TERRITORIES IN OUTDOOR SPACE

APPROPRIATION OF OUTDOOR SPACE IN COLLECTIVE HOUSING
TERRITORIES IN OUTDOOR SPACE

AUTHORS:
Sjoerd Broek 4185595
Sharon van Kempen 4185587
Peter Steffens 1503510

TUTORS:
Birgit Jürgenhake
Paul Kuitenbrouwer

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Theme Research

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AT HOME IN THE CITY
This research, * Territories in outdoor space, * shows the work of three graduation students performed during their Msc 3. The research is part of the graduation studio: Dwelling – At home in the city. The theme of this research is related to the design brief for the given location; de Houthavens. The Houthavens is a residential neighborhood which will be developed in the future in Amsterdam.

While reading this research, it is important to be aware of some limitations in the research. The research partially exists of observations. We intensively worked together for this research. By doing so we tried to eliminate subjectivity and “hidden agendas”. Most of the projects are visited by all of the authors so the observations could always be compared.

Due to the limited timespan of the research some locations where only visited once. The observations are therefore a snapshot of the reality. We visited some projects during weekend and other project during weekdays. Also the weather during the visits could have influenced our observations.
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APPENDIX

- MATRIX SUMMARY
The design for the graduation studio Dwelling: At home in the city should be located on island 3 of the Houthavens in Amsterdam. The urban plan for the Houthavens is referring to the Spaarndammerbuurt and is therefore planned to be an island with perimeter building blocks.

The perimeter building blocks should enclose a large collective outdoor space for the dwellers. Within these collective garden parts were intended to be private gardens. Due to the fact that the perimeter blocks in the past were also accommodating communal functions, like schools, the remaining parts of the collective space was as outdoor space for the users of the communal functions.

Throughout time the communal functions were pushed outside the building blocks and the designed collective spaces became waste land. After the collective space transformed into a passage, which made the perimeter blocks transform in row houses.1

Since the perimeter block changed throughout time, a first question raised when seeing perimeter block as starting point for the Houthavens: What about the usage of the collective space.
And next: Why designing, or in this case just providing, outdoor space without purpose in the context of Amsterdam, with not much space left and densification of the red areas?

Also urban designs form the past, like for instance the Bijlmer in Amsterdam, have shown that large collective outdoor spaces are not likely to be livable spaces.2 Due to other cities, that were offering family homes with private gardens, the collective gardens became less attractive.3 In addition to this, several more aspects made the large collective outdoor space less livable, such as the relation of the dwellings to the outdoor space and the way privacy was organized, it turned into anonymity.3

The provided outdoor space in this cases is not appropriated by the dwellers of the adjacent building blocks. Providing is not enough, which raises the question: How to create territory in outdoor space.

In order to design for the Houthavens a livable outdoor space and taking care of the scarcity of outdoor space, this research will be about territory in outdoor space.
The research is about to what extent architectural elements can contribute to appropriation of outdoor space.

"The area that the individual perceives as belonging to the dwelling, the residential environment, can extend well beyond the actual dwelling. This in itself may result in greater use of public spaces – such as parents permitting young children to play outdoors at an earlier age than they otherwise might"."4

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1 Castex, De rationele stad.
2 Van Dorst, Een duurzame en leefbare woonomgeving, p. 75
3 retrieved from http://kennisbank.platform31.nl 6 april 2014
4 Gehl, Life between buildings, p. 61
The problem statement for this research is twofold. Firstly the densification of the city leads to less outdoor space. Secondly the outdoor space that is provided is not always used by the dwellers. An elaboration of both problems will be given.

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**Densification of the city**

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Until 2040, 333,000 more people will live in the large cities in the Netherlands.\(^4\) Especially in Amsterdam the population will increase drastically. Another 100,000 dwellings will be built until 2040 which results in a population of 850,000 - 900,000 inhabitants.\(^5\)

In de Structuurvisie of Amsterdam the developments of new dwelling area’s should be built within the existing city so the green areas around the city are still unbuilt. The red becomes redder and the green, greener.\(^6\)

Even though the city densifies people still like to have private outdoor space;

Nowadays more and more families are selecting the city as a their new home, meaning that dwellings should be altered to provide at least an outdoor space for children to play in.\(^7\)

"There is an increased demand for more dwelling space in Western countries. In the Netherlands, this is expressed as an overwhelming preference for a single-family dwelling with a garden. In contrast to these consumer preferences, governments pursue a compact-city agenda, which implies high-density and mixed-use cities".\(^8\)

**Unused outdoor space**

**Unused outdoor space**

Since more and more space becomes defined and built, the usage of space becomes also more important. If a defined space is not used, it is in fact still waste land. It would be a waste if large defined outdoor spaces are not used. This is what happened for example in the Bijlmer in Amsterdam. This project which represents the idealism of the Modern City principles of the CIAM movement was originally designed as a park with building objects. The large green space should have to function as a collective area as compensation for the small outdoor spaces in the dwelling.

Unfortunately this never happened in a way as it was intended. The residents of the apartments did not feel a connection with this space and was therefore not used in the way it was designed. Nowadays, in the 21st century, when we are reaching the boundaries of the city and have to intensify the land-use, we have to design the public space carefully, so it will be used.

Not only in large scale projects, like the Bijlmer, is the provided outdoor space not used. During the site analyses for the Houthavens we visited the adjacent neighborhoods. The neighborhood directly connected to the Houthavens is the Spaarndammertuurt. This neighborhood exists of many building blocks that are sometimes closed and in some cases are accessible for visitors.

Many of the courtyards looked like they were not used at all. The outdoor spaces looked degenerated and some inhabitants even used it to store trash.

For our research we want to determine which architectural elements contribute to the use of outdoor space and which do not contribute. In the compact city it is important that the provided outdoor space works because the available outdoor space is limited.

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The two problem statements lead to the research question:

**How do architectural elements contribute to the appropriation of adjacent outdoor space?**
The problem statements that are described lead to the following research question:

How do architectural elements contribute to appropriation of adjacent outdoor space?

**Definition: Appropriation**
In the research of Machiel van Dorst appropriation is described as the extending of the territory of a person. For territories he quotes the research of Sommer and Van Beek:

“Territories are geographical areas that are personalized or marked in some way and that are defended from encroachment”.

Brunson, Kuo and Sullivan distinguish three types of appropriation: social, physical and territorial appropriation. Social appropriation consist of the social activities in the public space, such as greeting and chatting with the neighbors. The physical appropriation is being present in a public space, so for example children who will use the playground. The last one, the one we will analyze, is the territorial appropriation of the public space. This can be described as dwellers who will privatize the public space by marking their own territories.

**Definition: Adjacent outdoor space**
Public or collective space which is in the direct surrounding of the dwelling.

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9 Van Dorst, Een duurzame en leefbare woonomgeving, p. 29
10 Brunson, Kuo & Sullivan, resident appropriation of defencible space, p. 633
With this research we would like to find architectural tools for giving outdoor space a meaning and to make sure it would be appropriated instead of being no-man’s land. This research will help us to create a set of tools and recommendations for outdoor space in general and for our designs for the Houthaven.

To create a comprehensive research, different scales will be investigated that could influence the appropriation of outdoor space. We will look at the scale of the whole building, but also investigate the floor plan of a specific dwelling. This research focuses on the smallest scale as well; the materialization. For each theme, defined in the method, a conclusion is made. However the different themes influence each other as well. A general conclusion summarizes the research. Besides the conclusion, we would also like to form our individual positions towards this research.

**Goal:** Finding the elements which will contribute to the appropriation of outdoor space.
PRIVATE - COLLECTIVE - PUBLIC
In this research we are analyzing outdoor territories. The outdoor spaces can be private, collective or public and some intermediates. The private outdoor space is very important in the research on outdoor territories. Henny Coolen states that the outdoor space is related to different activities and values. The private outdoor space has certain activities and values that are not interchangeable with other types of outdoor spaces. Privacy and control over the outside space are the most important assets of the private outdoor space.13 Coolen also criticize this private outdoor space as it is designed in the Netherlands right now. The private outdoor space is a limited space. There are two assets in which the private outdoor space is lacking: space and livability.14 The densification can lead to smaller private outdoor spaces which make certain activities impossible. For example it is impossible to play football when you only got a small balcony. The other aspect is livability. Livability is related to social contact and enjoying live. It is much easier to get into contact with other people outside your private garden or balcony.

In the analyses of the case study it is interesting to see the relationship between the amount of private outdoor space and collective and public outdoor space.

ACCESSIBILITY
The use of the outdoor territories may be influenced by another aspect: accessibility. In this case accessibility is the degree in which the outdoor space can be entered by inhabitants and strangers. It is important to make a distinction between outdoor spaces that are only accessible to the inhabitants and outdoor spaces that are also accessible to a passant. Jan Gehl and Machiel van Dorst both agree with the assumptions that accessibility has a large influence of the usage of the outdoor space. When an outdoor space is part of a continuous route, more visitors will enter the building. The amount of visitors has a negative influence on the use of the outdoor space. A growth of the amount of continuous traffic decreases the amount of social interaction between the inhabitants.15 Another aspect we would like to investigate is the border, or the access points, of public to collective/private. How is this transition zone established and how is this marked, because this is also an aspect which is of importance regarding van Dorst. It is important that the accessibility of outdoor territories is clearly marked.16

Subquestions:
- Are there private outdoor spaces available for the dwellers?
- Which collective spaces are available to the dwellers?
- To who are the outdoor territories accessible?
- How is the accessibility marked with architectural elements?
- What is the effect of the sun on the appropriation of outdoor territories?

ORIENTATION
Another aspect that will be analyzed in the case studies is the orientation of the outdoor territories. The sun is an important factor which is especially important in the city where densification can lead to daylight problems. The effects of densification are researched in Steden vol ruimte by Rudy Uyttenhaak (2009). However this research is primarily focused on the buildings itself and not on the outdoor spaces.

The orientation of the outdoor spaces is just as important, like Christopher Alexander stated: "People use open space if it is sunny, and do not use it if it is not"." Jan Gehl is also mentioning the importance of a space in the sunshine:

"The wish to be in the sunshine is reflected in the choice of pedestrian routes and in the placement of people in a space; northern Europeans automatically choose a place in the sun, even at temperatures at which Italians, for example, would have sought the shade long ago".18

In the city thousands of acres of outdoor space are wasted, because there is just not enough sun reaching those spaces. Also dark spaces are often associated with unsafety and crime.

In the research of the case studies we will focus on the amount of daylight that reaches the outdoor spaces. We will look at the orientation of the private outdoor spaces and the collective outdoor spaces as well. The orientation of those private and collective spaces towards the sun can be the same or can be different. It is interesting to see the effect of the sun on the difference in use of the outdoor spaces.
DWELLING ACCESS
An aspect which can have a big influence at the appropriation is the dwelling access. According to Jan Gehl the increasing distance between the access point of the dwelling and the outdoor space has a negative effect at the appropriation.

“It is important that it is easy to go in and out of dwellings. If the passage between indoors and outdoors is difficult – if it is necessary, for example, to use stairs and elevators to get in and out - the number of outdoor visits drops noticeably. Residents in multistory buildings move about, of course, to and from their dwellings, regardless of which story they live on. This generates a comprehensive ‘coming and going’ traffic, but many other outdoor stationary activities — especially short-term and spontaneous activities - more or less cease because it is too bothersome to come down and go out into the public areas”.

Jan Gehl argues that people who have to put more effort in going from their dwelling towards the public space, will not use it for leisure activities. Therefore the dwelling access in relation to the appropriated outdoor space is important.

FAÇADE
Another aspect which influences of the appropriation of public space is the layout of the dwelling and the façade. The elements have a relation with the privacy of the dwellers. Van Dorst gives the following description of the definition privacy regarding the façade:

“Selective control of access to the self or to one’s group”.

This implies people will use a space when people can present or hide themselves from exterior looks. This exposes the relation of the adjacent living spaces to the public space through the openings in the façade. Uythenhaak gives the following description:

“The feeling of privacy is not only about the type of transition, but also the plan of the dwelling is of ultimate importance, and then, in particular, how free the dwelling is design with respect to the collective transition space.”

This statement of Uythenhaaak is supported by Jan Gehl. Gehl describes the following:

“The plan of the dwelling must to be designed so that the activities in the house can flow freely outside. This may imply, for example, that there should be doors directly from the kitchen, dining area, or living room to the outdoor areas on the public side of the house. The outdoor areas, correspondingly, must be placed in immediate juxtaposition to the rooms in the dwelling. The entrance itself should be designed so that it is as easy to pass through as possible, both functionally and psychologically.”

Gehl argues that the function of the spaces adjacent to the outdoor space is very important. The kitchen or a living room, spaces people use the regularly, are the most suitable functions to places adjacent to the outdoor space. While analyzing the outdoor territory we will take into account if the size and the position of the openings in the façade, in relation with the adjacent function of the dwelling is of influence of the appropriation of the outdoor space.

Subquestion:
How easily can you enter/reach the outdoor space from your dwelling?

Subquestions:
- What indoor space is adjacent to the outdoor space?
- How does the façade contribute to the relation between inside and outside?
MARKINGS & MATERIALS
For appropriating outdoor space we presume the layout of the different spaces is affecting the usage. According to Christopher Alexander the edge between private and public is influencing the livability of outdoor space.

"The life of public square forms naturally around its edge. If the edge fails, then the space never becomes lively". 23

Jan Gehl assumed that the layout of this edge can provide protection or exposure, which is of great importance for appropriation. People need to feel secure before they will extend their territory. This can be defined by architectural elements.

"Colonnades, awnings, and sunshades along the facades in city spaces provide comparably attractive possibilities for people to linger and to observe while remaining unobserved. For residences, niches in the facades, recessed entrances, porches, verandas, and plantings in the front yards serve the same purpose. Protection is provided, but there is still a good view". 24

Those elements of marking a territory can be very subtle or obvious as Hall describes.

"Man has created material extensions of territoriality as well as visible and invisible markers". 25

LAY-OUT
Another aspect which is important for appropriation is the layout of the collective area. 

As Jan Gehl describes in his ‘Life between Buildings: “Something happens, because something happens, because something happens”’. 26

When there is no catalyst for activities, people will not go there and the space will remain unused. Gehl describes it on the basis of an elderly couple who will not sit on a bench looking at nothing, they prefer to sit where something is happening. This can be supported by the cliché of elderly looking at the ducks and birds or playing children.

So we want to see if there is a ‘catalyst’ placed for people to stay in the collective area and if this effects the appropriation.

APPROPRIATION
No matter how architects have designed their spaces, user will always hunt up the borders. De Haan concluded the following:

“All locations carry meanings and intentions of designers, controllers, and user, but many studies have indicated that people are to some extent capable of re-appropriating space by giving it a meaning and using it in their own way, by both social and material appropriation. In fact, ‘re-writing’ space, by physical alterations, meaning giving, using and developing moral standards, are important ways in which ordinary people are involved in the transformation of space”. 27

In the case-studies we will observe in what way the dwellers have appropriated the public/collective space adjacent to the dwelling in relation to what the architect designed.

Subquestions:
- How are different zones indicated/ marked in the outdoor space?
- How is the outdoor space organized?
- How is territorial appropriation established?
- How is physical appropriation established?
The matrix on the right gives an overview of how the case studies will be analysed. The matrix exposes the main aspects to be analysed and raises questions which should be answered in the analysis. Also the way they should be analysed is given. The subjects are again a gradient from the way approaching the outdoor space, the outdoor space itself and aspects related to the dwelling.

The aspects private/public and appropriation are aspects that are comparable. The private/public exposes how the architect defined the transition from private - collective - public, while appropriation exposes how these on forehand defined spaces are really used.

The aspect accessibility is clarifying how the outdoor space is accessible and what type of traffic can access it. Cars passing the outdoor space can make it for instance more public. Orientation and layout are aspects about the outdoor space itself.

Dwelling access and the facade are about the relation of the dwelling to the outdoor space.

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Since we determined our research method and the aspects we want to test if they influence the appropriation, we have to select the case studies. The case studies were not randomly picked, we will do so on the basis of criteria. The criteria will be as followed:

1. Low Rise Typologies: The projects should be low-rise, this means the buildings could not exceed a maximum of six floors. In the masterplan of Houthaven the maximum building height is namely determined at fifteen meters. Our hypothesis is that high-rise projects will work completely different, and therefore not valuable for us to investigate.

2. Dutch Case Studies: For us it is important to select case studies, which are located in the Netherlands. This has two reasons. First of all, we want to be able to determine the appropriation by visiting the projects. The appropriation can only be determined by observing the public space. Projects in the Netherlands are easier to visit for us than projects which are located abroad. The second reason is our location for the design. Our site is located in Amsterdam, the Netherlands, so we will most probably design for Dutch people. Dutch people will probably behave different than people from another country, noticeable for the Dutch is their individualism. Therefore for us it is important to see how Dutch people use the space.

3. Collective Housing Typologies: We will select project which share a common space. This common space can be designed differently. This can be a public common space or a more collective area. For us it is interesting to see how this ownership is of influence on the appropriation.

4. Variation of Dwelling Typologies: To compare different relationships between dwellings and the outdoor space we will select dwelling typologies with a different organization. Those different dwelling typologies can be located in one dwelling project or we compare the different projects all together.

When we had chosen our criteria we selected the case study projects. We did this on the basis of the dwelling typologies. We selected two project with a park-like structure. This is actually the inverse of a perimeter block. The collective space surrounds the small building blocks, instead of the building block embraces the collective area. We selected Funenpark as a case-study and decided to choose two projects to be able to compare the differences.

We selected the building blocks of Dick van Gameren and the one of NL Architects. Both projects are interesting and it would be nice if we could compare the two after analyzing. The dwellings of the ground floor of the building block of Dick van Gameren is only provided with a private outdoor space adjacent to the collective area. While the design of NL Architects incorporated a kind of roof terrace. So we want to compare especially in those projects if another private outdoor space was of influence of the appropriation of the collective area.

Then we selected two projects which are elevated. For the design studio we have to densify, which will mean we probably have to built vertical. As we have written before, in the Bijlmer, people would not use the space, because they did not feel it belonged to them. We want to see if in the two selected projects, Justus van Effenblock and The Kasbah, the collective area was used, and why those projects would or would not work.

Then we selected different types of Urban Blocks. This is what the assumed design of the Houthaven looks like. We chose projects with different characteristics. The characteristic which was important to select the projects is a variation of accessibility of the ensembles. We choose two projects which are closed perimeter blocks, the Noordbuurt of VMX architects and the Wallisblok of Hulshof Architects. Then we choose two opened up perimeter blocks. This are Le Medi and De Grote Hof, which are both accessible for public. As last we tried to find a project where a road will penetrate the perimeter block, like in Copenhagen is the case at Dronningegården. Eventually we choose the project of John Bosch in Ypenburg, Waterhoeves. In this project a road is located which will end at a parking lot. By selecting those projects we hope we can compare how much the different elements influence the appropriation.
**PARK CONFIGURATION**

HET FUNEN
DICK VAN GAMEREN
AMSTERDAM

OUTDOOR SPACE:
SURROUNDED OUTDOOR SPACE ACCESSIBLE BY THE PUBLIC AND SOME PRIVATE OUTDOOR SPACE

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**ELEVATED STREET**

JUSTUS VAN EFFENBLOCK
MICHEL BRINKMAN
ROTTERDAM

OUTDOOR SPACE:
COURTYARD ACCESSIBLE BY THE PUBLIC

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**PARK CONFIGURATION**

HET FUNEN
NL ARCHITECTS
AMSTERDAM

OUTDOOR SPACE:
SURROUNDED OUTDOOR SPACE ACCESSIBLE BY THE PUBLIC AND SOME PRIVATE OUTDOOR SPACE

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**ELEVATED DWELLINGS**

KASBAH
PIET BLOM
HENGELO

OUTDOOR SPACE:
COURTYARD ACCESSIBLE BY THE PUBLIC
**Case Studies**

**CLOSED BUILDING BLOCK**
WALLISBLOK
HULSHOF ARCHITECTEN
ROTTERDAM

OUTDOOR SPACE: ENCLOSED COURTYARD
ONLY ACCESSIBLE FOR DWELLERS OF THE WALLISBLOK ITSELF

**BUILDING BLOCK**
WATERHOEVENS
J. BOSCH
YPENBURG

OUTDOOR SPACE: ENCLOSED COURTYARD
ACCESSIBLE BY THE PUBLIC

**BUILDING BLOCK**
HET GROTE HOF
RAPP+RAPP
NOOTDORP

OUTDOOR SPACE: ENCLOSED COURTYARD
BY THE PUBLIC

**BUILDING BLOCK**
LE MEDI
GEURST & SCHULZE
ROTTERDAM

OUTDOOR SPACE: ENCLOSED COURTYARD
SOMETIMES ACCESSIBLE BY THE PUBLIC
CLOSED BUILDING BLOCK

NOORDBUURT
VMX ARCHITECTEN
IJBURG

OUTDOOR SPACE:
PRIVATE INDOOR SPACE AND AT THE SAME TIME A MORE COLLECTIVE OUTDOOR SPACE
Het Funen
Dick Van Gameren
Funenpark is built as an ensemble. The wall adjacent to the rail track, functions as a barrier for the noise. This wall functions as well as the barrier between public and collective. There are multiple gates which gives access to the park. The buildings in the park are isolated buildings, designed individually. The design of Dick van Gameren is designed as a high-density block. The block consists of twenty two dwellings. Six dwellings are located on the ground floor, then ten apartments at the 3rd ad the 4th floor and at the top six dwellings as well. This results in a minimum of private outdoor space for the dwellings.

The dwellings on the ground floor have a wooden deck adjacent to the collective area. Most of the apartments have a small balcony and the dwellings at the top floor are provided with collective in-between space.
Funenpark is a car free park, which is accessible by various gates for pedestrians and cyclists. The gates have different characters. There are gates which are guided by a fence and are made of steel, others are formed by a gap in a building. All gates give a signal of entering another, collective, space.

The cars of the inhabitants can be parked in the parking garage under the “wall” building or in the surrounding neighborhoods. By doing so, some of the dwellers should park on a longer walking distance from their dwelling.
The plan of Funenpark is nearly perfect orientated to the axes of North-South. Dick van Gameren chooses therefore to orientate the dwellings East-West. The dwellings have therefore or the morning sun or the evening sun. The building blocks in Funenpark have various distances between each other. The distance between the blocks of van Gameren en NL Architects is fifteen meter. Even though this seems small, the distance is sufficient to maintain the privacy of the dwellings.
Inside the building block of Dick van Gameren a street is located. This street is accessible from three sides. All the storage facilities are located in this hallway, as well as the elevator to the different floors. The dwellings at the upper floors are also accessible by two staircases. The ground floor dwellings are also accessible from this corridor at the ground floor. The dwellers of the ground floor dwellings can also access their dwellings through the ‘backdoor’ which is located at their private outdoor space.
In the small block of Dick van Gameren we can distinguish two types of dwelling at the ground floor. The first type is located at the corners of the west side of the building. Those have two bedrooms at the ground floor. The other type has the living room adjacent to the private outdoor space. From the exterior you cannot notice any difference of the functions behind the façade. The openings in the façade are quite similar. Most openings in the façade are quite high but not very wide. In this way the privacy of the interior is maintained. The private outdoor space is good accessible, because there is always at least one door to access this space from the interior.
The markings in Funenpark are defined by the urban plan. The transition from private to collective is accomplished by the different materials. The pavement can be seen as the public/collective zone. Visitors will walk on those paths and will not access the adjacent lawn. This lawn is the transition between the public/collective pathway and the private deck.
The typical layout of Funenpark is established by the creative pavements and the well-maintained lawns. At various points benches are placed for social interactions or to rest when people are walking through the park. Furthermore, there are elements placed with a double function. At first sight, those elements can be seen as art or objects. The second layer of those elements is a play element. The designers of the urban plan did not want a typical playground with a slide and a sandbox. They have placed elements which the children can interpret as an element for playful interaction.
Notable at all the dwellings at the ground floor in the block of Dick van Gameren is creating a border between the adjacent neighbors. Probably the dwellers needed some privacy; therefore they placed flowerpots with high plants in it. This functions as a fence between the dwellings. The wooden deck is well occupied; people placed furniture, flowers and sometimes even a rabbit hutch. The border between the private and the collective is well preserved. The lawn is not territorial appropriated. When we visited Funenpark there was some play equipment lying in the grass, but this was temporary. So we can say that the green lawns will be physical appropriated, but the territorial appropriation is limited to the wooden deck.
HET FUNEN
NL ARCHITECTS
The building ensemble of the Funen consists of building blocks situated in a park configuration. This park surrounding the building blocks is publicly accessible. However, this public space is also fenced, which means that there is a possibility to make this park more collectively accessible. Around the building block of NL Architects on both sides, a small strip of private space is provided on the sides where the dwellings face the park.
The park like outdoor space of the Funen is a car free area. The outdoor space is accessible for all cyclists and pedestrians, which gives the park a more public character. Cars can park underneath the long "wall building". This building also creates a barrier between the park and the busy roads. At the north east side of the park several gates are made in-between the existing buildings.
The park in-between the individual building blocks of this park configuration is a very sunny outdoor space to appropriate. The "wall buildings" around the park configuration lead to large shadow places. However all the other buildings in this configuration are small blocks with a building height of 4-6 levels. Around all these blocks sunny open spaces are provided.

The private outdoor spaces on the ground level are located east and west, meaning that some outdoor spaces have sun in the morning and some the evening. On the other hand the private outdoor space located on the upper levels of the dwelling are directed to the sun. The roof of this building volume is position towards the sun. Besides having a less perfect oriented private outdoor space on the ground level, each dwelling finds a more private outdoor space on the upper level.
In this ensemble in the park configuration of the Funen all the dwellers find their dwelling access on the ground floor. The dwelling access is covered in the middle of the building block. In this way all access and services are situated in the so called dark side of the building. The private gardens are accessible through the dwelling itself, but there is also the possibility to access the private outdoor space on the ground level by walking through the park.
The dwellings in this building ensemble are situated according to the back-to-back principle and the private outdoor space is situated to the other side and facing the park. Therefore the facade facing the park has an open character with a lot of windows. On the ground floor, behind the large windows, the living room is located. This means that the most occupied space of the dwelling is behind this facade and facing the park. The private outdoor space functions as a buffer between the facade and the park.
Each dwelling in this building ensemble is provided with an outdoor space on the ground level. This small strip of outdoor space is marked by a wooden platform. Adjacent to that is the outdoor space belonging to the park.

The park is divided into two zones with different materials. The stone marks the path through the park, leading to the access of the urban villas. The path is also dividing the space between the individual building blocks into smaller pieces and is changing the grain size. In-between the paths lawns of grass are provided which contribute to the park-like character. The grass can be seen as the transition zone between the public park path and the private outdoor spaces belonging to the dwellings, a soft edge between the public and the private.
The layout of the outdoor spaces consists of a route that connects all the buildings. Along this route benches are situated that emphasize the park like character of this route. Also several art-objects are placed inside the park.
The park like outdoor space around the building ensemble is predominantly physically appropriated. Especially the large amount of children in this location contributes to the physical appropriation. While there are no cars, Funen forms a safe area for children to play. Territorially appropriation is only visible on the private wooden platforms that are adjacent to the dwellings. This private outdoor space is covered with garden furniture and plants.
The Justus van Effen block was designed in 1919 by Michiel Brinkman. During its existence it has been transformed various times. For this research we will look at the current state of the building. The courtyard inside the perimeter block is a collective area that is also accessible to the public. The elevated street that provides access to the maisonettes is also collective; however it is not accessible to the public. The ground bound dwellings and the maisonettes both have a small private balcony.
Originally the Justus van Effen block was accessible for cars. However, nowadays the courtyard can only be entered by cars for a special reason; for example when people are moving. The inhabitants of the Justus van Effen block have to park their car along the street next to the building.

The courtyard can be entered by four gates. There are two smaller gates on the east and west side of the building. The main entrances of the building are located on the north and south side. The gates are closed in the evening for safety reasons and then only the inhabitants can enter the courtyard. Currently, there is a discussion whether the gates should also be closed during the weekend.
The Justus van Effen block predominantly has a height of only four stories. Therefore the biggest part of the courtyard is sunny during spring and summer. The raised street is located on the second level. The raised streets are quite wide, in the past the milkman had to access this gallery as well, and prevent the sunlight from entering the spaces underneath. The raised street forms a continuous route within the building block. The raised street is not especially orientated to the sun. In most cases it is facing north, east or west.
Almost all the entrances of the dwellings are located within the courtyard. Only on the corners and the north side of the buildings some exceptions are made. The dwellings in the Justus van Effen block where originally very small. Nowadays two dwellings are made into one dwelling. However, still two doors are present for each dwelling. Though only one of the doors is used to access the dwelling.

The ground-bound dwellings can be entered directly from within the courtyard. The maisonettes are connected to the elevated streets. Multiple staircases are attached to the elevated street. The staircases can be reached from within the courtyard but also from outside the building.
The floor plan of all the dwellings in the Justus van Effen block is quite similar. The living rooms of the dwelling are located on the street side of the building block. The kitchen and entrance hall are situated adjacent to the courtyard. The private balconies are always on the same level as the bedrooms and bathroom. The organization of the functions inside the dwelling does not contribute to a relation between the inside and the (collective) outdoor space.
Differences in materialization are used to mark different zones. A reddish pavement with a herringbone pattern is used to mark the continuous routes within the courtyard. The majority of the pavement exists of regular concrete tiles. However, in front of the ground-bound dwellings a different stone and pattern is used to mark a zone that can be appropriated by the inhabitants. Also flowerpots are placed on the pavement to mark this zone even more. These flowerpots are not added by the inhabitants themselves. The entrance doors of the dwellings are slightly raised above ground level. A small step marks the transition from outside to the inside of the dwelling. The grass fields inside the courtyards are raised and the edges are made of a material that differs from the adjacent pavement.
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Steps marking the private domain

Differences in materials
The composition of the building block divides the courtyard in smaller areas. Even though the dimensions of the block are large, the courtyard is not perceived as a huge space. The courtyard exists of several raised grass fields. The edges of these fields can be used to sit on and the lawns could be used for several activities. One of the raised up lawns is combined with a brick bench. Also an arrangement of stones is used as a playful element within the courtyard. In front of the central building (the former bathhouse) a small square is created with several picnic tables.
Even though the ground-bound houses officially don’t have a ‘front garden’ the zone in front of the houses is used as such. In front of nearly all the houses that zone is territorially appropriated with seats, bikes and plants. The materialization is really important for the Justus van Effen block. Nearly all the inhabitants only appropriated the area with the different type of pavement. Only occasionally something was placed beyond the edge of the pavement.

The elevated street was not really appropriated by the inhabitants. Occasionally benches, chairs and plants where placed adjacent to the maisonettes. Especially, on the parts that where located on the north side, the elevated street looked like it was not used at all.
03. ANALYSIS

KASBAH
PIET BLOM
The most important thing about the Kasbah is the fact that the houses are elevated. By elevating the houses the space underneath becomes one large space that can be used by the inhabitants. In the drawings there is a clear line between the collective space and the public outdoor space. However this distinction is not a harsh line. In the Kasbah several small shops are located on the ground floor. The shops also attract people that do not live in the Kasbah. Therefore the space underneath the houses can be both public and collective.

There are different types of houses in the Kasbah. The majority of the houses have got a private terrace. The terraces are also lifted above ground level. Compared to the size of the houses the private terraces are quite large. The houses with no private outdoor space were designed for students or were used as ateliers.
The Kasbah is partially accessible for cars. The cars can drive underneath the houses and the parking spaces are situated underneath the private terraces of the houses. The cars can only partially enter the building because the streets have dead ends. The central open space in the center of the Kasbah is car-free. The whole Kasbah (except for the houses) is accessible for public. There are no gates or doors that prevent access for visitors. Also the staircases that lead to the entrances of the houses are accessible for strangers.
The Kasbah is raised above the ground floor. The consequence of this elevation is a large amount of dark spaces underneath it. Especially on the north side of the Kasbah the spaces are really dark. At the north some shops are located on the ground floor so only light from one side is entering the underneath space.

In the middle of the Kasbah a large open space has been designed. The open space provides a large amount of sunlight. The smaller open spaces in the Kasbah also provide sunlight to the ground floor. However the small openings in the grid structure of houses are enclosed by the houses, so especially during winter the amount of sunlight is limited.

The orientation of the private terraces varies within the complex. Half of them are on the north side and the other half on the south side. The terraces on the north side take advantage of the sloping roofs. During spring and summer still a large amount of sun reaches the terrace as can be seen in the drawing.
The dwelling access of the houses in the Kasbah is very different from standard housing. The access system can be described as a combination of a corridor and a staircase. On the ground floor, underneath the houses a stairway gives access to the first floor. Here the front doors of two houses are opposite to each other. A second stair leads to the second level. Here again two houses can be entered. Depending on the location in the Kasbah the corridor stops or continues as can be seen in the middle part of the drawing. The access system leads to a large distance between the dwelling and the collective space.
In the drawings the layout of two apartments in relationship with the façade is drawn. The two apartments are back to back. The dwelling on the first and second floor have got a large terrace. A glass façade emphasizes the relation between inside and outside. The living room is adjacent to the terrace. The dwelling on the second and third floor does not have an outdoor space. The relation between the inside and outside is very weak. Only small windows on two sides of the apartment and windows in the sloped roof make a visual connection possible between the dwelling and the outside space.
The materialization of the Kasbah emphasizes the continuity of the outdoor spaces. Everywhere in the Kasbah the same tiles are used. Also around the Kasbah building the same tiles are used so there is no clear distinction between the public and the collective.

A different materialization is only used to mark special features, such as trees and plants or it is used as a playful element. The materialization of the car areas is different. Supposedly smaller tiles are used because of the weight of the cars.

From the ground level you can enter stairs that lead to the dwellings. The stairs mark a different zone. When you enter the staircase you enter a zone that is much more private.
The outdoor spaces of the Kasbah have different characters. The most important one is the central open space in the middle of the complex. The character of this space is like that of a park. In the middle benches have been placed. The benches are placed on a square and are facing each other. This stimulates social interaction between the inhabitants. Even though the space is quite large it does not feel like a large space. The trees and plants on the borders of the open space make it feel like an intimate space.

On the south side of the open space, playground equipment is placed. The wooden structure of squares is a reference to the cube houses that were designed by Piet Blom as well. The smaller open spaces do not really have a function. There are some trees and plants that make it look nice but the places are too small to really use it.

On the very south of the Kasbah small stores are located underneath the houses. The space in front of the shops is reserved for the marketplace. From here you overlook the grass and water in front of the Kasbah. Some benches are placed on this side as well.

The biggest part of the outdoor space is located underneath the houses. Yet, this places are dark and uncomfortable. Also a large part of the space is arranged for parking space.
The collective outdoor spaces that are provided in the design of the Kasbah are only used partially. All the areas underneath the houses are not used at all. Only the area on the south side, adjacent to the small shops is used as a market during spring and summer. However this takes places only a few times a year.

The large open space in the center of the Kasbah is used frequently, especially by children that use the area to play. The parents can sit down on the benches and keep an eye on their children. This can be seen as physical appropriation. The small open areas are not used. The access system of the dwelling is in most cases not territorial appropriated. Some inhabitants put some plants and decoration in front of their door. However in most cases it is used for trash and garbage bins.
03. ANALYSIS

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WALLISBLOK
HULSHOF ARCHITECTEN
The Wallisblok is a closed perimeter block. In 2007 this perimeter block was renovated with preservation of the outer façade and rehabilitation of the inner façade. The balance between collective and private outdoor space in the inner courtyard of the dwellers is following the same rules of the perimeter block. The outdoor space adjacent to the ground bounded dwellings is accommodating private outdoor space. The remaining part of the courtyard is collectively used for gardening. While the balance of property in the inner courtyard remains the same, the rehabilitation of the inner façade created more private outdoor space belonging to the individual dwellings expressed in roof terraces. The new created private outdoor spaces are related to the different dwelling typologies which are accommodated in the Wallisblok. The dwellings without a private outdoor space are designated to use the collective space as their outdoor space.
The Wallisblok is a closed perimeter block. In 2007 this perimeter block was renovated with preservation of the outer façade and rehabilitation of the inner façade. The balance between collective and private outdoor space in the inner courtyard of the dwellers is following the same rules of the perimeter block. The outdoor space adjacent to the ground bounded dwellings is accommodating private outdoor space. The remaining part of the courtyard is collectively used for gardening. While the balance of property in the inner courtyard remains the same, the rehabilitation of the inner façade created more private outdoor space belonging to the individual dwellings expressed in roof terraces. The new created private outdoor spaces are related to the different dwelling typologies which are accommodated in the Wallisblok. The dwellings without a private outdoor space are designated to use the collective space as their outdoor space.
The Wallisblok follows the morphology of the perimeter block and therefore the dwellings are either having a north-south or east-west orientation, meaning that most of the dwellers will find a sunny outdoors space. However the dwellings only have an outdoor space facing the courtyard, meaning that some private outdoor spaces are not likely to be sunny. These dwellers are designated to use the collective space. Due to the dimensions of the courtyard this outdoors space is sunny during the whole day.

During winter the courtyard is not sunny, due to the fact that the building height is exceeding the twelve meters and the width of the courtyard could not accommodate a sunny space.
The diversity of dwellings in the Wallisblok are accessible through the exterior façade of the perimeter block. The access is consisting of a repetition of circulation bays. In each bay the access of several dwellings can be found from one to maximum four different typologies. The ground bounded dwellings, which are finding their private outdoor spaces within the courtyard, access this outdoor space by first accessing their dwelling. The other way around the dwellers of the ground bounded dwelling can access their dwelling by first accessing the collective space of the courtyard, next accessing their private outdoor space and at last their dwelling.
Due to the diversity of dwellings, the number of living rooms facing the courtyard is increased since the rehabilitation of the Wallisblok. Also the ratio between open and closed parts in the façade is now in balance. The façade has transformed for the good and turned into a more open structure than before. Therefore the social control on the courtyard is increased, but it is only controlled by the dwellers of the Wallisblok.
A division in outdoor space of the courtyard is brought to attention by making use of several markings. The first marking is the outdoor space of grass adjacent to the ground bounded dwellings. The use of soft materials is marking the private space and to what extent the collective space could be appropriated or transformed in purpose of the common good.

Within the collective part of the courtyard a subdivision is made to mark for instance the walkway for pedestrians. The gravel placed in between the earth is guiding the pedestrians through the outdoor space. The remaining parts of the earth are for collective use. In co-operation the dwellers use these parts of earth for a flower garden.
The layout of the courtyard can be separated into two parts that naturally flow into each other. The northern part of the courtyard is an open space with grass and a few trees. This zone could accommodate different activities, like playing or sitting in the sun and meeting other inhabitants. In the southern part of the courtyard more trees, shrubs and plants are provided. Paths lead through this area. This zone functions more as an area of movement. The plants and trees also form a buffer between the dwellings that are facing each other.
In the design phase of the Wallisblok, the dwellers formed an association called "de dichterlijke vrijheid". The building functions as a community and with the whole building as a collective the courtyard is territorially appropriated. The garden with shrubs and flowers is planted and maintained by the inhabitants of the block themselves. The soft edges between the private outdoor spaces and the collective area contribute even more to the appropriation. It is hard to point out individual appropriation by the dweller because the inhabitants function as one community.
DE GROTE HOF
RAPP+RAPP
De Grote Hof consists of five composed building blocks. The dwellings at the outer ring have a private garden at the backside (outside the enclosed building block). The dwellings in the middle ring only have a small front garden, because they are back-to-back dwellings. The courtyards are collective and all have a different character.
The main gates of De Grote Hof are located on the short edges of the large central building block. This central square is raised, because the collective parking garage is located underneath. Therefore the gates which give access to this large square are guided by a stair. This stair is an extra threshold for visitors to access this main square. From this square you can access the other four surrounding squares by small alleys and a stairway, which will lead you to the lower level. Those smaller courtyards also have a small narrow access, which emphasize the fact that you enter another environment.
The plan of De Grote Hof is rather symmetrical. Therefore not all dwellings have sunlight in their private garden, because they are orientated to the north. However the majority of the dwellings are orientated to both sides. They have a small front garden and a larger back garden. Depending on the position of the dwelling the front garden or the back garden is better orientated towards the sun.
All dwellings in De Grote Hof can be accessed from inside the collective courtyards. The back gardens are situated outside the building blocks and can be directly accessed by the inhabitants. Underneath the central courtyard a parking garage is provided. From the parking garage the inhabitants can directly access the four smaller courtyards. Staircases connect the central courtyard with the parking garage.
De Grote Hof has different dwelling typologies and also different facades. We have mainly focused on two typologies, one of the large courtyard and one of the smaller courtyard.

The one of the large courtyard is orientated to one side, and has therefore large windows. At the ground floor the living room and kitchen are located. The openings in the façade can be opened, so the small private outdoor space is directly accessible from the living room.

The second typology we have chosen is also one side orientated. The dwelling also has large windows to let as much light penetrate the interior as possible. At the ground floor the kitchen and living room are located.
The architects of De Grote Hof marked the private domestic in a refined way. The first element is the colonnade. The colonnade is three floors high and is covered by a roof. The pillars are shaped in a rectangular form with cut-outs and are made of concrete. The second way of marking the different zones is the use of different patterns in the pavements. The collective area is paved in a Herringbone pattern and the private area is paved in a Basket Weave pattern. Not only the pattern differs, also the pavement of the private outdoor space is raised by almost one centimeter. To divide the private area between the neighbors, steel ornaments are designed, which functions as a barrier.
System of Collonades

Slightly raised private outdoor space
In all the courtyards a green zone is designed, which accommodates various functions. The central courtyard is designed with a raised border with a very large green field. At one end of this grass field a playground with a swing, a slide and a sandbox is located. All other courtyards are of a smaller scale and are also differently designed. They all are provided with trees and benches where people can sit and meet each other.
The front gardens are all being used quite intensive. Furniture, flowers and bicycles are placed in this private outdoor space. Not only is this private space occupied, but also the collective area is being used by the inhabitants. The grass fields at the central courtyard are occupied by playhouses, which are placed by the adjacent residents. At the smaller courtyard, toys, bicycles and scooters are sprawled around. So the residents territorially appropriated parts of the courtyard. Automatically they physically appropriated the spaces as well.
The Waterhoeves is a plan consisting of a composition of several blocks with a courtyard typology. Each courtyard is accommodating a collective part and a public passage, except for the building blocks towards the end. Inside the courtyard a private front garden is provided for each dwelling. Outside the building block, private ‘balconies’ are hanging above the water.
In between the building blocks, parking spaces about the size of the building blocks are part of the urban composition. Therefore several building blocks are accessible by car, except for the building blocks on the ends of the composition. The passage for cars resembles the public passage. To follow this passage some gates have to be passed and therefore entering the collective space by car feels like trespassing. The building blocks that are located at the end of the ‘islands’ are not accessible for cars. Only pedestrians and cyclists can enter them. Strangers are less likely to enter the courtyards of these blocks than the courtyard with a passage through it. The collective spaces in these building blocks are therefore more private than the collective spaces of the other blocks.
Due to the fact that this compositional scheme follows the morphology of the perimeter blocks, it is most likely that a part of the inner courtyard is not sunny and some part is. Because of the size of this inner space and the space is shared, there is always a sunny spot.

On the other hand the private outdoor spaces, following the exterior façade of the perimeter block, are in some cases facing the north. Therefore these outdoor spaces, according to observations are used as storage and the materials are nutrition for algae.
The dwellings are mostly accessible through the courtyard. But the compositional scheme of the building blocks follows an exception and some accesses in the exterior façade of the building blocks were created.

The private outdoor spaces are facing (and surrounded by) water and are therefore only accessible through the dwellings.
In the inner façade of the building block a large window is present on the ground floor level. Behind this window an open space is located which is used as a dining room in most cases. From the outside you can immediately enter the open space. No hallway is present in the floor plan. Therefore it is easy to access the outside space. The sitting area is located adjacent to the outer façade of the perimeter block. A visual connection with the courtyard is still possible but is limited because of the hallway and kitchen in the center of the dwelling.
In each courtyard different zones are marked. The public passage through the courtyards is made of regular pavement in a herringbone pattern. On each side of this road low green fences are placed to create a division with the collective area.

The passage is connected to the dwellings with a path made from fake grass. The edges of this path exist of small strips of stone. These strips also mark the difference between the path and the private garden in front of the dwelling. The rest of the collective area is made out of real grass.
The courtyards are rather empty. The courtyards consist of a combination of grass and fake grass. In the majority of the blocks a public passage is marked with small fences. On one of the parking places a playground is created. No further elements are added to the courtyard itself.
The appropriation in the Waterhoeves is both physical and territorial appropriation. The zone in front of the houses is territorially appropriated with plants and furniture. The collective area adjacent to this private zone is also used physically.

It is often used as an extension of the private outdoor space; parents sitting in front of their home and children playing in the collective area. The road that crosses the courtyard forms a division between the two sides of the courtyards. In the building blocks on the end of the ‘island’ no road is present and the courtyard is physically used more. The dwellers of the enclosed blocks on the north side of the ‘island’ are dwellers with a physical limitation. Therefore the appropriation in these courtyards is territorial.
Le Medi is built as a reference to the medina from the Mediterranean areas. Therefore the element of an enclosing wall is applied, which shapes the border between the public and the collective. When you enter Le Medi, through one of the five entrances, you will enter the collective space of the ensemble. The entrances are provided with a fence. These fences are being closed during the night and at Sundays.

The central courtyard is the collective space for all the people who live in the ensemble of Le Medi, adjacent to this public square some smaller courtyards are located. Those smaller courtyards can be seen as an intermediate between the private and the collective space. This area is being used by the adjacent dwellings.

Besides those collective spaces, the dwellers have a private outdoor space. Most of the private outdoor spaces are located above the parking garage, but around the main square people have a terrace at the first floor facing this square. There are also dwellings with a private roof-terrace.
Le Medi is a car-free dwelling ensemble. The dwellers can park their car in the parking garages or at the streets. The parking garages are located at the ground level, but are almost invisible from the streets, because it is enclosed by dwellings.

Furthermore the building ensemble has five gates for pedestrians or bicycles to access the ensemble, as mentioned before those gates can be closed by the inhabitants of Le Medi.
The majority of the dwellings in Le Medi have an East or West orientation. So people have their 'front garden' or their backyard at the sunny side. Just a few dwellings have their terrace orientated at the north side.

The collective space is quite large and is therefore located in the sun during most of the day. The buildings height is not exceeding the twelve meters, so during the summer the sun can penetrate towards the private gardens, which are located at the first floor.
All the dwellings of Le Medi have their entrance at the ground floor. Dwellings adjacent to the parking garages can access their dwelling also from the back. The entrances of the dwellings are located at the inside of the courtyard or at the outside of the building block. The different orientations of the dwelling entrances increase the social control on the public and collective space. Also at the main gate, at the east of the ensemble, some dwellings have their entrance. The entrances near the gate contribute to the social control on this gate.

Because of the parking garage the private gardens of the dwellings are located on the first floor level. However the entrances are located on the ground floor so to reach your private garden you first have to go up one level.
Le Medi has different dwelling types, so we looked at two types which are representative for the dwelling ensemble. All the dwellings of Le Medi have their kitchen located at the ground floor and in most cases the living room is located at the first floor adjacent to the private outdoor space. Type number one shows a small opening in the façade towards the common space. The function behind this façade is the kitchen, so people can stay in this room with quite a lot of privacy. Type number two shows also a kitchen at the ground floor, but has large opening windows. Therefore people are customary closing off those windows by curtains. The social control towards the public space is decreased and thereby the privacy of the kitchen increases.
The architects of Le Medi tried to mark the borders of the dwellings by different elements. The first element they used is the arcade. This arcade is an element they often use in the Mediterranean to provide shelter from the sun. However in this design it is used more like a symbolic element. The arcade reaches from the ground floor to the roof.

Not only the arcade marks the different zones, there is a distinction in the pavement as well. The pattern of the pavement between the façade of the dwelling and the columns has a different direction than the pattern of the collective space. On the parts of the building where there is no arcade, a “stamp” of the arcade is used in the pavement to mark the different zones.
System of Collonades

Differences in direction of brick patterns
In Le Medi you can recognize different stages of appropriation, the space which is assigned by the architect is most often used by the inhabitants. The earliest stage is placement of flowerpots, which most inhabitants did. The second stage can be described as placing garden furniture. This step is also ordinary for most inhabitants. Notable is the observation that those elements will not exceed the border, sometimes it touches the border, but it will never exceed it. The next stage can most often been identified by families with children. This is the stage of putting toys outside, like a playhouse or a sandpit. This is mostly the case by people who have not got their private outdoor space during the afternoon at the sunny side. At the south side of the dwelling ensemble, people haven’t got an outdoor space adjacent to a living space. Those people feel most probably a lower threshold to use the adjacent public space. Those people open up the doors and windows adjacent to the street and expand their dwelling towards the street. People are sitting close the façade and the children are playing all over the side path.
The idea for this building, designed by VMX, was to create a perimeter block with the spatial qualities of the ‘slab’. By doing this, nearly every individual house is offered a private outdoor space facing south. The ground-bound houses on the north side of the building have a private “back garden” inside the collective courtyard. However these houses don’t have a “front garden”. For the ground-bound houses on the north side, the private outdoor space inside the perimeter block functions as a “front garden”. On the south side a flexible zone is created. This zone can function as a private outdoor space by opening up the façade. The dwellings on the southwest that are not ground bound have private terraces on the south(west) side and a collective gallery on the north(east). The apartments in the “tower” are provided with private balconies.
The courtyard of the building block is only accessible for the inhabitants of the buildings. There are two entrances; one on the northeast side and another entrance on the northwest side. The entrances follow the rhythm of the façade and look very modest. Both the entrances can only be accessed by pedestrians so the courtyard is car-free.

Inhabitants can park their car underneath the perimeter block. The entrance of the parking garage is situated in the south façade at the corner and has the same appearance as the private outdoor space of the adjacent dwelling. From the underground parking place a staircase or elevator leads to the courtyard. Parking places for guests are provided in front of the building on the south side.
The collective courtyard is a sunny place during the majority of the year. Especially during the summer the courtyard is provided with a lot of sunlight. The ‘tower’ on the north side consists of seven stories. Because of its position it creates a shadow on the building behind it instead of taking away sunlight from the courtyard. The architects organized the block like two ‘slabs’. With this organization almost every dwelling is provided with an outdoor space facing south.
To provide private outdoor spaces on the south side, the entrances of the dwellings are mostly located on the north side. The ground-bound dwellings on the north(east) side are therefore directly adjacent to the street. The ground-bound dwellings on the south(west) side can be accessed from the collective courtyard. On the south(west) side of the building block maisonettes can be accessed by a gallery. The "tower" can be accessed by a staircase or elevator.
The most interesting thing about the relation between the façade and the floor plan is the flexible zone that is created on the south side in the ground-bound dwelling. This zone is an in-between space that can function as an outdoor space during summer/spring or an extension of the living room during colder periods. The façade exists of a glass garage-door that can be opened all the way up. Behind this flexible zone the living room with an open kitchen is located.

The maisonette on top of the ground bound dwelling is orientated towards the south. The north façade is almost completely closed. From the gallery on the north side it is impossible to look inside the dwelling. The maisonette is twice as wide as the ground-bound dwelling. The south façade exists of large sliding windows. The outdoor terrace can therefore be used as an extension of the living room.
Inside the courtyard one type of stone is used for the pavement. A reddish cobble stone is used in a grid pattern. The material of the pavement shows similarities with the material of the façade. The pavement is used inside the collective courtyard but also for the private outdoor spaces. The only thing marking the difference between the collective courtyard and the private outdoor space is a steel fence. The fence is only 50cm high so it only indicated a zone but still inhabitants can see each other. The pavement of the gallery adjacent to the maisonette is the same pavement that was used for the private terraces.

On the south side of the perimeter block the difference between the public street and the private (semi) outdoor space is clearly marked. There is a large garage door which separates the public with the private space, though this garage door is transparent so there is a visual connection. Behind this garage door the private outdoor space is raised 60 cm above street level. Not only has the difference in height marked the difference in zones. Also the material of the in-between zone differs from the pavement of the street. The raiser terrace is made of concrete which leads with a stair to the public pavement of the street.
Part of the courtyard is raised and functions as a flowerbed for different grasses. The edges of the flowerbed are made of concrete and can be used to sit on. Different paths are made in-between the grasses and even a small stair is provided for children to get on top of the flowerbed.

On the northeast side of the flowerbed benches are provided for the inhabitants. The collective area on the north side of the flowerbed is almost twice as wide as the area on the south side in-between the flowerbed and the private gardens. On the gallery, adjacent to the maisonettes, large pots with plants are placed, probably to change the appearance of the closed façade.
The collective area within the courtyard is only partly used. The raised flowerbed neither is physically nor territorially appropriated. The collective area to the north of the flowerbed is physically used. When visiting the location, multiple children were riding with their bike or playing with toys. The collective zone to the north looked like it was used less, probably because it is very narrow and no benches are provided on that side.

The territorial appropriation was especially visible on the street on the south side where multiple plants where standing in front of the building. Also a few of the garage doors where open and used as an outdoor space. The nice weather during the visit probably contributed to the use of the (semi) outdoor space. Inside the courtyard you could see that not all the private outdoor spaces were territorially appropriated. The larger private gardens on the north side of the courtyard can be separated into two parts. The part close to the dwelling was territorially appropriated with plants and seats. However the part further away from the dwelling looked like it was not used at all.
The main question for the theme research was: How do architectural elements contribute to the appropriation of adjacent outdoor space? From literature we derived several aspects that could influence the appropriation of outdoor space. Some aspects would only contribute to a physical appropriation (physically using the space) and others would contribute to territorial appropriation (marking your own space) as well. After analyzing several case studies we can conclude which elements, and in what way, did influence the appropriation.
In most projects besides a collective and public outdoor space also a private outdoor space is provided. In most projects dwellers tend to use the private outdoor space first. This can be noted by for example Le Medi and The Kasbah. An important factor by using the space is the scale. When a private outdoor space is quite small, like for example in the Justus van Effenblock, people will use the collective space. The lost important aspect of the private outdoor space is the amount of privacy. The residents miss this factor in the collective area. People will use the collective space when a well designed transition is designed, with for example a front yard.
An important aspect by the amount of appropriation is the gradient of public to private in a collective space. Is the dwelling typology closed off, like for example the Wallisblok or is it public accessible like for example the Justus van Effenblock. We can conclude that this aspect has quite an effect at the appropriation. In the case studies different scales of accessibility can be defined. When an outdoor area can only be accessed by pedestrians it makes the outdoor space more livable for the inhabitants. They do not have to deal with the danger and sound of cars. For example in the Kasbah and in Waterhoeves the cars have a large effect in the quantity of appropriation. When this collective space is more private, the residents seems to appropriate it more intense. A design element which will influence the atmosphere of this transition is the border. The border of the transition between the public and the collective seems to be an important design aspect. For example the border in De Grote Hof, but also the one of Le Medi, are thresholds for visitors to access the space. The stairs you have to access before entering the large courtyard of De Grote Hof is a design element which will help to make the collective space more ‘private’. The gates of Le Medi have the same effect, you will notice when you pass those gates that you enter a different atmosphere, a different zone. So the security of the collective space is important. This privacy is also important for the private outdoor space. Most dwellings of the analyzed projects have besides a collective or public outdoor space, also a private outdoor space. We can conclude that the residents of most of the projects tend to use the private outdoor space first. Only when the provided private outdoor space is very small or it is badly oriented, people will use the collective space.
As Jan Gehl already explained, people love to sit in the sun. From our analysis we can conclude that this is true. The sun is very important for the use of the outdoor space. Dwellers will use an outdoor space much more when the orientation is good. In several projects we could conclude that the private outdoor space is not well orientated. This was the case in for example Waterhoeves, where half of the dwellings had a private outdoor terrace which was orientated to the North. This resulted in not using this private outdoor space, but instead they used the collective area. Another project where this was clear was De Grote Hof. Some residents have a long time during the day no sunlight in their private outdoor space. In this project the same phenomenon appears, people will use their smaller front garden adjacent to the collective space. In the case of Le Medi this was even more clear, where the south side even used the public pathway to stay in the sun.

The architects of the Noordbuurt were aware of this orientation and therefore created a row house typology in a building block. The south side with the large garage door was in a way designed, so people could use this space to enjoy the sun instead of the courtyard. So we can conclude that orientation is an important factor for people to appropriate the space. When the outdoor space is orientated to the sun, people will use the space more often than a outdoor space which is mainly in the shadow.
From our analysis we can conclude that appropriation only happens when there is a connection between the provided outdoor space and the dwelling. In the cases where people were indirectly connected to the outdoor space no appropriation took place. This was for example the case in The Kasbah, but also the upper apartments of the Justus van Effenblock. Only the space that is directly connected to the dwelling is appropriated. People in those two case-studies would not take the effort to go downstairs to use this collective space. In the Justus van Effenblock this became clear by looking at the gallery, which in this case is widened. People from the upper floors occupied this space instead of the large collective area at the ground floor.

HET FUNEN DICK VAN GAMEREN
HET FUNEN NL ARCHITECTS
JUSTUS VAN EFFENBLOCK MICHEL BRINKMAN
DE KASBAH PIET BLOM
WALLISBLOK HULSHOF ARCHITECTEN
DE GROTE HOF RAPP+RAPP
WATERHOEVENS J. BOSCH
LE MEDI GEURST&SCHULZE
NOORDBUURT VMX ARCHITECTEN
Important for the appropriation is the function which is adjacent to the outdoor space. In most cases we could see that a living room and/or a kitchen was adjacent to the outdoor space. It seems that people appreciate such a function adjacent to the outdoor space. In Le Medi for example the kitchen is located at the ground floor, adjacent to the collective space. At the first floor adjacent to the private garden, the living room is located. People often opened the doors at the ground floor to extend the activities in the collective area.

In the case of Dick van Gameren his design in Funenpark, there were some bedrooms located at the ground floor. Here the curtains are closed, and the outdoor space was less used, than the neighbors where a living room was located at the ground floor. This is another aspect which is in conjunction with the function behind the facade, the façade itself. People like to maintain privacy in certain rooms of their dwelling, which can be regulated by inter alia the façade. When a façade of a bedroom for example is too open, people will prevent exterior looks and therefore close the façade. This also result in a decreased used of the adjacent outdoor space.
In all cases it is very clear that inhabitants follow the markings that are provided. People appropriate the space that they think belongs to them. This marking is established in different ways in the various projects. An element we have seen in multiple projects is the colonnade. This colonnades provides a kind of privacy, it filters the space between the collective and the private. So most people occupied the space which was created behind this colonnade. Most people did not exceed the created border, so this marking proved to be a good one. Another recurrent design element is a different material or pattern to divide the collective and the private. In Funenpark it is an obvious difference between the wood and the grass, but in the cases of for example Le Medi those difference are much more refined. In the case of Le Medi it is only a different direction of the pattern of the brickwork that shows the difference between collective and private, the materials stays the same. This principle is also used in De Grote Hof, but there the architects even used an extra dimension. The private area is elevated one centimeter above the collective area, which resulted in a clearer border. To conclude the small architectural interventions are working to define the different spaces.
Inhabitants tend to use a space more when there is a possibility to actually do something. As Jan Gehl explained, nothing happens, because nothing happens, because nothing happens. The space therefore need a catalyst to activate those activities. In the Kasbah the open outdoor space is used because there are benches and play equipment. A playground is often used as a catalyst, because children will use it. The next step is parents watching their children and this activates other residents to use the space. This is also the case in De Grote Hof, where a lot of families are living and the children occupy the courtyards. Often only the use of plants does not contribute to the appropriation simply because there is no clear activity that can take place. When a flowerbed or in the case of the Justus van Effenblock rocks are placed, children can not occupy this space, and therefore it is not used. This also becomes clear in the Noordbuurt, where a flowerbed is placed.
We have described the importance of the difference aspects for the purpose of appropriation, but cannot conclude that one aspect results in appropriation. This phenomenon is stimulated by a combination of influences. We have divided appropriation in three typologies, according to Altman.

For physical appropriation the provided elements are the most important. People physically use a space when it has a clear function. The presence of benches and play equipment significantly lead to more physical appropriation in the case studies. Another aspects which influence the presence of people in a space is the orientation. When a space is located in the sun people use the space more often than a place in the shadow. This is for example the case in the Noordbuurt. This courtyard is not used by the residents of the south side, because their site is located in the shadow, while they have a nice private outdoor space at the sunny side.

For the territorial appropriation more elements are important, and more often a combination of the elements. Also for territorial appropriation orientation is important. Not only the orientation of the collective space, but also of the private outdoor space. When residents have a private outdoor space, which is bad orientated, they are earlier tended to use the collective space if this one is well oriented. This was the case at Waterhoeves, and another fact which increased the ignorance of the private outdoor space was the size. When people cannot execute the activities they want in their private outdoor space, people will use the collective area. Another aspect is the accessibility of the collective space. This was obvious when we compared the Wallisblok, De Grote Hof and Waterhoeves with each other. The amount of privacy is regulated by the accessibility of the block.
Can cars, pedestrians or only inhabitants visit the common space? The better the thresholds of the border are designed, the more private the courtyard is and the appropriation increases. Stairs and gates tend to be good architectural elements to indicate that visitors are accessing another zone. Then the transition from the collective area towards the dwelling in an important element. How well are the different zones in a collective space defined. Dwellers need clarity about space. An outdoor space that is not clearly marked as part of the dwelling will not be used. Architectural elements which help to define the different zones can be very subtle. A change in pattern of the brickwork can be enough to indicate the different ownership. Other elements which will help to indicate the different zones are raising the private outdoor space or introducing a colonnade. When people understand that those spaces are part of their territory they will occupy it and sometimes even extend it. This extension is most often more temporary, as been seen in De Grote Hof and the Justus van Effenblock. This are playhouses, toys, inflatable swimming pools or a barbeque. The extension of the dwelling is also strongly dependent of the functions adjacent to this space and the opening in the façade. How easily can the residents extend their dwelling to the collective space. This depends of the function located adjacent to this collective area, our research shows a kitchen or a living room are the most appropriate functions, with a façade which can be opened.
Besides the aspects that are analyzed in this research I think that the appropriation is influenced by privacy. In the selected projects the zone that is territorially appropriated is always adjacent to the dwelling. The dwelling forms a secure zone. The further away people are from their dwelling the less secure people feel. In all the analyzed projects the inhabitants of the buildings always tend to use their private outdoor space first. The collective outdoor space is only used when the private outdoor space is not big enough for certain activities or when the orientation to the sun is bad.

In the outdoor space the inhabitants always want to have a certain border between a more private zone and a collective zone. But inhabitants also like to have a border between the private zone of themselves and their direct neighbors. These aspects become clear in two projects.

In the building block designed by VMX there are larger gardens provided for the dwellings on the north side. However the inhabitants only seem to use the space that is close to their own home. In the outdoor space privacy is provided, because the private outdoor spaces are separated by partition walls. The garden exceeds the partition walls, however that space is less appropriated.

Also in the design of Dick van Gameren in Funen it is clear that inhabitants like to create their own private space. The wooden deck that is provided is designed as a hole. However the inhabitants marked their own zone by putting plants and fences between their private outdoor space and their neighbors.

I think that the architect should keep in mind that people always desire an outdoor space that belongs to them. It is not necessary that the outdoor space officially belongs to the inhabitants, however the architectural elements should mark clear zones. For example in the Justus van Effen block the zone in front of the houses on the ground floor is officially a collective area. However it is used as a private front garden because the pavement marks a certain territory. Le Medi is also an example where zones are marked with different materials.

The conclusions of this research are very useful for the design of Houthavens. The analysis of the outdoor space exceeds the outdoor space itself. Already the shape of the building affects the use of the outdoor space. In my design I tried to create a certain amount of privacy by making a division between the public realm and the collective and private spaces. Because different scales are analyzed the conclusions can also be used on the different scales of the design. Even though the design process is still in an early stage already this research forms an important source of information for the design.

Peter Steffens
1503510

Doing this research was for me rather useful, because now I know which elements will contribute to make a collective area being used. I definitely want to use the elements which contribute to the appropriation in my design. Interesting for me is the fact, that an open urban blocks can work as good as a closed perimeter block, as shown in the cases of Le Medi and De Grote Hof. It all depends on the design of the access points. If you create a threshold for people, like a stair or a gate, it will contribute to the accessibility of the block. Even though the ensemble is publicly accessible, it will become a more collective space.

A second aspect which will be helpful for my design is the transition zone from the collective area to the private area, and how those zones are marked. In the Justus van Effen block and in for example Le Medi a different material of pattern was enough to distinguish the different zones. Still people will feel like they are in the spotlight, like the projects in Funenpark. The action most inhabitants did first, was creating their own territory by placing planting pots to divide the outdoor space between the dwellings. It seems that the architects did not provide enough privacy for those dwellers. In De Grote Hof and Le Medi the arcades seems to work as a design element to provide enough privacy for people to stay there. This was also the case at the south side of the building block of the Noordbuurt by VMX architects. This garage door in combination with the raised platform seems to be a good instrument to maintain the privacy for the dwellers to appropriate the space.
Another conclusion I want to take into account is the distance of the dwelling to the outdoor space. In multiple cases the prediction from literature was proven. It seems that the dwellers in the Kasbah, the Justus van Effenblock and the upper dwellings of the building block of Dick van Gameren did not appropriate the collective area. People just do not like to travel long distances to go outside spontaneously. Inhabitants prefer to open a door of a place which is regularly occupied, like the kitchen or living room, to enter the outdoor space. The outdoor space should be located at the same floor as the living space. So if I decide to make compensation space for apartments it should be located at the same floor(s) as the apartments.

The most important aspect which should be taken into account in the first phase of the design process is the orientation. As seen in almost all projects people will use the space which is located in the sunshine. This was obvious in the project of VMX architects. They took this strategy into account in the design process. In this case the dwellings were not all focused towards the courtyard, but to the sunshine. It seems that people will automatically do this, so we as architects can better design it already in a good way.

While doing this research, the first aspect which seemed to be important for appropriating outdoor space, is the orientation of the space itself and the influence of the building shape on the orientation. In the Netherlands we are people which tend to let our behaviors influence by the weather. It is more likely in the Netherlands to use the outdoor space more often when it is a sunny space. Observing the case studies when the weather was sunny exposed a different kind of appropriation in contrast to bad weather. Therefore the orientation of outdoor space, partly influenced by the surrounding building shapes, is to me one of the most important aspects for appropriation.

Within this aspect of orientation, markings and materials are one of the key aspects to control human behavior. In the analyzed case studies, markings of different zones in outdoor space make one another use spaces differently. For instance the markings in pavement in the enclosed courtyard of the Justus van Effenblock. The same can be observed in Le Medi. By positioning the brick work in a different direction, some space become a place to park for instance bikes or to stall some outdoor furniture, where on the other hand the brick work in the other direction is tend to be used as a passage. The same can be seen when instead of using markings and materials, a place is slightly raised.

In other cases the roughness or softness of the ground material seems to influence the appropriation. If we think about for instance the scheme of het Funen. Within the park like configuration, each dwelling has a marking of rough material close to their access and adjacent to this marked zone, the grass of the park like configuration takes over. One another uses this marked space for outdoor furniture, because of the steady surface, where the children are likely to use the grass as an extension to play, due to the softness of the surface.

Another important aspect within the way the outdoor space is oriented, is to what extend the dwellers still have privacy. In the analyzed case studies which are belonging to the perimeter block typology, an extension of privacy can be experienced. This building typology creates more or less a community, which can be seen as an extension of privacy. The dwellers of the Wallisblok have strengthened this by founding an association, “de dichtelijk vrijheid”. Therefore the appropriation of the collective outdoor space is different if we compare it to the Waterhoevens. The Waterhoevens is a scheme of several perimeter blocks. Some perimeter blocks are opened up to create a passage through the block, leading to parking lots for instance. This means that the feeling of a community sharing a public space is disturbed by this more or less public route. The appropriation of the collective space in the perimeter blocks with passage is different compared to the perimeter blocks without a public route. In the perimeter blocks without passage, people even tend to leave belongings without supervision. In a way the accessibility is influencing the extension of privacy, therefore accessibility is also of great importance for appropriation. It is important to know if this route is accessible for cars or just pedestrians.

In my opinion the orientation of the outdoor space is the most important aspect to influence appropriation and use of the outdoor space. Besides the orientation other important aspects, markings and materials, public and private and accessibility, are intertwined to influence the appropriation of outdoor space.

Sjoerd Broek
4185595

In other cases the roughness or softness of the ground material seems to influence the appropriation. If we think about for instance the scheme of het Funen. Within the park like configuration, each dwelling has a marking of rough material close to their access and adjacent to this marked zone, the grass of the park like configuration takes over. One another uses this marked space for outdoor furniture, because of the steady surface, where the children are likely to use the grass as an extension to play, due to the softness of the surface.

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Sharon van Kempen
4185587
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