THE INCLUSIVE CITY,  
RESIDENCE OF REUNION

Research Report  
Dutch Housing Graduation Studio  
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Een land dat vreemdelingen niet beschikt, gaat snel ten onder
-von Goethe, 1819

“The country that does not protect strangers, will soon go under”

“Een land dat vreemdelingen niet beschermt, gaat snel ten onder”
Inclusive city Manifesto

Our cities keep growing and are the engines of the development of our society. Cities should raise important issues and serve an examplatory role in their treatment of their inhabitants. Today's society must be a society that includes everyone and provides equal chances for all. Current city development however is a process of exclusion and city life is slowly descending into a monotonous model of segregation. What should be rich and varied is, in fact, becoming poor in its lack of diversity.

Diversity is the city's biggest asset. The people are the main resources of a flourishing city. A city, however beautiful designed and ingeniously structured will be nothing but an empty shell without its inhabitants. Therefore, everyone should be included in its design.

In the past, those who were vulnerable were locked up far from the borders of the cities. Institutions meant to 'facilitate' were in fact instruments of control. The deaf, the blind, the handicapped, the poor, the elderly, the unruly, the libertine, the homeless, the anxious, the refugees, all of them were locked up under the same roof, far from the eye of the public. ‘Different’ did not exist within the borders of the prosperous city. ‘Different’ was bad. Institutions were heterotopia, meant to hide the less glamorous parts of city life.

In the past, utopian designs trying to establish the elevation of the working class were secluded islands, seemingly impenetrable fortresses standing solitary inmidst of the landscape.

In the past, the 'poor' working class of the cities was forced to live in dwellings that were so inhumane that visiting government officials burst into tears at the notion that 'people' were living in these circumstances.

At a certain point in history, in an attempt to elevate the cities overall prosperity, better housing circumstances were provided for the working class. Little 'palaces for living' were created all over the city. Non-profit organisations surfaced. New ways of building emerged and affordable housing became a main incentive in architecture. The notion of 'the open city' has been advocated long before the creation of this manifesto. Nowadays however, we seem to have taken a step back in our inclusive mentality.

Nowadays, the city is poisonous to its inhabitants. Those unable to fit in, or, in our capitalist society, unable to pay, are slowly driven out of its borders. The ideal city should reach out to those in need, not exterminate them.

Refugees are stowed away in cheap containers in the outskirts of our cities. The homeless are ‘sheltered’ in temporary camp-sites filled with cheap tents. The city, proclaiming its wealth, its ingeniousness, refuses to offer equal chances and equal provisions to its main resource and driver: the people. Helping the vulnerable, who, through circumstances, have become victims of society, should be the main indicator of the wealth of a city. To measure the success of a city, one should not look at the living circumstances of the rich, but those of the poor.

All of us deserve a humane treatment. Those of us who have been plagued by the difficulties of life, who need a little help to be able to keep up, those who deserve a humane treatment most, are put away in inhumane architecture. Residents who are less accepting of diversity and are less tolerant of others, who think of themselves first, and others later are, in fact, promoters of the exclusive city. The Architecture
of today is only adding fuel to the fire by acknowledging this mentality. Instead of providing good quality housing for the people who are unable to do so themselves, temporary, bad, and above all, cheap housing is provided as an excuse to be able to build it without too much protest. In today’s society, those who have suffered inhumane treatment, seem to deserve inhumane architecture.

This is insanity, and has to stop.

Architecture must take a leading stand in the treatment of our vulnerable citizens. Architecture is more than a mirror of society, architecture can be the initiator of change. If architecture reflects our points of view in her buildings, will our opinions not change if they are projected differently? It is the task of designers to deliver respectable dwellings for everyone, to create these ‘Palaces for the vulnerable’. All inhabitants of the city should be provided with a feeling of self-worth, a feeling of belonging. Architecture can be the provider of this much needed self-respect. We require a new elan in Architecture. and we will refuse to accept this excuse-architecture any longer! Let us advocate an architecture that reminds citizens of their worth: a respectable architecture for all inhabitants of the city!

Acknowledging that people are different is a necessary first step. Awareness of each other is a key factor in reaching an inclusive city mentality. Different people living parallel lives require different parallel designs. We should be proud of our diversity, and aim to design different buildings that fit different people. We should aim to design buildings that symbolize the inclusivity of a city by accepting these differences. Include the newcomer, the local, the family, the single, the woman, the man, the child, the culture, the beliefs, the rhythms, the lifestyles, the physical and mental health and their limitations, in short: include the humanity in architecture. Let us create humane buildings.

Our future city is:

1) A diverse city, and therefore a prosperous city, including all its residents in its design

Our future architecture is:

2) An architecture that helps the vulnerable. and will be visible in all its splendour, not hidden away in cheaper corners as if it is a shameful practice to look out for one another
3) No more cheap ‘excuse’ architecture! But an architecture that will fulfil an examplary role in her treatment of the vulnerable and provide them with a feeling of self-worth.
4) An architecture that is meant for people, and will therefore be humane at all times
5) An architecture accepting the differences between people, not forcing one ‘generic’ solution.
1. The Inclusive City

This research report is the selected documentation of the research conducted for the Dutch Housing Graduation Studio: Between standard and Ideals: The Future of Housing in the Netherlands. The Graduation Studio takes off with establishing a future scenario for the city of Amsterdam, specifically, Amsterdam in 2040, and particularly the role of architecture within that scenario. Students have to develop their own future vision, using current problems as a foundation for the selection of a relevant topic. This topic should provide an aim for the eventual graduation design, where the students design aspires to respond accordingly to the problems or challenges stated.

The project location is the former fortification line, constructed in the 17 century as part of the third and fourth expansion of Amsterdam\(^1\), that runs in a half-moon shape around the city centre. A specific site on this belt can be chosen according to the criteria that suit the chosen topic best.

This report will answer a research question developed in relation to the chosen topic, and serve as a guideline for the graduation design. The research question and accompanying sub questions, answered through literature research, site-analysis and case studies, will provide design concepts and a design brief for the graduation design.

**Topic Introduction: From tolerance to inclusion**

In the following paragraphs the chosen graduation topic will be introduced and discussed, concluded by the research question and sub questions that were developed based on this topic.

Amsterdam is throughout history perceived as a tolerant city. Being tolerant means, according to the philosopher van Donselaar from the University of Amsterdam, to leave space for beliefs and lifestyles which you oppose fundamentally\(^2\) (Keuchenius, 2011). An example of this tolerance are the large scaled waves of immigration that occurred at the end of the 16th century and the second half of the 17th century. Jewish refugees, prosecuted in their homelands based on their religious beliefs, found shelter in the trading empire Amsterdam\(^3\) (Vaz Dias et al., 1936, pp. 18, 22). Not only the Jewish community, but other minorities found refuge in Amsterdam, and since the 17th century, the city has been a sanctuary for people feeling their own home country. The resulting melting pot of cultures, religions and race has shaped and enriched the city into what it is today (Gemeente Amsterdam, 2016).

However, this often romanticized tolerance was “more a product of necessity than the far-reaching vision of a multicultural society” (Rade and Shah, 2010). To be able to keep the trading empire afoot, the Dutch society had to work together, regardless of ideological beliefs, and thus adopted a ‘laissez-faire’ attitude (Rade & Shah, 2010). Stoutenbeek and Vigeveno (2003) dedicate the remarkable fact that the municipality never interfered during these mentioned waves of immigration that both cheap labour was in high demand during the Golden Age, and the upper classes where not affected (negatively) by the streams of immigrants (p. 14).

Having established that tolerance, in the sense of ‘leaving space’ and ‘live and let live’, whatever the reason or ulterior motive, is a part of the history of Amsterdam, we can ask ourselves what will be part of its future?

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1. The so-called ‘derde en vierde uitleg van Amsterdam’ occurred between 1611-1658 (Kruizinga, 1966, p.20).

2. Translated from original: “Tolerant zijn betekent volgens filosoof Gis van Donselaar van de Universiteit van Amsterdam dat je ruimte laat voor opvattingen en levensstijlen waarmee je het fundamenteel oneens bent” (Keuchenius, 2011).

3. Amsterdam was one of the Dutch cities with a tolerant policy regarding to religion, as laid down in the Union of Utrecht in 1597 (Stoutenbeek & Vigeveno, 2003, p.12).
Recent discussions raise the notion that aspiring a tolerant society, is not enough. "We must do more than let people be: we have to let people in" (Samuel, 2015). It is not enough to only tolerate the differences, but vital to create an inclusive society, where “everyone is able to live a life of dignity” (Samuel, 2015).

**Future Scenario: Amsterdam in 2040, The Inclusive city**

By 2050, more than 70 percent of the world’s population will live in cities. Cities are critical for the development of a country and have the potential to provide opportunities for all and satisfy the needs of their inhabitants. However, to make sure everyone will be involved in the benefits of urbanization, inclusive cities must be created (The World Bank Group, 2018). The inclusive city is a city that “values all people and their needs equally” (Douglas, 2013). The concept of the inclusive city involves not only economical and social factors, but also multiple spatial factors.

In the structural vision for Amsterdam in 2040, the city is promoted as “an attractive city for everyone” (Gemeente Amsterdam, 2011), other mentioned terms are “the diverse city” and “the shared city.” All these claims that can be linked to the notion of ‘The inclusive city’.

If a city is not inclusive, the growing inequality and exclusion within the city counters the global process of development that cities themselves initiate and stimulate. Inhabitants can be trapped into poverty or marginalization. An inclusive city, on the other hand, can lift people out of their exclusion, stimulate the participation of every citizen.

Acknowledging the importance of an inclusive city and continuing on the current debate and the aspirations mentioned in the Structuurvisie, we can ask ourselves the question: ‘How inclusive is Amsterdam?’.
Current situation: Amsterdam, The Exclusive city?

Amsterdam is, as mentioned before, a cultural melting pot, housing a great variation of citizens. However, within this mix of differences, some people are (in danger of becoming) socially and spatially excluded.

The notion of ‘a shared city’ is an important issue for Amsterdam. Providing homes in every part of the city and that are made available for all target groups has always been one of its aims. By maintaining spatial diversity, a strong segregation based on income, schooling or origin is countered. Examples like London and Paris, where living in the city centre is unaffordable, and social issues are mounting in the cheaper outskirts, are close-to-home scenarios of the dangers this spatial segregation can invoke (Zonneveld, 2016).

As for the moment, Amsterdam is still a very diverse city. But recent studies show this is rapidly changing (Remie, 2016). One example of this change is the ongoing process of gentrification in the city, which will, according to Hochstenbach, eventually result in a strong spatial segregation (2017, pp. 187-188), with the looming risk that “At a certain moment, big parts of the city won’t be accessible for certain people.” as remarked by Musterd (Remie, 2016).

The gentrification in Amsterdam has resulted in higher prices and reduced the accessibility of the housing stock. Newcomers on the housing market cannot find a dwelling within their price range, and those who already live in the city but want to move, due to family expansion, a desire for downscaling, or due to the need for special care, are duped, since there is a lack of alternatives. Gentrification is not the only factor in play that influences the housing market, the continuous trek into the city by newcomers and the growing numbers dwellings rented out as AirBnB’s are adding to this mounting pressure (Zonneveld, 2016).

According to Elsinga (2016), the difficulty lies within finding a suitable balance. Both the municipality and housing cooperations in Amsterdam profit from the incomes generated from the high market prices. However, both of them are also serving a public interest. The municipality and housing cooperations need to invest special attention directed towards spatial planning, actively trying to avoid the creation of highly concentrated low income neighbourhoods.

4. Gentrification is the transformation of urban space in favour of the more wealthy residents, changing its social character and resulting in the displacement of the former lower-income residents. Hochstenbach calls the process of Gentrification in Amsterdam a process of exclusion (2017).

5. Translated from original: “Op een bepaald moment zullen flinke delen van de stad niet meer toegankelijk zijn voor bepaalde mensen”, zegt Musterd (Remie, 2016).

Illustration 2 (left): The Gentrification of Amsterdam is a process of Exclusion, Title of a newspaper Article in Het Parool.

Illustration 3 (right): Soon, only the rich will live in the city. Cities are inverting. In the past they used to be a fortress of the poor, now, there is less and less affordable housing available, establishes recent research. Title of a newspaper article in Het NRC.
Towards an inclusive Amsterdam

Future Amsterdam cannot exclude certain groups, and must not be strongly divided spatially into low- and higher income parts. An example to counter this process of exclusion is providing housing for groups that might be excluded from the city in the future. Including these ‘vulnerable’ target groups within city planning and development will ensure the diversity within the city is maintained and will prevent spatial and often correlated social exclusion. Examples of these vulnerable target groups are for instance the elderly, the disabled, the homeless and refugees. These groups cannot afford homes or sheltered dwellings within the city. Providing affordable housing for a broad audience is also one of the solutions presented by Hochstenbach to counter spatial exclusion (2015).

Statistics on the admission of rented housing for vulnerable target groups\(^5\) in Amsterdam (see illustrations 4, 5 and 6) show that this group is under-represented in certain parts of the city, mostly the overpriced city centre, where they only make up 15-19% of the rented dwelling stock. Looking at the entire dwelling stock, the percentage of dwellings admitted to vulnerable target groups make up less than 0.5% percent in the city centre, with the historical centre and part of the canals scoring even less than 0.2%. A similar score can be found in the luxurious Oud Zuid. Parts of Amsterdam Noord and Slotermeer/Geuzenveld score the highest with a percentage between 1.2-5.3% (Gemeente Amsterdam, 2018).

\(^5\) In their report, the municipality makes a difference in these statistics between refugees and vulnerable citizens who can either live on their own, or need active counselling.
Narrative of the refugees

As already mentioned in the first paragraph, Amsterdam has a long history of providing sanctuary for refugees. In 2015, the number of refugees asking for asylum in the Netherlands increased rapidly (VluchtelingenWerk Nederland, 2017, p. 4). This drastic increase was mostly due to the seemingly never-ending civil war raging in Syria, which was claiming more and more civilian lives, and therefore day by day diminishing any hope of return into the home country for the refugees? Another factor causing this increase was the worsening situation for the refugees that had sought shelter in countries surrounding Syria. There was a lack of money and professional help to be able to satisfy even the most basic human needs, and a growing number of refugees started moving on into the direction of Europe6. In 2015, the popularity of traveling to Europe was stimulated further by the discovery of traveling through Greece instead of Italy, a route involving a much shorter over-sea trip (Heck & Leijendekker, 2015).

In the year 2015, 65.3 million people around the entire world were fleeing from war and violence. That same year, 5.5 million Syrians fled their homeland. 51% percent of these refugees were children. Almost 58.880 people arrived in the Netherlands requesting protection, 27.710 of them were Syrian. In 2016, the number of requests diminishes to 31.942 (VluchtelingenWerk Nederland, 2017, font page).

In the previous decades, the numbers of asylum requests differentiated strongly (see illustration 7). In 1994 for instance, over 50.000 people made a request. In the following period until 2001, the total number of requests exceeded the number 20.000 every year. After 2001, the number of requests alternated around 10.000 and 15.000 request each year. (VluchtelingenWerk Nederland, 2017, p.4)

6. In European countries a permanent residence can be requested, in contrary to Turkey, where this is not possible (Heck & Leijendekker, 2015).
Aside from Syrians, other large groups of refugees arrived in the Netherlands originating from Afghanistan and Eritrea (see illustration 8). Afghanistan has been plagued by the war between the Taliban movement and the reigning government for decades and Eritrea suffers under the power of dictator Isayas Afewerki. Other refugees are on the run from the wars raging in Iraq or Somalia, or from poor countries in search for a better life (Heck & Leijendekker, 2015).

Every recognized refugee living in the Netherlands receives a temporary residence permit, valid for five years, at first. This temporary permit allows refugees to be sent back whenever the situation in their country of origin is stable and safe. After spending five years as a recognized refugee in the Netherlands, a permanent residence permit can be requested (Centraal Orgaan opvang Asielzoekers, n.d.). Family members can apply for family reunification with a permit holder within a legal period of three month after the permit has been provided (VWNL, 2017, p.5). Whilst the overall number of asylum requests has decreased significantly since 2015, as visible in illustrations 8 and 9, the number of family reunifications maintains in balance, decreasing after a total of 13,845 in 2015 to 11,814, and increasing again in 2017 to the highest number of 14,490 reunifications.

7. Asylum seekers with a recognized status are called refugees or ‘statushouders’ in Dutch. Refugees have a residence permit, a work permit and can attend education (Sociaal Economische Raad, n.d.).
Children

A very vulnerable group amongst the refugees residing in the Netherlands are the children. This group suffers most from the constant moving around and changing of scenery, that occurs during the time that the asylum procedure takes place (Werkgroep Kind in azc, 2013, p. 19). “Some refugees have to move over 9 times during their request procedure” writes Schuurmans⁸ in a critical column in Het Parool (2017). Schuurmans argues that after experiencing the trauma of such a long and hazardous journey, children especially require a safe and stable place to be able to recover. They experience the multiple relocations as very disruptive and taxing. All refugee children have already experienced a very drastic relocation when fleeing their homes. This long journey is paired with feeling of intense anxiety, unsafely and uncertainty. For parents, it is nearly impossible to protect their children from the negative impact of the long journey and following asylum procedure⁹. Several studies proved that refugee children are in general more vulnerable, and have to grow up in an environment where the support and care provided for the family are far from ideal (Werkgroep Kind in azc, 2013, p.19).

Werkgroep Kind in azc have written a proposal, stating that to protect these children, and provide the stable and save environment they need, families should be housed in one specific, preferably smaller scaled family shelter for the entire asylum procedure. This way, excessive moving between different AZC’s and a frequent change of schools can be avoided (Werkgroep Kind in azc, 2013, p.37). Although widely supported, no direct action has been yet undertaken to realise this proposal (Schuurmans, 2017).

And another, additional problem is arising. The waiting time for available dwellings is increasing, and therefore, it takes longer before refugees in the possession of a permit can move out of the AZC’s (Verlaan, 2016). Until these proposed child-friendly AZC shelters are created, these long waits influence the health of the refugee children negatively.

It is of great importance that proper housing for these refugee families and children is provided, so they can move out of their temporary shelters and into a stable and safe environment that is suited for their needs.

In Amsterdam, a total of 1.102 refugees were housed in 2015 (Gemeente Amsterdam, 2016, p. 5). The following year, 2.057 (from the intended total of 2.076) refugees were taken in. The goal for 2017 was to house 1.150 refugees within the city. However, the city still needs to make up some overdue refugee housing for the past few years. To catch up, Amsterdam needs to provide another 932 additional dwellings for refugees, adding up the grand total to 2.082. In this publication from June 2017, the municipality aspects that different projects realised in the period between 2017 and 2018 will be able to provide some of this overdue housing.

However, recent data (reference date June 1, 2018) show that Amsterdam is still 654 dwellings behind their realisation target (De Rijksoverheid, 2018, p. 12). Building refugee housing is encouraged by the Rijksoverheid by offering subsidies through the ‘Tijdelijke regeling stimulerings huisvesting vergunninghouders’ a temporary arrangement up till 2021 (Rijksoverheid, 2015, p. 7).
illustration 10-14: collage of newspaper clippings.

illustration 10 (left): Give the refugee children finally a home. Het Parool (Schuurmans, 2017).


illustration 12: Refugees can not be relocated like sacks of flour. De Volkskrant (Riemersma, 2003).


illustration 14 (right): As an asylum seeker, you keep moving. Het NRC (Kamerman & Vrieserna, 2016).

Het Parool

Illustration 10 (left): Give the refugee children finally a home. Het Parool (Schuurmans, 2017).


Illustration 12: Refugees can not be relocated like sacks of flour. De Volkskrant (Riemersma, 2003).


Illustration 14 (right): As an asylum seeker, you keep moving. Het NRC (Kamerman & Vrieserna, 2016).

13
The Task of Architecture

The task of refugee architecture is more than just providing shelter. In *Refugees Welcome: Konzepte für eine menschenwürdige Architektur*, several strategies are mentioned for the development of high quality refugee housing. In Germany, the number of refugees was exceptionally high, which resulted in multiple studies adding to the debate on the new tasks and concepts of refugee architecture. A few relevant notions are:

- Allow and embrace diversity, there is not only one solution.
- Integration starts within the mind, and visual and spatial separation will lead to mental separation.
- In the end, refugees just want to be able to ‘live’ somewhere, and providing these spaces is our task. (Friedrich, Takasaki, Haslinger, Thiedmann & Borchers, 2015, p. 103).

By facilitating humane and suitable housing, architecture can stimulate the integration of newcomers (Friedrich et al., 2015; Schmal, 2017). This architecture should be part of the collective that is the city, not isolated; facilitating the mix of local and new residents instead of housing refugees at the periphery of cities behind high fences, hidden and and shut away from the eyes and minds of local residents (Friedrich et al., 2015, pp. 40, 41, 44).

In *Making Heimat* the stigmatizing ‘trademark container look’ of refugee-housing is critized (Schmal, Scheuermann & Elser, 2017). In this book, that serves as an ‘refugee housing atlas’, a selection of examples within similar price range are displayed and compared. These projects show that compact and affordable can be realised without creating a strong aesthetical gap between the refugee housing and surrounding local residences.

Illustration 15: Place 2BU Utrecht, an example of the stigmatizing ‘trademark container look’ or a creative facade solution? (Van Ginkel Afbouw, 2018)
Research Question

After summarizing the previous chapter, the research question of this report will be introduced.

Future Amsterdam, the inclusive city, has to value the needs of all its inhabitants equally. Strong spatial segregation, resulting amongst others from the high pressure on the housing market, has to be avoided, by adopting providing affordable housing accessible for a wide range of target groups. An inclusive city prevents the exclusion of its more vulnerable target groups. One of these target groups are the refugees, that arrived in high numbers in the past three years. Future Amsterdam must protect its most vulnerable, the refugee children, and provide adequate, high quality, but affordable housing for these refugee families. This calls for a different kind of architecture, with worthy liveable spaces that offer more than just basic shelter. This architecture must be affordable and compact since it is developed socially. However, the quality of life within the dwellings cannot suffer from these conditions. The design should not project its ‘affordability’, nor should it be hidden away at the periphery of the city. The refugees are part of Amsterdam, and so is the building.

In this research report, the question: “Which design conditions arise when designing affordable housing for refugee families?”

This question will be answered by dividing it into several sub questions:

- What are the specific spatial needs of families living in the city? On both urban and building level?
- What are the spatial and social needs of refugees? On both urban and building level?
- Which cultural elements related to dwelling need to be taken into account when designing for this target group?

These questions will be answered using literature research, This research will be concluded by answering the question:

- Which specific location can provide these needs in accordance with the manifesto?

The following site analysis will focus on the chosen site, determining factors related to the surrounding context which will influence, or be influenced by the design. The analysis will provide several starting points for the eventual design.

Different options of realizing flexible family dwellings will be researched in the case studies, and the sub question:

- Which flexible design principles are possible [[In relation to saving space?]], or can be used for the development of affordable refugee family housing? will be answered.

Finally, the main research question will be answered, and concluding design concepts accompanied by a design brief will summarize how the findings of this report will be implemented in the design.
2. Research for the Residence of Reunion

This chapter contains a documentation of the literature research that was conducted to answer the first sub questions. After a brief introduction and more specified definition of the target group, its specific needs will be researched further. At the end of this chapter, the research questions will be answered.

Target group specifications

Refugee families, like other families, exist in various sizes. The household compositions of the families arriving in Amsterdam cannot be exactly known beforehand. This variable aspect needs to be taken into account during the design and research; since all these different types of families should be able to live in the design. To be able to make an accurate estimation about the possible different family compositions, both the most recent numbers as the trends of the past concerning refugee households compositions will be consulted.

The 710 refugees that were admitted into Amsterdam at the end of may 2017, consisted of 320 single-person households and 118 multiple-person households. From these multiple person households, 48 households consisted of two people, 51 households of three or four people and 19 households out of five up to nine family members1 (Gemeente Amsterdam, 2017). Divided into percentages, we can observe that 41% of this total group is part of 3 or more family household and only 14% part of a two person household. 45% percent is a single-person household2 (see illustration 16).

1. Measured point: June, 2017
2. Parts of this group of single-person households were awaiting family reunification.

Illustration 16: Refugees admitted in may 2017 according to household composition and country of origin (Gemeente Amsterdam, 2017)

Illustration 17: Refugees admitted in may 2017 according to household composition and age (Gemeente Amsterdam, 2017)
There is a total of 104 children amongst this group who are aged between 4 and 11. The refugees aged between 18 and 44, are usually part of a one-person household. Most of the minors are part of three- or more person households. The refugees aged above 65+ are part of a two or more person household. When comparing these findings to the results that have been measured over a longer timespan, an assumption can be made about the consistency of these used data; and how to apply them best to the design project.

An overall comparison of both former refugees (now carrying the Dutch nationality) and new refugees shows that over the past 15 years, the largest group consisted continuously of one-person households. Recently, the amount of refugee children has increased. Most of them arrive as part of a household, thus an increase in the amount of families arriving can be observed.

What do all these data mean for the target group?

As mentioned before, the dwellings will need to be affordable. A flexible room configuration, where multiple family types can occupy the same dwelling plan by compressing the floor plan is a method to ensure both affordability as an opportunity to build for a target group where the exact family conditions are not known in beforehand.

As seen on the previous pages, it is likely that most of the families will consist out of either three or four people, therefore requiring, depending on the specific members, two, three or four bedrooms (see illustration).

Another type of household represented in the statistics is the two-person household. This household either needs one or two bedrooms (see illustration), however, since the project aims to create family housing, focussing on the needs of children especially, dwellings for couples will most likely not be part of the brief, a pregnant couple however could be given a two bedroom dwelling, implying the eventual need of a second room.

The final group mentioned in the statistic is very broad, representing families varying between five and nine members. Families with five members can be added to the list of possibilities, requiring either four or five bedrooms.

Families exceeding six will be the exception, rather than the norm. A few special solutions for these families needs to be created, by, for instance, combing two of the
Smallest Dwelling type:

- suitable for: two, three person-households.
- number of bedrooms: two, option for three

Medium Dwelling type:

- suitable for: three and four person-households
- number of bedrooms: three, option for four

Largest Dwelling type:

- suitable for: four and five person households
- number of bedrooms: five, option for four

Target Groups

- Three person household
- Four person household
- Two person household
- Five person household
- Household exceeding five
- Household exceeding five
- Guest options

Corresponding Dwellings
smaller target group dwellings. The design needs to be able to respond accordingly when a family of that size needs housing, however, as mentioned, this will be treated as an exception.

Another addition to this list of ‘family’ types is the guest household. When designing flexible floor plans to fit multiple types of family configurations into one floor plan, a bonus room, available collective guest room, or so called joker room can help achieving this feat. This concept will be introduced and explored further during the case studies.

Needs for families living in the City

Having defined the target group more precisely, the report will now expand upon the needs of a family living in the city, this is done first on urban scale, then on building scale.

Needs on urban level

The six features of family friendly urban planning, as introduced by Karsten (2017) are as following:

1. Suitable housing: building family friendly
2. Spaces and places for children: Amenities in the neighbourhood like good quality childcare and schooling, healthy outdoor spaces and well designed playgrounds
3. Inclusive, high quality, public space: public space designed for encounters, promoting diverse and intergenerational activity, resulting in social cohesion and safe space
4. Greening the city: creating natural and sustainable environments within the city
5. Knowledge based urban planning: instead of trial-and-error methodology
6. Children as stakeholders.

In ‘Principles of Child Friendly Housing’ (2007), the basic needs for children in residential settings as established by Cooper and Sarkissian in 1987 are used as a starting point. Whilst not all of these points might be applicable in an urban environment, the list can be summarized and merged into three main points:

- The need for easy and casual access to other children.
- The need for a safe outdoor play area: free from traffic and with enough greenery to explore.
- The need for their own, clearly defined, territories within the communal and public areas, and the possibilities to create private spaces for themselves (pp. 110-111).

*Principles of Child Friendly Housing* (2007) elaborates on several points of the entire list, adding contemporary concepts and ideas. Several of these notions on outdoor space will be discussed next in order to provide very detailed design conditions suitable for children.

Playing areas:

Children need an appropriate physical environment that enables both directed and initiated play and learning. Spaces and activities for all ages need to be provided when designing play areas (Stoecklin, 1999). In the Netherlands, children are divided
into three age groups in regard to playing. Each age group has a different action
radius or ‘acteradius’, the zone around the dwelling in which this group is active
(Gemeente Den Haag, 2009, p. 11).

According to municipality norm:

- Children from 0-6 years have an action radius of 150 meters.
- Youths from 7-12 years have an action radius of 500 meters.
- And teenagers from 13-18 have an action radius of 1000 meters (Gemeente Den
  Haag, 2009, p. 3).

However, to this division can be added that the outdoor space closest to the
dwelling, preferably adjacent to doors, is the most important playing area for
small children (Cooper & Sarkissian, 1987). The division as made by Heren 5, who
researched one family apartments in the city Amsterdam, separates the smaller ages
into further age groups as follows:

- Children 0-4 years: a 30 m radius, to be able to develop their motor skills.
- Children years: 4-8: a 150 m radius to develop social skills.
- Children: 8-12: a 500 m radius to be able to develop independence (Attenveld &

Conditions for a child friendly play design:

- Accessible, clearly defined spaces for playing in adequate sizes and densities
  (Frauenbüro, 1997: Cooper & Sarkissian, 1987).
- Design for differences between age groups, gender and kind of play (Attenveld &
- Not only playing areas, but overall circulation should provide enough space for
different kinds of occupation like playing, walking, conversing (Zeilsel & Welch,
Communal space:

Desired, spontaneous interaction between residents and children can be facilitated more easily when communal spaces are created (Becker, 1976). These spaces of interaction promote diverse and inclusive activity. Furthermore, a space designed for encounters will result in social cohesion and higher safety (Karsten, 2017) and (undesired) anonymity can be avoided (Frauenbüro, 1997).

Conditions for creating these communal spaces:

- Arranging dwellings in such manner that meeting other neighbours is possible, without forcing contact (Cooper and Sarkissian, 1987).
- Design spaces of encounter in circulation and entrance areas (Frauenbüro, 1997).
- Providing seating areas in outdoor spaces (Cooper and Sarkissian, 1987).

Transitions from Public to Private:

Whilst common and public space are an essential feature when designing, children will feel the need, just like adults, to retreat from the buzzing social environment (Furlong & Cunningham, 2007, p. 6). The design of a smooth transition zone in front of the dwellings help establishing this buffer between private and public, and can simultaneously be used for the smallest age group for play. These transition zones allow children to gain independence from home gradually (Cooper and Sarkissian, 1987).

Conditions for a smooth transition from Public to Private:

- Dwellings closely linked to the outside (Frauenbüro, 1997)
- Avoiding ‘fear zones’ caused by inconveniently placed garages, storage rooms (see also ‘social eyes’) or invisible spaces (Frauenbüro, 1997).
- Providing private open spaces in addition to public and communal ones that provide visual privacy and can buffer noise

Safety and social eyes:

The physical environment must be designed to minimize dangers and errors (Stoecklin, 1999). In addition, a good overview, orientation and visibility need to be provided to ensure social and personal control4 (Stummvoll, 2003, p. 12). Well designed transition zones can add safety of the street profiles, and well used open spaces increase social cohesion and social control. Measures to enhance safety are:

- Orient windows and entrances in a way that enhance the visibility of outdoor spaces (Cooper and Sarkissian, 1987).
- Connect play areas in view of kitchens, laundry rooms or other spaces that can be supervised whilst working (Frauenbüro, 1997).

Noise control:

To allow children to play unhindered, australian control can be of importance in multi-family housing (Zeilsel & Welch, 1981). Measures to mitigate noise are:

- Design of trees and other vegetation to absorb outdoor noise

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4. Personal control is being able to see, understand and orient oneself. Social control is ‘being seen’ by others (Stummvoll, 2003, p. 12).
Needs on building level

Conditions for creating a family friendly dwelling as researched by Heren 5 architecten are as follows:

- Design preferably multiple smaller room to one large one
- Enable use of the hallway, for instance as playing area
- Allow residents the privacy of own rooms
- Flexibility in the sense of adaptability
- Enable multiple use of spaces
- Provide enough ‘spaces’ for storage: think broader than a storage closet like additional room for buggy’s, tricycles and shoes at the entrance for instance.
- Attractively designed galleries or portico’s enable children to play outside the dwelling, but inside the collective domain

(Attenveld & Liesker, 2010, pp. 149-159)

Having collected a series of conditions that can be applied to contribute to family friendly dwelling design, the specific needs of refugees need to be taken in account next.

Spatial and Social needs for refugees

‘Syrian refugees feel at home, but not happy’ reads one of the newspaper headlines from may 31, 2018 (Kamerman & Kuiper). Research into the first few years of the life of refugees in the Netherlands, who arrived from Syria and Eritrea in 2015 and 2016, shows that most of them do not develop in a manner satisfactory to their own wishes and aspirations. The slow start regarding the ability to work and learn the language, predetermined by the sluggish asylum procedure that is followed by the unavailability of suitable housing, and further increased by the isolated position of the refugees, in one of the main frustrating factors in play (van Heelsum, 2017, al. 6).

The book Making Heimat discusses how ‘Home’ can be created. The aim of this ‘Atlas of refugee housing’ was to research which architectural and urban conditions must be a given to help migrants-not only refugees- integrate themselves in Germany. The creation of home is, according to Schmal, Scheurmann & Elser, a two way process, which requires an effort by the so called Arrival Country and by the immigrants themselves (2017, p. 12-13).

“"The great migration of humans is manifesting itself in the creation of a special kind of urban place. These transitional spaces – arrival cities – are the places where the next great economic and cultural boom will be born, or where the next great explosion of violence will occur. The difference depends on our ability to notice, and our willingness to engage” (Saunders, 2011 p. 11)

A few of these conditions for Arrival cities to promote integration are:

- The Arrival City is affordable
- The Arrival City is well-connected and provides jobs
- The Arrival City is on the ground floor
- The Arrival City needs the best education (Making Heimat DAM, n.d.)

According to Schmal, Scheurmann & Elser (2017) designing refugee housing is to
create inexpensive and high quality living spaces on urban locations, one of “the central prerequisites for the peaceful coexistence of diverse cultures” (pp. 16-17). These projects need to address the question: “How do people want to live in the city” and need to be led by the conviction that a humane way of dealing with others, who have been isolated, will on the long term benefit us all.

A few spatial measurements can be taken from the case studies Schmal, Scheurman & Elser analysed and determined to be successful in their tasks of promoting integration and avoiding stigmatization and marginalization:

- No aesthetical gap between neighbouring buildings and refugee housing.
- Avoid stigmatization through the use of stacked container dwellings whose poverty cannot be hidden even underneath a colour explosion of yellow, orange and red.
- Dwellings built into residential areas, closely connected to public transport.
- No fences, on both sides live people, a visual blockade like this works only counterproductive.
- High quality, affordable spaces.
- Make up for compact inside spaces by creating warm and lively circulation spaces that can be used as meeting places as well (2017, pp. 38-41, 57, 194-195).

Finally, the book mentioned that Arrival cities need to provide “opportunities for personal initiative (p. 18-19).” In an interview with Der Spiegel, Schmal mentioned the importance of enabling refugees to follow a (regular) daily routine, to enable integration through interaction that this routine will undoubtedly cause. Another point raised by Schmal is the implementation of ‘Gewerbe’, or workshops, shops, jobs and trade in the plinth, to further stimulate this activity and personal initiative (Haeming, 2017).

A few examples of initiatives, some from the Making Heimat database, others situated in the Netherlands, are:

1) Casa Parana, Utrecht: cafe and bicycle repair shop on the ground floor offer jobs to refugees and provide sanctionously services for neighbourhoods.
2) Lola lik, Amsterdam: social hub where refugees and locals meet and participate.
3) Bicycle workshop Karlsruhe: bikes are repaired and provided for refugees, stimulating interaction and activity (Schmal, Scheurman & Elser, 2017, p. 64).
4) Bellevue di Monaco: former hotel is being renovated to create new refugee housing, this project is realised with help of refugees and volunteers (Schmal, Scheurman & Elser, 2017, pp. 84-85).

Summarizing these findings into another set of conditions for the building:

- Communal plinth with functions that offer room for initiative, activity and learning.
- Communal plinth with functions that offer room for interaction, prevent social isolation and can add something to the neighbourhood as well.

**Cultural needs in relation to dwelling of the Target Group**

In his interview with Der Spiegel, Schmal was asked whether it was noticeable that different residential cultures encountered each other in the refugee housing projects he’d analysed. Schmal answered with two examples that came to mind. The first was a project-in-making he’d visited, thinking “This seems like a pleasant...
place to live" only to discover upon revisiting the project after its completion that the windows had been taped shut, to prevent people passing by from seeing the inside and disturbing the privacy of the Muslim Women living there. The second example was that shoes were always left outside the dwellings, but there were no special facilities designed to keep them dry from rain (Haeming, 2017).

These remarks underline the fact that cultural differences do exist and need to be taken into account when designing refugee housing. Research done by Hallak (2003) into the adaptation of dwellings by immigrants from Al-Sham, the Syrian region, shows where cultural differences arise in dwelling design.

According to Othman, Aird & Buys (2014) the three major principles of a traditional Muslim home are:

- **a) privacy, a safe and private place for personal and family’s sanctuary;**
- **b) modesty, a home with spaces for religious rituals and activities, further defined by humility in design through economical and sustainable designs,** and;
- **c) hospitality, a dwelling with opportunities to extend hospitality to neighbours and enhance relationships with the society.** (Othman, Aird & Buys, p. 13)

Arguing that “privacy, personal space and territory are indispensable needs in many cultures” (Hallak, 2000, p. 38), and adding that “privacy necessities manifest themselves in controlling mechanisms which aim to regulate interaction through behavioural and environmental means”, Hallak underlines the role of privacy as the main factor that differs housing patterns between varying cultures from one another.

Hallak divides privacy two major categories:

- Indoor privacy, with as a subdivision the privacy between families and guests
- Outdoor privacy, meaning privacy between the family and the neighbours or passer-bys (2000, p. 125).

Hallak (2000) elaborates that ‘family domain’ can be divided into separation of gender, age or function. Furthermore, there needs to be a clear distinction between ‘devices of passage’ and ‘devices of stay’ to help ensure that privacy can be maintained. A hierarchy of rooms linked by clearly defined circulation space can prevent the guest domain from interfering with the family domain, for instance (p. 41).

A few examples of common adaptations to the homes Hallak encountered where:

- Separating kitchen from living room or dining room
- Transforming living room into guest room
- Transforming basement int guest room (p. 95)

Even though some of these cultural preferences do not seem to fit within the program of affordable dwellings, since they require simply too much space for instance, having gained awareness of them can still be vital. This research can still contribute to the eventual design. With this newly gained cultural insight, these measures can be implied whenever possible: ensuring that the best suitable solutions will be tested and selected when designing the eventual project.
Conclusion: selection of the Location

Keeping the needs of the target group and the statements made in the manifest in mind, the site of the Texaco building, located on the corner of the Hoogtekadijk and Sarphatistraat, comes to mind as an appropriate building site. This place is well connected by public transport, allowing quick travel towards both the city centre as the central station. By bike, both are just over 10 minutes away. The site is surrounded by both dwellings and amenities, and is located alongside a busy street, the Sarphatistraat, and a more quiet, residential street, the Hoogtekadijk. There are several facilities suited for children and families nearby, including a school, daycare, nursery and several playgrounds. Other facilities are a sports centre, apothecary and doctors office, dentist, two large supermarkets, several stores and cafés. All of these functions are within a 200 meter radius of this site. The neighbourhood is a mixed neighbourhood, with a lot of families living nearby.

As seen in chapter one, this neighbourhood, centrum oost, houses the least amount of refugees (and vulnerable groups in general) when compared to the rest of Amsterdam. The municipality has plans to build temporary refugee housing in an abandoned office adjacent to this site (Gemeente Amsterdam, 2017). Now, however, good quality, long-term housing can be realised in stead on this new location.

Currently, this location is occupied by a Texaco building. However, this location is a prime spot to develop housing to further densify the city. Moreover, there will be substantially less cars driving on fossil fuels in 2040, and less cars in the inner city in general. Since the municipality already aims to discourage the use of cars in within the city (Gemeente Amsterdam, 2017, p. 5) moving fuel stations to the periphery of towns will stimulate this achievement further. To encourage sustainable user behaviour, the new project could include several electrical car-and ebike charger points.

Overall, the presented conditions in this chapter can act as guidelines during the design. By selecting, combining, rethinking and discussing them the project has a solid framework, in which several solutions and options can be tested.
3. Site Analysis

In this chapter, the chosen location will be analysed. First by investigating the site on a large scale to determine both urban qualities and restrictions and be able to establish what is present and what needs to be added. Then, on a smaller scale, using the episteme Phenomenology, the character of the specific location and its immediate surroundings is described using sketches made at eye-level, to be able to convey how the site is experienced when travelling past.

The conclusions drawn from this analysis will offer insight on how the design will need to respond to the different factors that are present.

As explained in the last chapter, the chosen site is well connected to both the city centre and Central Station, and there is an abundance of amenities within walking distance that could benefit Families. There is one big playground (illustration 16), a small park, several squares and greenery.
Traffic and public transport

Tram and bus are within walking distance of the site, with the bus stop at 200 meters and the tram at 20 meters distance. The site is located next to a busy junction on the Dageraadsbrug. This junction is part of the ‘Binnenring’, an important connection route for both public transport and cyclists. There is no direct city car route or ‘Stadsroute’ leading past this junction, but cars coming from Oostenburgerstraat use this junction to deflect into the Zeeburgerstraat, a street which is part of the centrumring route, and vice versa.

This junction is the most chaotic and busy part of the location. There are traffic lights and zebra crossings, but overall the street profile is not family friendly. Further along the Sarphatistraat, there is another crossing, amongst others connecting the supermarket and the tram stop. Here, the traffic intensity is lower, but no traffic lights are installed. The Hoogte Kadijk is a quiet street, mostly used by destination traffic.

The design should provide some kind of protection from the busy traffic.
Sports & Healthcare
Retail
Leisure & Culture
Food & Drink establishments
Dwelling

illustration 27: Figure ground drawing (own illustration, 2018).

illustration 28: Ground floor functions (own illustration, 2018).
building types

A great variety of building types surround the location. A lot of closed or semi-closed building blocks, some with a raised courtyard as can be seen at the Kruijthuisstraat. There are a few detached monuments which are not part of an ensemble (alongside the Hoogte Kadijik and Zeeburgerstraat) and a series of monumental rowhouses alongside the Oostenburgerstraat. Linear blocks can be seen alongside the Czaar Peterstraat and Sarphatistraat. There is no specific type that dominates the location, but when looking at the adjacent Kadijken island, where a lot of family dwellings are located, mostly closed building blocks combined with linear blocks determine its layout.

functions

The buildings surrounding the location mostly house a function other than dwelling in their plinths. Retail and hospitality functions are located alongside the main roads and junctions, occupying mostly the corners of building ensembles. Other functions like apothecaries, sport facilities, offices and museums determine most of the locations street profiles.

When comparing types and functions one notices that the closed building types house these public functions alongside the busier roads, with dwellings situated on the more private sides. The dwellings alongside the Kruijthuisstraat have either garage boxes on the ground floor, like in the closed building block, or offices.

A plint with both collective and public functions will connect the new design to its surroundings. A linear shape alongside the busy road could create a protected outside environment for residents on the other side. Given the busy street profile (see also illustration 28, 29) added pedestrian space could be defined by using a colonnade or building setback, creating a place that serves as ‘a route for leisure’.

Illustration 29: Figure ground drawing neighbouring island: Kadijken (own illustration, 2018).
illustration 30: Monumental buildings (own illustration, 2018).

Huntingdon Iep, 1940
Winterlinde, 1940
Hollandse Iep, 1930

Gemeentelijk monument
Rijksmonument

illustration 31: Monumental trees (own illustration, 2018).

Huntingdon Iep, 1940
Winterlinde, 1940
Hollandse Iep, 1930

(Gemeente Amsterdam, n.d.)
monuments

There are a few monumental buildings as defined by the municipality of Amsterdam, near the project location. None of them are directly adjacent to the location. The ones that are near however have a very strong expression and are very prominently visible in their surroundings, suggesting that the project site can handle a building with a strong language and architectural expression.

trees

There are no monumental trees growing on the project site, meaning that technically speaking, the existing green can either be kept or removed depending on whatever suits best. Nonetheless a careful consideration has to be made to determine what of the present greenery has the potential to enhance the project and the urban quality in general. When studying the surrounding foliage, a few observations can be made that can help decide on the value of the trees present on the location:
The first being that the main traffic lanes surrounding the site (see also illustration 20) are flanked by trees, with the exception of the Sarphatistraat, where the trees only occupy one side. Especially this street though has a very green character, mainly influenced by the narrow park that runs along it and further strengthened by the green tram tracks. The line of trees growing along this park is partially continued on site.

Second, the water fronts are the other green public areas of this location. This abundance of trees is not exceptional, moreover, it is a very common feature for Amsterdam (Gemeente Amsterdam, n.d.). The waterfront alongside the Kruithuisweg however, is empty of trees and greenery. The buildings stand closer to the quay, resulting in a spacious but fully paved street with a ‘back-alley’ character despite the presence of several dwelling entrances. (see illustrations 26, 27 and 28).
Furthermore I noticed that the site itself has a very green but unkempt waterside. The grassy terrain slopes downward before ending in a steep, although not very high, quay wall made of bricks. As also visible in the street profiles (see illustration 28,29).

The waterfront can be redeveloped and either follow the approach of the kruithuisstraat or adapt the more green approach of the site itself. See also the ‘building entrances’ paragraph. The line of trees as a continuation of the Sarphatistraat must be preserved or reinstated.
Illustration 34: Building entrances (own illustration, 2018).

Illustration 35: Building plots or ‘rooilijnen’ (own illustration, 2018).
building entrances

All closed building blocks near the location have their entrances on the ‘street’ side of the building, creating a backside that is directed towards the inside of the building ensemble. The Linear blocks have their entrances alongside the main roads, thus creating a ‘back alley’ on the other side. The Kruithuisstraat has less entrances and more parking boxes alongside the waterfront, enhancing the perception of this side as a ‘backstreet’, despite the entrances that are located at the corners of the building blocks.

When redeveloping the waterfront, the project can either adapt this ‘backside character’ or do the opposite and try to activate this, now unused, space. The latter seems more appealing, since the waterside, and living alongside water, is one of the main qualities of both the site, and also the city centre of Amsterdam in general.

‘rooilijnen’

The permitted building line (for the ground floor) is set back from the waterside and has a slight curve on the corner of Hoogte Kadijk and Sarphatistraat. The waterfront connecting towards the Kruithuisstraat, now a patch of unkempt green as mentioned before, is also part of the building plot, and thus can be redeveloped alongside the project.

Two building directions meet at the site. The new project can either try and combine these directions into one building, or react to them both separately.

Street profiles

The surrounding buildings are four, five and six layers high. The neighbouring building plinth contains a retail function, but is currently being renovated. The transition from building to pavement is softened slightly through the use of high windows, that start around 300 mm above street level, thus making the building light, allowing passerbys to see inside. The building, harbouring a public function alongside the road, will be active during daytime. During nighttime however, it might become dark.

The street profile consists of a one-way road flanked by two strips of pavement. Cars can park on both sides alongside the road. Starting from the left (illustration 30), the pavement is 4,5 meter broad, allowing enough space for multiple pedestrians to pass eachother. The pavement on the other side is only 1,5 meter, not really designed for walking, more suitable for people exiting their cars. In the existing situation, a fence, flanked by some bushes and the occasional tree, separates the pavement from the project site. The street is newly paved with a herringbone pattern.
The new building(s) can be at least five or six layers high alongside the Sarphatistraat, this street profile is very wide (35 meter) and therefore allows such height. The existing Texaco building, being only 1 or 2 layers high, gives very little definition to the current street profiles. The new building(s) should frame the open space and help define it.

Experience

Approaching the site from the Hoogte Kadijk (illustration 33) the outside space feels pleasant and intimate, even with the plinth from the warehouse to the right closed-off. This due to the fact that the buildings frame the street profile in a fitting way: providing a certain human scale (spaces not too wide). Around the corner to the right, a funnel shaped see through reveals the entrance to an underground parking garage and the park alongside the Sarphatistraat. A see-through like this prevents
the space from feeling to enclosed, and provide passing pedestrians with a certain sense of orientation and an overview of their surroundings.

When approaching the site from the Dageraadbrug (Illustration 35), the project site jumps immediately into view. The ongoing traffic, bikers and facilities create a lively atmosphere. The road is winding, just like the Hoogtekadijk, but very broad. Human scale seems a bit lost, therefore, the space feels chaotic and less pleasant to walk by. However, it also has a certain ‘urban cozyness’ (especially opposed to the more residential character of the Hoogtekadijk) due to the mix of functions, which provides a nice contrast to the more quiet street that is the Hoogtekadij. The view across the water from the bridge is stunning, a piece of Amsterdam inner city beauty that should be enjoyed and used more than currently is the case.

The site jumps into view from almost every angle of approach, especially when seen from the Dageraadbrug. A strong corner-solution should be designed here, allowing the building to stand its own amongst all the diverse, expressive, independent and stubborn buildings that surround it. When approached from the other side, the site is partially hidden by greenery before suddenly appearing (see also illustration 32), when designing, this ‘corner’ of the site should not be forgotten.
4. Case study: Flexible family dwellings

Different possibilities of realizing flexible family dwellings will be researched in the case studies. The principles researched in these studies focus on expansion and adaptability of the dwellings themselves; so flexibility within the floor plan and building. Flexibility for future use for instance, is not part of these studies.

- **Research Question:**

Which flexible design principles are possible or can be used for the development of affordable family housing in relation to saving space? The additional sub questions:
How are these principles applied in the floor plans?
How are these principles applied on building level?
will elaborate on how these principles have taken shape within the buildings.

- **Hypothesis:**

Flexibility can be achieved in several ways:
1) by compressing the floor plan into more or less rooms using sliding walls
2) or the possibility of adding more or less bay-widths using only minimal interventions. The first of the two can be a more ‘short-term’ and ‘day to day’ solution, whilst the latter option is more ‘long term’. Examples of projects using this type of flexibility are: Rue de Suisses, Kitagata Appartment Building (2), Carminweg Frauwen-Werk-Stadt, social Housing Carabanchel (1).
3) Another way is to differentiate between a night and day floor plan, allowing multiple forms of use for the same spaces. Examples of projects applying this principle are Carabanchel, Bergpolderflat, Wagenaarstraat.
4) A fourth option, similar to the second option, is the use of ‘in between rooms and bay-widths’ or ‘joker rooms’. These rooms can either be shared options between neighbours for flexible use, or can be added to the existing floor plans using minimal interventions. The former of these is more ‘short-term’ the latter a more ‘long term solution’. Examples of projects that use this type of flexibility are Gleis 21, Kalkbreite.

Out of these principles, the in-between rooms (4) and floor plan compression by using several sliding or folding walls seem the most likely for family housing. After all: Family housing should be adaptable, but not too flexible, as underlined by ANA architecten & BPD ontwikkeling in their studies on types of family housing within the city. Too much flexibility within one room, like a day and night floor plan, is not ideal. It would be too much of a hassle for family members to remodel their bedrooms into a workspace or living room every morning (ANA & BPD, 2017).

- **Method:**

The cases were chosen according to specific criteria to assure their relevance for answering the research question. These criteria of selection were:
1) The dwellings have to be designed for families. A mix between target groups in the entire building is possible, but the selected plans will be the dwellings for this target group.
2) The dwellings have to be located in urban areas, with a building height exceeding three floors. This to make sure the examples are relevant for the assignment at hand.

To discover how these principles are applied on floor plan level, the drawing method: metric projection is used. By making addition drawings, the different types of use, derived from the flexible principle applied, can be shown.
To present how these principles are applied on building level, isometric addition drawings will be used. If there is a difference between elevations, an demontage drawing, or exploded view is added.

Whether the applied principles are related specifically to ‘saving space’ and not only adaptability (for instance) will be discussed in the written conclusions of each case study.

**Frauen-Werk-Stadt: Carminweg, Wien.**
*By Elsa Prochazka*

Frauen Werk Stadt uses a wide bay-width that enables the use of a lot of facade openings. This way, the floor plan can be divided into a maximum of four equal rooms + kitchen (or a kitchen and living room combination in case of the corner-options) alongside this facade. By enabling the inhabitants to do this freely, the type of use for the created rooms is not pre-determined, contrary to traditional floor plans, where a ‘master-bedroom’ is designed beforehand. The dwellings can adapt to their users, grow along so to say.

The type of access, by portico, ensures that the dwelling is entered in the middle. This enhances the possibilities regarding to flexibility: a hallway around wet cells is created, and depending on preferences, rooms can be accessed from this hallway, making them more private, or directly from the living room (see illustration 45).

Additional shared spaces between neighbours, situated in the bay width that harbours the access-stairways, adds another level of flexibility (see illustration 44). These rooms can be shared, added to one dwelling if needed (guest room), or included in the dwelling entirely. This latter option is a more ‘long’ term solution, sometimes already implemented in the existing floor plans.

This plan shows how a dwelling can adapt to an entire life-cycle and multiple target groups. However, this flexibility also needs a lot of space to function. These floor plans cannot be too compact, and are not meant for saving-space, but more intended to make adaptation and freedom of choice within the dwelling possible.

This principle will also be difficult to use when the type of access is changed, since entering in the middle of the dwelling is essential for the plan to work. Therefore, this option will not be ideal to use when designing affordable dwellings for families in regard to saving space.
Shared rooms with multiple functions

Flexibility within the floorplan
general information:
baywidth: 7.2m
dwelling dept: 12.5 m
ca. 85 m² dwellings

illustration 45: Flexibility in the floor plan: adaptable into different options to fit different target groups (own illustration, 2018)

Bedrooms
general information:
baywidth: 3 m
dwelling dept: 7 m
ca. 63 m² - 105 m² dwellings

Illustration 46: Flexibility in the floor plan: multiple baywidths can be added, removed and combined, creating a multitude of dwelling types. (own illustration, 2018)
Kitagata Apartment Building, Gifu  
By: SANAA

In the Kitagata Apartment building, flexibility is achieved by choosing a shallow building depth. This way, rooms (being the exact size of one bay-width) can be added according to preference, since these rooms will always be provided with enough daylight.

The building has a gallery access, which is necessary for the type of flexibility applied to function and enables the rooms to be linked in this particular way. Every apartment has one core of wet cells, around these cells the bedrooms are located. This core is present in every apartment type. Since entrances towards the gallery need to be added in different rooms, depending on the type of apartment, this ‘bedroom core’ is usually the more ‘closed’ part of the dwelling. There are no entrance doors to the gallery from these rooms, providing them with some privacy.

Within the apartments, an interior hallway alongside the facade is created, enabling circulation between the rooms and access to upper floors. By using this type of hallway, new rooms can be added easily. This way, the route doesn’t have to be re-designed, even if the composition of the apartment is changed completely.

This plan shows how a shallow dwelling type can provide a great freedom and flexibility, by enabling bay-widths to be added or removed according to preference. This is not a day to day occurrence, but rather a flexible structure, that allows the creation of all kinds of apartments beforehand. They are not designed specifically to save space, but to adapt.

The interior hallway is a crucial part of this plan: this needs to be taken into account when designing with this principle. These apartments are not compact, but could be applied when designing for families. For my specific target group, this method, as applied in this plan, might take up too much space.

Carabanchel social housing, Carbanchel  
By: Aranguren & Gallegos

In the design by Aranguren & Gallegos, the principle of the day and night floor pan is applied. Up to four bedrooms (depending on the apartment size) can be added by dividing the lower situated living room floor into different small compartments, using folding doors. This principle is combined with retractable beds, which are pushed underneath the higher situated hallway. The beds are part of a furniture system which simultaneously help divide the bedrooms from the hallway and wet core. These ‘closets’ with a foldable table can be used for storage and studying, and function partly as a desk during daytime. As mentioned, is the living room floor about 700 mm lower than the circulation space,
kitchen and wet cells. Steps provide an extra border between the flexible bedrooms. Folding doors between the furniture systems can close the bedrooms from the higher hallway entirely. Therefore wet cells, the dwelling entrance and kitchen can be reached from the individual bedrooms without bothering the other occupants.

This plan could be very suitable when designing for families, since space is saved, whilst maintaining the privacy of the separate family members. Like mentioned in the introductions, dwellings must not be too flexible for a family to function, however, adaptations of this method might work, safe space and thus help creating affordable dwellings.

Conclusion

Three different types of flexibility have been implemented in the case studies:

- Compressing the floor plan into more or less rooms depending on the inhabitants, day to day change is possible but not likely: one setting will be chosen, and if the family situation differs, an adaptation can be made.
- Compressing the floor plan into more or less rooms on a day to day basis using a day and night floor plan principle.
- The possibility to add more or less bay-widths, using clever interior solutions to keep linking them easy, in the whole however a more long term principle.

Only the second option, as implemented by Aranguren & Gallegos, is related to saving space.

Discussion

For the research to be of true value, multiple principles should be compared within different buildings to be able to create a true overview of the most suitable principles for family housing.

During these studies, I was often distracted by measurements; dismissing projects quickly based on their sizes alone. After re-defining my selection criteria to appoint which factors truly mattered for the research question at hand, the research proceeded much smoother.

This study should be seen as an appetizer to give basic insight into types of flexibility and its consequences in floor plans. For my specific project, it would be wise to compare more examples that are related to saving space and affordability, thus narrowing down the broad scope that is flexible housing.
Illustration 49: Exploded view: Flexible dwelling Carbanchel (own illustration, 2018)
Illustration 50: Flexibility in the floor plan, day and night principle (own illustration, 2018)
5. Summary & Conclusion

Future Amsterdam is inclusive, and therefore will have to value the needs of all its inhabitants. An inclusive city actively prevents the exclusion of vulnerable target groups, maintaining a diverse environment and thus avoiding a strong spatial segregation. A vulnerable group in Amsterdam are the refugees. Amsterdam still needs to house over 600 refugees by the end of this year and is behind on schedule. Refugee children are especially vulnerable and in dire need of a safe and stable environment to be able to settle. This should be resolved, not by building on the outskirts of town relying but by choosing a location suitable for families within the city, allowing the building to be affordable but providing high quality dwellings. Creating a visible architecture of inclusion, not separation.

In this report, the question: “Which design conditions arise when designing affordable housing for refugee families?” was researched, using the following sub questions:

What are the specific spatial needs of families living in the city? On both urban and building level?
What are the spatial and social needs of refugees? On both urban and building level?
Which cultural elements related to dwelling need to be taken into account when designing for this target group?

Multiple conditions have been identified, a few important measures amongst them:

- Designing for children and play on both urban and building level, keeping the different age groups in mind when doing so.
- Designing flexible, but in moderation; saving space is the key word when applying this principle in family dwellings.
- Designing smooth transitions from private to public, ensuring ‘social eyes’ and social cohesion, but also the privacy valued by the target group.
- Offer room for learning, activities and social interaction, the arrival city is on the ground floor.

Additional to these target group needs, the important design conclusions resulting from the location analysis were:

- Design plinth with arcade and collective or public functions
- Enhance pedestrian route, protect new outer spaces from traffic
- Redevelop water front and activate its hidden potential
- Preserve green character from Sarphatistraat
- Accentuated building corner to open waterside

Reflection

The conditions mentioned in this report do not predetermine the design, but are a good place to start. They can serve as guidelines to expand upon, or as a framework to test the design.

The research into the ‘cultural elements of the target group that could influence the spatial design of the dwelling’ touched briefly upon the cultural preferences related to Muslim homes. However, refugees are from all kinds of origins. Further research into multi-cultural housing could enhance the project further.
Design concept

- The two buildings connect both to different existing plot lines (rooilijnen)
- Several outdoor spaces are created around these buildings
- The funnel-shaped space opens a view towards the water
- The building is accentuated at the corner facing the Dageraadsbrug
- The building protects the collective spaces from the busy traffic
- The functions situated in the building plinth stimulate activity, learning, interaction and add value to the neighbourhood
- The pedestrian route is enhanced
- Wide galleries for playing and interaction
- Parking underneath a semi-raised courtyard
6. Brief

Housing for Refugee Families

Two-bedroom, three-bedroom and four-bedroom dwellings.
Flexible bedroom options.

Linear block + tower combination:

Building height Linear block: 5 and 6 layers
Building height Tower: 7 layers
Dwelling total: ca. 68
Bay width construction: 7,8 m
Bay width dwellings: 3,9 m, 7,8 m
Building depth ground floor Linear block:
  footprint of 9,5 m
  additional 2 m arcade, total of 11,5 m
Building depth Tower: 19 m

ca. 16 maisonettes small, ca. 62 m2
ca. 16 maisonettes large ca. 72 m2
ca. 12 apartments gallery type ca. 55 m2

c. 24 apartments tower type ca. 55 m2

Access systems: Galleries, one lift
Public plinth with collective and public functions:
Cafe, Workshop, Study/Course room

Semi enclosed building block:

Building height: 5 layers
Dwelling total: ca. 54
Bay width construction: 7,8 m
Bay width dwellings: 3,9 m, 7,8 m
Building depth ground floor: 9,5 m
  additional parking footprint: 16 m

c. 18 apartments gallery type ca. 55 m2
ca. 18 maisonettes type: large ca. 72 m2
ca. 18 maisonettes type: small ca 62 m2

Access system: Galleries, one lift.
Raised courtyard with parking semi-underground.
Bibliography

Literature


Websites


Illustrations:


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