different wall colours in the design of psychiatric hospitals but concluded that their findings were inconsistent. However, they discovered that blue tones had a calming effect and that neutral colours need to be avoided. Boyatzis and Varghese (1994) studied the relationship between children's moods and colours. They state that whereas dark colours are linked to negative emotions, bright colours seem to increase positive emotions. Park (2009) researched colour schemes in paediatric hospital rooms and found that children generally preferred blue and green colours while white was the least favoured colour. According to Fricke et al. (2019), red and yellow colours are shown to reinforce aggressive behaviour, while emotional balance is improved by the use of blue and green colours.

SECURITY, SAFETY AND PRIVACY

Security, safety and privacy are closely related subjects. The majority of studies on healthcare design consider patient safety from a medical perspective. Ulrich et al. (2008, 2010) discuss patient outcomes such as the reduction of infections, medical errors and patient falls. However, these topics are only applicable in hospital settings and therefore not relevant to this study. Connellan et al. (2013) found a significant number of studies related to security and safety in mental health facilities. They found that increased crowding and loss of privacy appear to be risk factors for safety in mental health facilities. According to Kumar and Ng (2001), crowding might cause patients to lose their sense of privacy and control. They propose architectural solutions such as designating spaces for social interaction and creating visually distinct spaces. Gaminiesfahani et al. (2020) also found evidence that crowding negatively impacts children's behavioural and psychological performance.

Ulrich et al. (2008) studied patient privacy and found that single-bed rooms can provide better visual and auditory privacy than multi-bed rooms. They state that patients in single-bed rooms are more receptive to sharing private information with caretakers, which could benefit diagnosis and treatment. Another way to increase privacy is by using sound-absorbing materials to reduce sound transmission (Ulrich et al., 2008). Gaminiesfahani et al. (2020) stated that young patients and their families may experience stress due to a lack of privacy and safety. According to them, this could be improved by providing private spaces where children and parents could spend time together.

AUTONOMY

According to Schweitzer et al. (2004), loss of control can result in poor health. Ulrich et al. (2010) found that personal control can enhance patients' physical and psychological comfort. One way to give patients a sense of control is by allowing them to personalise their environment (Schweitzer et al., 2004). This can for instance be achieved by enabling patients to bring items from home (Evans, 2003), by designing a construction that allows modifying the room arrangement and by providing patients control over the room design (Shattell et al., 2008). Ulrich et al. (2010) propose allowing patients to manage the lighting and temperature of a room and letting patients personalise their rooms by selecting artwork.

Zhu et al. (2020) approached this theme from a different angle. They introduced the topic of Respect for Autonomy (RA), which is one of the four principles of Beauchamp and Childress' (2013) biomedical ethics, which originates from 1979. According to Beauchamp and Childress (2013, p. 106), to respect an autonomous agent implies "to

acknowledge their rights to hold views, make choices, and to take actions based on their values and beliefs" (p. 106). They state that this does not mean that one should simply not interfere with one's actions and decisions. Instead, it means supporting one another in case one experiences difficulties coping with their autonomy.

According to Zhu et al. (2020), studies on the principle of RA can be divided into three themes: patient decision-making (DM), autonomous actions (AA) and social relations and interaction (SRI). DM can be promoted by offering patients adaptable and different types of spaces that can support various care solutions. To support AA, Zhu et al. (2020) propose that care environments should be modifiable in such a way that constraints are minimised and different patient needs can be met. In terms of SRI, patients should have the possibility to withdraw from social interaction whenever they feel the need. However, spaces should also provide the opportunity to interact. Therefore, Zhu et al. (2020). Propose to design spaces that allow people to retreat and to design homely spaces that foster social interaction.

SOCIAL INTERACTION

Schweitzer et al. (2004) and Ulrich et al. (2008, 2010) have researched social interaction primarily in the context of hospital environments and mainly focused on the importance of social support from family as well as patient and staff communication. According to Schweitzer et al. (2004), strong evidence supports the benefits of social support for patients and their families. Research by Ulrich et al. (2010) has shown that studies of both paediatric patients and adult patients in various healthcare settings found that family presence can lead to reduced patient stress and pain. Jovanović et al. (2019) conducted a literature review on design interventions that can facilitate social interactions between various users of psychiatric facilities. Several relevant topics were discussed in this research.

Location: Jovanović et al. (2019) state that it is preferable to locate psychiatric facilities within local communities, rather than choosing to seclude them from society. According to them, there are three advantages: patients should be encouraged and are enabled to spend time in the community, it is easier for relatives to visit patients regularly and it is destigmatising. They do, however, point out that simply reducing distance barriers will not help patients to create new connections or improve their relationship with their families. Therefore, Jovanović et al. (2019) recommend facilitating interactions within the neighbourhood by introducing architectural interventions, such as creating communal spaces where different types of users can meet.

Interior design: Several studies researched the effect of interior design on social interactions within psychiatric facilities (Jovanović et al., 2019). Jovanović et al. (2019) found evidence that placing seats facing one another enables conversation and therefore encourages social interaction in psychiatric environments. Other studies on the interior design of hospitals have found evidence for moveable furniture that can be easily rearranged by patients and visitors (Schweitzer et al., 2004; Ulrich et al., 2008). Other design strategies include waist-high partitions that provide privacy and the introduction of plants (Jovanović et al., 2019).

Common areas: Research has found that offering a variety of living spaces within a building can create opportunities for different activities that foster social and familial interactions (Jovanović et al., 2019; Urbanoski et al., 2013). Moreover, some studies indicated that smoking areas can encourage social interactions (Curtis et al., 2007; Skorpen et al., 2008; Wood et al., 2013). Jovanović et al. (2019) found that social groups often gathered near windows that provided a visual link between the psychiatric ward and the outside world.

Individual spaces: According to Curtis et al. (2007), private bedrooms allow patients the freedom to withdraw whenever feeling unwell. Single-bed rooms versus multibed rooms have been extensively researched in research on hospital design. Ulrich et al. (2008) found that single-patient bedrooms offer more auditory privacy compared to multibed rooms, which improves communication between patients and caretakers, and increases the presence of family and friends. Moreover, Ulrich et al. (2008) emphasise the value of family zones and comfortable furniture in patient rooms to encourage relatives to stay for a longer period of time.

Consultation spaces: According to Ulrich et al. (2008), there is limited evidence that the use of dim lighting rather than bright lighting increases communication and counselling outcomes in consultation spaces.

2.3 DESIGN OF SMALL-SCALE FACILITIES FOR YOUTH CARE

LOCATION

Small-scale groups can be located in either a neighbourhood or on facility grounds. Research by Van Schie et al. (2020), showed that groups that are situated on facility grounds today, are there mainly for practical reasons, such as the availability of a vacant building or the ability to provide care and education in a secure, closed setting. However, according to Mourits & Addink (2021) and Van Schie et al. (2020), situating groups in the neighbourhood is preferable for multiple reasons. First of all, living in a residential area allows minors to interact with society and practice with independence. Moreover, the aim is to provide a life that is as 'normal' as possible, which can be achieved by having access to neighbours, local schools, shops and sports.

However, Ammerlaan et al. (2022) pointed out that there are downsides to situating a small-scale group in the neighbourhood. According to them, small-scale facilities deal with stigma and prejudices, which can complicate establishing good relationships within the community.

HOUSING & LAYOUT

Research by Ammerlaan et al. (2022) has shown that some existing small-scale facilities are dependent on existing buildings, which often results in institutionalised settings. They explained that one group was located in a former juvenile prison, which was still noticeable due to bedrooms being old prison cells, heavy doors, small windows and bare walls.

Research by Mourits & Addink (2021) has shown that a domestic setting is most suitable for small-scale groups. According to them, this can be achieved by the use of soft materials and warm lighting. Moreover, they stressed the importance of private spaces, where minors can retreat and which they can decorate and arrange themselves. This is in line with research by Van Schie et al. (2020), who argued that there should be a variety of public and private spaces, so minors can choose whether to be alone or interact with others.

ATMOSPHERE

One of the goals of small-scale care is to provide minors with social safety. According to Van Schie et al. (2020), this can be achieved by creating a domestic atmosphere that resembles a family home. This includes engaging in activities such as having conversations, watching movies, doing groceries and having dinner together. According to Van Schie et al. (2020), architectural features that can contribute to a domestic atmosphere are placing small-scale groups in existing homes with normal bedrooms and furniture.

AUTONOMY

One of the advantages of small-scale groups is the reduction of restraint and freedom restrictions, which leads to an increase in user autonomy. Ammerlaan et al. (2022) researched the implementation of freedom-restricting measures in open and secure small-scale groups. According to them, there are several means of freedom restriction. Some groups keep bedroom doors locked during the night for the safety of the minors. Other groups oblige minors to hand in their mobile devices at night. Measures for when rules are broken include limited screen time, mandatory moments of rest in the bedroom, extra household chores and adjusted daytime schedules.

Many small-scale facilities work with rules about the daily schedule such as agreements regarding dinnertime, bedtime and resting moments, or fixed moments for activities like sports, therapy and cleaning. Ammerlaan et al. (2022) noted that groups on facility grounds follow a stricter schedule then homes in the neighbourhood.

Research by Van Schie et al. (2020) showed that young adults are generally content with the freedom in small-scale groups. In contrast to larger groups, the living room, kitchen and television do not have to be shared as much. This is beneficial since young adults can struggle with considering other people. According to them, small-scale groups allow young adults to have their own space.

PARENTS AND NETWORK

AAccording to Mourits and Addink (2021), small-scale groups offer more rest and continuity, which creates opportunities for rebuilding relationships with parents. By engaging in activities such as conversations at the kitchen table, staying over for dinner and having coffee, parents can be involved during the treatment process (Mourits & Addink, 2021). Additionally, some groups offer family members the opportunity to spend the night. Moreover, a caretaker points out that having parents and minors living close by is beneficial since

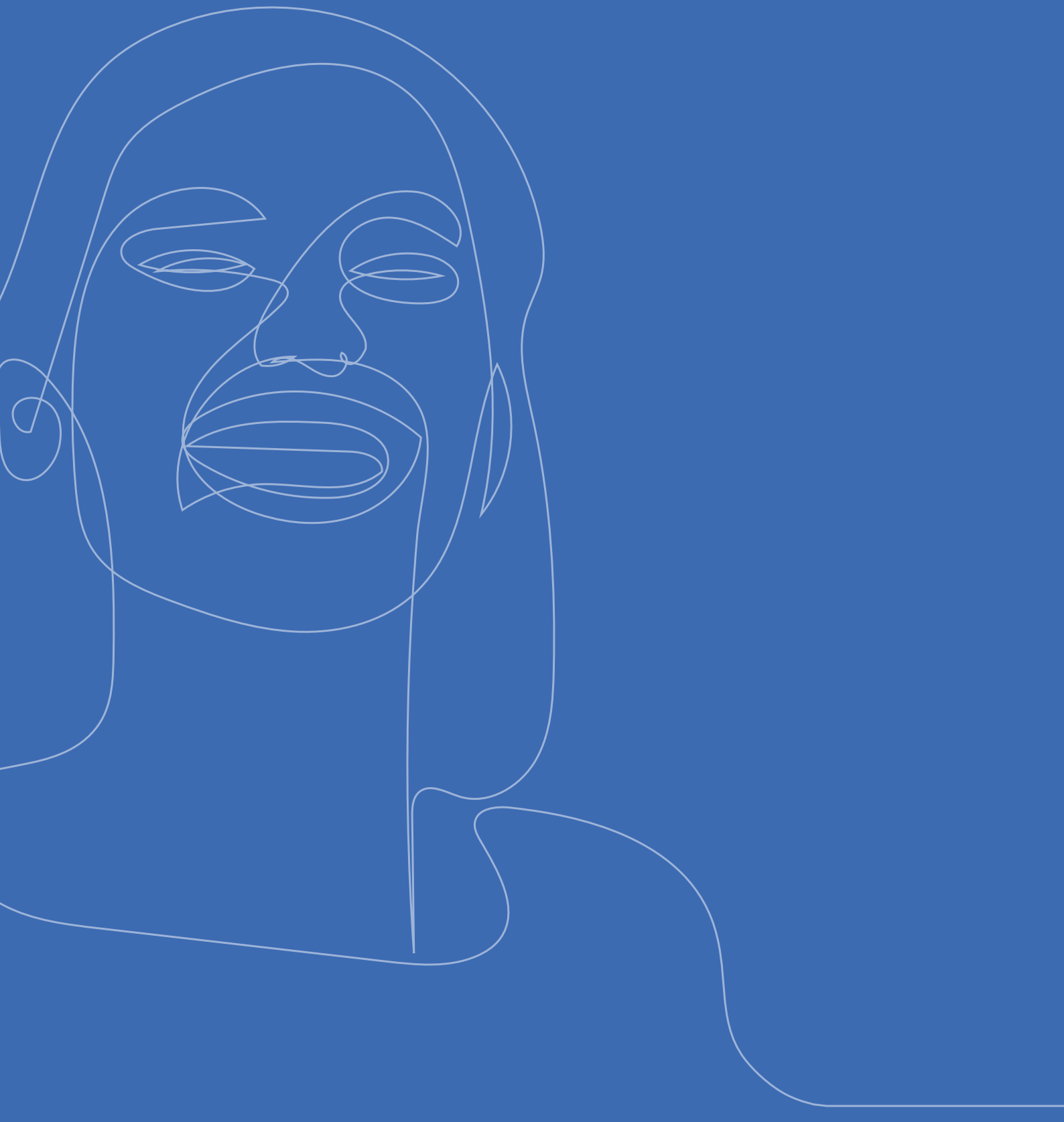
minors can easily visit their parents and parents can stop by (Ammerlaan et al., 2022).

EDUCATION

Care groups aim to provide children with a daily life that is as normal as possible, which includes going to school, working and participating in sports (Mourits & Addink, 2021). Therefore, the starting point is that all minors follow education. In the case of groups in the neighbourhood, young adults travel by themselves to external schools. To avoid having to change schools, it is preferable if they attend the same school that they did before moving to the small-scale group. To limit travelling time, it is therefore important to place minors in a home that is close to where they grew up (Ammerlaan et al., 2022; Mourits & Addink, 2021). If they choose not to attend school, young adults are often expected to arrange a day programme for themselves, which may involve daycare, work or internships (Van Schie et al., 2020). Groups on facility grounds usually offer education on the site itself (Ammerlaan et al., 2022; Van Schie et al., 2020).

CHAPTER 3

RESEARCH



3.1 OVERVIEW

For this research, four small-scale residential groups were visited and one interview was conducted. During the visits, the following research themes were discussed: general information, location, architecture, autonomy and social interaction.

All visited small-scale groups are located in the province Noord-Holland (Figure 6). The order of analysis is based on the level of autonomy of the residential facilities, starting with the lightest and most open type of care and ending with the most secure care.

1.	IJmuiden	Parlan	Open
2.	Haarlem	Parlan	Open
3.	Amsterdam	Levvel	Open
4.	Duivendrecht	Levvel	Secure

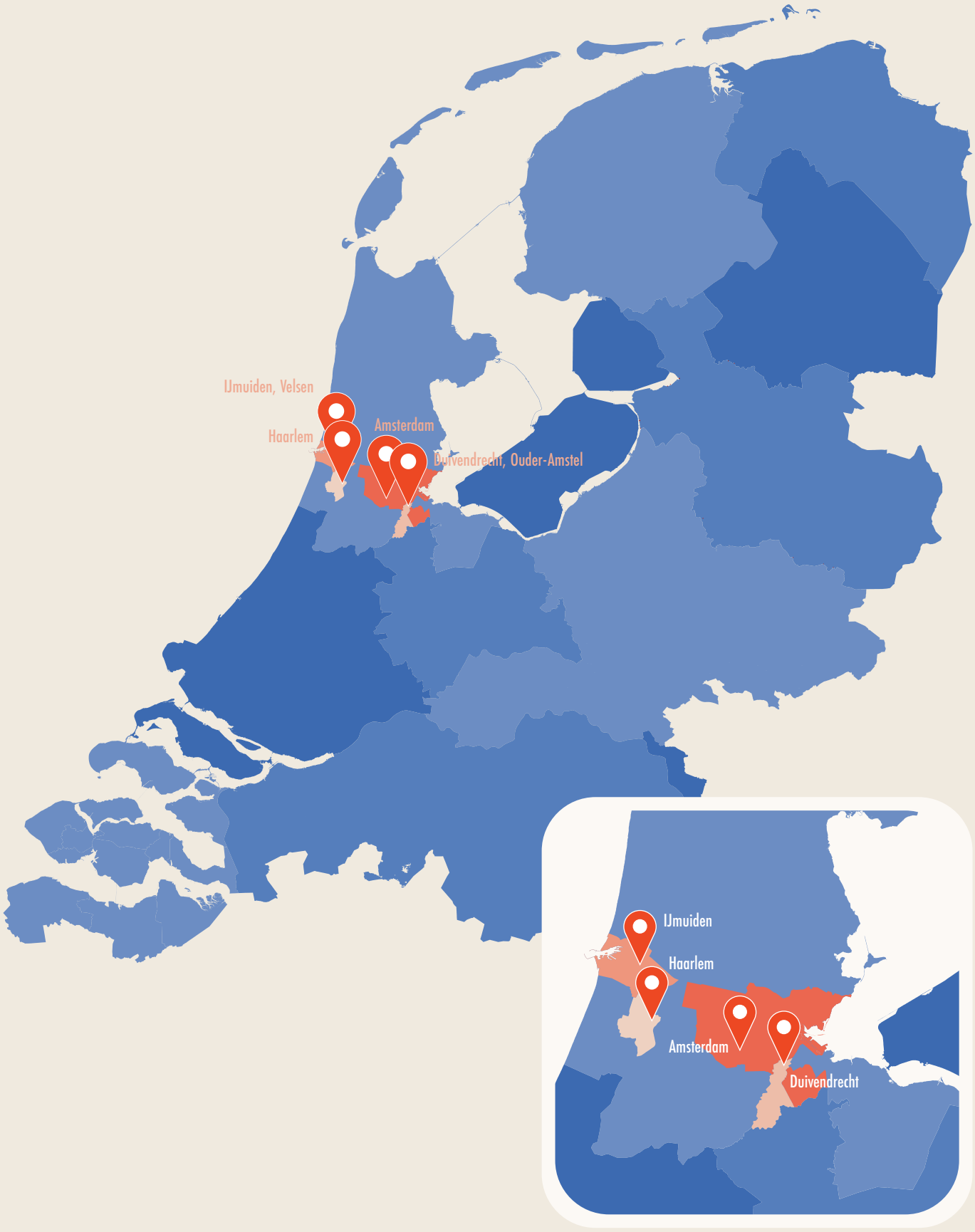


Figure 6: Locations of visited small-scale facilities

3.2 IJMUIDEN

GENERAL INFORMATION

During the visit to the residential facility of Parlan in IJmuiden, conversations took place with two caretakers and two young adults. Moreover, a tour was given by the team leader. This residential facility consists of three studios and a group home (Figure 7).

GROUP HOME

The group home accommodates four young adults of different genders, between the ages of twelve and eighteen. If necessary, young adults are allowed to stay there until the age of twenty-three. The group home has caretakers on duty around the clock. During the day, two caretakers are present, during the night and in the early morning there is only one. Caretakers are available at all times for guidance, but therapy takes place outside of the home. The aim is to keep living and therapy separate.

The facility is an open group home, which means that the residents are free to enter and leave the home during the day. They are however expected to inform the caretakers about their plans for the day, and there is a night clock that starts at 10 p.m. The aim is for all young adults to participate in daytime activities, preferably (specialised) education. Their schools are located in surrounding cities such as Haarlem and Amsterdam.

STUDIOS

Besides the group home, three studios are available where young adults can practise living independently. They are expected to keep the apartment clean, cook and do their laundry. Moreover, they should organise and manage their daytime activities. The young adults who live in the studios have access to the caretakers of the group home in case they need help. Caretakers occasionally visit their studios to check in.

The caretakers believe that combining the group home and studios is effective. When young adults are ready to take the next step, they can move from the group home to the studios, which has the advantage of keeping them near to the caretakers they are familiar with. Caretakers are available and close by in case any of the studio's young adults need assistance, which reduces the risk of relapse. They are planning to add six more studios to the current building since they are happy with the combination of care options (Figure 7).

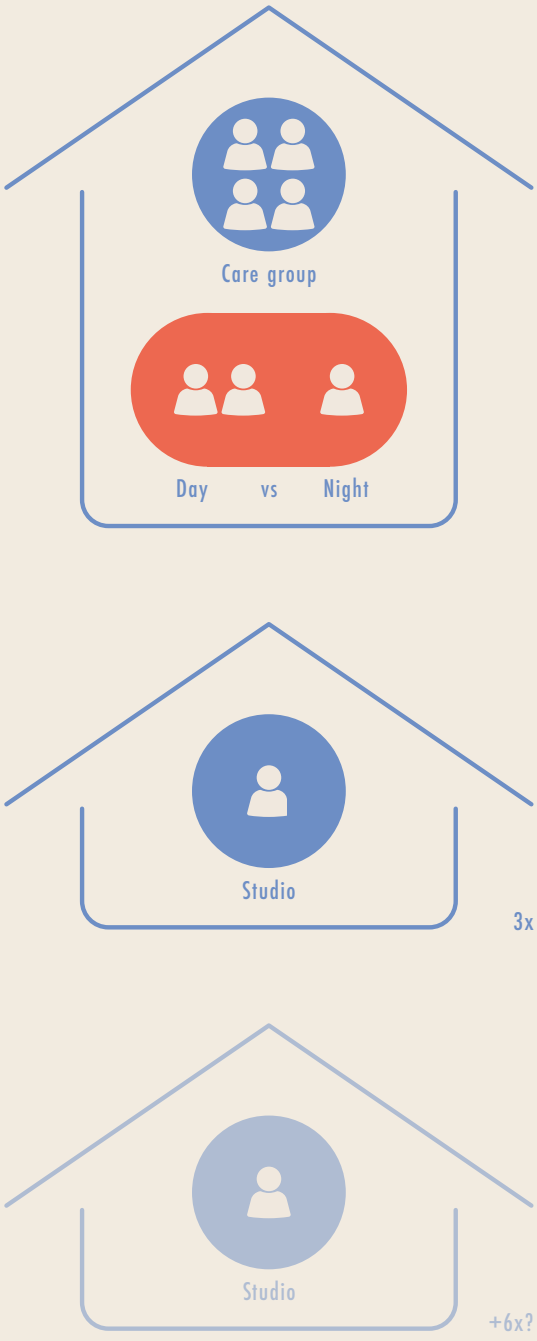


Figure 7 : Overview residential facility

LOCATION

ACCESSIBILITY

The facility is well accessible by public transport, in particular by bus. This bus line is connected to the central train stations of Amsterdam and Haarlem. The caretakers frequently use their private cars to pick up or drop off the young adults at their destinations. However, young adults are expected to travel to school and work by public transport.

AMENITIES

The neighbourhood offers many amenities. The home is situated in the city centre of IJmuiden and is therefore close to the city square and the main street of IJmuiden, in which numerous shops and supermarkets are located. The office building of Parlan is situated within a 5-minute walk of the home and is used for therapy sessions. According to the team leader, it is beneficial that therapy sessions are held nearby since it lowers the barrier going to therapy. Recently, one of the young adults left her studio and moved to a nearby apartment. The team leader claims this is beneficial since

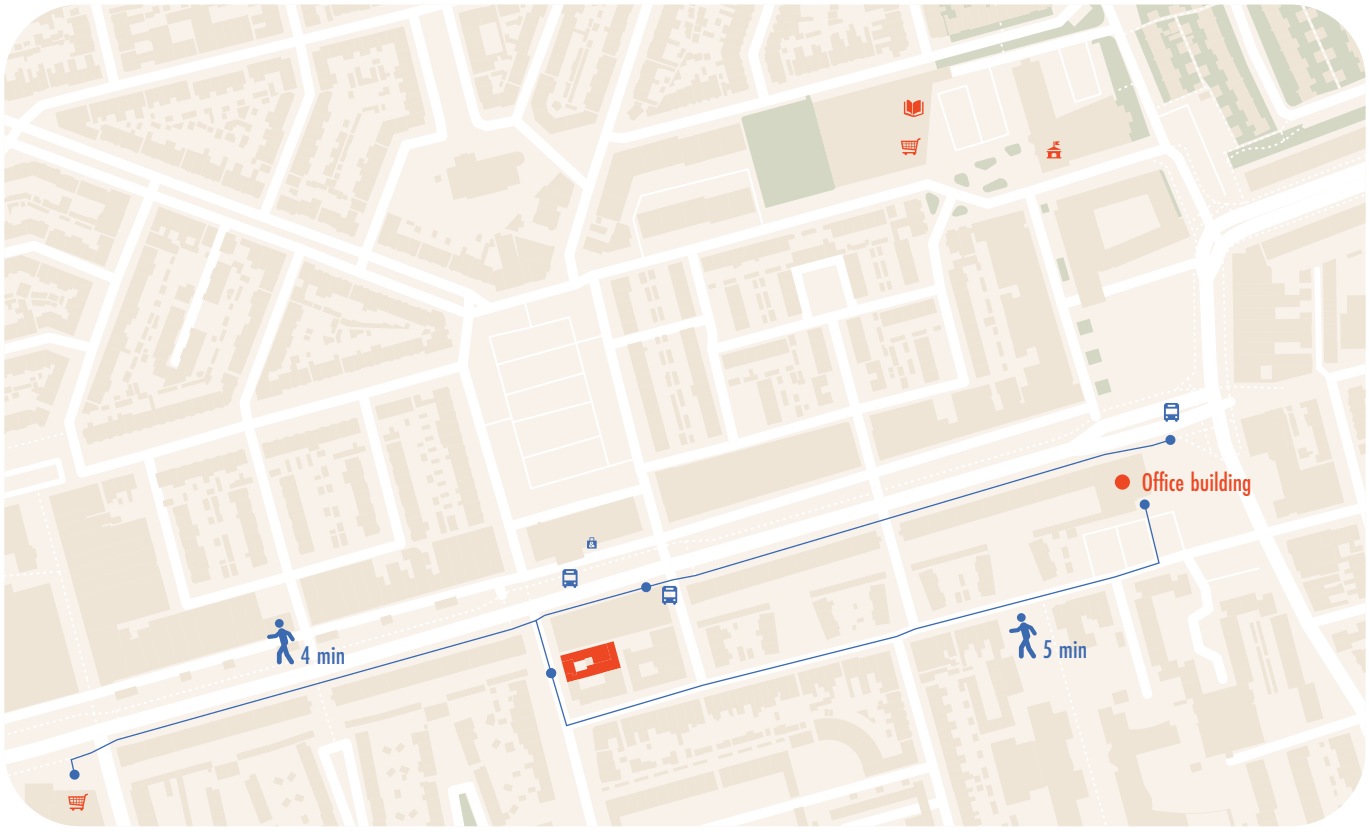


Figure 8: Location map

ARCHITECTURE

USE

Caretakers typically spend the day in the living area, which has an open floor plan. The focal point of the activities taking place is the dining table. When young adults enter the living area, they join the caretakers in conversation at the dining table, where they are usually seated. In the evening, the table is used for dining and playing games. During the evening, activity usually shifts to the couch, where they spend their time watching movies.

One young adult mentioned that she likes spending time with the caretakers when she is at home, playing games and watching movies. Since she does not like being alone, she barely uses her room throughout the day. However, another young adult preferred to spend time in her room. She would only spend time in the living room when one particular caretaker was around, as she felt most comfortable with her.

The main courtyard is mainly used for smoking. During the visit, one young adult chose a hidden place to smoke outside, where no one could see her. This implies that there is a need for private outdoor spaces. According to the team leader, the courtyard will be refurbished next summer to make it livelier and cosier by adding greenery.

Parlan chose not to create a separate office space, since it would feel too institutional. Instead, caretakers can use the desk in their bedroom to work. However, one of the caretakers claims that there is usually no time for administrative work.

SIZE

The caretakers aimed to create a domestic and cosy living area. However, they explain that the living area is too big. Moreover, there is not enough distinction in terms of privacy. To create various living corners, they created a small living space near the caretakers' bedroom and added a couch near the entryway. They mentioned the need for a room divider, which they have not yet been able to get because of their restricted budget. However, one of the caretakers states that the big living space is also beneficial. Young adults do not feel like being watched all the time and they can retreat to their more private bedrooms. They are not obliged to constantly interact with caretakers and other young adults. The caretakers claim that this has a positive effect on their behaviour and the young adults are considerably calmer than in other smaller homes.

One young adult said she needed more space since her bedroom (one of the middle rooms) was too small.

SIGHTLINES

One caretaker mentioned that she had a favourite spot at the dining table to spend the day. From this place, she could watch people entering the building through the main entrance or courtyard. She explains that it is important to know when young adults get home.

ACOUSTICS

The young adults' bedrooms are situated on the first floor and therefore acoustically and visually secluded from the living area. One of the caretakers mentions the advantage of the sleeping area being secluded. This way, the young adults have their own space and do not feel constantly looked over. However, she does express her concerns, since it is difficult to keep an eye out when young adults are in the sleeping area. As an example, she describes a situation where two girls were bothering a girl in the sleeping wing and some incidents took place.

LIGHT

Caretakers mention that they do not perceive the living area as a pleasant space, since there is little natural daylight. They describe the place as dark and unpleasant.

STUDIOS

The studios consist of a kitchen, living and sleeping area and a bathroom. The young adults do not share any facilities.

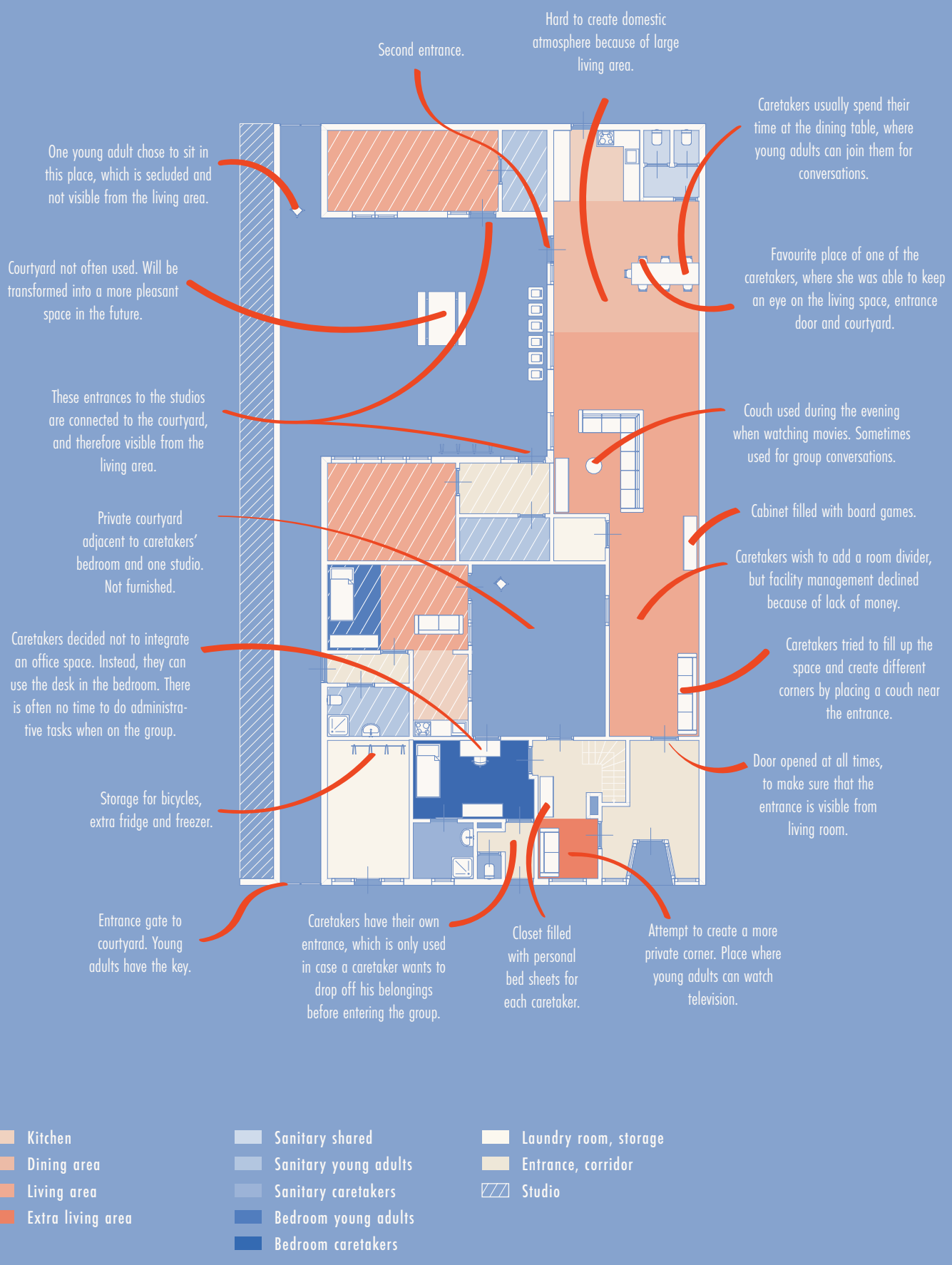


Figure 9: Ground floor (1:200)

AUTONOMY

ACCESSIBILITY

All young adults have an electronic tag to enter the group home. This tag works until 10 p.m. If they want to enter after 10 p.m., they have to call the caretaker who is on duty to open the door.

The young adults who live in the studios can access both the group home and their studio with an electronic tag. They are free to enter and leave the home at any time.

PERSONALISATION

Young adults in the group home are allowed to personalise their bedrooms, by for instance bringing their own furniture or decorating the walls. However, the organisation provides them with furniture when they move in.

Young adults who move into the studios receive a small budget to spend on items like kitchenware. The organisation provides the furniture if necessary since the budget does not allow for its purchase.

SOCIAL INTERACTION

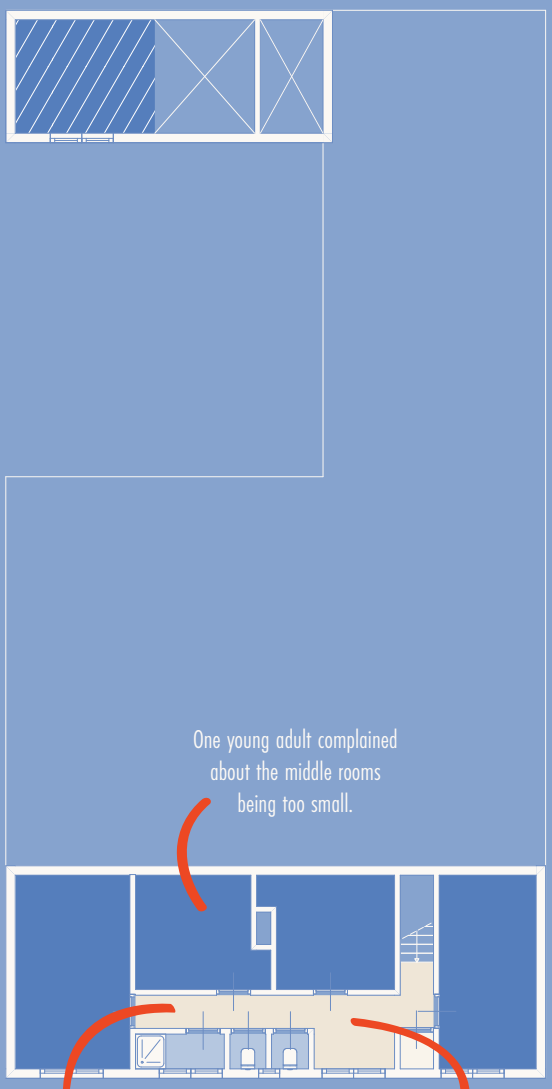
NEIGHBOURHOOD

There is little interaction between neighbours and the young adults. Parlan communicated with the neighbourhood before moving in. Although some people were initially hesitant, recent research revealed that residents were content and positive about the situation, since there was little to no nuisance. This allows the organisation to develop more studios.

YOUNG ADULTS

The caretakers mention that the boys-to-girls ratio is not ideal. Currently, one boy and three girls are living there. Two girls are colluding against the third girl, which leads to conflicts. To improve the atmosphere, caretakers occasionally organise group conversations. Because of the tension, no one is allowed to have people over during the night. However, having guests is encouraged during the day.

Figure 10: Facade



Kitchen
Dining area
Living area
Extra living area

Sanitary shared
Sanitary young adults
Sanitary caretakers
Bedroom young adults
Bedroom caretakers

Laundry room, storage
Entrance, corridor
Studio

Figure 11: First floor (1:200)

SUMMARY

GENERAL
+ Living and therapy separate
+ Combined group home and studios

LOCATION
+ Well accessible by public transport
+ Nearby amenities
+ Nearby therapy location

ARCHITECTURE
+ Sufficient space has positive effect on behaviour
+ Main and secondary entrances in sight of living area
+ Facilities for spending time together in living area
+ Secluded bedrooms young adults give them space
+ No separate office space

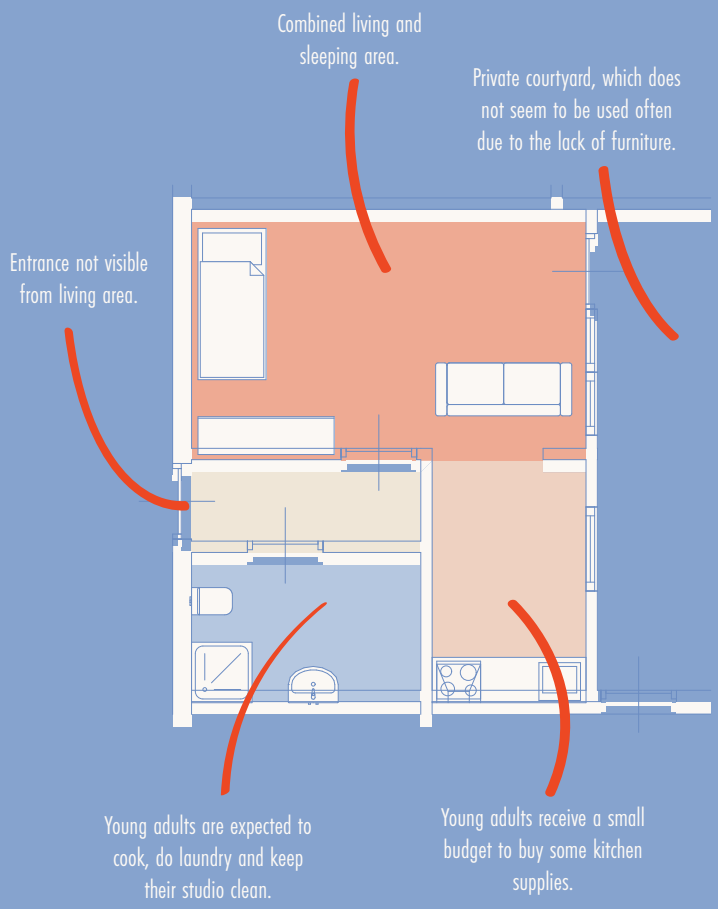
SOCIAL INTERACTION
+ No complaints from neighbourhood
+ Guests during the day are encouraged

AUTONOMY
+ Electronic locks and tags enable curfew
+ Young adults are allowed to personalise their bedrooms

ARCHITECTURE
– Living room too big
– Living room not domestic and cosy
– No differentiation in terms of privacy of living area
– No differentiation in terms of privacy of outdoor area
– Bedroom one young adult too small
– Secluded bedrooms young adults cause lack of control
– Not enough daylight in living area

SOCIAL INTERACTION
– No interaction with the neighbourhood
– Unbalanced boys-to-girls ratio
– Tense atmosphere among young adults

AUTONOMY
– Young adults rely on organisation for furniture



Kitchen
Dining area
Living area
Extra living area

Sanitary shared
Sanitary young adults
Sanitary caretakers
Bedroom young adults
Bedroom caretakers

Laundry room, storage
Entrance, corridor
Studio

Figure 12: Studio floor plan (1:100)

3.3 HAARLEM

GENERAL INFORMATION

This group home of Parlan is situated in Haarlem. During the visit, conversations took place with three caretakers and two young adults.

The group home accommodates four young adults of different ages, between the ages of twelve and eighteen. The group home in Haarlem is comparable to the facility in IJmuiden in terms of the type of care and day program.

LOCATION

ACCESSIBILITY

The location of the care facility is well accessible by public transport since there are a train station and bus stops nearby. However, caretakers mention that the young adults are often lazy and convince caretakers to use their private vehicles rather than to use their bicycles or public transport. Young adults are expected to arrange their own transportation to work, school or other daytime activities. It takes approximately 30 minutes to get to the city centre of Haarlem by bicycle.

AMENITIES

The group home is situated in a residential area. It takes eight minutes to walk to the nearby shopping centre where they do groceries and some of the young adults work. A park is situated south of the group home, at a ten-minute walking distance. However, no data was gathered on whether or not the young adults use it. The caretakers mention that they are content with the amenities in the neighbourhood.

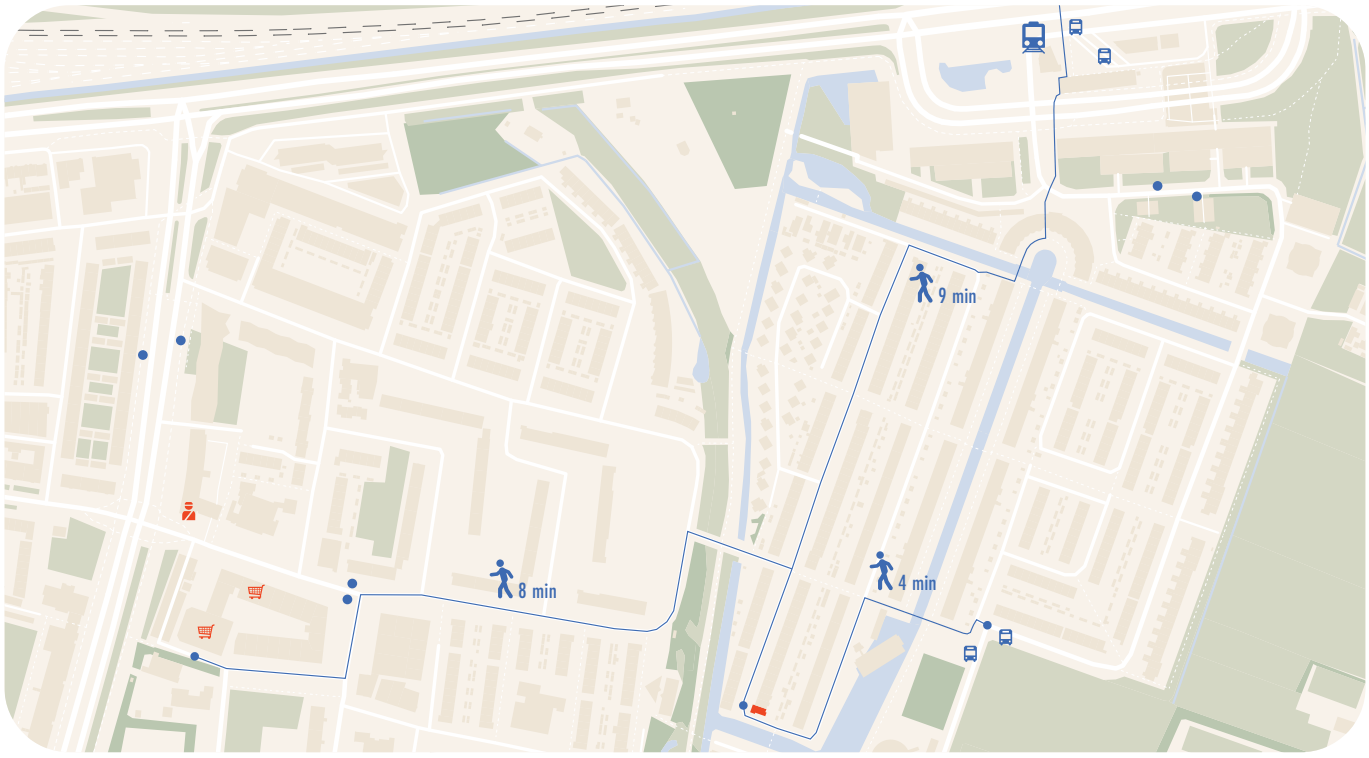


Figure 13: Location map

ARCHITECTURE

USE

The ground floor consists of a living area and a separate kitchen. Besides cooking, the kitchen is used for communication between caretakers when they switch work shifts. Since these are private conversations, the kitchen door is frequently closed.

The garden is primarily used for smoking and bicycle storage. Furthermore, it is occasionally used to separate young adults in case of tense or stressful situations. This suggests that there is a need for distinct living areas.

ATMOSPHERE

One of the caretakers from the group home in IJmuiden is familiar with the home in Haarlem. She explains that the young adults living in Haarlem show more restless behaviour, compared to the young adults in IJmuiden. At the time of the visit, three caretakers and three young adults were present in the living room. During conversations with the caretakers, the young adults continuously tried to attract attention by calling on speakerphone, playing loud music, speaking loudly or shouting. As a result, the space felt crowded and noisy in my opinion. Additionally, during the work shift change in the kitchen, the young adults were trying to get attention by playing loud music in the living area and repeatedly interrupting by opening the door.

SIZE

One of the caretakers believes that the unrest is caused by the small size of the living area. According to her, the young adults do not have much personal space and engage in a lot of social interaction. Moreover, she mentioned how young adults frequently use the staircase in the living room to draw attention to themselves, since it visually and acoustically connects the living area and the first floor. One of the caretakers recalled an incident in which one of the young adults shouted and threw objects from the top of the staircase into the living room, just to draw attention.

ACOUSTICS

One of the young adults regularly plays loud music at night, which bothers the neighbours. Therefore, sound-absorbing panels have been installed on the bedroom wall that faces the neighbour's house.

CONDITION

Parlan rents the home from a private owner, who is responsible for repairs and maintenance. The young adults express their dissatisfaction with the condition and interior of the home. They believe the living room is unattractive, due to the many different colours and the 'ugly floor tiles'.

One of the young adults' bedrooms was in poor condition. There was a leakage which had not been repaired for weeks. As a result, the walls were mouldy and stained. Moreover, the removal of a built-in cabinet severely damaged the stucco on the walls. The young adult had been living in this room for several months without any improvement in the condition.

Although not all bedrooms were in such a poor state, none of them was well maintained. There was outdated built-in furniture in every room. In addition, the stucco in most rooms was badly damaged. Caretakers mentioned that they had been trying to cover the holes in the walls with wallpaper.

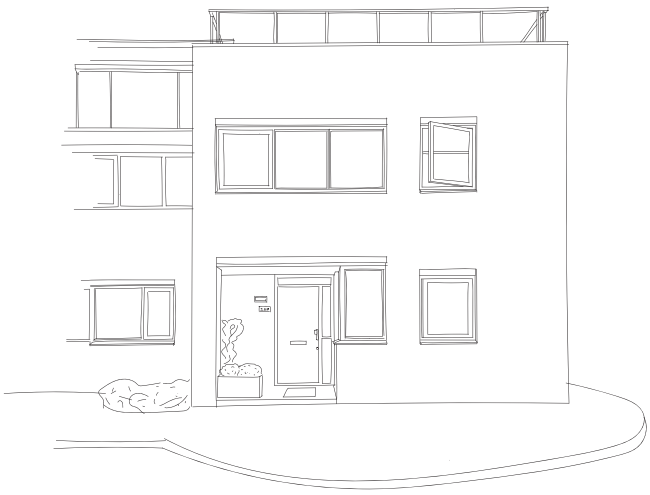


Figure 14: Facade

AUTONOMY

SECURITY

The level of autonomy is similar to the facility of Parlan in IJmuiden. All young adults have a key to the house and are expected to be home at 10 p.m. One of the young adults suffers from addiction and is therefore not permitted to enter the group home if he used drugs.

PERSONALISATION

The young adults are allowed to personalise their bedrooms by buying their own furniture and wallpaper. However, since many young adults do not have the means to buy furniture or are unable to bring furniture from their parent's house, Parlan provides them with a bed, desk and closet.

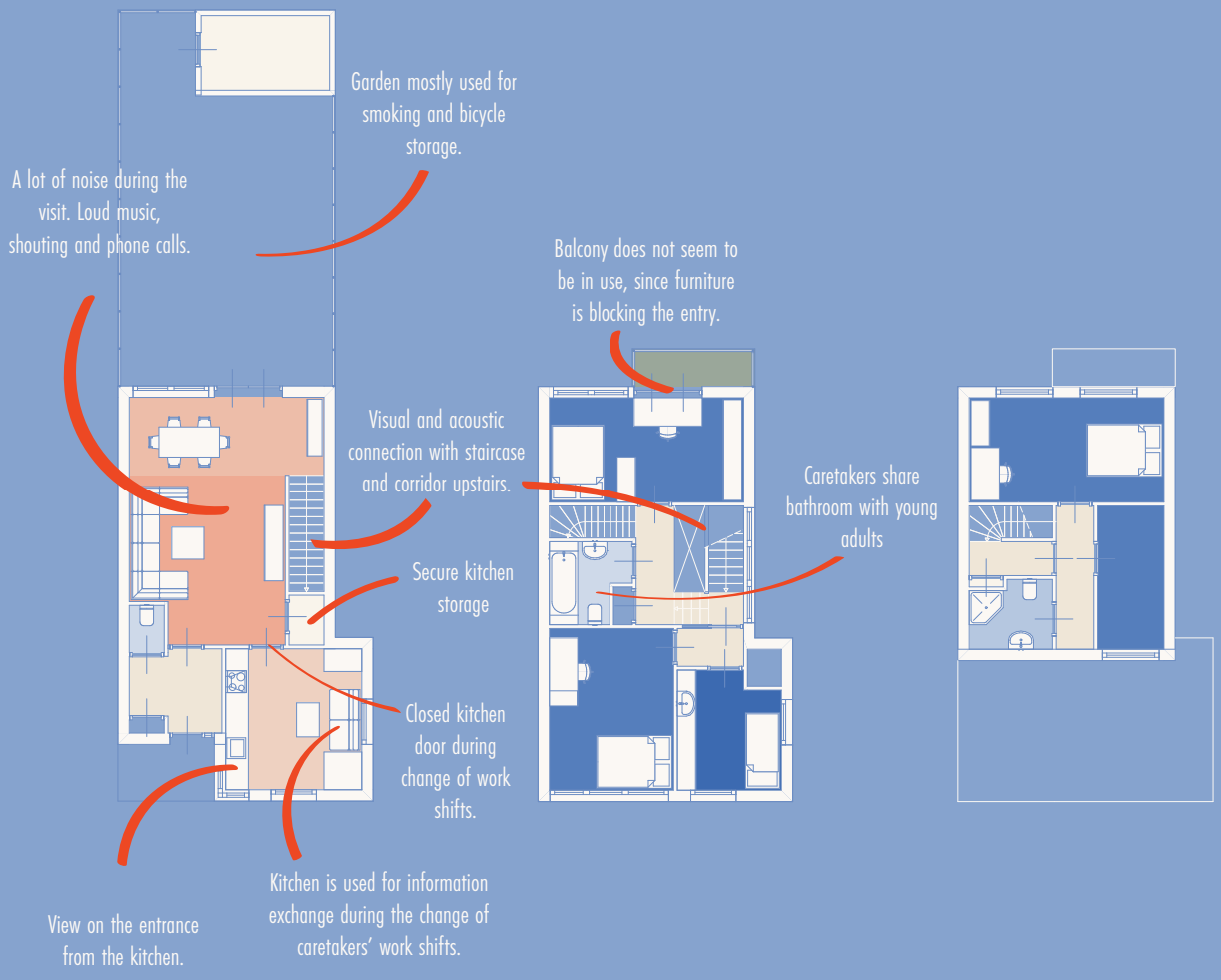
SOCIAL INTERACTION

NEIGHBOURHOOD

The team leader and caretakers mention that one of the neighbours has been complaining frequently about noise. The relationship with this neighbour is stressed.

YOUNG ADULTS

There is both positive and negative social interaction between the young adults. During the visit, one of the girls complained about another girl being jealous of her. However, sometime later, the girls were chatting and enjoyed music together.



Kitchen
Dining area
Living area
Sanitary shared
Sanitary young adults
Bedroom young adults
Bedroom caretakers
Storage
Entrance, corridor

Figure 15: Ground floor, first floor and second floor (1:200)

SUMMARY

LOCATION

+ Well accessible
+ Supermarket nearby
+ Work nearby

ARCHITECTURE

– Need for distinct living areas
– Small living area
– Connected staircase can lead to unrest
– Nuisance at night
– Home outdated and in bad condition

SOCIAL INTERACTION

– Stressed relationship with neighbour

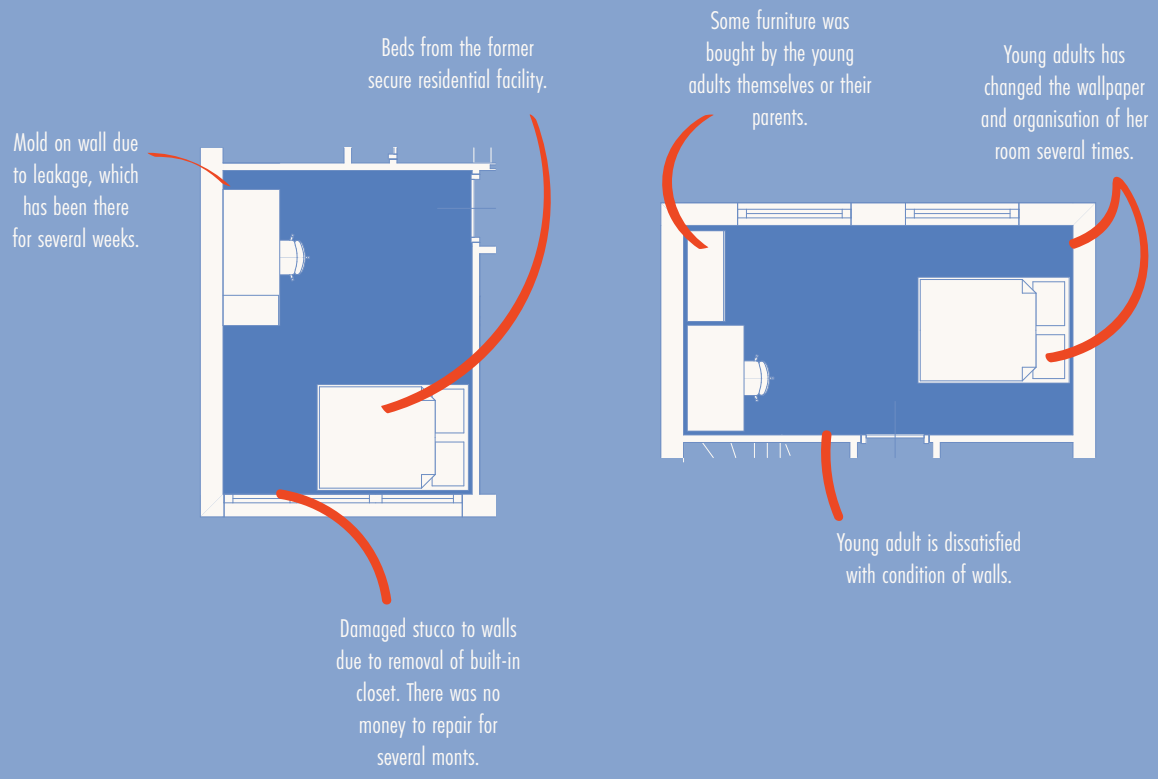


Figure 16: Floor plans of two young adults' bedrooms (1:100)

3.4 AMSTERDAM

GENERAL INFORMATION

In Amsterdam, Levvel has two small-scale groups that are situated close to one another (Figure 18). Although this analysis will focus on home A, some observations regarding home B will be taken into account as well.

Before the visit, an interview was conducted with the care coordinator of home A and the team leader of both homes. This interview focussed on home A. Both groups were visited. During the visit, conversations took place with one caretaker and three young adults of group A, and one caretaker and young adult of group B. Both homes are similarly organised and consist of a group home and a studio.

GROUP HOME

Both group homes accommodate four young adults between the ages of twelve and eighteen. Young adults can stay there until they are twenty-three if necessary, but the goal is for them to be independent at eighteen. The first home is exclusively for girls, while the second one is mixed gender.

Both homes deal with young adults who have mild intellectual disabilities (*licht verstandelijke beperking, LVB*). People with an *LVB* often lack conceptual skills such as reading and writing, social skills such as communicating and practical skills such as personal care or using public transportation (Landelijk Kenniscentrum LVB, 2023). According to the team leader, these young adults often struggle with comprehending conversations or questions properly, which needed to be taken into account during the visit. All young adults are expected to participate in daytime activities. They are assisted in arranging this. They often follow specialised education.

There are two caretakers present during the day, and one is on duty at night. One additional caretaker is available during the day to assist both groups wherever necessary. The caretakers believe that having one extra caretaker is useful, especially in the case of young adults with an *LVB*. However, they mention that combining two households in the case of a regular group without an *LVB*, combining two homes would be unnecessary and could even be harmful, as young adults could negatively influence one another.

The caretakers believe that it is important to make therapy as accessible as possible. Therefore, therapy sessions take place at home.

STUDIO

For the same target group, there are studios located on the top floor of both group homes. Each studio is shared by two young adults. Most young adults who live there used to live in the group home and moved upstairs whenever they were ready and a room became available. They need to show the caretakers that they are capable of living independently by being able to cook, keep the home clean and do their laundry.

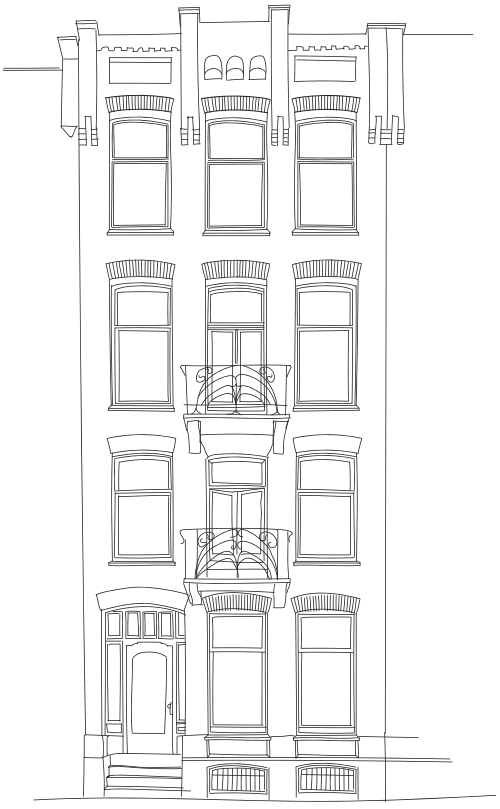


Figure 17: Facade

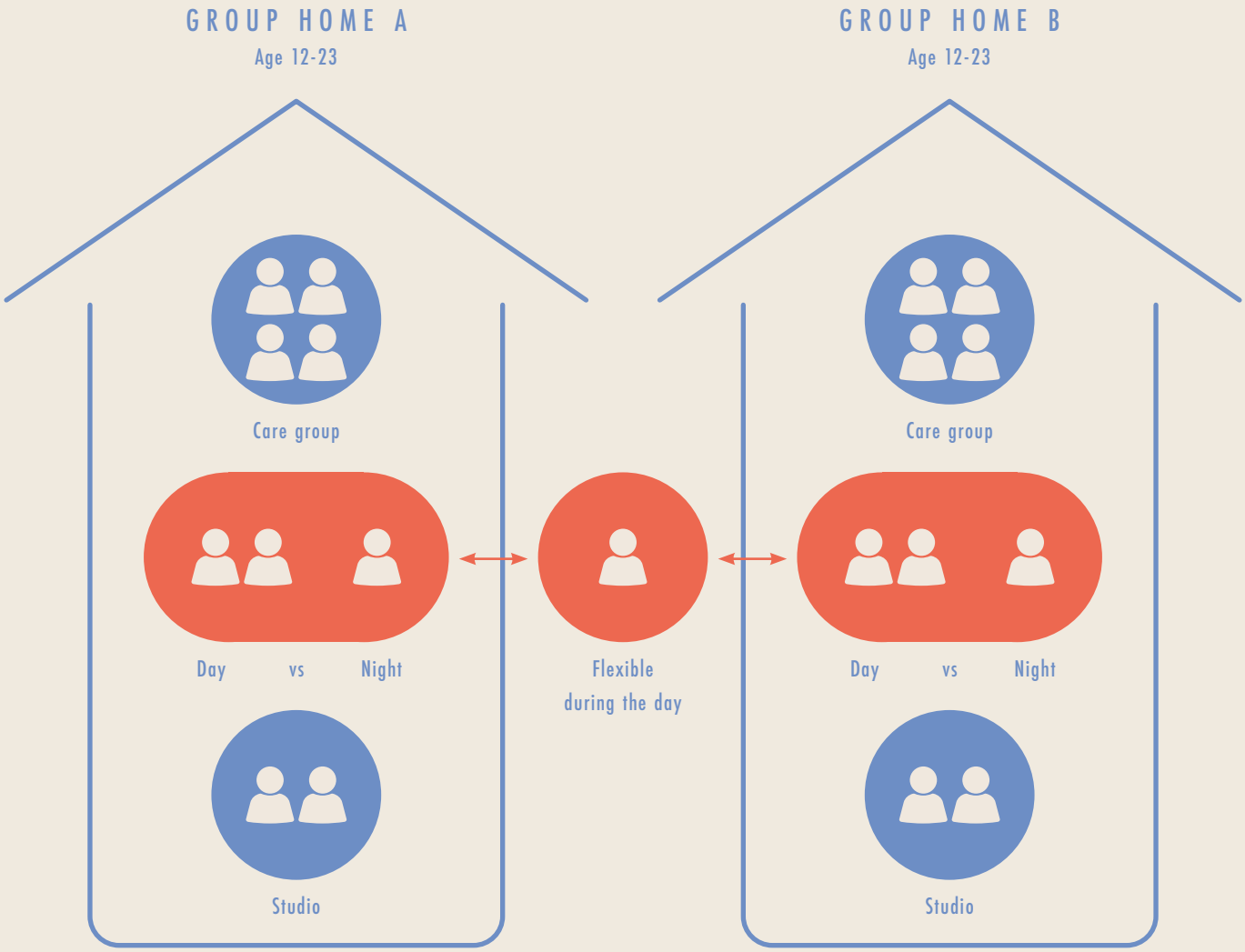


Figure 18: Overview residential facility

LOCATION

NEIGHBOURHOOD

The two facilities of Levvel are located in Het Museumkwartier, which is a neighbourhood in the southern district of Amsterdam (Figure 20). According to the caretakers, the young adults feel uncomfortable in this residential neighbourhood. They speak of a mismatch between the residents of the neighbourhood and the young adults. The young adults describe the residents as pretentious and unkind. Moreover, the luxuriousness of the neighbourhood is in contrast with the homes that they grew up in. The caretakers express their concern that the young adults' future homes will not be as luxurious as the present one, resulting in them not wanting to leave the place.

By analysing the demographics of Museumkwartier, it is possible to understand the friction between the residents and the young adults. The average income in this neighbourhood is more than twice as high as the averages for Amsterdam and The Netherlands (Figure 29). Additionally, the average house price is more than three times as high as the average in the Netherlands. These numbers indicate that Museumkwartier is an exceptionally wealthy neighbourhood compared to The Netherlands and Amsterdam in general.

According to the caretakers, the neighbourhood is suited for removing risks and distractions from the life of the young adults. However, this has the disadvantage that young adults are unable to practise resisting temptations when they return to their old neighbourhood.

ACCESSIBILITY

The group homes are easily accessible by public transport. However, caretakers mention that parents have trouble accessing the residential facilities, as a result of the rising costs of public transport and parking in Amsterdam. Moreover, low-emission zones prevent polluting cars from entering the city. Some parents are unable to visit their children because they do not live nearby or lack the means to travel to the city.

AMENITIES

Caretakers are content with the proximity of important amenities such as a supermarket and greenery. The group uses the park nearby to go for walks during summer.

The young adults recently moved to this facility (eight months ago at the time of the visit), and are therefore still hesitant to use the city and neighbourhood. The caretakers mention that this can be a challenge for especially young adults with LVB. Therefore, they are actively searching for activities within the neighbourhood, by asking other care groups for advice and ordering city cards for the youth.

1. The Netherlands
2. Amsterdam
3. Museumkwartier

Figure 19: Demographics Museumkwartier (AlleCijfers.nl, 2023)

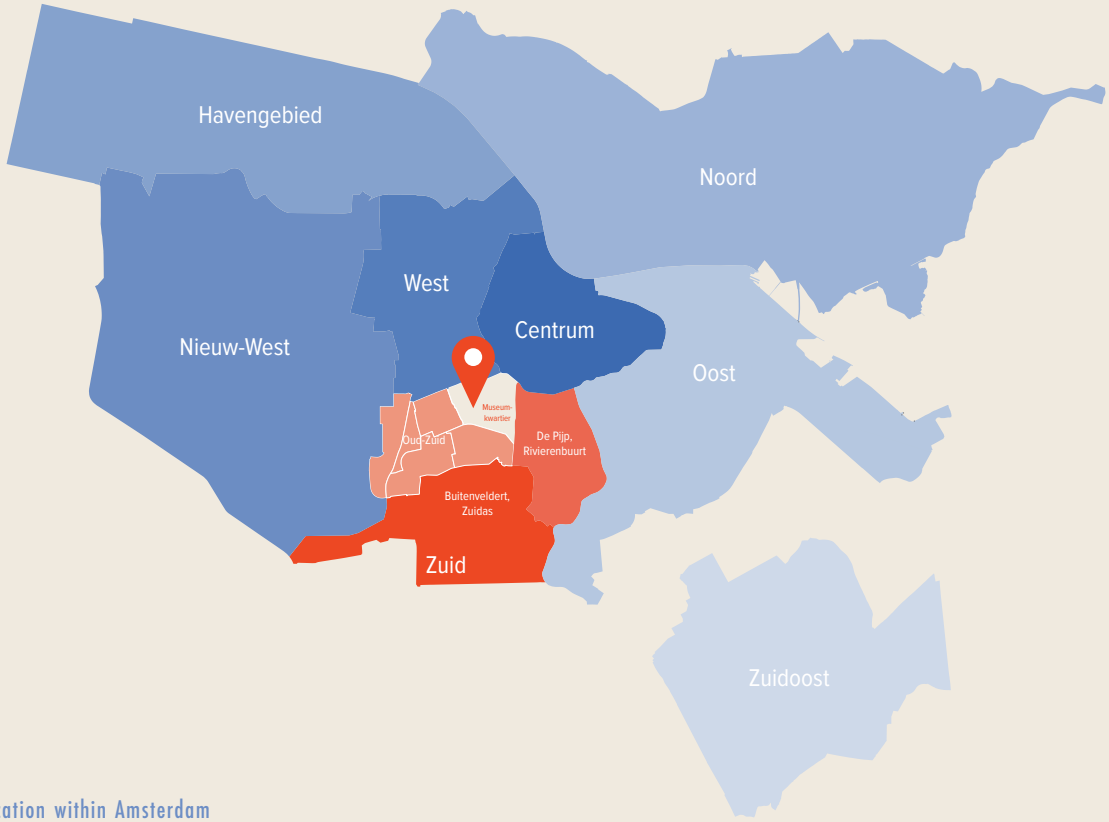


Figure 20: Location within Amsterdam

Figure 21: Location map

ARCHITECTURE

The ground floor and souterrain are mainly used as living spaces. The first and second floors serve as sleeping floors for the caretakers and young adults. The studio is situated on the top floor of the building and accommodates two young adults.

USE

The ground-floor balcony is mainly used for smoking. However, the garden is barely used. The young adults mention that the garden is too small and unattractive due to overgrown plants. According to them, the garden of the second group home is larger and therefore easier to use. One of the caretakers mentions that garden renovations are planned for next summer.

Although the users are content with the layout of the living area, the caretakers mention that the space offers little privacy. Therefore, they are creating an extra, more private living space in the souterrain, where young adults can be alone or interact with one another without being watched. Moreover, this room can be used for meetings or therapy sessions.

According to the caretakers, these young adults with an LVB can have difficulties engaging in activities outside of the home. Therefore, they initiated the development of a gym in the souterrain. The second group home has a gym and an extra hobby room that is used for painting.

The caretakers mention that the office in the souterrain is barely used, as there is little natural daylight. Instead, caretakers often work at the dining table during the day. Although they like working there, they mention that it is sometimes inappropriate, since they often work with sensitive information that cannot be discussed whenever young adults or colleagues are around. One caretaker mentions that she occasionally goes home during the day for online meetings or phone calls.

The studios consist of a kitchen, a living area, two bedrooms and a bathroom. The caretakers mention that the living area is barely used. Instead, the young adults prefer to spend time with the other young adults and caretakers in the living area of the group home. The young adults usually cook three times a week and often bring their plates to the group home downstairs to have dinner.

ATMOSPHERE

According to the caretakers, the aim was to create a domestic atmosphere by using regular furniture. Both the caretakers and young adults are pleased with the setting of the home. However, I observed that the domestic atmosphere disappeared when entering the upper floors. The hallway leading to the bedrooms was white and undecorated. Moreover, a fire alarm was situated above each bedroom door, which resulted in an institutional atmosphere.

During the visit, one of the girls agreed to show her bedroom. There was not much furniture or decoration. She complained about the bedroom floor and mentioned that it reminded her of a hospital. To make the space cosier, she wanted to buy a rug that could cover the floor. Furthermore, she wanted to add some colour to her all-white room by painting one of the walls pink.

SIGHTLINES

To provide a visual connection between the living area and the entrance hall, a small window was added. This way, caretakers can keep an eye on who is leaving the building. Moreover, a passage was added between the kitchen and dining area to connect the rooms.

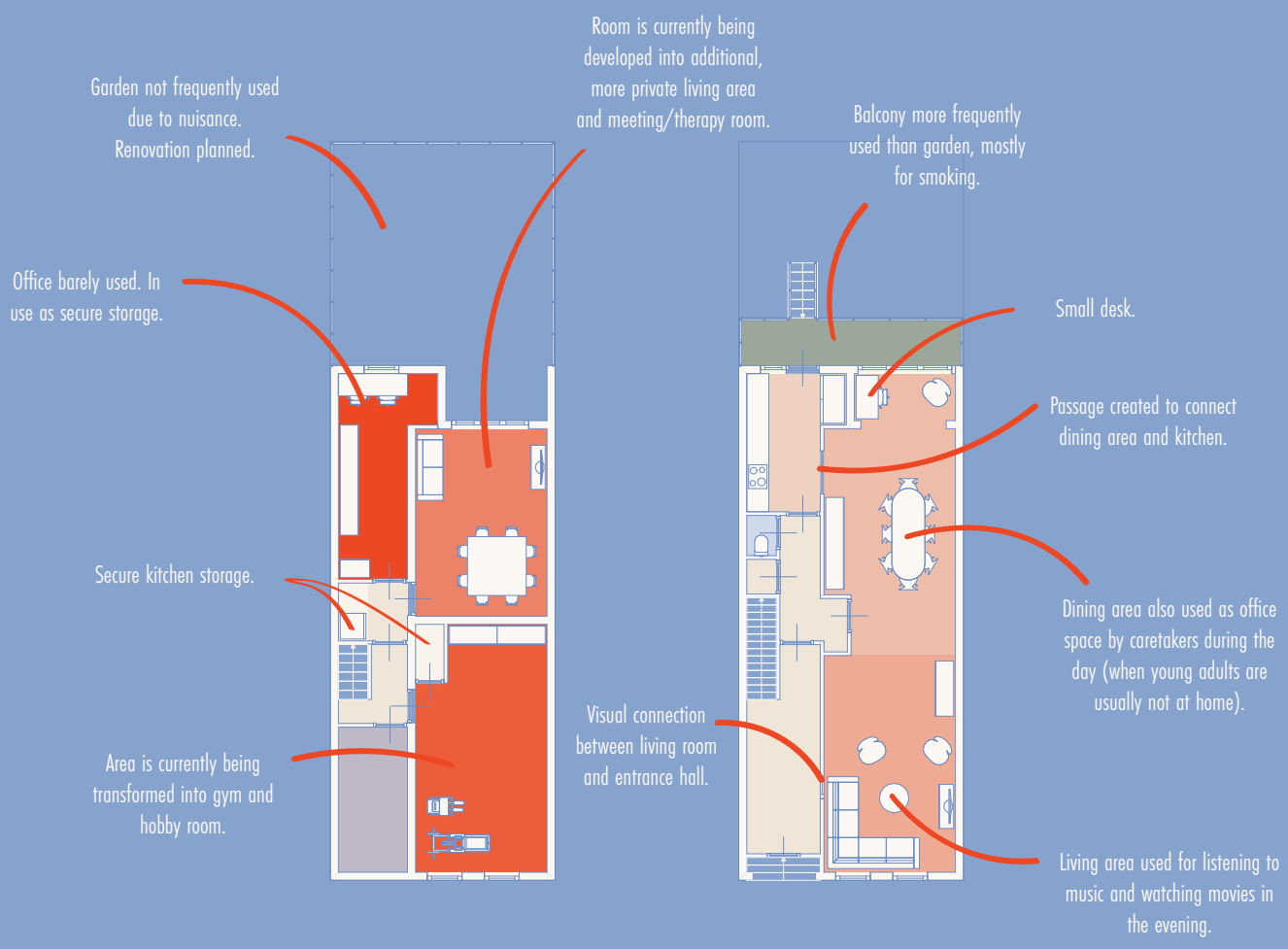
ACOUSTICS

According to the caretakers, the neighbours frequently complain about nuisance. The homes in Museumkwartier date back to 1900 and are therefore poorly acoustically insulated. Moreover, the garden is part of an inner courtyard to which the gardens of other houses are attached. The caretakers explain that despite not being the source of noise in the street, the group home is always held responsible.

The indoor acoustics are an issue as well. The caretakers mention that noises like music or singing in the early morning or at night are the main source of conflicts among the young adults. Moreover, the weekly cleaning service causes nuisance as well.

FIRE SAFETY

One of the caretakers mentioned that fire safety is an issue. Due to the strict requirements of the fire brigade, only fire retardant furnishings are allowed. This raises the price of items such as couches, beds or curtains.



Kitchen
Dining area
Living area
Hobby room
Multifunctional space
Office

Balcony
Laundry room, storage
Corridor

Sanitary shared
Sanitary young adults
Sanitary caretakers
Bedroom young adults
Bedroom caretakers

Figure 22: Souterrain & Ground floor (1:200)

AUTONOMY

SECURITY

Measures are taken to monitor who is leaving the building. Besides the addition of the window between the living room and entrance, cameras are installed. These cameras, which can be viewed from the caretakers' bedroom, are pointed to the outside entrance, the entrance hall and all staircases.

The young adults currently do not have a key to enter the house. They have to ring the bell whenever they want to enter the house. The front door is unlocked during the day, and locked at night. Caretakers are discussing the possibilities to provide the young adults with a key. The caretakers stress the advantage of having an electronic lock since that would allow them to easily block a lost key or set up specific rules such as curfew.

In the group home, there is a need for secure storage. Medicine and personal files are stored in the office. There is secure food storage and a refrigerator in the souterrain, to prevent the young adults from taking food without permission.

PERSONALISATION

The bedrooms of the young adults were slightly personalised. The young adults complained about uncomfortable beds, matrasses, blankets and pillows. Most of them want to upgrade their bedrooms by taking furniture from their parent's house or purchasing some themselves. However, due to fire brigade restrictions, only furniture provided by the organisation is allowed.

SOCIAL INTERACTION

NEIGHBOURHOOD

The small-scale group deals with the stigma associated with youth care. The group is held responsible for all negative events that occur in the neighbourhood and are sometimes called at. The nuisance worsens the problem.

Although the caretakers have made an effort to get in touch with the neighbours, they explain that it is hard to have a conversation. One of the caretakers mentions that as soon as the group moved to this location, he got in touch with neighbours, the community police officer and the local general practitioner and dentist, to get things off to a good start.

NETWORK

Although the caretakers encourage the young adults to invite friends over, that does not happen frequently. Some young adults are ashamed of living in a youth care facility and most of them have limited contacts. Some parents refuse to enter the house, even if they are dropping off their children. Some girls are forced to spend the weekend in the group since they have nowhere to go when they are on leave.

YOUNG ADULTS

Although the young adults are kind to one another, they usually do not build close friendships. Both groups know each other from the former residential facility they lived, so they sometimes invite each other over.

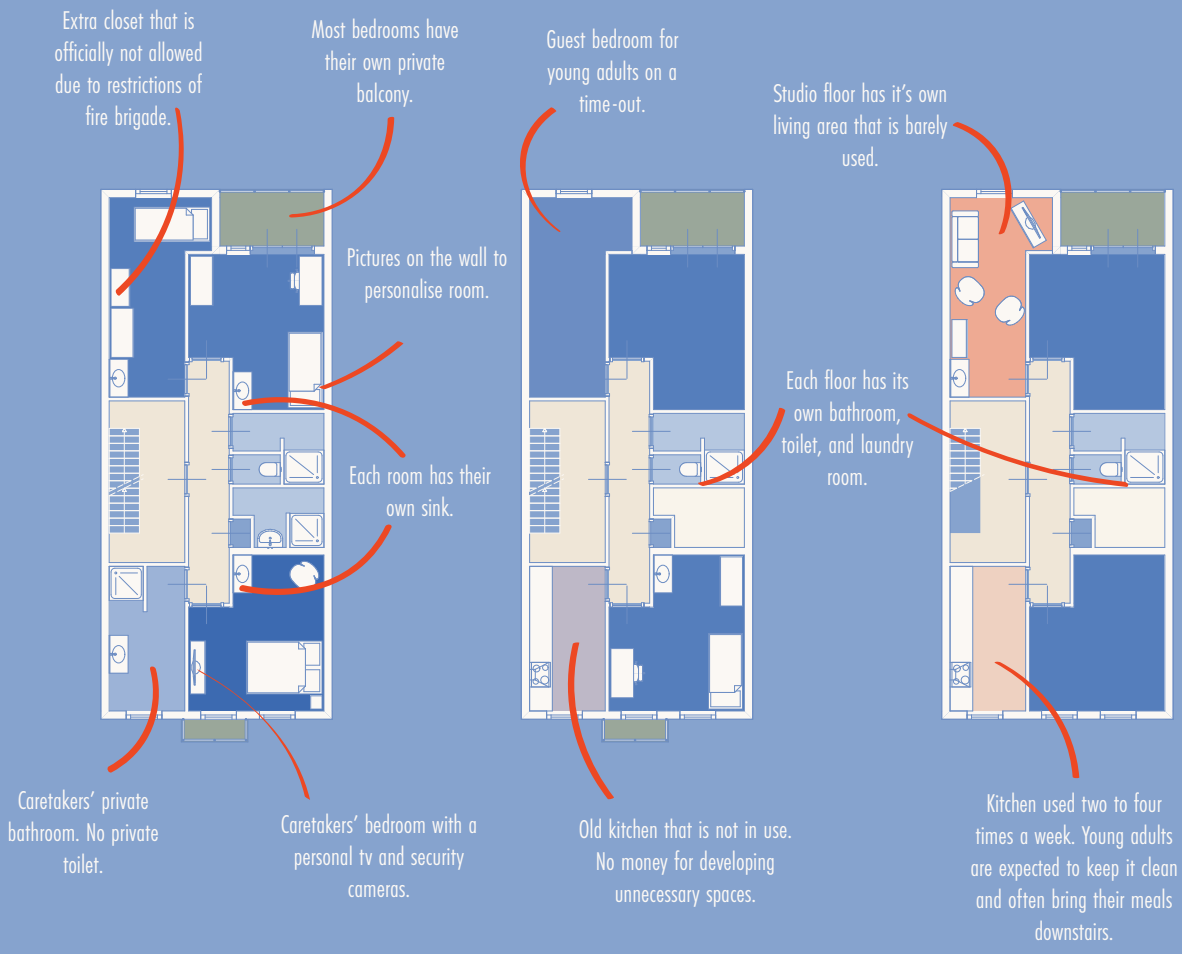


Figure 23: First, second and third floor (1:200)

SUMMARY

GENERAL
+ Additional caretaker during the day
+ Combination of group home with studio
+ Situating two small-scale facilities close to one another

LOCATION
+ Well accessible by public transport
+ Supermarket nearby
+ Greenery nearby

ARCHITECTURE
+ Multifunctional living area in souterrain
+ Gym and hobby room in souterrain
+ Domestic atmosphere on ground floor
+ Sightline between living area and entrance hall

SOCIAL INTERACTION
+ Contact between two residential groups
+ Caretakers got in touch with local parties

AUTONOMY
+ Secure storage available

GENERAL
– Combining two homes in case of regular group

LOCATION
– Mismatch with residents of neighbourhood
– Contrast with previous and future homes too big
– Unable to practise with temptations
– Parents unable to visit due low emission zones and parking and public transportation costs
– Challenging for target group to make use of neighbourhood

ARCHITECTURE
– Garden too small and unattractive
– Living area offers few privacy
– No suitable office space for discussing private matters
– Studio living area unused, due to lack of social interaction
– Institutional atmosphere upper floors
– Young adults' bedroom does not feel homely
– Nuisance between neighbours due to bad acoustic insulation and adjacent gardens
– Indoor nuisance main cause of conflicts between young adults
– Expensive furniture due to requirements of fire brigade

SOCIAL INTERACTION
– Poor contact with neighbourhood due to nuisance and stigma
– Young adults are ashamed of living in youth care facility
– Young adults have few friends over
– Parents refuse to visit the facility

AUTONOMY
– Cameras watching the entrance
– Young adults are not allowed to have a key
– No electronic locks
– Bedrooms little personalised
– Young adults not allowed to replace furniture

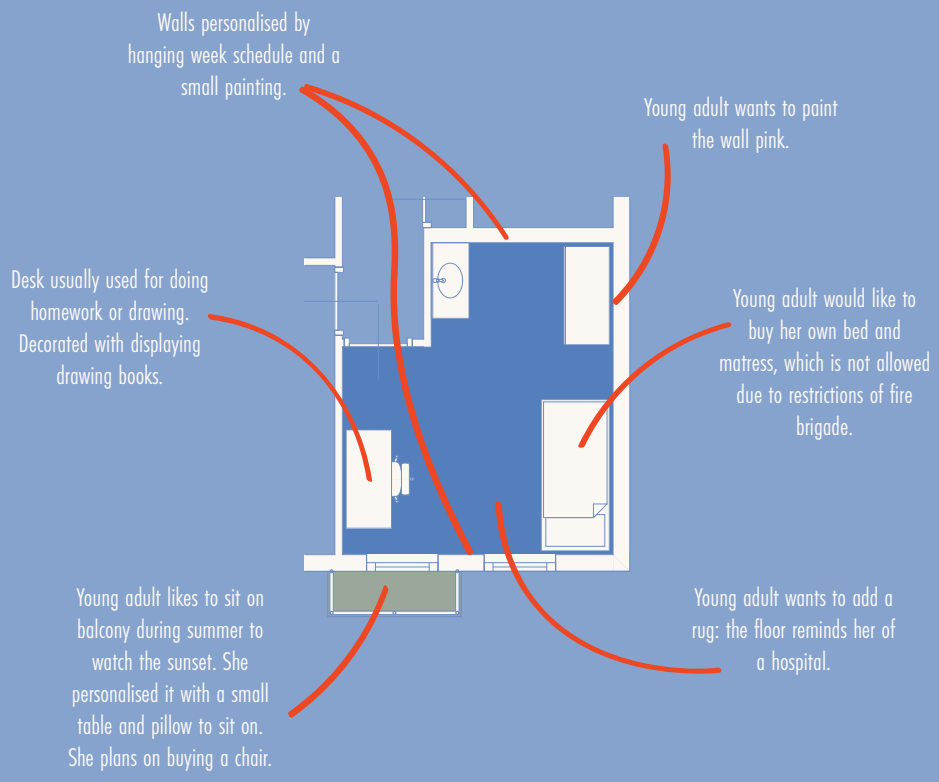


Figure 24: Young adult's bedroom (1:100)

3.5 DUIVENDRECHT

GENERAL INFORMATION

During the visit, a tour was given and a conversation took place with the treatment coordinator.

The location of Levvel in Duivendrecht consists of multiple types of care. Different types of care are located on the same property terrain, such as daycare and different types of residential care. There are two secure residential groups at this location (Figure 25).

GROUP HOME

During the research, one of the secure groups that recently moved there was visited. Although the groups are separate, they are similarly organised. Both groups have room for six young adults of different genders. During the day, there are two caretakers present, during the night one caretaker has a night shift. There is one flexible caretaker that is available for both groups during the day.

Both groups offer secure residential care. This means that the young adults that live there, have judicial authorization. However, in both groups, one of the young adults does not have judicial authorization but lives there voluntarily. The goal of secure residential care is to use as few limitations as possible. The aim is to normalize life and let the young adults get in touch with 'the normal child'. This means that most children go to their own school in the neighbourhood, and some of them go home during the weekends. Young adults are allowed to go outside whenever they are on leave. However, when no agreements are made about going on leave, they have to stay in.

LOCATION

This facility is located in Duivendrecht, which is part of the municipality of Ouder-Amstel. Although the city is not part of Amsterdam, it is situated next to it.

FACILITY TERRAIN

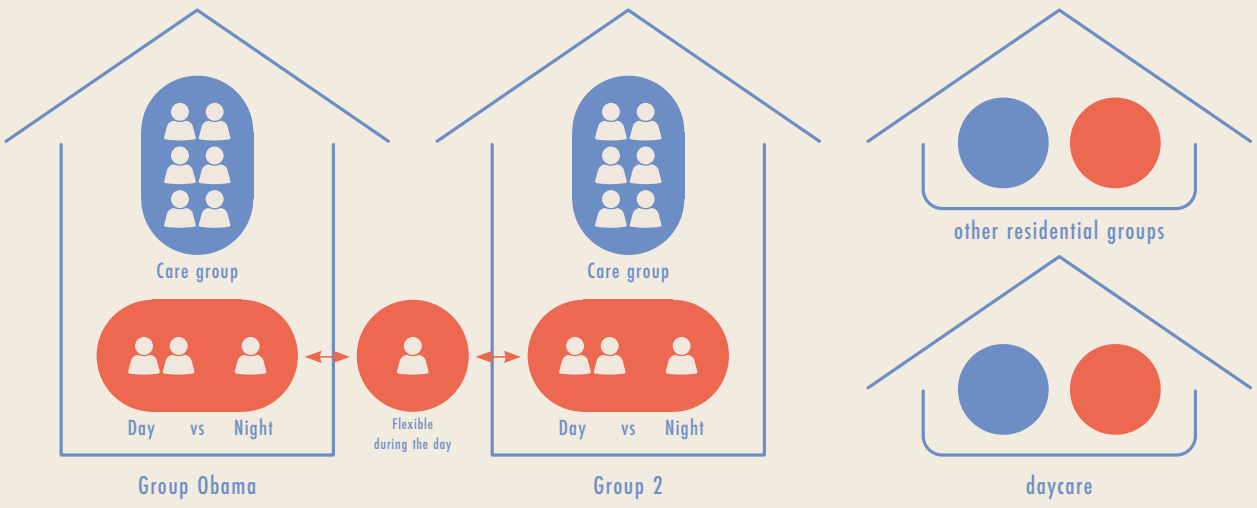
In contrast to the previously discussed facilities, this group home is situated on a facility terrain. In the main building, several facilities are located, such as offices and a primary school. The other buildings are (residential) care buildings, and accommodate several types of groups, such as open and secure residential groups and daycare. The visited secure group is located on the second floor of one of the residential buildings. The caretakers explain that they would have preferred the building to be in a normal residential setting instead of on a facility terrain.

The central square is primarily used by the open groups and primary school but is also accessible to the neighbourhood during the day. There are a small football field and playground. The young adults of the secure group can only use these facilities when they are allowed to go outside.

ACCESSIBILITY

The goal is to have all young adults follow an education at their own schools. Most young adults are not from Duivendrecht but grew up in other cities in the neighbourhood, such as Amsterdam. Therefore, some young adults need to travel a relatively long distance to

Figure 25: Overview residential facility



school. Some have permission to do this independently, others are escorted by caretakers. Occasionally, young adults run away or escape when they are on leave.

The facility is well connected by public transport. The train station of Duivendrecht is located within a fourteen-minute walking distance. Moreover, it is well connected by metro and bus. Although groceries are usually ordered online, caretakers occasionally go grocery shopping with the young adults at the nearby shopping centre.

Figure 26: Location map

ARCHITECTURE

USE

The living area consists of one open space. Adjacent is a multifunctional room, a game room and an office. The multifunctional room is primarily used as a meeting room. There is also a soccer table, so it can be used by the young adults as well. Another multifunctional room is located in the sleeping wing and was intended to be used as a family room. However, the medical team of the complex lacked space, so this room was assigned to them. According to the caretakers, this is useful since this lowered the barrier to asking for help. Meeting family can take place in the living room. The game room cannot be used during school hours. There are rules in terms of use.

At first, the caretakers didn't intend to realise a separate office space. Instead, they were planning on working on laptops in the living area. However, ARBO-conformed working spaces turned out to be necessary. Therefore, a separate office space was realised. It is usually freely accessible and open. Only during busy hours, the office is locked.

The building contains two roof terraces. One is connected to the living area and is used for social interaction. The other, more secluded one is located in the sleeping wing, and therefore not well visible. Since it has a punching ball, it is intended for blowing off steam and calming down.

Caretakers express that young adults complain about boredom. At the previous location, there were more facilities for leisure, such as an art room, a gym and a music studio. Since there were many secure groups, they were able to share these facilities. Now, there is only one other secure group. Although some facilities such as the gym are shared, the amount of facilities has diminished.

The bedrooms of the young adults have private toilets, as their bedroom doors are locked during the night. The caretakers' wing is accessible at all times, but the bathroom and toilets are closed during the day. They can be accessed with a key.

SIGHTLINES

Many rooms are visually connected to the living area. The game room and office space are connected by internal window panels, so caretakers can oversee the situation when they are in the living area. The meeting room and the roof terrace are connected by a window panel in the doors. This visual connection is therefore limited. Caretakers can oversee the living area partly when making use of the kitchen.

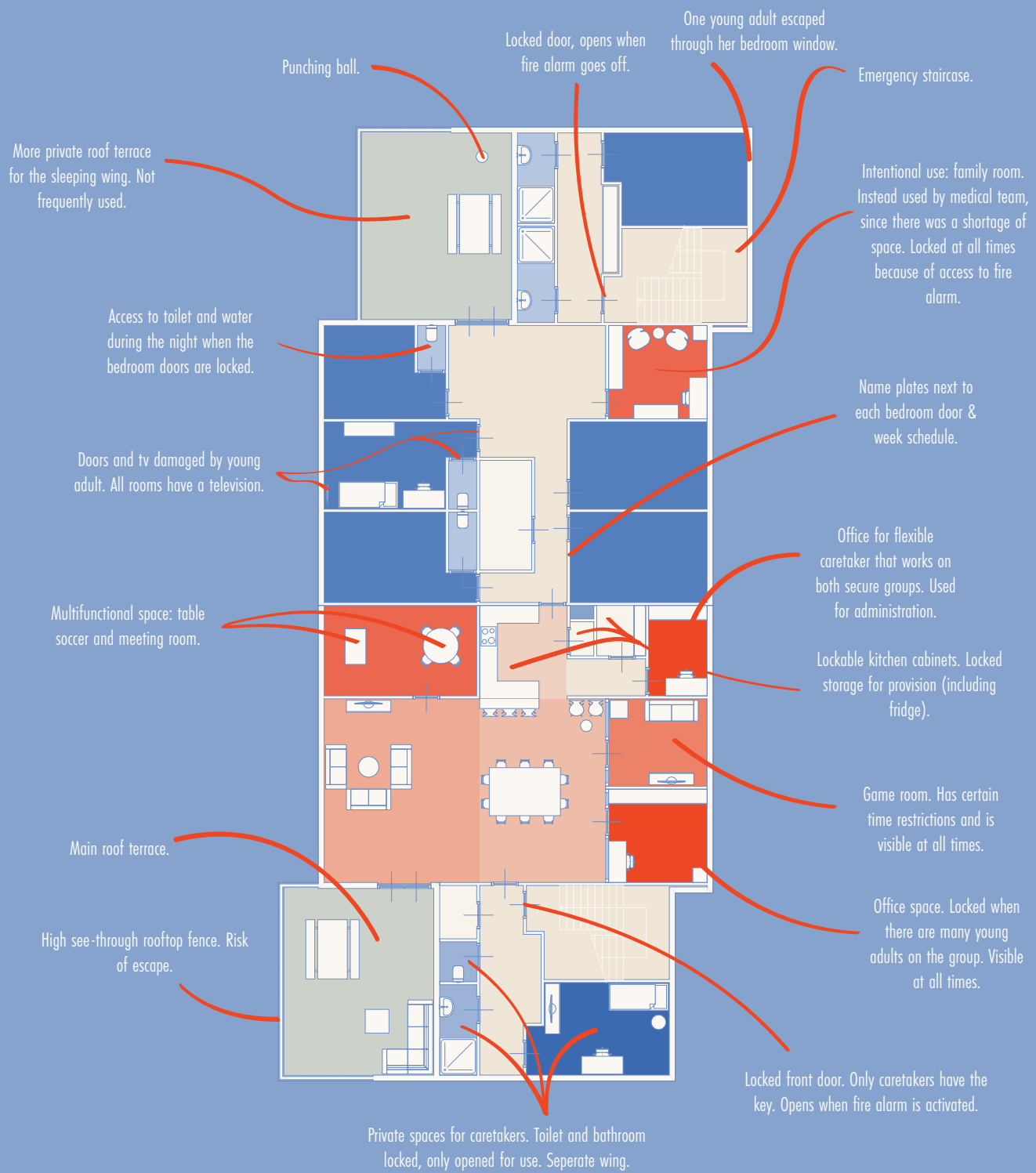


Figure 27: Second floor (1:200)

AUTONOMY

SECURITY

Duivendrecht is a secure facility. As explained before, young adults are not allowed to leave the building on their own initiative. They do not have keys to enter the building or the group home. The caretakers explained that there are problems with the fire alarms. By activating them, all doors are automatically opened. The young adults are aware of this and sometimes activate the fire escape in order to leave the building. The caretakers express their concern about the height of the building. Sometimes, the young adults try to escape by climbing out of the windows or jumping from the roof terraces, which can lead to dangerous incidents. One young adult once jumped off the roof terrace and fractured his foot, which led to permanent damage. The windows are barred so they can only be opened for a couple of centimetres.

During the day, the young adults are allowed to move freely through the home. However, during the night, their bedroom doors are locked. The caretakers explained that they are content with the fact that the entire home is one floor. This way, it is easy to have an overview of what is happening in the home.

There is a secure kitchen storage and there are visible locks on the kitchen cabinets. Food and sharp knives are not accessible to the young adults.

SOCIAL INTERACTION

NEIGHBOURHOOD

There are no complaints from the neighbourhood. The caretakers explain that the young adults do not have contact with their surrounding neighbours.

NETWORK

Some young adults visit friends and family when they are on leave, but many of them have no social network.

YOUNG ADULTS

The caretakers explain that the group dynamics are unpredictable; it can be both positive and negative.

SUMMARY

GENERAL
+ One extra caretaker shared with other secure group
+ Young adults with and without authorisation for secure care in one group home

LOCATION
+ Young adults go to their own school in old neighbourhood
+ Sports facilities on institutional grounds
+ Well accessible
+ Supermarket nearby
+ Facility grounds accessible to neighbourhood
+ Each group has private outdoor area

ARCHITECTURE
+ Living area visually connected to adjacent living spaces
+ Game room
+ Multifunctional rooms are flexible in use
+ Office with ARBO-conform workplace is accessible and visible
+ Two separate roof terraces with different levels of privacy
+ Activity rooms shared with other secure group
+ Bedrooms have private toilets for the night
+ Domestic atmosphere due to regular furniture, plants and paintings

SOCIAL INTERACTION
+ Young adults free to move through entire home
+ Personalisable bedrooms
+ Secure storage for kitchen knives and food
+ Single story building simplifies keeping control

AUTONOMY
+ Some young adults visit friends and family
+ No complaints from the neighbourhood

LOCATION
– Long travel times to some schools
– Travelling to school gives opportunity to escape
– Preference for a normal home over a home on institutional grounds
– No green environment

ARCHITECTURE
– Office closed during busy hours
– Not enough facilities for activities (music, arts) results in boredom
– Damaged doors, walls and television

SOCIAL INTERACTION
– Bedroom doors are locked during the night
– Young adults do not have electronic tags to enter the building
– Young adults can escape at any time by triggering fire alarm
– Height of building increases risk for injury during escape attempts
– Openable windows lead to escape attempts
– Visible locks on kitchen cupboards

AUTONOMY
– Group dynamics uncertain: can be both positive and negative
– Wish for a way to physically separate young adults during conflicts
– Some young adults do not have a network

3.6 INTERVIEW

The interviewee has lived in several youth care facilities since he was thirteen. When he was sixteen, he went to juvenile prison for four years. Currently, he lives in an apartment on his own and receives ambulatory care.

LOCATION

The interviewee suggested that a residential youth care facility should be situated outside of, but close to the city, for which he stated the following reasons:

- Outside of the city creates a peaceful and calm environment
- Being close to the city ensures easy access and reduces travel times
- Being close to the city allows young adults to practise resisting temptations
- In the city centre, there are too many temptations
- The city centre would be too crowded and noisy (the interviewee suffers from *ADHD*)

Moreover, he emphasizes his difficulties with reintegrating into society after leaving juvenile prison.

AMENITIES

The interviewee mainly lived in residential groups that were situated on facility grounds and had on-site educational and sports facilities. He mentions that one facility had a small brook where they could fish, which he very much enjoyed.

He recommends creating possibilities for playing sports in the neighbourhood. Moreover, he mentions having a community centre nearby where young adults can meet residents of the neighbourhood.

ATMOSPHERE

According to the interviewee, a residential youth care facility should resemble a normal home. He explains that his former residences looked like prisons. There was little grass, a lot of concrete, robust furniture and high fences enclosing small gardens. Additionally, a room for the safety guard was typically located next to the entrance. He argues that the places were too structured, leaving no room for creativity.

He noted that social interaction rarely occurred in the common rooms, since that were uncomfortable spaces. Each facility's living room had the same cold design and was filled with ugly, uncomfortable furniture and no plants. He expressed not feeling at home in these places. He wished for regular furniture, paintings and many colours to stimulate his creativity.

BEDROOM

The bedroom served as a place for rest and clearing the mind. However, he explains that he did not feel at home in his room, which made it difficult to rest. He would have liked to personalise more, by adding colours, paintings and pictures on the walls. Additionally, he would have liked to add a carpet as well as flowers and plants.

SECURITY

The interviewee associates his time in youth care with the sound of tinkling key chains. He explained that many doors needed to be unlocked by caretakers before he could enter his bedroom.

SOCIAL INTERACTION

He states that young adults need to interact socially with one another. During his time in youth care, social interaction would usually occur outside. Other moments of social interaction were when playing video games, spending time in the music studio, playing ping pong or playing football games outside.

LOCATION

- Peaceful and calm environment
- Access to city and short travel time
- Being able to practise with temptations
- Preventing too many temptations

ARCHITECTURE

- Facilities for sports and recreation on facility grounds
- Facilities to meet residents of neighbourhood
- Building and interior should resemble a normal home
- Room for creativity
- Wish for regular furniture, colours and plants
- Bedroom should be personalisable

SOCIAL INTERACTION

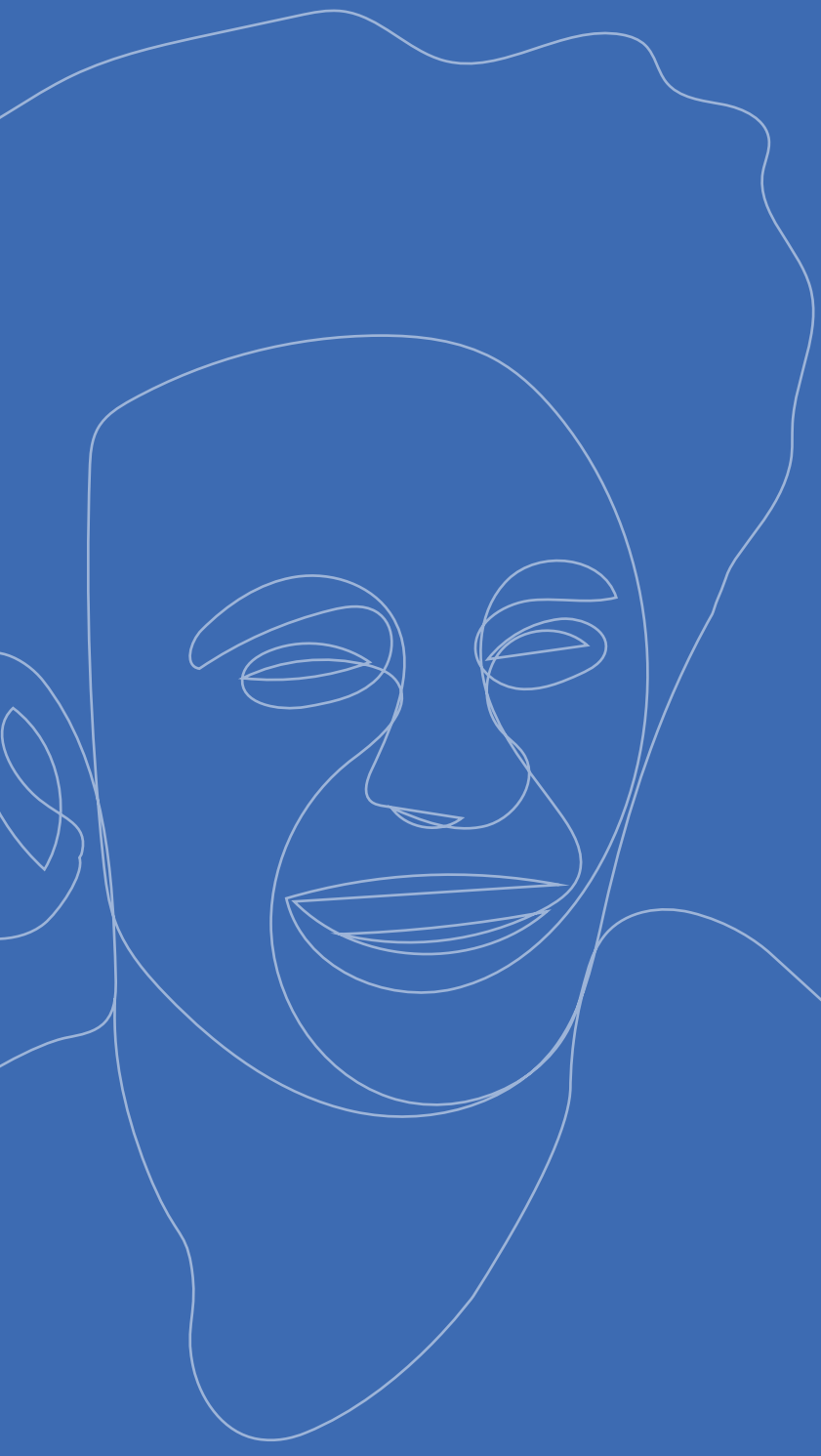
- Facilities for social interaction

AUTONOMY

- Preventing many doors and corridors

CHAPTER 4

DISCUSSION



4.1 CONCLUSION

This research studies alternative small-scale living concepts for minors with mental healthcare needs, by answering the question: What location conditions and architectural and built environment features can support the design of open and secure small-scale residential facilities for youth care and increase user autonomy and social interaction?

To answer this question, four sub-themes were identified: location, architecture, autonomy and social integration. These sub-themes were researched by visiting small-scale youth care homes and interviewing team leaders and care coordinators that work in youth care. Moreover, conversations took place with young adults that currently live or have lived in residential youth care.

First, an overview of the research output was created. Next, the overview was transformed into a design library (Appendix 1), which describes location conditions and architectural built environment features that could be implemented into the design of small-scale residential youth care buildings. Lastly, design guidelines were created based on the research output and design library. These guidelines describe general recommendations for the design of small-scale residential buildings for youth care.

SQ1: LOCATION

The location is discussed in the first sub-question: What location conditions are of importance when designing small-scale residential youth care facilities?

The literature research has shown that it is preferable to locate facilities within local communities, rather than secluding them from society. Jovanović et al. (2019) recommend introducing architectural interventions such as creating communal spaces within the neighbourhood to facilitate interactions. This is supported by research by Van Schie et al. (2020) and Mourits & Addink (2021). Ammerlaan et al. (2022) however, point out that a location within the neighbourhood can result in problems with stigmatising voices from neighbours.

These findings are supported by caretakers and young adults in small-scale facilities. They generally preferred small-scale facilities located within the neighbourhood. They note that the location should offer both social interaction and rest. Moreover, they prefer facilities that are located close to their family and social network. Another important outcome is that the location should be well accessible by public transport. Users prefer the proximity of multiple amenities, such as a supermarket, greenery, sports facilities, therapy location, education and work. However, caretakers note that a mismatch between the users and the neighbourhood should be avoided.

SQ2: ARCHITECTURE

The second research theme focuses on architecture: What architectural and built environment features are of importance when designing small-scale residential youth care facilities?

Literature research has shown that several key design elements should be taken into account. The first is **light and lighting**. Research has shown that exposure to daylight and appropriate lighting can lead to improved patient outcomes. In particular morning light is proven to benefit depressed patients. Moreover, access to natural daylight can enhance healthy circadian rhythms. Another key element is **sound**. Research has shown that noise can result in negative psychological and behavioural effects. This could be prevented by introducing design solutions such as sound-absorbing materials and wall separations. Moreover, comforting sounds such as music or nature sounds are proven to alleviate stress. Research has shown that **nature** can have the same effect. This can be achieved by offering direct access to nature, through gardens, indoor plants or window views, and indirectly through artwork and digital displays of nature views. Research has also found evidence that **art** can reduce depression and anxiety. Studies revealed that patients generally prefer nature scenes over abstract art. Studies into the use of **colour** have shown that patients generally prefer blue and green colours over white, red and yellow.

Research on small-scale facilities has shown that institutionalized environments should be avoided. Soft materials and warm lighting can be implemented to achieve a domestic setting that resembles a family home. Moreover, researchers stress the importance of private spaces where users can withdraw. Van Schie et al. (2020) note that there should be a variety of public and private spaces.

This is in line with the outcomes of the conducted interviews and study visits. The users stress the importance of a domestic and normalised atmosphere. Moreover, attention should be paid to the balance between privacy and safety, by introducing sightlines in the design. Other key elements are the need for flexible use of the building, sufficient rooms for activities and the prevention of nuisance between the users and surrounding neighbours.

SQ3: AUTONOMY

The third sub-question is aimed at increasing user autonomy: What architectural and built environment features can lead to the increase of autonomy for residential youth care?

Research has shown that personal control can enhance patients' physical and psychological comfort. This can be achieved by allowing patients to personalise their rooms, for instance by bringing items from home, selecting artwork, allowing them to modify the room arrangement, and providing them with control over the room design. Ulrich et al. (2010) propose enabling patients to manage the lighting and temperature of a room. Zhu et al. (2020) suggest designing modifiable care environments to meet different patient needs and designing spaces that allow people to retreat as well as spaces that foster social interaction.

Research on small-scale groups stresses the importance of the reduction of restraint and freedom restrictions. This is in line with the outcomes of the user research of the small-scale facilities. The users claim that there should be as few restriction measures as possible. However, attention should be paid to preventing escapes, break-ins, injury, self-mutilation or suicide. Moreover, they state that buildings should be adaptable to individualised security levels and that the security measures should be as invisible as possible. Users explain that design should simplify the personalisation of bedrooms.

SQ4: SOCIAL INTERACTION

The last research subject addresses the increase in social interaction: What architectural and built environment features can lead to an increase in social interaction for residential youth care?

Jovanović et al. (2019) found that mental healthcare facilities should be located within the neighbourhood. This encourages patients to spend time in the community, is destigmatising and makes it easier for relatives to visit. Research on interior design has shown that moveable furniture and waist-high partitions can encourage social interaction. Moreover, a variety of living spaces can create opportunities for different activities to foster social interaction. Others have found that smoking areas can encourage social interactions. Research on small-scale facilities suggests facilitating regular activities such as inviting people for dinner and having coffee to encourage conversation (Mourits & Addink, 2021). Other studies proved that private bedrooms give patients the freedom to withdraw whenever they feel like doing so. Moreover, they facilitate more privacy, which improves communication with staff and family.

The study visits and interviews showed that it is important to create opportunities to meet and interact with neighbours, and to reduce stigma. Moreover, the home should be a place where the users can invite people over. The building should facilitate different types of interactions within the building.

4.2 DISCUSSION

Many findings from the study visits and interviews are similar to the information that can be found in the literature. However, the study visits and interviews resulted in new insights. The majority of the literature still seems to be focused on the design of hospitals and other formal types of healthcare, such as psychiatric facilities. Moreover, little research specifically addresses the age group of young adults. This research aimed to gather more knowledge about designing residential facilities for young adults with mental and behavioural disorders. Although this research has made a first step, it can be concluded that more research should be conducted in order to improve the design of small-scale facilities for youth care.

It is important to remember that the architectural and built environment features listed in Appendix 1, are not applicable in all situations. It is not a manual. It should be interpreted as a collection of design elements that can be applied to the design of small-scale residential facilities. Each small-scale facility is unique, as its user group is heterogeneous. The design of a small-scale facility will therefore vary depending on the target group.

The outcomes of this research were heavily dependent on the facilities that could be visited. It is important to note that if other facilities were visited, outcomes could have been different. Moreover, only two interviews were held with caretakers. More interviews could have led to more insights and more reliable outcomes. Additionally, the number of conversations that were held with the young adults is limited, due to multiple reasons. In some cases, there were no or only a few young adults present during the time of the study visit. Moreover, some young adults were not interested in the research or did not want to talk about life in the facility. The little time spent during the visits made it difficult to gain trust and have insightful conversations. These limitations should be taken into account while reading this research.

4.3 DESIGN GUIDELINES

As a result of the research, several guidelines were identified.

LOCATION

Several themes could be identified: the type of location, accessibility and facilities. This led to the following design guidelines (Figure 28):

- Location within neighbourhood
- Well accessible by public transport and car
- Amenities nearby

ARCHITECTURE

The research resulted in the following themes: type of home, flexibility, atmosphere, privacy, sightlines, acoustics and condition. These themes led to multiple design guidelines (Figure 29):

- Combination of multiple types of residential care in one facility
- Flexible and adaptable to user
- Domestic & normalised setting
- The right balance between privacy and security (sightlines)
- Sufficient facilities for leisure

AUTONOMY

Several themes were of importance: security, safety, visibility, adaptivity and personalization. This resulted in the following design guidelines (Figure 30):

- As few security measures as possible
- Safety measures to prevent (self-)injury
- Security measures as invisible as possible
- Adaptable and customisable security and safety levels
- Easily personalisable spaces

SOCIAL INTERACTION

The analysis resulted in different scales of social interaction, namely neighbourhood, network and users. The following guidelines were created (Figure 31):

- Opportunities to meet and interact with residents of the neighbourhood
- The small-scale facility as a meeting place for social network
- Opportunity to interact with other users

Figure 28: Design guidelines Location

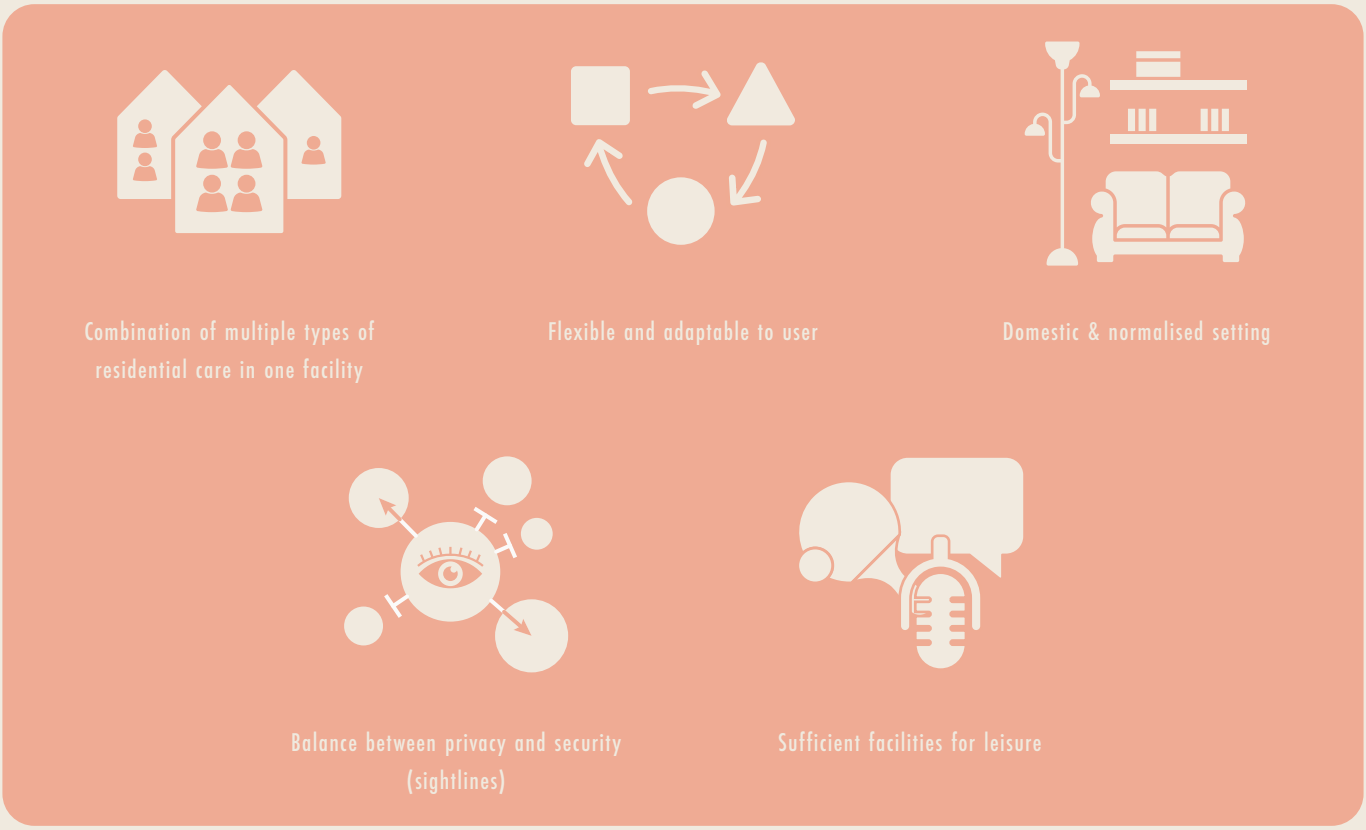


Figure 29: Design guidelines Architecture

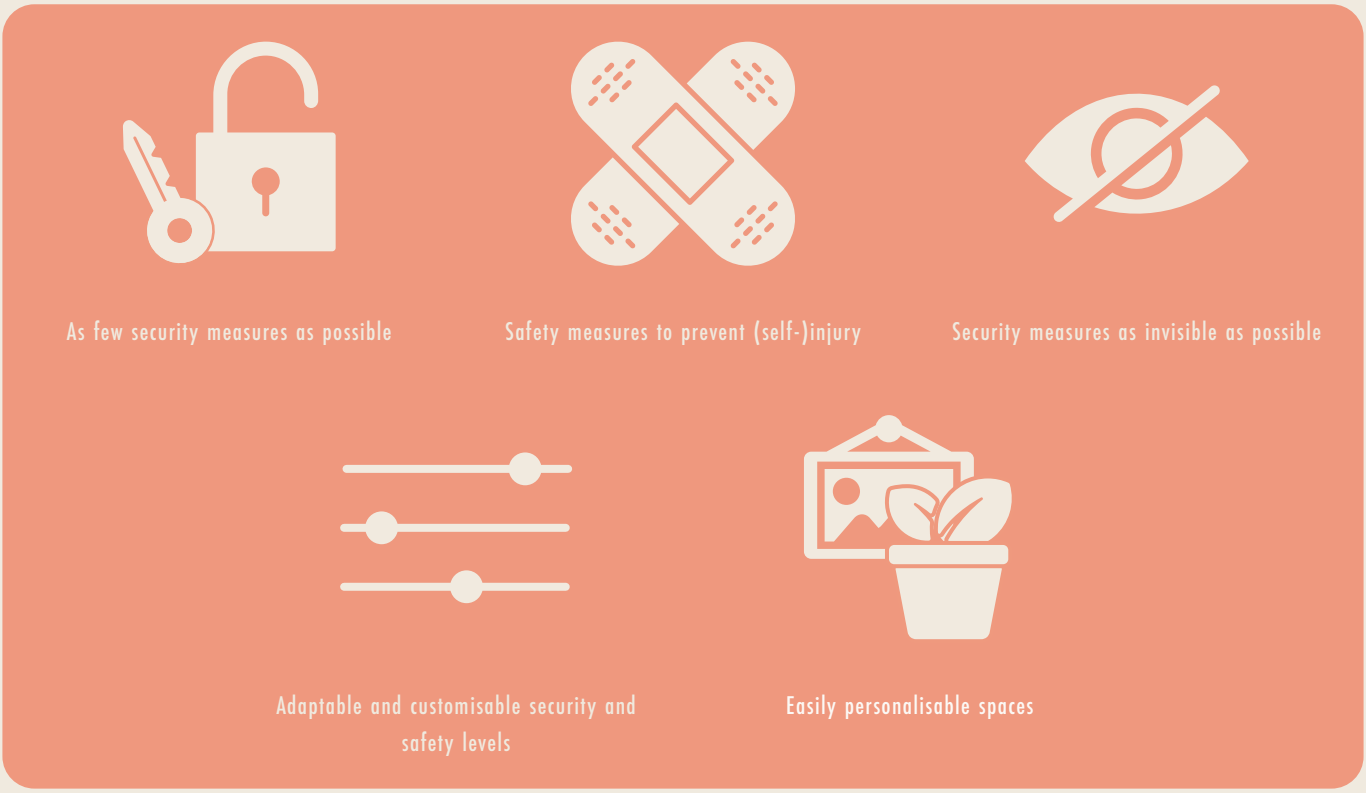


Figure 30: Design guidelines Autonomy

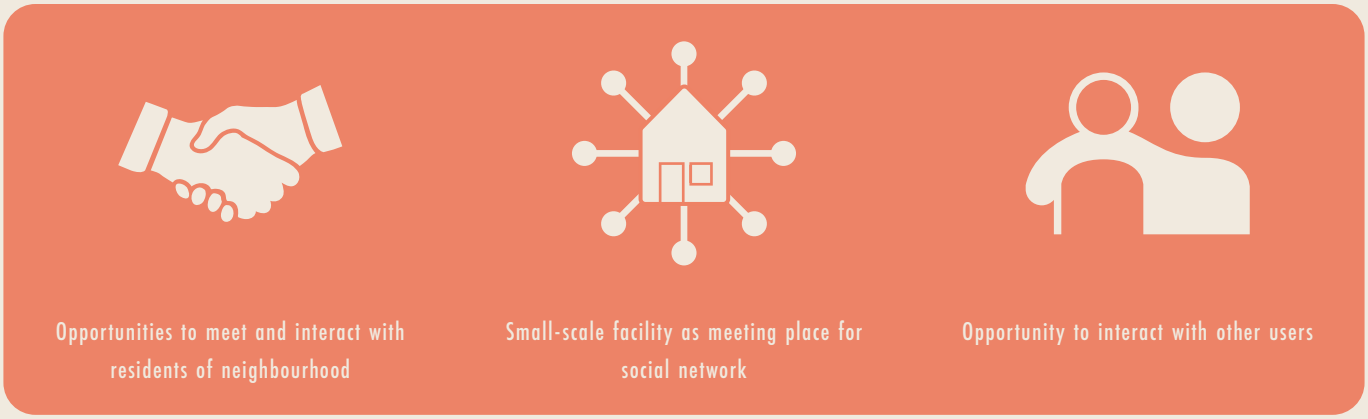


Figure 31: Design guidelines Social interaction

BIBLIOGRAPHY

Aljunaidy, M. M., & Adi, M. N. (2021). Architecture and Mental Disorders: A Systematic Study of Peer-Reviewed Literature. *HERD: Health Environments Research & Design Journal, 14*(3), 320–330. https://doi.org/10.1177/1937586720973767

AlleCijfers.nl. (2023, April 20). *Statistieken wijk Museumkwartier*. AlleCijfers.nl. https://allecijfers.nl/wijk/museumkwartier-amsterdam/

Ammerlaan, F., Oosterling, M., Gutterswijk, R., Mulder, E., & Harder, A. (2022). *Kleinschalig verblijf voor kinderen en jongeren in de jeugdhulp. Een voorstudie naar de doelgroep, vormgeving van zorg & onderwijs en werkzame factoren.* Academische Werkplaats Risicojeugd & Consortium Kleinschaligheid in de Jeugdhulp.

BaHammam, A. (2006). Sleep in acute care units. *Sleep and Breathing, 10*(1), 6–15. https://doi.org/10.1007/s11325-005-0044-8

Bakker, R. (2018). *Jeugdzorg voor en na de Jeugdwet. Overzicht van het gebruik van jeugdzorg 2011-2016.* Centraal Bureau voor de Statistiek.

Beauchamp, T. L., & Childress, J. F. (2013). *Principles of Biomedical Ethics* (7th ed.). Oxford University Press.

Bhugwandass, J., Van der Pal, N., & Hoogeveen, C. (2022). *Stoppen met gesloten jeugdzorg.*

Birch, J., Curtis, P., & James, A. (2007). Sense and Sensibilities: In Search of the Child-Friendly Hospital. *Built Environment, 33*(4), 405–416. https://doi.org/10.2148/benv.33.4.405

Boyatzis, C. J., & Varghese, R. (1994). Children's Emotional Associations with Colors. *The Journal of Genetic Psychology, 155*(1), 77–85. https://doi.org/10.1080/00221325.1994.9914760

Broekhoven, L., Simons, I., & van Santvoort, F. (2019). Gezinsgericht werken in de gesloten residentiële jeugdhulp. *Justitiële Verkenningen, 45*(6), 51–65. https://doi.org/10.5553/JV/016758502019045006005

Butt, michelle l, & Kisilevsky, barbara s. (2000). Music modulates behaviour of premature infants following heel lance. *Canadian Journal of Nursing Research, 31*(4), 17–39.

Connellan, K., Gaardboe, M., Riggs, D., Due, C., Reinschmidt, A., & Mustillo, L. (2013). Stressed Spaces: Mental Health and Architecture. *HERD: Health Environments Research & Design Journal, 6*(4), 127–168. https://doi.org/10.1177/193758671300600408

Curtis, S., Gesler, W., Fabian, K., Francis, S., & Priebe, S. (2007). Therapeutic Landscapes in Hospital Design: A Qualitative Assessment by Staff and Service Users of the Design of a New Mental Health Inpatient Unit. *Environment and Planning C: Government and Policy, 25*(4), 591–610. https://doi.org/10.1068/c1312r

Daykin, N., Byrne, E., Soteriou, T., & O'Connor, S. (2008). Review: The impact of art, design and environment in mental healthcare: a systematic review of the literature. *Journal of the Royal Society for the Promotion of Health, 128*(2), 85–94. https://doi.org/10.1177/1466424007087806

De Jonge, H., & Dekker, S. (2019). *Naar een betere organisatie van jeugdhulp, jeugdbescherming en jeugdreclassering.*

Dekker, J. J. H., Amsing, M., Van der Bij, I., Dekker, M., Grietens, H. W. E., Harder, A., Koedijk, P. C. M., Parlevliet, S., Schreuder, P., Talhout, M., & Timmerman, M. C. (2012). *Jeugdzorg in Nederland, 1945-2010.* Rijksuniversiteit Groningen.

Eisen, S. L., Ulrich, R. S., Shepley, M. M., Varni, J. W., & Sherman, S. (2008). The stress-reducing effects of art in pediatric health care: Art preferences of healthy children and hospitalized children. *Journal of Child Health Care, 12*(3), 173–190. https://doi.org/10.1177/1367493508092507

Evans, G. W. (2003). The Built Environment and Mental Health. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 80*(4), 536–555. https://doi.org/10.1093/jurban/jtg063

Fricke, O. P., Halswick, D., Längler, A., & Martin, D. D. (2019). Healing Architecture for Sick Kids: Concepts of Environmental and Architectural Factors in Child and Adolescent Psychiatry. *Zeitschrift Für Kinder- Und Jugendpsychiatrie Und Psychotherapie, 47*(1), 27–33. https://doi.org/10.1024/1422-4917/a000635

Gabor, J. Y., Cooper, A. B., Crombach, S. A., Lee, B., Kadikar, N., Bettger, H. E., & Hanly, P. J. (2003). Contribution of the Intensive Care Unit Environment to Sleep Disruption in Mechanically Ventilated Patients and Healthy Subjects. American *Journal of Respiratory and Critical Care Medicine, 167*(5), 708–715. https://doi.org/10.1164/rccm.2201090

Gaminiesfahani, H., Lozanovska, M., & Tucker, R. (2020). A Scoping Review of the Impact on Children of the Built Environment Design Characteristics of Healing Spaces. *HERD: Health Environments Research & Design Journal, 13*(4), 98–114.

https://doi.org/10.1177/1937586720903845

Hanzon, C., & Van Veluw, N. (2019). *Leren van herhaald beroep in de JeugdzorgPlus. Explorerend onderzoek naar oorzaken van herhaald plaatsen vanuit de levensverhalen van jongeren.*

IGJ. (2019). *Kwetsbare kinderen onvoldoende beschermd. Toezicht bij de jeugdbescherming en jeugdreclassering.*

Jeugdzorg Nederland. (n.d.). *JeugdzorgPlus. Plaatsings- en uitstroomgegevens 2021.*

Jeugdzorg Nederland. (2022, November 15). *JeugdzorgPlus.* https://www.jeugdzorgnederland.nl/jeugdhulp/jeugdzorg-plus/

Joseph, A. (2006). *The impact of light on outcomes in healthcare settings.* The Center for Health Design.

Jovanović, N., Campbell, J., & Priebe, S. (2019). How to design psychiatric facilities to foster positive social interaction – A systematic review. *European Psychiatry, 60*, 49–62. https://doi.org/10.1016/j.eurpsy.2019.04.005

Kahn, P. H., Friedman, B., Gill, B., Hagman, J., Severson, R. L., Freier, N. G., Feldman, E. N., Carrère, S., & Stolyar, A. (2008). A plasma display window?—The shifting baseline problem in a technologically mediated natural world. *Journal of Environmental Psychology, 28*(2), 192–199. https://doi.org/10.1016/j.jenvp.2007.10.008

Karlin, B. E., & Zeiss, R. A. (2006). Best Practices: Environmental and Therapeutic Issues in Psychiatric Hospital Design: Toward Best Practices. *Psychiatric Services, 57*(10), 1376–1378. https://doi.org/10.1176/ps.2006.57.10.1376

Kumar, S., & Ng, B. (2001). Crowding and Violence on Psychiatric Wards: Explanatory Models. *The Canadian Journal of Psychiatry, 46*(5), 433–437. https://doi.org/10.1177/070674370104600509

Landelijk Kenniscentrum LVB. (2023, April 13). *Over LVB*. Kenniscentrum LVB. https://www.kenniscentrumlvb.nl/over-lvb/

Ministerie van Volksgezondheid, Welzijn en Sport & Ministerie van Justitie. (2005). *Informatiebrochure*. Wet op de jeugdzorg.

Mourits, E., & Addink, A. (2021). *Richting geven aan kleinschalig verblijf. Een plek om zo thuis mogelijk op te groeien.* Nederlands Jeugdinstituut.

Nanda, U., Eisen, S. L., & Baladandayuthapani, V. (2008). Undertaking an Art Survey to Compare Patient Versus Student Art Preferences. *Environment and Behavior, 40*(2), 269–301. https://doi.org/10.1177/0013916507311552

Nijhof, K. S., Laninga-Wijnen, L., Mulder, E., van Domburgh, L., Popma, A., & Konijn, C. (2020). Kleinschalige groepen binnen de jeugdhulp: Een eerste verkenning. *Kind en adolescent, 41*(2), 187–204. https://doi.org/10.1007/s12453-020-00236-6

NOS. (2022, September 15). *Jeugdzorg wil nú actie: 'Je ziet kinderen eraan onderdoor gaan'.* https://nos.nl/artikel/2444748-jeugdzorg-wil-nu-actie-je-ziet-kinderen-eraan-onderdoor-gaan

Park, J. G. (2009). Color Perception in Pediatric Patient Room Design: Healthy Children vs. Pediatric Patients. *HERD: Health Environments Research & Design Journal, 2*(3), 6–28. https://doi.org/10.1177/193758670900200302

Parmelee, P. A., & Lawton, M. P. (1990). The Design of Special Environments for the Aged. In *Handbook of the Psychology of Aging* (pp. 464–488). Elsevier. https://doi.org/10.1016/B978-0-12-101280-9.50033-4

Rekenkamer Den Haag. (2014). *Decentralisatie Jeugdzorg. Feitenrapport* (RIS 275360B).

Rijksoverheid. (2019, August 16). *Decentralisatie van overheidstaken naar gemeenten.* Rijksoverheid. https://www.rijksoverheid.nl/onderwerpen/jeugdhulp/jeugdhulp-bij-gemeenten

Sarkamo, T., Tervaniemi, M., Laitinen, S., Forsblom, A., Soinila, S., Mikkonen, M., Autti, T., Silvennoinen, H. M., Erkkila, J., Laine, M., Peretz, I., & Hietanen, M. (2008). Music listening enhances cognitive recovery and mood after middle cerebral artery stroke. *Brain, 131*(3), 866–876. https://doi.org/10.1093/brain/awn013

Schweitzer, M., Gilpin, L., & Frampton, S. (2004). Healing Spaces: Elements of Environmental Design That Make an Impact on Health. *The Journal of Alternative and Complementary Medicine, 10(*1), 71–83. https://doi.org/10.1089/1075553042245953

Shattell, M. M., Andes, M., & Thomas, S. P. (2008). How patients and nurses experience the acute care psychiatric environment. *Nursing Inquiry, 15*(3), 242–250. https://doi.org/10.1111/j.1440-1800.2008.00397.x

Sherman, S. A., Shepley, M. M., & Varni, J. W. (2005). Children's environments and health-related quality of life: Evidence

informing pediatric healthcare environmental design. *Children, Youth and Environments, 15*(1), 186–223.

Skorpen, A., Anderssen, N., Oeye, C., & Bjelland, A. K. (2008). The smoking-room as psychiatric patients' sanctuary: A place for resistance. *Journal of Psychiatric and Mental Health Nursing, 15*(9), 728–736. https://doi.org/10.1111/j.1365-2850.2008.01298.x

Stichting het Vergeten Kind. (2022). *'Ik ben het niet waard, dus droppen ze mij maar hier'. Een onderzoek naar ervaringen van jongeren in en na de gesloten jeugdzorg.*

Trapanotto, M., Benini, F., Farina, M., Gobber, D., Magnavita, V., & Zacchello, F. (2004). Behavioural and physiological reactivity to noise in the newborn. *Journal of Paediatrics and Child Health, 40*(5–6), 275–281. https://doi.org/10.1111/j.1440-1754.2004.00363.x

Ulrich, R. S., Berry, L. L., Quan, X., & Parish, J. T. (2010). A Conceptual Framework for the Domain of Evidence-Based Design. *HERD: Health Environments Research & Design Journal, 4*(1), 95–114. https://doi.org/10.1177/193758671000400107

Ulrich, R. S., & Gilpin, L. (2003). Healing Arts: Nutrition for the Soul. In *Putting Patients First: Designing and Practicing Patient-Centered Care* (pp. 117–146). Jossey-Bass.

Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H.-B., Choi, Y.-S., Quan, X., & Joseph, A. (2008). A Review of the Research Literature on Evidence-Based Healthcare Design. *HERD: Health Environments Research & Design Journal, 1*(3), 61–125. https://doi.org/10.1177/193758670800100306

Urbanoski, K. A., Mulsant, B. H., Novotna, G., Ehtesham, S., & Rush, B. R. (2013). Does the Redesign of a Psychiatric Inpatient Unit Change the Treatment Process and Outcomes? *Psychiatric Services, 64*(8), 804–807. https://doi.org/10.1176/appi.ps.004532012

Van Schie, L., Mulder, E., Nijhof, K., Van Domburgh, L., Harder, A., Konijn, C., Kolkman, J., Kranenburg, M., Lekkerkerker, L., & Popma, A. (2020). *Longitudinale Effectmonitor Jeugdzorg-Plus. Kleine groepen bij grote problemen: Kleinschalige voorzieningen als alternatief voor gesloten jeugdhulp.* ZonMw.

Vereniging Canon Sociaal Werk. (n.d.). *Canon zorg voor de jeugd.*

Wakamura, T., & Tokura, H. (2001). Influence of Bright Light during Daytime on Sleep Parameters in Hospitalized Elderly Patients. *Journal of Physiological Anthropology and Applied Human Science, 20*(6), 345–351. https://doi.org/10.2114/jpa.20.345

Wood, V. J., Curtis, S. E., Gesler, W., Spencer, I. H., Close, H. J., Mason, J., & Reilly, J. G. (2013). Creating 'therapeutic landscapes' for mental health carers in inpatient settings: A dynamic perspective on permeability and inclusivity. *Social Science & Medicine, 91*, 122–129. https://doi.org/10.1016/j.socscimed.2012.09.045

Zhu, L., Zhang, S., & Lu, Z. (2020). Respect for Autonomy: Seeking the Roles of Healthcare Design From the Principle of Biomedical Ethics. *HERD: Health Environments Research & Design Journal, 13*(3), 230–244. https://doi.org/10.1177/1937586720908508

APPENDIXES

APPENDIX 1

DESIGN LIBRARY

GENERAL INFORMATION	
GROUP COMPOSITION	• A group home should accommodate four to six minors • A studio can accommodate one or two minors • Group homes can be mixed-gender • A distinction is made between two age groups: 8-12 and 12-18 (+18-23) • Both young adults with and without authorisation for secure care can be placed in one group home
CARE	• Separating living and therapy is preferable in some cases, other groups prefer to offer therapy at home • Usually, one caretaker is present during txhe night and morning • Usually, two or more caretakers are present during the day • Sometimes, an extra caretaker is on duty that switches between groups
EDUCATION	• Young adults preferably attend their own schools • Education ideally takes place in regular schools rather than on facility grounds

LOCATION	
TYPE OF LOCATION	• The group home is preferably located within neighbourhood instead of on facility grounds • A mismatch between users of the group home and residents of neighbourhood should be avoided • Location should offer both temptations and rest • Location should be nearby the young adults' own, former neighbourhood (parents & network)
ACCESSIBILITY	• The facility should be well accessible by public transport (train, metro, tram, bus) • There should be affordable parking space for visitors

AMENITIES	• The following amenities are preferably located nearby (ten-minute biking distance):
	  • Supermarket
	  • Park/greenery
	  • Sports facilities
	  • Therapy location
	  • School
	  • Work
	  • Other shops

ARCHITECTURE	
TYPE OF HOME	• Studios can be combined with a group home • On average, there are two to three studio spaces per group home • In some cases, it is preferable to have two small-scale facilities close to one another
FLEXIBILITY	• The building of the small-scale facility should be flexible for future adaptations • There is a need for multifuctional spaces within the small-scale facility

PROGRAM	• The following rooms should be included:
	  • Living & dining area
	  • Kitchen
	  • Private outdoor area
	  • Caretaker's bedroom and bathroom
	  • Four to six bedrooms with sink (and toilet*)
	  • Two bathrooms
	  • Laundry room
	  • (Secure) storage
	• The following rooms can be included:
	  • Office space
	  • Multifuntional rooms
	  • Gym**
	  • Game room**
	  • Hobby room**
	  • Music studio**
	*optional
	**could be shared in case of other groups nearby

DOMESTIC & NORMALISED ATMOSPHERE	• Regular furniture • Use of colours • Plants • Personalisable spaces • Soft materials • Warm lighting
PRIVACY & SIGHTLINES	• Entrance should be visible from living area • Living areas should be visually connected to adjacent living spaces • There should be a variety of private and public areas, both inside and outside • There should be private spaces to withdraw • Office area should be visually connected to living areas
ACOUSTICS	• Nuisance between residents should be avoided • Nuisance between small-scale facility and neighbours should be prevented (both inside and outside) • Use of sound-absorbing materials and wall separations • Implementation of comforting sounds such as music or nature sounds

ARCHITECTURE	
CONDITION	• Easy to clean, maintain and repair
HEALTHY LIVING ENVIRONMENT	• Exposure to natural daylight • Appropriate lighting • Direct access to nature (gardens, indoor plants, window views) • Indirect access to nature (digital displays of nature views)
ART	• Use of art displaying nature scenes
COLOUR	• Use of green and blue colours • Avoid the use of white, red and yellow colours

AUTONOMY	
SECURITY	• As few restriction measures as possible • Measures to prevent escapes or break-ins (fire alarm, barred windows, safe locks) • Secure storage for kitchen appliances, food, personal files and medicine
ADAPTIVITY	• Security levels should be adaptable and personalisable • Electronic locks and tags/keys allow customised care
VISIBILITY	• Security measures as invisible as possible • Use of sightlines instead of cameras • As few locked doors as possible • No high fences • Single story building is easier to control
SAFETY	• Measures necessary to prevent self-mutilation and suicide • High building increases risk for injury during escape attempts
PERSONALISATION	• Simplifing personalisation of bedrooms • Allowing users to bring items from home • Allowing users to rearrange room • Giving users control over room design • Modifiable care environments to meet user needs • Requirements of fire brigade should be taken into account when personalising • Young adults don't always have the means and budget to personalise

SOCIAL INTERACTION	
NEIGHBOURHOOD	• Creating opportunities to meet and interact with residents of neighbourhood (shared facilities, accessible facility grounds) • Reducing stigma
NETWORK	• Increasing attractiveness to visit the home (for parents and network) • Creating possibilities and facilities to invite people over • Reducing stigma
YOUNG ADULTS	• Facilities to increase social interaction between young adults • Ability to separate young adults during conflicts • Small living area can have negative effect on behaviour • Enough space has positive effect on behaviour • Moveable furniture and waist-high partitions to encourage social interaction • Variety of living spaces creates opportunity for different activities • Smoking areas can encourage social interaction