Urban Dwelling-Scape

Presentation report

ma4_ark34_2011

Cecilie Breinholm Christensen

HOME
(DWELLING IN PROCESS...)

"a home cannot be produced at once;
it has its time dimension and continuum,
and it is a gradual product of the dweller's
adaption to the world"

[Pallasmaa, 1995]

TITLE PAGE

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Synopsis

This report presents the result of the thesis project on 4th semester of the Master at Civil Engineering in Architecture & Design, Aalborg University.
The project is concerned with the themes of dwelling and sustainability; more specifically how the qualities of the detached single-family house can be combined with the qualities and sustainable benefits of living in a dense urban context at the harbourfront in Aarhus.

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INTRO

PRESENTATION

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MOTIVATION

There are several motivation factors for working with the themes of dwelling and sustainability. First of all, there are personal motivation factors, where the general interest in the interaction between people, and between people and environment is one. **The home constitutes the border between public and private**, and as a result the home has a great impact on the way which people meet society. It is the place, where the child has its first encounter with the world, and the home frames family life, where values, traditions and culture is passed on from one generation to another. **Moreover, the home is where most of us spend most of our time**. Thus, it influences on the general health and well-being of its inhabitants, both physically and psychologically. This again influences the performance and behaviour of the inhabitants in all other aspects of their life, e.g. at school and at work. [Lawrence, 2001][Benjamin, 1995]
In this way, the architectural profession has an important task in providing the housing, which constitutes the physical frames for people's homes, and it is of course relevant to investigate how this can be done in an optimal way.

It seems however, that there is a disagreement between professionals and layman in what an optimal dwelling is. According to the Danish population, **the detached single-family house is by far the most preferred housing typology**. It is on the top of the housing hitlist and has been so for many years – and probably will be for many years yet to come. Among the things people value is the ownership of the house, the freedom to decide and to be able to walk around the house. Also, the neighbourhood has a great impact on the choice, as people like to live among people, who share the same values, they like to be able to relate to their neighbours, even though they may not necessarily have any social contact with them. On the other hand, they also like to have a hedge and some distance to their neighbours, they value the privacy of the detached house. And of course, they value their garden and terrace and the closeness to green areas in general. [Jensen, 2008][Kristensen, 2010]

But among architects and planners, there has always been an adversion towards the detached single-family house, especially the standardised ones. Neighbourhoods of this kind of housing are considered unattractive and distasteful among many architects and planners due to the many varying styles and expressions. These neighbourhoods are considered to be anti-social and people living there to have an individualistic, and egocentric lifestyle. A more objective and unbiased critique relates to sustainability, where this housing typology is considered an un-sustainable way of living characterized by a too high energy consumption and too high need for transportation. [Kristensen, 2010][Arkitekten, 1976][de Waal, 2011]

Also, most of the detached single-family houses are owned by couples who bought them in the 1960's and 70's, where the majority of them were built, and consequently their children has already left home. This means, that it is difficult for young families to enter the housing market, since they cannot afford to buy a house in the urban areas, where they have their job, and social network. So the "dream-house" is for many just a dream, which they cannot realize. [Kristensen, 2007]

Moreover, **the detached single-family house is not sustainable**, and already when these houses were constructed in the 1960's -70's it was discussed, whether this was actually the best solution towards a more sustainable development. Sustainability is, of course, a broad and imprecise concept, and it seems like the term is applied on almost every ambitious project, without taking the time to consider what it actually implies for a project to be sustainable. Sustainability includes a lot more than lowering the energy-consumption and planting a tree, it is a way of thinking and consequently it should be implemented in a much more broad sense already in the projecting and planning of a project. It is a fact, however, that there is a need for a more sustainable development, if the present economic growth and urbanization is to continue, both on social, environmental and economical level. [Arkitekten, 1976][de Waal, 2011]

Seen in this perspective, the detached single-family house fails to meet the demands for sustainability on several levels. At a social level, the basic idea of the detached single-family house is not very social in terms of equality and fellowship and the aforementioned economic aspects hinders social mobility. At environmental level, the detached single-family house has a big use of resources, both in terms of materials and in terms of energy consumption for the household as well as for transportation. Moreover, it spreads out over the open land, which impacts on biosystems and nature in general. At economical level, the expensive detached single-family houses further hinders economic mobility. It keeps economical strong people strong, and makes it more difficult for people without a large economic capital to get into the housing market.

In this respect **it would be more sustainable to live compactly and dense in an urban environment**. Dense living implies less need of transportation, less energy consumption and less use of resources in general, more variety and social contact and a mixed use of functions, which enables a maximum usage of the city area. Also, the city corresponds better to a late-modern lifestyle, which is characterized by mobility, flexibility, globalization and variety. People are constantly on the move and constantly connected, nothing is taken for granted and everything is for discussion. Consequently, it seems like there is a mis-match between the ideal house of most of the population and the way they actually live their lives, and that the detached single-family house is a somewhat anachronistic housing typology.

However, since this housing typology has such a massive success in the population, it cannot be neglected by professionals. The architectural profession has to relate to the things people value in the detached single-family house as starting points in their critique towards this housing typology.

Part of the discussion, is the practice at many architectural offices, seen through internships at two different architectural offices in Denmark and the Netherlands respectively. **In the architectural development of a project there is mostly drawn upon tradition and prevailing techniques,** as economy is a necessary part of reality in a company, where there is little time to research. Moreover, **there is little awareness** of sustainable approaches among decision-makers in the building industry. [concito.info]

Personally, it is experienced that the enhanced qualities of the detached single-family house does not necessarily conflict with a more dense housing typology. By up-bringing in a semi-dense area of row-houses, a common house and different communal activities such as work days and dining together, the experience is that this does not compromise with the feeling of privacy and ownership of the single dwelling. On the contrary, the best is obtained from both being part of a small community with shared facilities and having individual dwellings with private gardens.

Consequently, **the overall personal motivation factor is the strong belief in the possibility of a sustainable life in a dense urban context in combination with a high quality of life as enhanced in the detached single-family house**. There IS a solution of combining *home* with *sustainability*, but there is also a need for showing such solutions, both towards laymen, contractors as well as architects and planners in order to challenge prevailing prejudisms concerning sustainable and dense living, but also concerning the quality of life in the detached single-family house.

There is a need for action and for discussing and investigating more sustainable alternatives to present methods and design processes. It may be more expensive in the short run, but in the long term it is a necessary step to take. A key element in this development is the integrated design process, where environmental aspects has to be implemented from the beginning in order to achieve a high performance in sustainability in integration with the functionality as well as the aesthetics of the architectural design.

According to the previous listed motivation factors, the overall problematic, which is investigated in this project, is, **how the integrated design process can be used for designing dwellings, which combine the positive values and aspects from the detached single-family house with a more contemporary and sustainable way of life in a dense urban area – to re-invent the detached single-family house in a sustainable, urban context.**
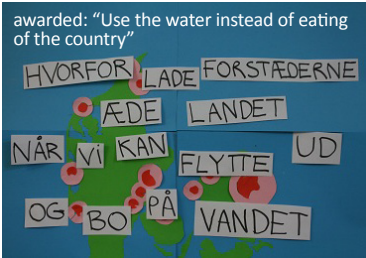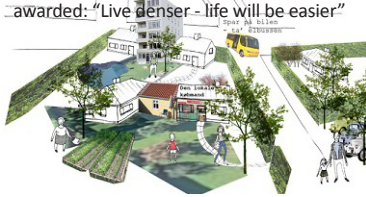
PROJECT BRIEF

As a guidance of the project, there is taken point of departure in project briefs from contemporary architecture competitions, which focuses on the sustainable development of our built environment.

The Europan competition is an annual European architectural competition for young architects under the age of 40 with sites at several locations all over Europe.
In 2010 one of the sites was in Lisbjerg close to Aarhus as part of a new masterplan for the area. The solution should show how sustainable housing with varying sizes, ownership and demographic groups could be designed, with the use of sustainable building materials, more specifically industrialised wooden components. The design should be dense and compact and the project should encourage new housing typologies, by reflecting contemporary needs of individualisation and demands for privacy in the dwelling. The project should be perceived as a small village in the overall masterplan, and should contribute to a greater conscience and care for the surrounding environment, where the occupants get to feel a sense of belonging. [arkitektur dk, 2010]

The Europan competition for 2011 is inaugurated on February 28th 2011 and the topic is *"resonance between territories and ways of life - what architectures for sustainable cities?"*
The keywords are *identity, uses* and *connectivity* where the competition programme argues that in the quest for sustainability it is essential on planning level to develop the connections and interdependencies between areas, regardless of scale. *"The sharing of created spaces and access to the different municipal services promotes social relations between citizens."* Concern should also be taken regarding the horizontal growth of cities into unbuilt land by limiting this tendency, thereby protecting natural resources and biodiversity while enhancing the urban territories. The specific sites of the Europan 11 competition ask for solutions which proposes an environmental development strategy, where the projects should have a potential to evolve, taking into account the specific identity of the location and the scale of the site. In order to achieve this, the architect needs to consider aspects ranging from planning and landscape, as wells as environmental and economical factors in synergy with the architectural solution. Consequently, three scales have to be taken into account: the global strategic scale, the ideas scale and the scale of the urban and architectural project. [http://www.europan-europe.com/e11/en/topics/]

1st prize: "Favourite dwelling"

awarded: "Live denser - life will be easier"

awarded: "Use the water instead of eating of the country"

awarded: "toleraCITY"

Another competition is called "Show us how we should live - dense" (translated from Danish), and the goal is to make visions for sustainable ways of living densely together. The competition takes its points of departure in the fact, that most Danish people would prefer to live in a detached single-family house, and that this is not very sustainable. It would be more sustainable to live compact in the cities, but this, however, also has disadvantages like e.g. noise and pollution.

Consequently the competition aims for challenging our culture, mentality and way of life, to investigate our willingness for change, to put our preferred housing typology into perspective, to ask about our use of ressources and to contribute with realistic proposals for a paradigm shift in housing ideals.

Concretely, the competition proposals were to be handed in as short movies, showing visions of how we can organize our dwellings and cities in a way that increases quality of life and makes it more attractive and achievable to live and work dense in a sustainable way - thereby challenging the Danish dream of the detached single-family house. [botæt.dk]

The concrete architectural design of this project will deal with the beforementioned problematics by incorporating essential points and concerns.

Inspired by the competition in Lisbjerg, Aarhus, it is the goal that the architectural design solution entails:

- variation in dwellings (size and ownership)
- new housing typologies (individualisation and privacy)
- a small village in the overall urban fabric

From the competition "Show us how we should live - dense", following points are extracted, where the architectural design solution should:

- putting our preferred housing typology into perspective
- envision
how we can organize our dwellings and cities in a way that increases quality of life and makes it more attractive and achievable to live and work dense in a sustainable way

And finally, from the Europan 11, the architectural design solution should:

- relate to the keywords of *identity* and *connectivity*
- limit the tendency of horizontal growth
- have a potential to evolve

SITE

The concrete site of the project is at the harbourfront in Aarhus, where the former industrial harbour is to be transformed into a new urban area with a mix of residential, commercial and leisure activities. First stage in this redevelopment is the Northen harbour area, which is situated very close to the city centre of Aarhus. The site chosen for the development of the architectural solution in this project is as close to the city centre as possible, at the most Southern part of this new plan (see ill. xx.).

Another reason for choosing this location, is the opportunity to become part of the discussion of the future development of the city and how we should inhabit urban areas. The architectural design of this project will propose one solution to this problematic, and by publishing it on the web-page of this new area (debynærehavnearealer.dk) it has the possibility to contribute to this interesting debate.
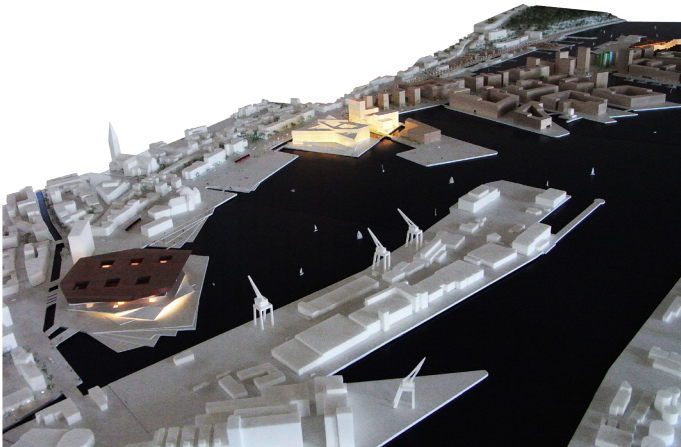
The Northern harbour

The vision for the Northern harbour area is to become a lively, versatile and attractive urban area on the edge of the bay, which can emphasize Aarhus nationally as well as internationally. It should be a good place to live, an interesting place to work and a multitude of recreational and cultural possibilties for both the inhabitants of the city as well as visitors. The fusion of commercial, residential and leisure functions should result in a vivid centre for everyone, with respect for people, environment, architecture, infrastructure, business and economy.

Two key elements in the new masterplan are a promenade along the original coast line of Aarhus for soft traffic, and a maritime city square in close connection to the existing central city squares around the cathedral. Another important aspect is the mix of functions in order to obtain an urban city-like area. Consequently, the 80.000m2, which are to be built in the area, should have a division of 50/50 between residential and commercial functions, and with recreational areas in between. Moreover, there should be a variety of housing typologies and minimum 25% of the housing should be affordable.

It is the intention that the area should acommodate 7.000 inhabitants and 12.000 workplaces, with the workplaces centralized along the central accessway, which leads from the existing city centre to the area. Consequently, the buildings here are tallest and decrease in height towards the water, in order for the housing to get closer to the water and to get a better possibility for a nice view over the water. All parking is planned to be underground, and the infrastructure in general should be of very high quality with focus on public transport to and from the area.[denstoredansk.dk,B][wikipedia.org][debynærehavnearealer.dk]

1:25000

PRESENTATION

URBAN CONCEPT

HARBOUR SCAPE, URBAN SCAPE AND DWELLING SCAPE

The final urban concept divides the design into three overall *scapes** with three different characteristics: a harbour-scape, an urban scape and a dwelling-scape.

The harbour-scape relates to the big scale and rough character of the harbour area. This is the back of the overall urban configuration, and the entry to the site happens from here. On the North of the site some functions, such as offices, may face towards the harbour-scape, but in general all functions face away from this and inwards into the site.

The urban scape represents an urban and more intimate scale, which is the interior of the site. This is situated at ground floor of the entire site and consists mainly of all the commercial functions such as offices, shops, daycare, private doctoral practices etc. However, some of the dwellings may cut all the way though to the urban scape and in this way enable a gradual transition.

The dwelling-scape cuts through all layers of the whole configuration and structures this. The dwellings are vertically orientated and constitute the build environment of the site. This is related to the kasbah-idea, where the connection of a multiple single units constitute the overall form and identity, like building-stones.

There should not be strict borders between the three scapes, instead they should be conencted by gradual transitions. This is among other things done by the layering of the villaroad, which connects all the scapes.

In order to make tension in the plan and to make it possible for the dwellers to identify and connect with the place, there is worked with hierarchy in the open spaces and with an increasing height towards North.

* -scape
a combining form extracted from landscape, denoting "an extensive view, scenery," or "a picture or representation" of such a view, as specified by the initial element: cityscape; moonscape; seascape. [dictionary. reference.com]
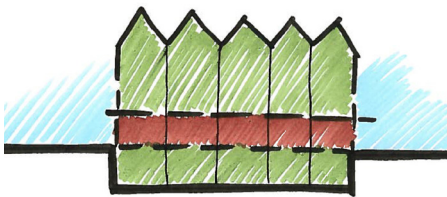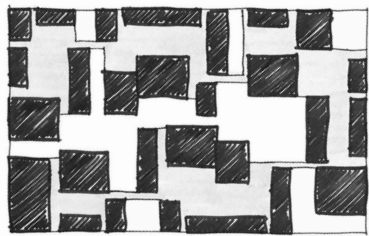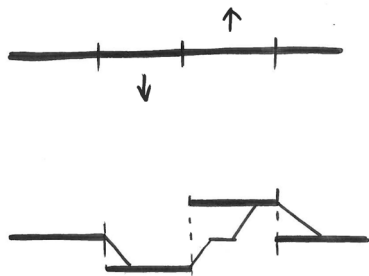
Instad of running in one linear course, the villaroad is split up and thereby connecting the different layers of the urban configuration. However, the connection between the single dwelling and the entrance to the dwelling with the parking of the car is maintained by placing the garage of each dwelling directly under the very dwelling, thereby obtaining a sense of territory.

The labyrinthic organisation of the urban layout/configuration relates to the kasbah-idea, where the dwellings constitute the overall urban composition. In this way the need for an intimate human scale and a sheltered green heart is respected.

The clear division of the urban layout into the three main spaces of the harbour scape, the urban scape and the dwelling-scape organises the site and gives hierarchy to the design. The composition turns its back against the harbour-scape and leads the flow of people into and through the site instead of around it.
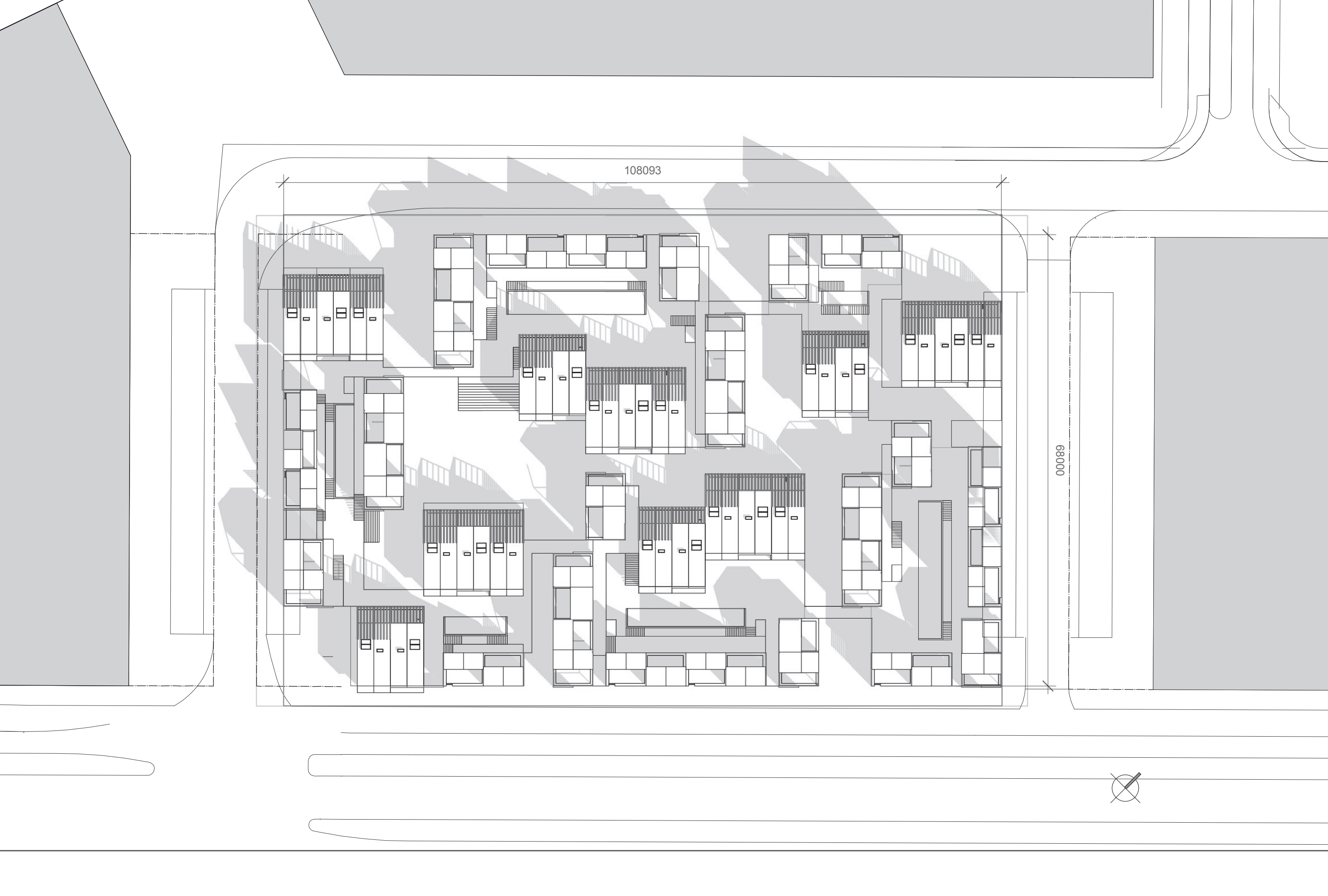
HARBOUR-SCAPE

SITUATION PLAN 1:2000

View of the site towards South-
east from the city of Aarhus

108093

68000

URBAN SCAPE

PLAN 1:500

The final urban concept divides the design into three overall *scapes** with three different characteristics: a harbour-scape, an urban scape and a dwelling-scape.

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The urban scape represents an urban and more intimate scale, which is the interior of the site. This is situated at ground floor of the entire site and consists mainly of all the commercial functions such as offices, shops, daycare, private doctoral practices etc.

The dwelling-scape... cuts through. Vertically orientated, is constituting the build environment, organising the whole configuration. The kasbah-idea - one big form split up into the different yards/cluster and again into the different dwelling-clusters and again into the different dwellings. the single dwelling is the basic building-stone, forming the overall landscape...

Not strict borders between the three scapes. They are connected visually and physically... GRADUAL TRANSITIONS! The villaroad is layered.. The villa-road goes through all scapes, connects them, intertwining.

Mix of private and public functions. However, attempted to create a hierarchy of the public/urban spaces - a main square, a main shopping area, a daycare area, an office area, sloping/height difference towards northeast

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DESCRIPTION

Dwelling units

Holland houses		23
107,5m² gross area (+ 40m² garage)		
Nuclear houses		25
150m² gross area	9	
(+ 60m² garage)		
75m² gross area	16	
(+ 30m² garage)		
Tower houses		21
150m² gross area	6	
(+ 30m² garage)		
120m² gross area	15	
(+ 30m² garage)		
Total		69
7722,5m² gross area		
Commercial units		
180m² gross area	5	
120m² gross area	4	
60m² gross area	17	
Total		26
2400m² gross area		
Total area site		7350,8m²
Density		94 dwellings/ha
Building %		138%
10122,5m² built area		

ELEVATIONS 1:500

South West

12000 3rd floor
9000 2nd floor
6000 1st floor
3000 home zone
1500 backyard
0 ground
-3000 garage

North West

12000 3rd floor
9000 2nd floor
6000 1st floor
3000 home zone
1500 backyard
0 ground
-3000 garage

ELEVATIONS 1:500

North East

12000 3rd floor
9000 2nd floor
6000 1st floor
3000 home zone
1500 backyard
0 ground
-3000 garage

South East

12000 3rd floor
9000 2nd floor
6000 1st floor
3000 home zone
1500 backyard
0 ground
-3000 garage

13500

4700

4500

9300

9000

3500

4500

10700

7000

PLAN_GARAGE 1:200

book shop

shoes

2000

medical
practice

dentist

4000

14500

café

4500

27400

9300

icecream

shoes/
clothes

bakery

shop

4500

3000

14500

6000

café

10000

22600

hair-
dresser

accessories

15000

10700

12000

mini

coffee

12000

market

shop

6000

5000

18000

10000

PLAN_GROUND 1:200

View of the entrance to
the site from South

book shop

shoes

17000

medical
practice

dentist

waste
deposal

28000

café

10000

shoes/
clothes

waste
deposal

14500

9500

3000

bakery

icecream
shop

café

hair-
dresser

accessories

3500

mini

market

7100

waste
deposal

23300

coffee
shop

PLAN_BACKYARD 1:200

View of the central square at
the site

2000

2000 1300 3700 3000

6900

3000

4100 2900 1300

1300

1500

16200 6100

1300 3000 1300

5500 5000

6000

18000 10000 12000 2500

PLAN_HOME ZONE 1:200
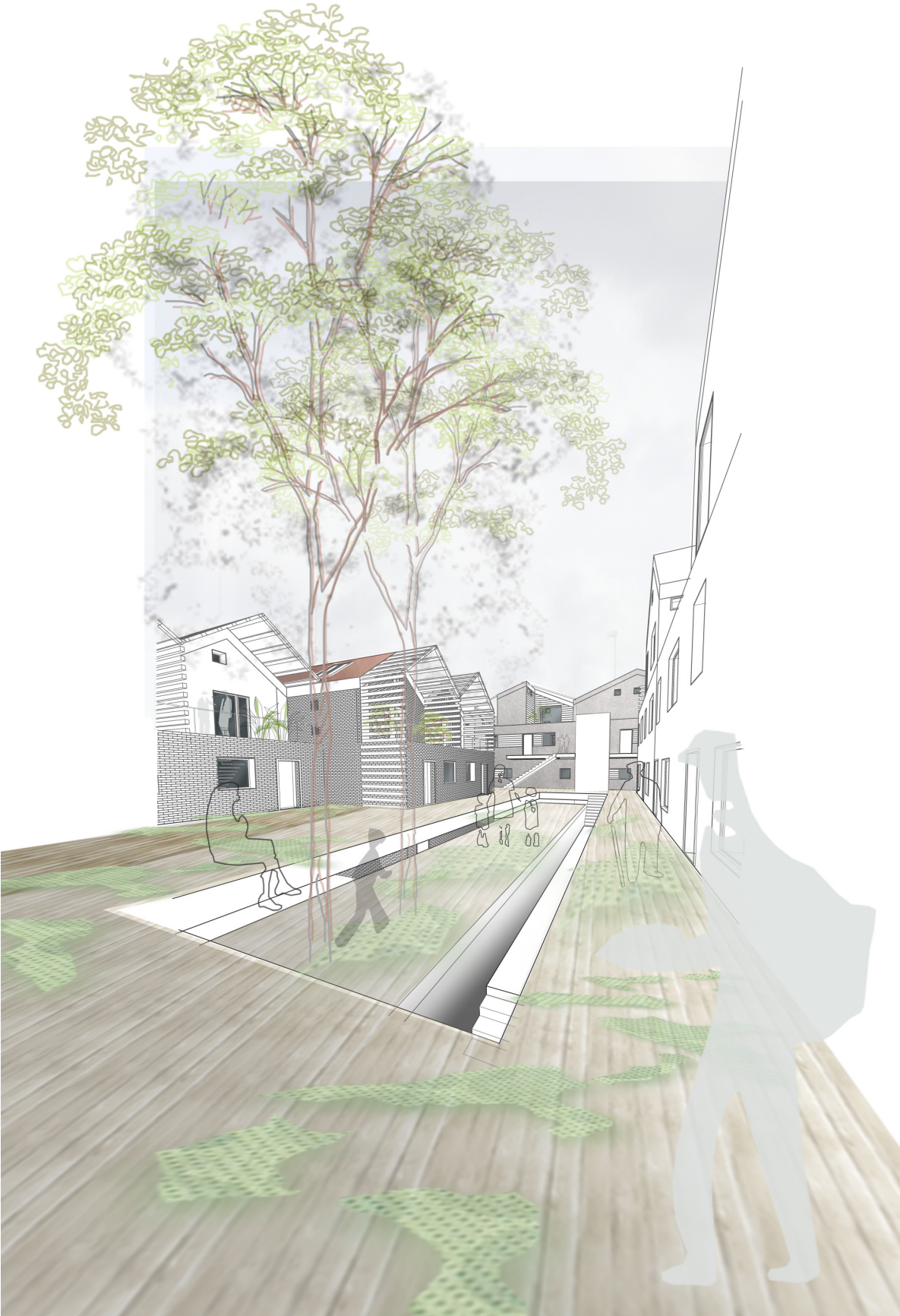
View of a home zone

PLAN_1ST FLOOR 1:200

Interior view at first floor
of the holland-house

PLAN_2ND FLOOR 1:200

View from the balcony
of the nuclear-house to-
wards the central square

SECTION_NW-SE 1:200

15000

12000 3rd floor

9000 2nd floor

6000 1st floor

3000 home zone

1500 backyard

0 ground

-3000 garage

SECTION_SW-NE 1:200

15000

12000 3rd floor

9000 2nd floor

6000 1st floor

3000 home zone

1500 backyard

0 ground

-3000 garage

CONCLUSIONS
HOME & DWELLING - ANALYSIS

safety and shelter

movements

embrace symbols,
rituals and emotions

to be rooted

autonomy and
freedom

privacy

neighbours and
neighbourhood

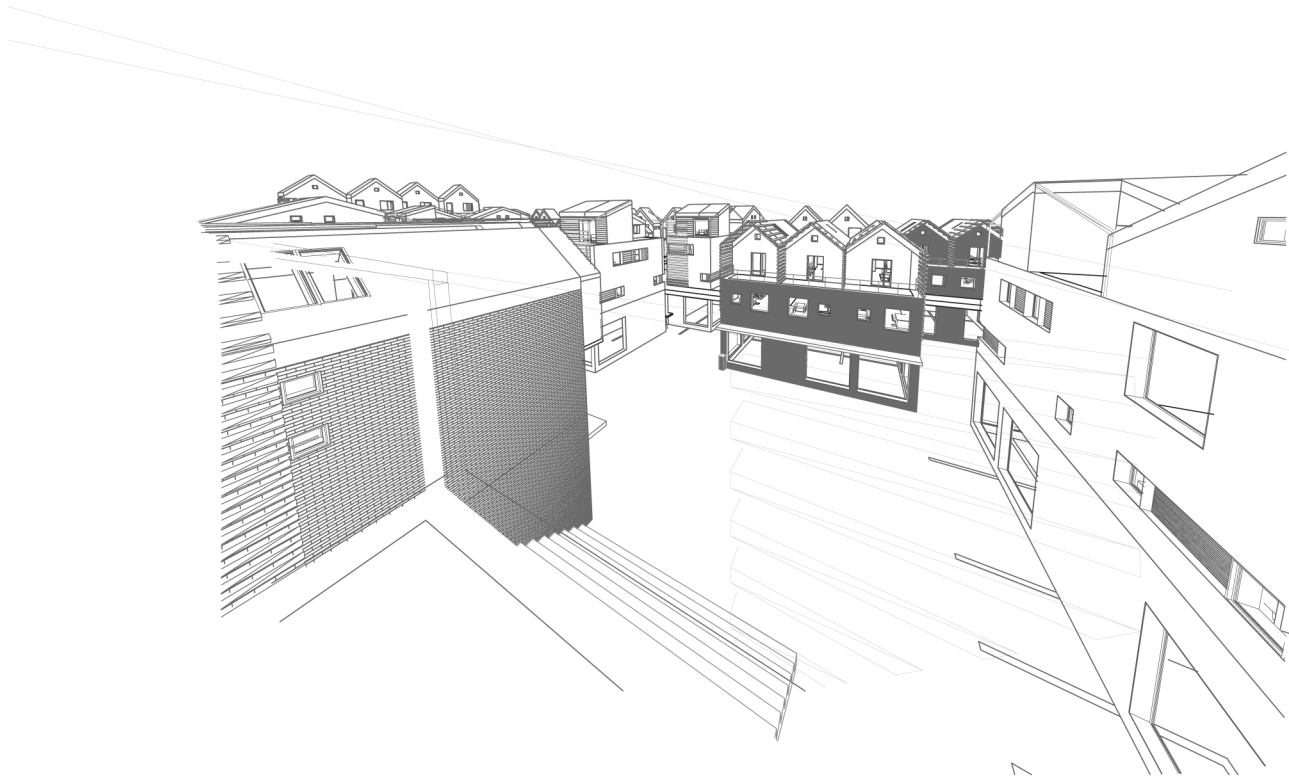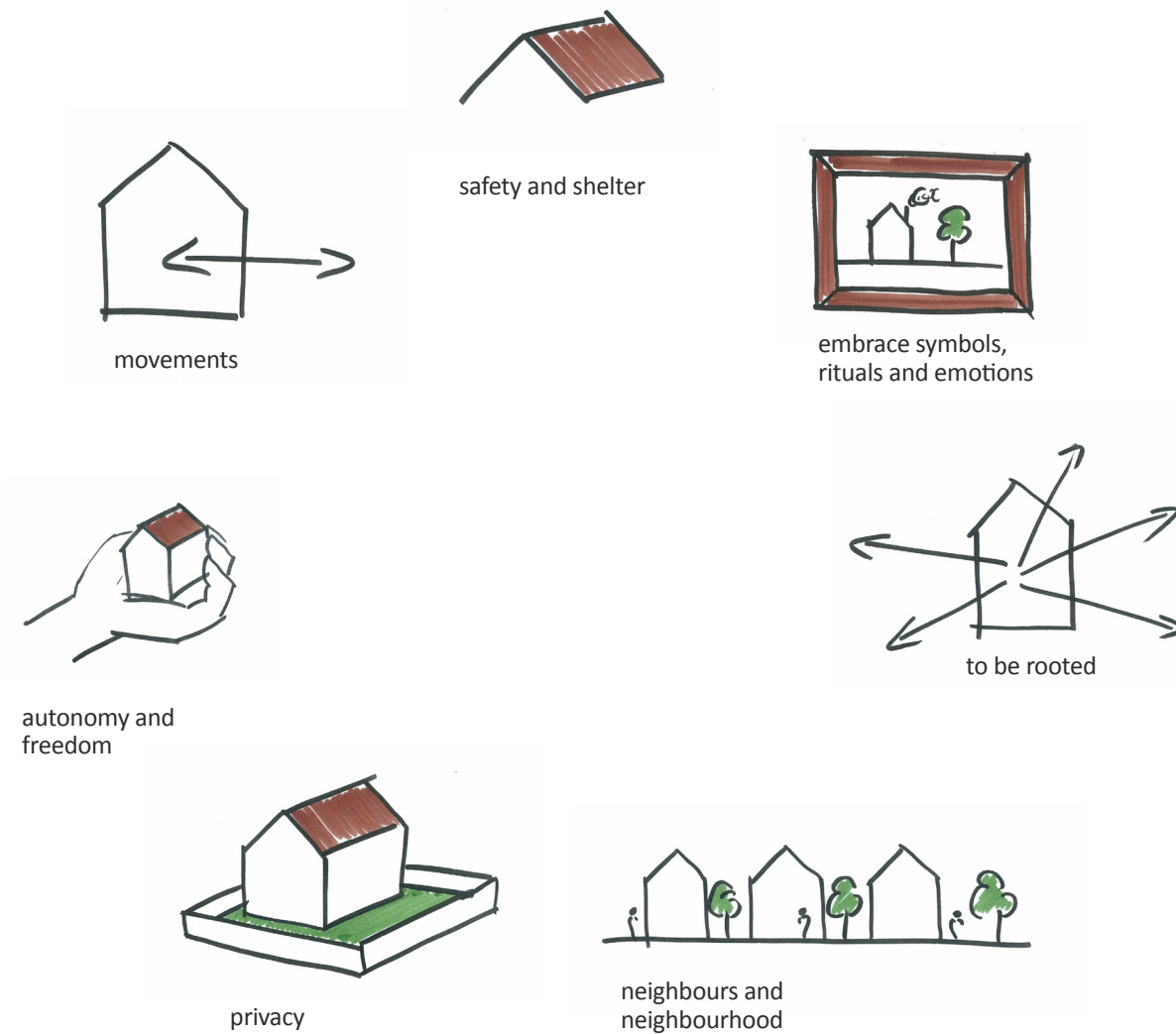The concept of "home" is a complex and ambiguous term, which cannot easily be defined. It is related to the place, where people dwell, the dwelling, but the dwelling itself is merely the physical container of the home. However, it is important for us people to dwell, since this is the way which we are on Earth. And to dwell is to build. This corresponds with the importance of personalization of the dwelling by the dweller self. A home is not some finished product, but a result of a process, an expression of the individual dweller's personality and patterns of life. The home has to be understood phenomenologically as related to emotions, symbols and rituals as well as routines and rhythms of daily life. This should be embraced by the dwelling in order to both strengthen the self-image of the dweller inwardly as well as reflect the identity of the dweller(s) to the outside world. An important aspect of the home-feeling is the movements of the dwellers as a constituting part of the home. Movements are results of space and time, and dwelling is something that takes place in a specific time, it is an act rather than an object.

As an architect, it is not possible to design a "home", but merely a dwelling, which the dweller can make into a home. However, it is possible to provide the dwelling with as good conditions as possible in order for the specific dweller to be able to make the specific dwelling into a home. The dweller has to be provided with optimal conditions for the "home-making-process" to happen, to make way for this. The following parameters, inspired by the analysis of the theme *home & dwelling*, are used as guide lines in the process as indicators of what is important in the constitution of "home-feeling"

- safety and shelter
- movements
        - going out and coming back
        - going to and from
- autonomy and freedom
- privacy
- neighbours and neighbourhood
- to be rooted
- should embrace symbols, rituals and emotions of the dweller(s)

Ill. xx: the dwelling as a physical, objective space on one hand - the house - and a phenomenological, emotional space on the other hand - the home.
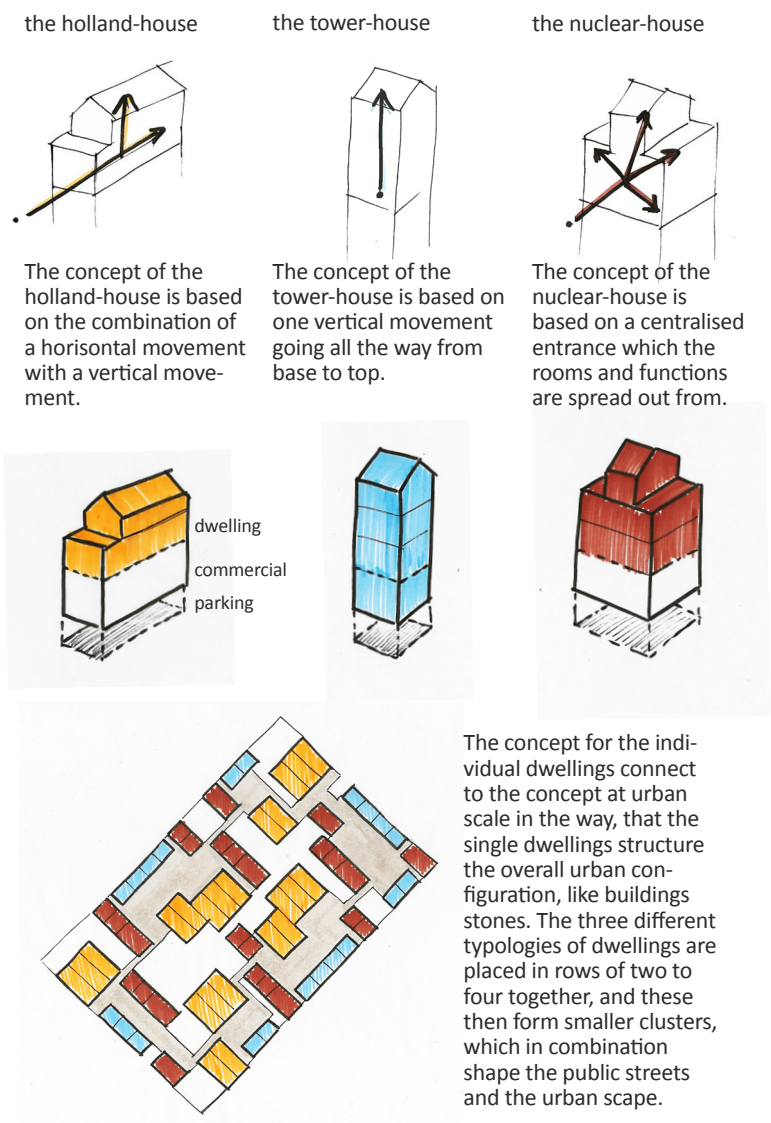
BUILDING CONCEPT

Final concepts - the three dwelling typologies

The final concept at building scale has resulted in three different dwellings typologies, defined according to three different spatial principles. Each dwelling typology is based on a single principle, and in this way the multiple spatial principles worked with during the sketching process have been split up and implemented in the concept for each different dwelling typology. This makes the concept more clear and comprehensible and simplifies the detailing of the spatial organisation of the different dwellings. The concepts are based on the translation of the principles of the villaroad - the gradual transitions - into the dwellings. The illustrations to the right show how the path of the gradual transitions is continued into each dwelling typology.

Through the sketching process it proved rather challenging to combine the idea of one connecting path with the kasbah and one overall structure. Instead the villaroad is split up into multiple levels, with the parking of the car in a garage below ground level. However, the single dwelling still maintains a sense of territory and a connection with the garage by placing this directly below the dwelling itself. By placing a deposit space for each dwelling in direct connection with their garage, this level becomes like a basement of the single dwellings, a place for storage.

At ground floor, between the very dwelling and the garage, there is placed commercial functions, which relates to the urban scape and the public path through the site. In this way the urban scape and dwelling-scape overlap and benefit from each other - the commercial functions are placed for optimal interaction with the flow of people through the site, while the dwellings get more privacy by being lifted from the ground. Energy-wise the two functions also benefit from each other, as the commercial functions constitute a heat buffer between the ground and the dwelling.

The types of the nuclear and the tower house have good possibility of achieving sufficient daylight condtions, while the holland-house will be more challenging to detail. Consequently, there is focused on detailing this type rather than the two others.

the holland-house   the tower-house   the nuclear-house

The concept of the holland-house is based on the combination of a horisontal movement with a vertical movement.

The concept of the tower-house is based on one vertical movement going all the way from base to top.

The concept of the nuclear-house is based on a centralised entrance which the rooms and functions are spread out from.

dwelling
commercial
parking

The concept for the individual dwellings connect to the concept at urban scale in the way, that the single dwellings structure the overall urban configuration, like buildings stones. The three different typologies of dwellings are placed in rows of two to four together, and these then form smaller clusters, which in combination shape the public streets and the urban scape.

DWELLING-SCAPE

PLAN_GARAGE 1:100

PLAN_HOME ZONE 1:100
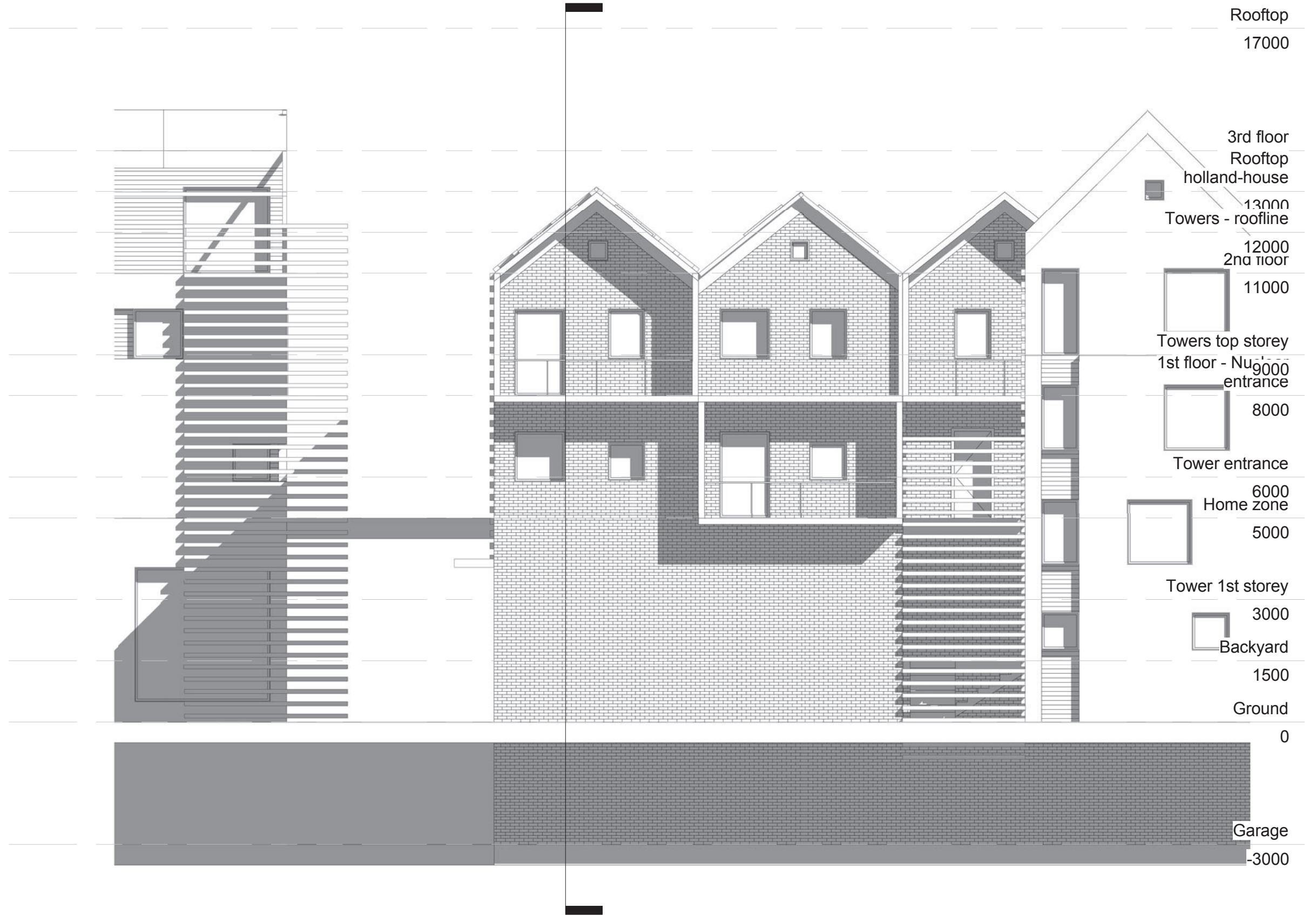
PLAN_1ST FLOOR 1:100

Interior view at first floor
of the holland-house

ELEVATION_SW 1:100

Rooftop
17000

3rd floor
Rooftop
holland-house
13000
Towers - roofline

12000
2nd floor

11000

Towers top storey
1st floor - Nucleus
entrance
9000

8000

Tower entrance

6000
Home zone

5000

Tower 1st storey

3000

Backyard

1500

Ground

0

Garage

-3000

ELEVATION_NW 1:100

Rooftop

17000

3rd floor
Rooftop
holland-house

13000
Towers - roofline

12000
2nd floor

11000

Towers top storey
1st floor - Nucleus
9000
entrance

8000

Tower entrance

6000
Home zone

5000

Tower 1st storey

3000

Backyard

1500

Ground

0

Garage

-3000

ELEVATION_NE 1:100

Rooftop

17000

3rd floor

Rooftop
holland-house

13000
Towers - roofline

12000
2nd floor

11000

Towers top storey
1st floor - Nu
entrance

9000

8000

Tower entrance

6000
Home zone

5000

Tower 1st storey

3000

Backyard

1500

Ground

0

Garage

-3000

ELEVATION_SE 1:100

3rd floor
Rooftop
holland-house

13000
Towers - roofline

12000
2nd floor

11000

Towers top storey
1st floor - Nucleus
entrance

9000

8000

Tower entrance

6000
Home zone

5000

Tower 1st storey

3000

Backyard

1500

Ground

0

Garage

-3000

SECTION_SW-NE 1:100

SECTION_NW-SE 1:100

OUTRO

CONCLUSIONS

The conclusion sums up on the entire project and discuss how the final design solution reflects the parameters from the analysis, the programme, the catalogue and the design process itself.

DESIGN PROCESS

The design process has mainly been evolving around the themes of the villaroad and gradual transitions, the kasbah and the landscaping of an overall structure organising the composition of the design solution and giving it identity. The resulting compromise of the three lends its main features from the kasbah typology, which also makes account for the overall structuring landscape of the design. The principles of the villaroad is implemented into this by cutting it up and layering it. This results in a more holistic expression, which at a first glance may seem to contain more urban aspects than that of the villaroad and the detached single-family house. However, the aspects and spatial principles of the detached single-family house and the villaroad have been extracted and applied during the design process, while they are still contained within the overall architectural solution.

CATALOGUE

The design process has been an elaboration of the initial investigations done in the catalogue. These have resulted in a preliminary awareness of aspects related to the themes of urban housing, sustainability, dense living, gradual transitions, energy and comfort, orientation of the dwellings and general architectural inspiration, which is reflected in the final design solution. In this way the catalogue has constituted an important link between the more theoretic analysis, the programme and the design process.

PROGRAMME

The programme has defined the basis of the project in terms of user group, room programme, connections of rooms and functions, architectural quality for this project and the vision for the project. This clear formulation of the guiding parameters of the design has resulted in the focusing of the design process on the main themes of the villaroad, the kasbah and the landscape - as an answer to how dwellings can be designed at Aarhus harbour, which combines the aspects of the detached single-family house and the aspects of a sustainable life in a dense, urban context by using the principles of the villaroad. In continuation of this, the formulation of the main aspects related to architectural quality for this project has resulted in a constant awareness of integrating these aspects throughout the design process in order to obtain a holistic design solution.

The room programme and connections of the rooms and functions by the use of the principles of the villaroad is of course directly reflected in the final design solution. The definition of users/dwellers may not be directly reflected in the final solution, however, it has been assisting in the development of the architectural concept in the sense that it has given images on the possible future dwellers, thereby making it easier to put the decisions and solutions of the process into perspective.

ANALYSIS

The analysis consists of a physical and a theoretic context analysis, where the physical context analysis is reflected in the very concept of the final design solution, while the theoretic context analysis has been the point of departure of the whole project, defining the main themes of it.

Physical context

It is found that the scale proposed in the plan for the Northern harbour area at Aarhus Havn is quite big and not well fitted for more intimate and human scale urban functions nor for the scale of dwellings. Consequently, the composition turns its back against the harbour area and establishes a more intimate and human scale inwardly at the site, where the urban scape and dwelling-scape meet. However, there is an exchange of flows between the three scales, and of course the final design solution is connected to the surrounding physical environment of the harbour area.

Furthermore, the composition of the site is seen as an attempt to continue the existing urban fabric of the surrounding city of Aarhus but with a new expression and identity. However, the expression of this identity is not that of a new icon-building of the area, as there are already several existing landmarks as well as new projects planned and being constructed at the site.

The orientation and placement of the dwellings is done in accordance with the climatical conditions at the site, consequently being lowest towards South and the main road of the harbour area.

Theoretic context

The theoretic context deals with the different themes of energy and comfort, sustainability, contemporary lifestyle, the detached single-family house and finally; home and dwelling.

Energy and comfort

The two aspects of energy and comfort are very closely related, and has continuously been integrated throughout the design process. This is reflected in the final design solution on urban scale by the orientation of the dwellings, the connection of them in rows and the distancing between them, which allows for sufficient light for each single dwelling. Further, the overall composition of connecting the commercial and residential functions is beneficial energy-wise for both functions.

On building scale the aim for a low energy-consumption of the dwellings is balanced by providing a good indoor climate for the occupants, thereby increasing the quality of life in the dwellings. Since occupant behaviour is considered a key factor in the resulting indoor climate of the dwellings and thereby the energy consumption, there is focused on providing a general good indoor climate, which can easily be adjusted by the occupants, rather than on minimising the energy consumption to the lowest value possible. The idea is that if the indoor climate is good and there are good possibilities for influencing and easily adjusting this without complex electronical equipment, this will also reflect in a low energy consumption.

If, however, the occupants wish to lower their energy consumption further, there is good possibility for exploiting solar energy actively by placing solar cells or collectors on the roof or facades of the dwellings, which are oriented in a Southern direction. In this way, there is taken account for the autonomy and freedom of the single occupants.

Sustainability
Concerning sustainability, this has been one of the main departure points and motivation factors of the project. In this sense sustainability is more understood as an overall holistic design approach, which considers aspects related to social, environmental and economical sustainability, and conseuqnetly the aspect of sustainability is reflected in the final design solution, both on a social, environmental and economical level.

Socially by implementing the principles of the villaroad and the gradual transitions, which results in social relations and affiliation to the place as well as exchange between different user groups of the place. Environmentally by the preoccupation with energy and comfort and considerations for minimising use of resources in general. This, moreover, forms part of the fundamental basis of the project and the aim of investigating how the qualitites of the detached single-family house can be combined with a more dense and urban physical context; since the dense and urban lifestyle is considered to be more beneficial for minimising the use of resources than that of the detached single-family house. Economically the final design solution considers sustainability in the mix of functions which can benefit from each other, the minimising of resources and in the mix of dwelling typologies which increases the possibility of different types of ownership.

Contemporary lifestyle
Concerning contemporary lifestyle, this is taken into account in the final design solution by considering people's need and search for safety and fixed reference points because of the breaking up of traditions in society. This need is seen expressed in the popularity of the detached single-family house, why the final design solution has implemented aspects taken from this. Furthermore, the provision of a traditional image of a house and the respect for the individual dweller's possibility to express his or her personal identity with the single dwelling is taken into account. However, this is balanced with an overall expression and identity of the total composition, as the individual dwelling should also be expressed as a part of a totality, a commmunity, thereby establishing a relationship with the surroundings instead of an expression of the dwelling as being lost and lonely.

The detached single-family house
As mentioned above there is taken account of aspects related to the detached single-family house in the final design solution. Like the implementation of aspects related to sustainability, this is likewise one of the main departure points and motivation factors of the project. The investigations of the detached single-family are derived from the interest in the theme of home and dwelling, as an expression of the most preferred housing typology in Denmark.

However, the aim has not been to design a detached single-family house, but on the contrary to show that the qualities enhanced in this housing typology is not necessarily related to the actual typology, but can be applied in a more dense and sustainable context. Consequently the characteristics are broken down into spatial principles which have formed part of the basis for the design process. These are related to the aspects of home-making as derived from the investigations of home and dwelling, and evolve around the feeling of autonomy, freedom, privacy and sense of territory as well as the possibility for displaying one's identity and differ from the rest, while maintaining a sense of community and neighbourhood and of sharing the same values as the neighbours. In this way the resulting design solution maintains the qualitites of the detached single-family house, but applied in a more dense and urban context which reflects in the developed dwelling typologies. The question whether or not it is succeeded will be discussed further in the reflections on pp. xx.

Home and dwelling
Finally the aspect of home and dwelling has been the overall main starting point and motivation factor of the project. The investigations of the dialectic between the home and the house has resulted in the formulation of seven aspects, which try to encapsulate the essence of developing a home-feeling. This has formed the main basis for the design process, why the continuous integration of theses aspects into the design has resulted in a final design solution with optimal conditions for the home-making of the single occupant, having taken all aspects related to this into consideration.

The need of safety and shelter is reflected in the pitched roof used for all three dwelling typologies and in the organisation of the dwellings in smaller clusters, thereby establishing the opportunity for closer social relations in a smaller community within the big community.

Movements are implemented in the sense of the villaroad and the gradual transitions from public to private, which emphasises the movements towards the occupants.

As previously mentioned the aspect of autonomy and freedom has also been implemented in relation to the detached single-family house and contemporary lifestyle, and has resulted in the dwellings going all the way from parking garage to roof top instead of being placed on top of each other.

Privacy is obtained in the raising of the more private areas from ground floor. Both the communal outdoor area related to the single cluster, but also the private outdoor space related to each single dwelling.

The concern for neighbours and neighbourhood is also reflected in the clustering of the dwellings, as well as the arraying of the single dwelling typologies into small rows.

Rootedness is more difficult to obtain directly, but is considered implemented in the feeling of affiliation to the place. This is made possible in the general layout of the dwellings, thereby giving the opportunity to alter these to changing needs over a lifetime. Furthermore, there is the possibility of changing to a different dwelling more suitable for changing needs within the frame of the overall urban scheme, and even within the single cluster, thereby preserving the affiliation to the place.

Finally the aspect of embracing images, symbols and emotions of the dwellers is partly obtained through the design of the single dwelling as an image of a traditional house with a pitched roof. Likewise, the provision of a basement and an attic is considered a main point in relation to this as well as the affiliation to the place.

Concludingly, the aspect of time and the gradual adaption to the house is a key element in the home-making of the single occupants. Consequently a home can literally not be designed, why the dwellings of this project allow for the occupants to influence on the interior organisation as well as the exterior expression of the dwellings - to a certain degree - as part of the process of dwelling.

REFLECTIONS

In continuation of the conclusions drawn in the previous chapter, there is reflected upon the main themes and problematics of this project.

The motivation for the project has been to investigate architectural solutions for dwellings which combine the positive values and aspects from the most preferred housing typology in Denmark - the detached single-family house - with a more contemporary and sustainable way of life in a dense urban area – to re-invent the detached single-family house in a sustainable, urban context. This has been due to the conception of life in a detached single-family house as being a non-sustainable way of living, both in terms of social, environmental and economical sustainability.

The house as the frame for individual home-making
First of all, it is not necessarily sustainable to live densely in the city. There is a limit to density, especially in a Danish context, where the heat gain from passive solar energy is crucial for lowering the energy consumption, and thereby minimising use of resources. Second of all, in terms of social sustainability, this seems to be very much related to the aspects found important in relation to home-making (see analysis, pp. xx). As mentioned in the analysis, these aspects are all found in the detached single-family house, but can be difficult to achieve in a dense urban context.

In this way, my personal conception of the detached single-family house has changed during the course of this project. The things people value in this housing typology are actually related to the aspects of home-making and of feeling home, and seen in this perspective, the preference for a detached single-family house as the symbol of a "real" house and a safe and happy family life is fully understandable.

Common individuality
This further relates to late-modern lifestyle and the search for safety in a world where everything is for discussion and at choice and there are no longer any fixed values to navigate after. However, this hints at a major contradiction of the detached single-family house; on one hand there is a wish for displaying individual preferences, of marking one's territory and to differ from the rest, in order to feel valued. But on the other hand, there is also a wish to be part of a neighbourhood with common values and shared opinions on good taste. This common individuality reflects in the villaroads of typical standard single-family houses of the 70's and 60's, which are relative alike in the overall layout, but where each of them try to differ from the rest by all kinds of spectacular features.

This aspect is probably one of the main reasons why these neighbourhoods are disliked by professionals, myself included. But for a person, who grew up in such a neighbourhood this characteristic is a symbol of something known and consequently of safety.

Consequently, the preference for a detached single-family house is also related to upbringing, where many of those, who move to a detached single-family house when they start a family, grew up in a such house themselves. This is maybe also part of the reason why many of those who would prefer to live in a detached single-family house will actually never do so. Through tradition this housing typology is considered the arhcetype of a real house and of "a good life" with good private economy and a happy family life.

The detached single-family house and sustainability
However, the detached single-family house does not correspond very well to present-day requirements concerning use of resources, where the goal is that all new buildings should be zero-energy standard by 2020. Nor is the detached single-family house economical sustainable, since it gives very little possibility of economic mobility and of mixing functions and benefitting from e.g. commercial functions.

Moreover, many of those who never move into a detached single.family house despite their preference for this, would prefer to live in an urban context with the variety and diversity this brings. Late-modern lifestyle implies an almost total freedom of choice, everything has become possible and attainable and even though there is a lack of tradition and fixed values, people are reluctant to give up upon this freedom.

Urban dwelling-scape
The main aim of this project has consequently been to show that it is possible to obtain the things valued in the detached single-family house in a different housing typology. Through own up-bringing in a row-house with common facilities this goal seems realistic and within reach.

The architectural solution posed in this project is reached by breaking up the spatial principles of the the detached single-family house and combining them with a more urban context. These are defined by the villaroad and gradual transitions, where the urban aspects are defined by density and mix of functions.

The result is a small city of single-family houses, which all consider the aspects related to home-making of the single dweller as well as relates to the urban context of the harbour area in Aarhus. The villaroad has been broken up into a multiple of layers, which enable the gradual transition from public to private and thereby interaction between the different dwellers of the neighbourhood, as well as exchange between the flow of people of the public spaces and those of the more private spaces of the dwellings. In this way the dwellings are socially sustainable and related to the aspects of home-making of the occupants at the same time.

Moreover, the architectural solution respects the common individuality in the sense of an overall identity, which embeds varieties and the possibility for displaying personal preferences. In this sense, the final design actually resembles a typical villaroad, but in a more controlled manner with a stronger overall identity, and at the same time it has a distinct urban character with a typical layering of the commercial and residential functions; an urban dwelling-scape.

View of the entrance to
the site from South