



6 examples

Qualities
Design Method

Flip
Krabbendam

DESIGNING for COHOUSING

Qualities

- Shared facilities
- Access structure
- Threshold areas
- Parading
- Corridors and interconnecting doors
- Public private spaces
- Instrumental and situational qualities
- Framework

Design Method

- 'Field and Volume'
- From 'basic structure' to 'spatial structure'

Philip Krabbendam architect (Ir. PhD)

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Design: Philip Krabbendam Image: Yasser Hassan

1 Design method 'Field and Volume'

In this publication I want to show which qualities can invite people to get involved in each other and in their living environment. I will show these qualities in the design of a small neighborhood, that is made up of six projects for 'cohousing'.

Hereby I also want to show how the design method 'Field and Volume', that I developed, can be used here, not only on the level of the individual projects, but also on higher spatial and social scale levels and with different actors: an urban designer, an architect and residents.

To start with, I want to briefly explain this method (about which I have already written more elsewhere).

Tree structure

The "Field and Volume" method is based on the premise that a spatial and social level can only come into its own in an appropriate context. That is to say, not too large. For example, a home and its residents do not come into their own in a mile-

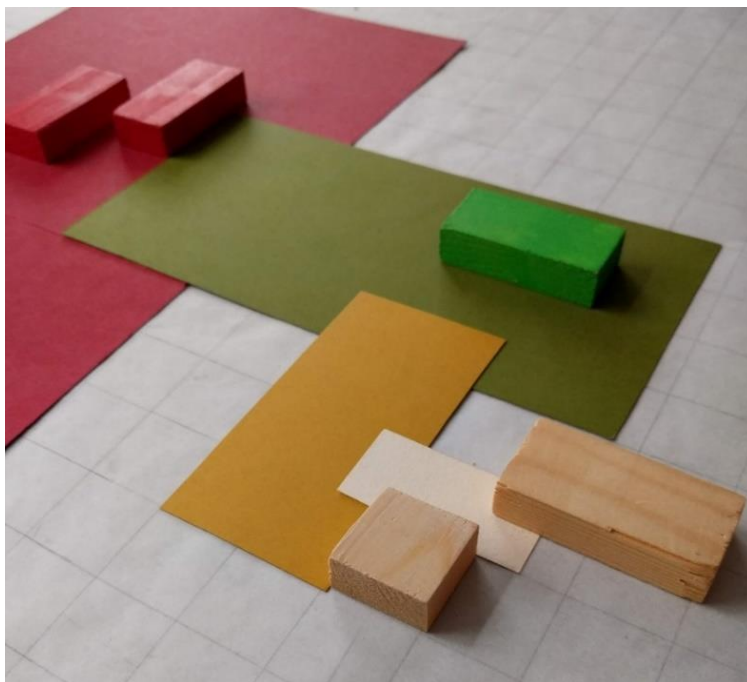
long street where they remain anonymous among hundreds of other residents. If we think of a context in which a home and its residents do come into their own, (for example a project for "communal living" or "cohousing") then also this context will need an appropriate, spatial and social context.

If we follow this line of thought, the concept of an urban tree structure emerges, a succession of spatial scale levels, with common facilities at each level that can give these levels also a social meaning. This concept is the basis of the 'Field and Volume' design method.

So this method is therefore not limited to the scale level of a project for cohousing, it can also be applied to higher scale levels, for example to design neighborhoods or districts, that invite to a social life, and where commons and coops may find a place. As I will demonstrate in passing.

Description

In the method uses simple and easy-to-handle wooden volumes are used, blocks, and fields, indicated by cardboard cards. Where the colors indicate the scale level in the tree structure. An 'artisanal' method in which the participants can build tangible structures, without having to use advanced electronics. A smartphone is enough to capture the process in photos.



Fields and volumes, with a specific color for every level

The volumes have a base of 25 by 50 mm and a height of 12.5 mm. A scale of 1 to 200 then means that one volume represents a base of 5 by 10 meters and a height of 2.5 meters. Approximately a ground floor or a first floor of a terraced house.

The method can also be used for an urban design by doubling the scale to 1 to 400. A volume or block then represents a base of 10 by 20 meters and a height of 5 m. An approximation of 4 terraced houses. Half a volume then stands for 2 semidetached houses or 2 apartments. To maintain the correct proportions, the measures of the 'fields' are halved here. See the illustration below.



A scale of 1 to 400 for urban design.

Method and design stages

The design method "Field and Volume" is based on a number of successive design stages. When we start from a process in which an urban designer, an architect and future residents work together, these can be described as follows.

Urban basic structure

This is a three-dimensional relationship scheme, based on an urban development program of requirements, in which scale levels, numbers, shared facilities and stacking methods are shown. At a scale of 1 to 400.

Urban spatial structure

In this stage the urban designer transforms the *urban basic structure*, in such a way that it will fit in the given spatial context. Still on a scale 1 to 400.

Urban planning preliminary design (or preliminary design)

In this stage, the urban designer focuses on the design. Qualities that cannot be expressed in the *urban spatial structure* can be "demonstrated" here. This preliminary design will not be captured in a zoning plan.

Architectural spatial structure

Here the architect takes over, in consultation with future residents. They are not bound by a zoning plan, in which destinations, building lines and building heights have already been prescribed. The idea is that the *preliminary design* of the urban designer will be further elaborated in a number of rounds. To this end, the architect translates this *preliminary design* into a *spatial structure* on a scale of 1 to 200.

In this approach, the urban designer is not obliged to make a *preliminary design*, the description of a number of spatial qualities may be sufficient. The architect will then base the *architectural spatial structure* directly on the *urban spatial structure*. This comes down to a change of scale: from 1 to 400 to 1 to 200.

Final design

When the elaboration of the *architectural spatial structure* has been completed, the architect can develop it into a *final design*. A specialty that cannot be expected of the residents. In comparison: the residents have compiled the menu, on which the architect sets to work to prepare the dishes.

A process in which residents can still "fine-tune" the result

Next chapter

In the next chapter, we will look at the role of the urban designer, who will form an *urban basic structure* based on municipal data and objectives, and elaborate this structure into a *urban spatial structure* and a *preliminary design* for a small neighborhood consisting of six courtyards.



Design: Philip Krabbendam Images: Yasser Hassan

2 'Basic structure', 'spatial structure' and 'preliminary design' of the neighborhood and a courtyard

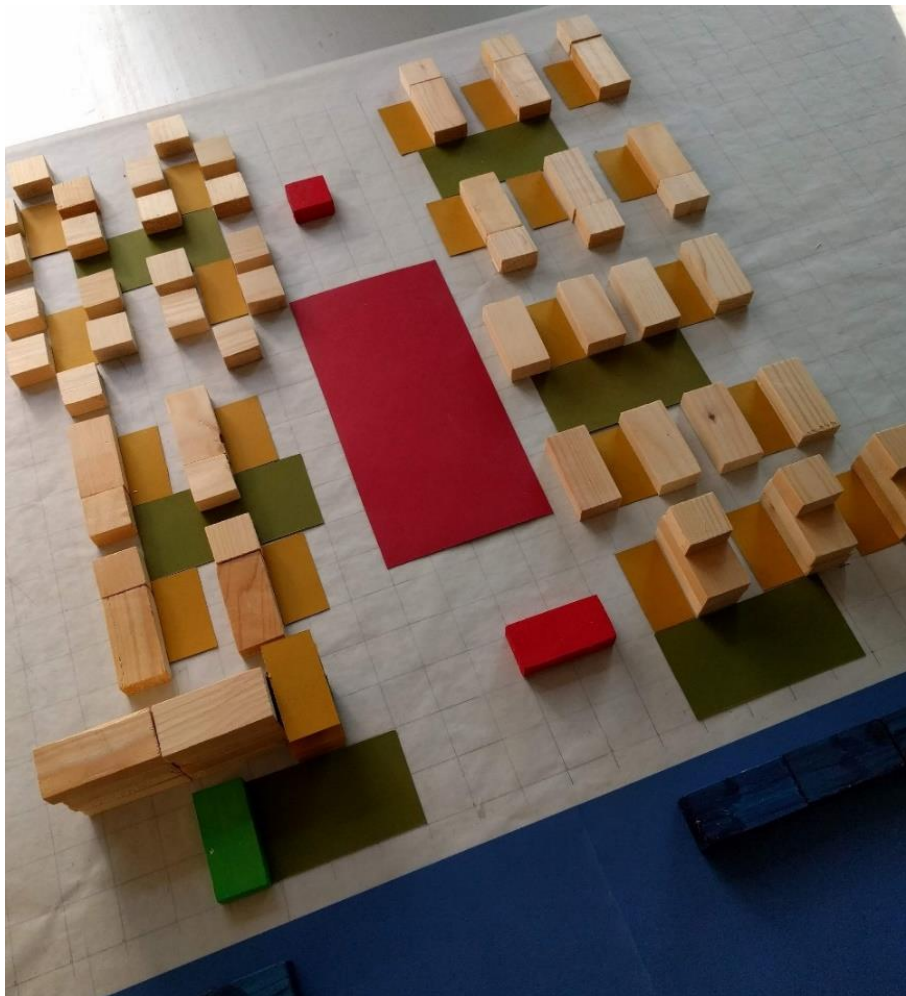
In this chapter we will look at how a 'basic structure' for a small neighborhood, consisting of six courtyards, can be elaborated by an urban designer into a 'spatial structure'.

Then the level of the neighborhood and one of the courtyards will be developed into a 'preliminary design'.

Basic structure

In this example I want to start with an urban *basic structure* for the neighborhood, scale 1 to 400, based on (fictitious) data from the municipality, such as the results of

prognoses and policies. Then the *basic structure* might look like the illustration below.

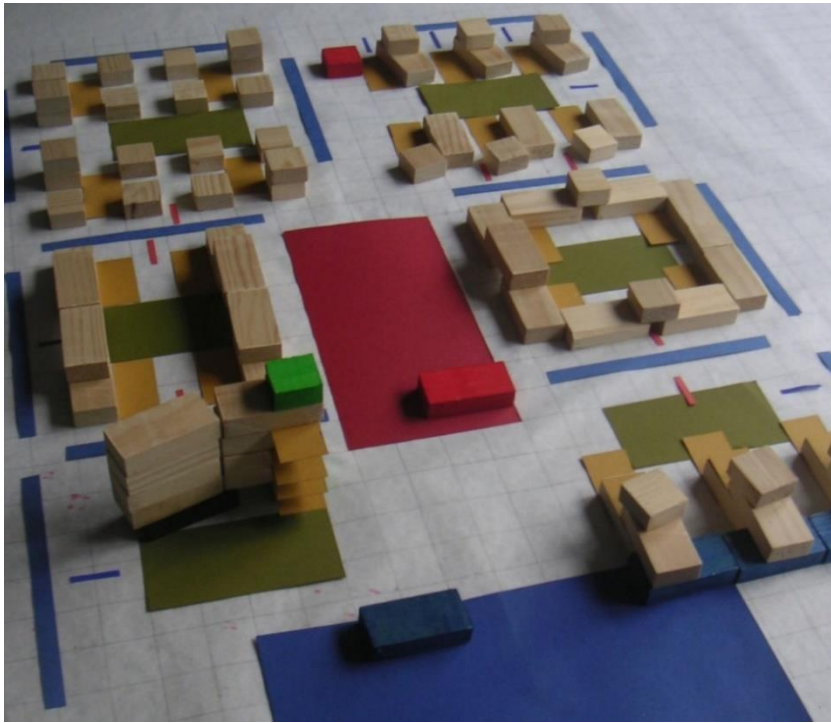


'Basic structure' based on data on preferences for numbers, shared facilities and land-bound or stacked homes

- Centrally located is the red field, intended for facilities for the entire neighborhood.
 - The green fields represent the courtyards. Here we see:
 - . top left: 4 groups of 10 semidetached houses
 - . center left 4 groups consisting of 6 terraced houses
 - . bottom left: 4 layers of 8 maisonettes.
 - . top right: 6 groups of 6 terraced houses
 - . center right: 4 groups of 8 terraced houses
 - . bottom right: 3 groups of 4 ground-level homes with 6 stacked houses on top
- A total of almost 200 homes.

Spatial structure

An urban planner could be deployed to transform this *basic structure* into a *spatial structure* and propose facilities, qualities and activities for the benefit of the identity and the social cohesion at the different scale levels.



A transformation of the 'basic structure' into a 'spatial structure'

Preliminary design of the neighborhood

In the illustration below we see a possible elaboration of the *spatial structure* into a *preliminary design* of the neighborhood and of one of the courtyards.

In the next chapter I will explain the *preliminary design* of a courtyard, but first I will comment on the *preliminary design* of the central area, the scale level of the neighborhood. (I wrote earlier about this design in the essay '[Urban planning in five steps](#)')



'Preliminary design' of the neighborhood (the red field) and one of the courtyards (a green field with yellow fields)

In the center we see a water buffer in a rectangular frame, with a helophyte filter in the back. The water buffer also fulfills the function of 'support' (Habraken), while the islands act as 'infill's'. This is because of the flexibility; the needs of the inhabitants can change over time.

Parading, public private space, threshold, corridors, access structure

In the back we see a route over a number of islands that invites to 'parade' along a series of islands with play facilities for children.



'Parading' for kids

This is based on the idea that contact between people, in this case children, is promoted by small delimited spaces ('public private spaces') to which a topic of conversation is connected. (Whyte: 'triangulation') In this case the delimited spaces are formed by the play facilities, a climbing frame, a seesaw and a swing, that can at the same time function as the topic of conversation.

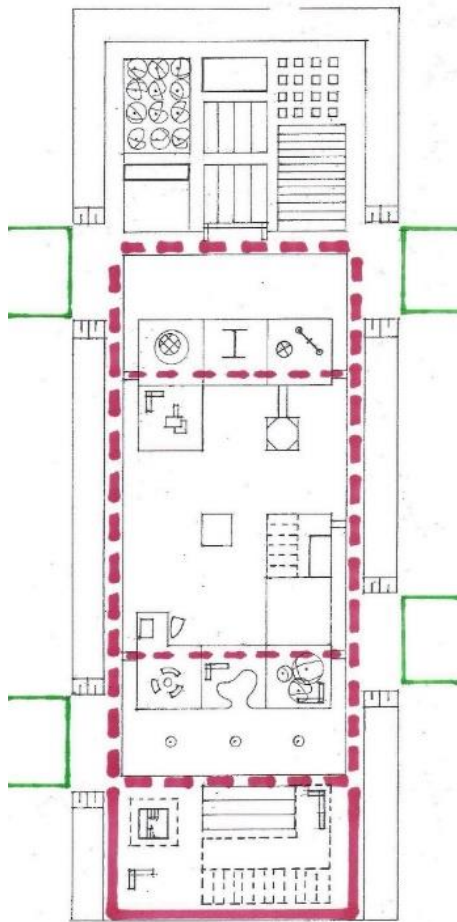
On the illustration below we can see the same principle at work: a series of small-scale facilities that have been envisaged for 'parading' adults.



'Parading' for grown-ups

Such as a campfire, a place for feeding ducks, a shady spot under a tree, a small sunbathing area and changing rooms with a terrace for possible swimmers. Behind the water buffer we see a picking garden and a petting, zoo and in the foreground a 'threshold area'. This is a transition area between the neighborhood and the higher scale level of the district. Here one can keep sight on the district from the neighborhood. For this, a lookout tower and a canopy are provided under which one can sit. Conversely, from the side of the district one can 'keep in touch' with the residents of the neighborhood, who can manifest themselves here. For example, by offering products, under the canopy, that are produced in the neighborhood or by inviting passers-by from the district, may-be for a game of jeux de boule.

To promote developments, the plan also includes a so-called 'corridor', the red dotted line around the central water buffer, which can be seen in the illustration below. (the crossing dotted lines are intended for the 'parading' of children and adults)



Here locals can walk around the central facilities, view the situation from a distance and exchange ideas about it. Think of the concept of the Greek Stoa, from where one could take a look at the activities in the agora, and form an opinion about it. In such marginal areas new ideas can be formed that stimulate development. In order to facilitate such conversations, a bench has been placed against the picking garden and petting zoo, a 'public private space' from which one can oversee the central facilities, the topic of conversation.

About the access structure: the heart of the facilities is situated on the side of the higher (blue) level, the district, so that residents who leave their neighborhood or come home, pass it or at least have a view of it. This way residents can 'keep in touch' with the facilities, and if they feel like it, spontaneously, participate in activities.

Commons and coöps

This preliminary design clearly aims at the involvement of residents, in their environment and each other, thus laying the foundation for commons and cooperatives in which residents have the opportunity to manage and shape their own environment. This provides an impetus for establishing a new economy in which users and producers work together. (I also wrote about this earlier, in ['Designing for a cooperative economy'](#))

Next chapter

In the next chapter I want to show which facilities, qualities and activities are proposed in the courtyard that is elaborated into a *preliminary design*. This includes also looking at the group facilities that are part of this courtyard, and the homes that are part of the groups.



Design: Philip Krabbendam Images: Yasser Hassan

3 'Preliminary design' of the courtyard

We now leave the level of the neighborhood and confine ourselves to the level of the courtyard, to look at qualities that can play a role in the further elaboration of this courtyard and the lower levels of scale that lie within it.

Threshold, corridor, access structure and interconnecting doors

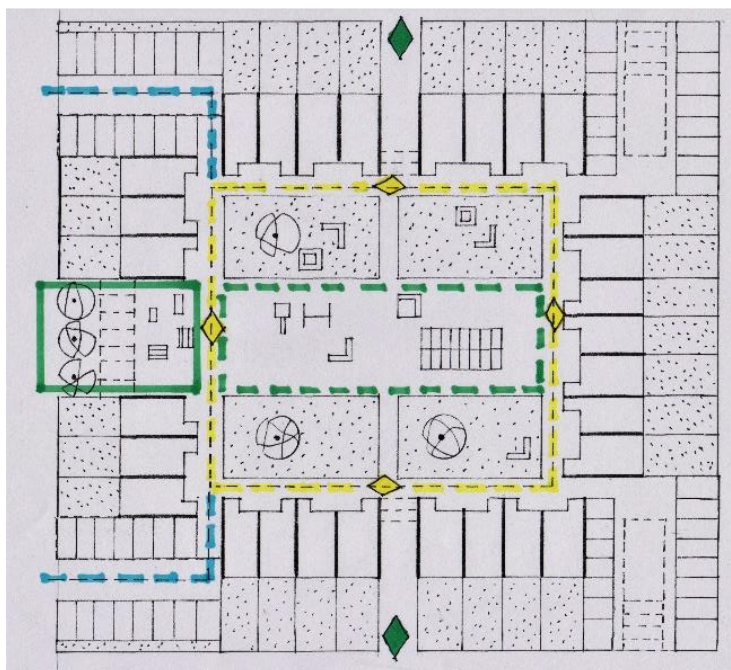
In the urban preliminary design of the courtyard we see a central area that is intended as a playground for children and as a meeting place for adults.



A central area for the entire courtyard

Also this level is, like the neighborhood, provided with a 'threshold area', see the green framework on the left of the illustration below, where residents of the courtyard can have a view of what is happening at the higher level of the neighborhood, while residents of the neighborhood can, by looking at what is happening at the various 'thresholds', get an idea of the life at the different courtyards. So also here the 'threshold areas' can connect successive scale levels.

On this level there is no provision for 'parading' has been included because it may be assumed that residents at this scale level know each other sufficiently to address each other.



Plan of the preliminary design, with the 'threshold area' of the courtyard (green frame), 'corridor' of the courtyard (dotted green line), 'central access structure' of the houses and groups (yellow dotted line), interconnecting doors (green diamond shape for the courtyard, yellow diamond shapes for the groups) and the 'peripheral access structure' (blue dotted line)

On this illustration we also see a green dotted line that can act as a 'corridor' around the common area of the courtyard. Like at the scale level of the neighborhood, one can go around, chatting with a fellow resident, and exchange ideas about what is happening in this central area. An exchange from which new points of view or proposals for improvement can arise.

The green, diamond shapes refer to the connections between the different courtyards, the 'interconnecting doors' designed for the sake of openness. They provide access to residents from outside, from neighboring courts. Outsiders without interests or rights, but possibly with an interesting opinion...

Such "interconnecting doors" were not included in the design of the neighborhood, because it was assumed that the public nature of this scale level would allow people from outside to enter here freely, also without such provision.

In this *preliminary design* we also see how the court forms the context for four groups that each share a garden, while these gardens again serve as a context for seven houses each. The yellow dotted line indicates the 'central access structure' of the houses, that and at the same time serves as a connection between the houses and the group garden. This means that when residents go out or come home, they will always pass by their group garden.



In the middle the scale level of the court, for games and meeting, on the right the 'threshold area', and around the middle area we see the group gardens with the individual houses behind them.

In this 'central access structure' there are also 'interconnecting doors', indicated by the yellow diamond shapes. The connections through which one has access to the group garden, of a neighboring group. These are, just like the 'green' interconnecting doors at court level, intended to provoke openness, to maintain contact with neighbors who, as 'outsiders', have no interest and no rights, but may have interesting opinions...

The blue dotted line indicates the 'peripheral access structure'. Residents who come by car can park here and enter the courtyard from the side.

Now we could imagine that we design a 'threshold area' on the level of the group, like we did on the level of the courtyard, to enable residents of the groups to have a view of the activities on the level of the courtyard, while those at the courtyard can have an impression of the residents of the different groups. But the group gardens are open, that one can see what is going on, at the level of the courtyard from any point in the garden. And because of the openness of the group gardens one can get an impression of the residents of the different groups from the level of the courtyard, So there is no need for a 'threshold area' here. One might say that the group garden as a whole can be regarded as a threshold area. At the lower scale level of the houses, the benches next to the front doors can be seen as 'threshold areas' that give residents a view of life in the courtyard, while from the courtyard one can have a view of the residents.



The bench next to the front door as a 'threshold'. (Seated woman in the back)

Next chapter

In the next chapters we will see how the architect and future residents take over the *preliminary design*, as it is designed by the urban designer, and use it as a basis for the development of an *architectural spatial structure*.



Design: Philip Krabbendam Image: Thomas Fell Rubio

4 Designing a 'village square'

Residents take part in the design process

Now we will look at how future residents and the architect can work together to develop the 'preliminary design' of the urban designer into a 'spatial structure', scale 1 to 200.+.

Spatial structure

In this fictitious process future residents will now work with an architect to shape the *spatial structure* on which the architect can base the *final design*. They will decide about facilities and activities on the different scale levels.

The architect and the residents will regard the qualities of the *preliminary design*, brought in by the urban designer, as recommendations.

To facilitate this process, the *preliminary design* is translated, back to a *spatial structure*, scale 1 to 200. On this scale a volume represents an area of 5 by 10 meters and a height of 2.5 meters, approximation an average floor for living or sleeping.



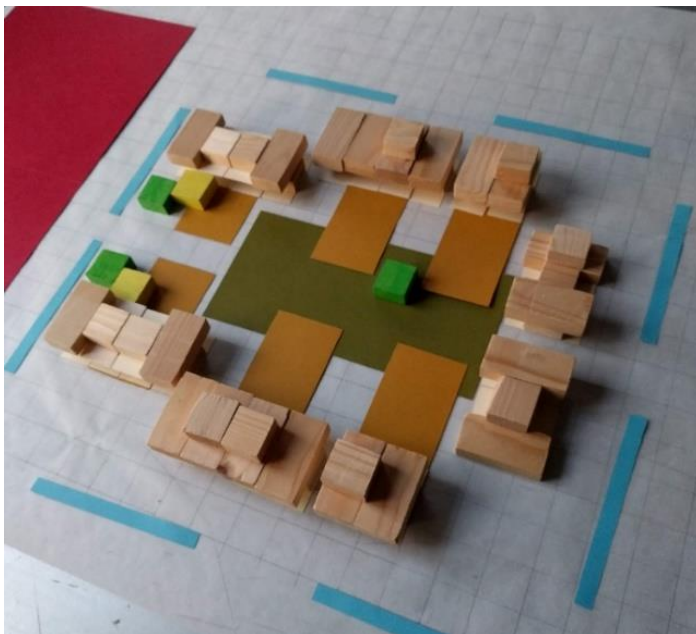
Spatial structure scale 1 to 200

A number of consultation rounds

Round 1

In the first round residents ask to reduce the groups from seven to five households. This makes room for two extra groups. That will, in addition to the group garden, share a kitchen diner. In the illustration below, these are indicated by yellow blocks.

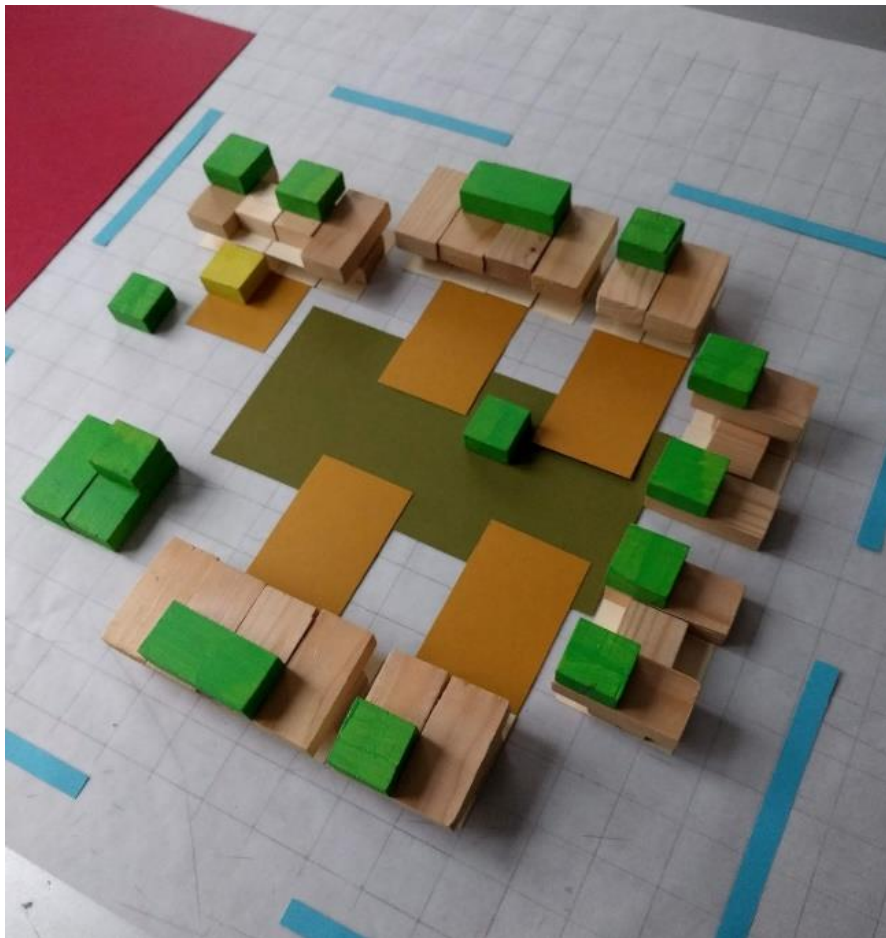
The green blocks that have been added on the left are intended as bicycle sheds areas and the one in the middle of the plan represents an arbor for the scale level of the courtyard. In addition, they also want to add extra floors in order to vary the size of the houses.



Smaller groups, two extra groups with a common kitchen diner, bicycle storage, an arbor at the scale level of the court and variation in housing size by using extra floors

Round 2

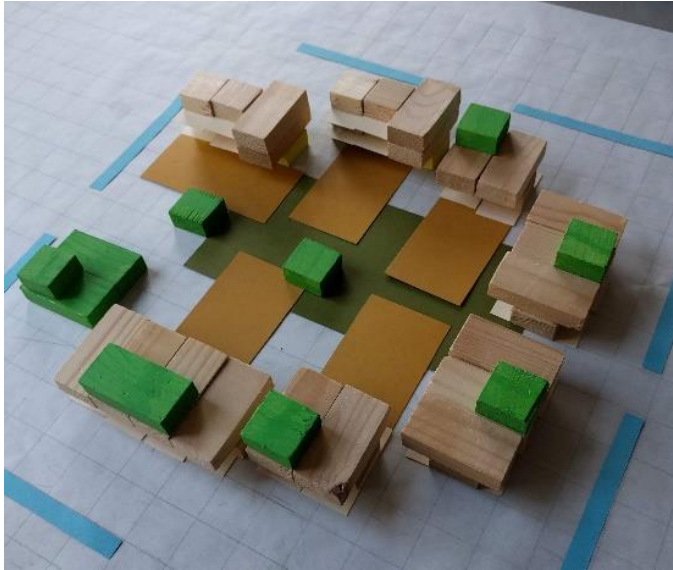
The extra floors could be surrounded by roof gardens... but then, these roof gardens could be merged into a common vegetable garden, where residents might grow their own fruit and vegetables! The harvest could be processed, distributed, consumed or even sold to residents of the neighborhood in a common facility on the level of the courtyard. By working together and enjoying the yield together, the mutual involvement can be increased. In this perspective, the extra floors on the roofs could make way for greenhouses. With the added advantage that these greenhouses can be cooled in the summer, whereby the heat that is 'harvested' can be stored in the ground, to be used in winter for heating the houses. This shift of focus also means that one of the groups with the kitchen diner must make way for the new common facility.



Greenhouses on the roofs and on the left the common facility

Round 3

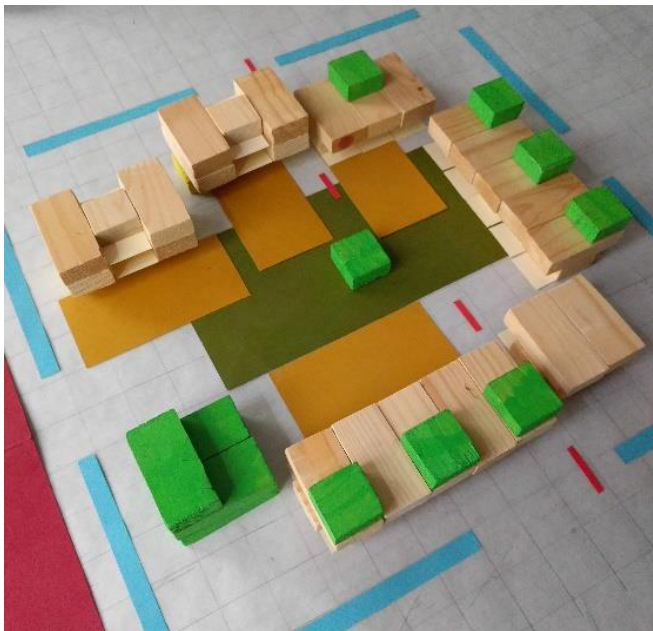
Now that the residents actually wanted two groups with a kitchen diner, the abolished group is put back in place of one of the groups with only a communal garden. These groups with the kitchen diner are also being made larger and therefore higher. As a result, the higher roofs of these groups can no longer connect to the roofs meant for growing vegetables and fruits. It is not practical to solve this problem with a lift for the trollies on which the products and tools are moved around. But the higher roofs can be used for solar panels. Thus the residents can provide their own energy. These panels may be mounted on sloping roofs that may add an extra quality to the houses below.



Group with kitchen diner brought back

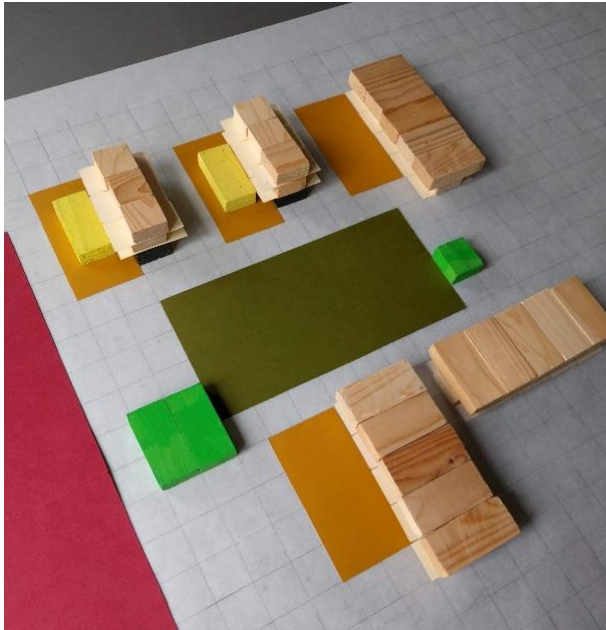
Round 4

A few future residents state that they find a group garden too much, they prefer to be connected directly to the level of the courtyard. They think that this context is not too large for their individual households. Now we have developed a spatial structure in which different life-styles can be integrated on a higher level, the level of the courtyard. This spatial structure will now look like this:



One group garden removed

This illustrates how the Field and Volume design method offers the freedom to fill in the proposed scale levels differently (group with or without a kitchen) or to skip one. The new program of requirements is shown schematically below.



Two groups with a kitchen diner and a garden, two groups with a garden only and one five households that are directly connected to the scale level of the court

Recommendations

Before the *final design* will be worked out by the architect, the residents group informs the architect that they also want to collect rainwater for growing vegetables and fruits, doing the laundry and for sanitary purposes. And they also like to see a vertical façade garden.



Example of a vertical façade garden

The residents also ask the architect to give the design an atmosphere that they describe with the following keywords: not closed, differences between the groups, but yet the feeling of a whole, not cold and modernistic. It may generate the feeling of a village square in a Mediterranean region.

Next chapter

In the next chapter I want to show how an architect can translate the *spatial structure* into a *final design*, possibly adding new qualities...



Design: Philip Krabbendam Images: Thomas Fell Rubio

5 Final design of the 'village square'

We are now looking at the final design, made by the architect, that is based on the input of the future residents.

Access structure, thresholds, corridors, interconnecting doors

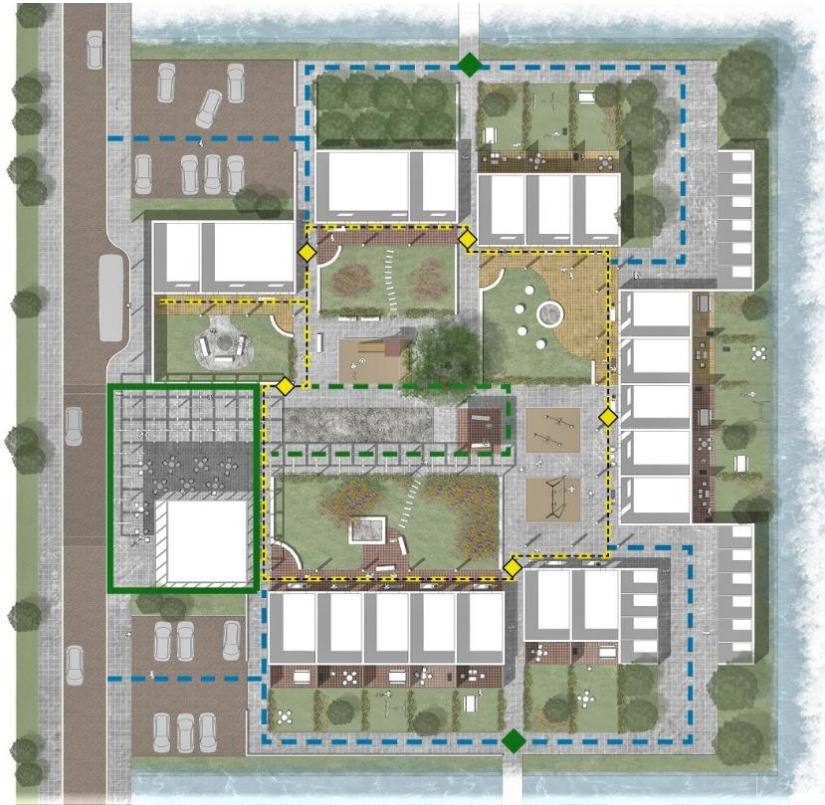
The different areas and disclosures of the preliminary design have been retained in the final design. See the illustrations below.

The green framework: 'threshold area' of the courtyard; here is the meeting room for all residents of the courtyard with an outside area covered by a pergola. The green dotted line: the 'corridor', along the jeux de boules court on one side and covered by a spur of the pergola on the other side. The yellow dotted line: the 'central access structure' of the groups and the houses. The gazebo in the middle of the inner area, at the end of the 'corridor', can act as 'public private space' for 'casual contacts' for residents of the court circulating on the 'corridor', and also for 'casual contacts' between court residents and people from outside who cross the courtyard using the interconnecting doors of the courtyard (indicated by green diamonds).

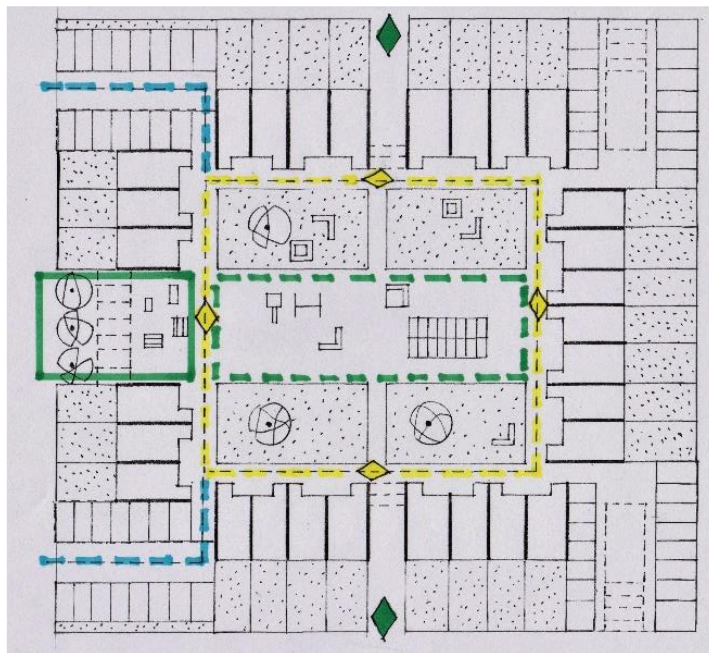
As noted in the preliminary design, in this set-up it is not necessary to provide the group gardens with threshold areas, as these themselves can be regarded as such.

What stands out is the change of the 'peripheral access structure', indicated by the blue dotted line: not only cars park outside the court, cyclists now also go outside, to the storage areas at the rear of the court.

The yellow diamonds represent the 'interconnecting doors' between the groups.



Final design



For comparison: the preliminary design

Low curved walls have also been added to the 'central access structure'. These define a place and also provide an opportunity to sit down, if one wants to have a chat with fellow group members or neighbors. See the illustration below. These places are on the route when residents go out or come home.



The 'threshold areas' between the house and the group garden, the benches next to the front door, are taken from the *preliminary design*.

There is more

So far we have looked at the layering of spatial and social scale levels, shared facilities, the possibility of 'parading', 'corridors', interconnecting doors and 'threshold areas', whether or not supported by 'public private spaces', as well as facilities to produce for own use, like vegetables and fruit.

Qualities that can invite residents to be involved in their environment and each other. But usually the appearance of the built environment is first mentioned. The question is how this can play a role here.

Now one can say: that is a matter of taste, and hope that the architect hits the spot here. Important is also that residents can make their own choice. But there is more.

Situational and instrumental qualities

In this way, when designing the built environment, we can anticipate two ways in which it can be experienced.

The situational way, where residents, receptive, let the environment effect them. This is about the experience in which the emotional value of materials and shapes play the leading role. Here also associations can play an important role.

But residents can also be active and effect the environment. Now functionality is in the foreground. Like in workspaces, the garage box or the workshop, and, like in this example the vegetable garden on the roof. (For more on this, see the [summary of my dissertation](#))

Situational qualities

The residents' request to refer to a Mediterranean village square is a typical demand for a situational quality. An association. A dangerous question that can tempt an architect to copy historical forms and materials, resulting in a historizing architecture. It looks old, but the implementation, modern window frames, new brickwork, cool paintwork, tells you that it is new. What can be experienced as a form of deception, fake, and that is not good for the involvement.

That is why I have tried to leave the design at our time, but to include a reference to the past: a covered gallery around the central area that can evoke the association with a historic village square.



In this way an architecture can be created that is honest about the time in which it originated, but that is also provided with an association that can give the design a "deeper" layer.

It will be clear that the experience is at the forefront here, but this does not mean that functionality plays no role. The inner area, the shared facilities and the houses are more than atmospheres that evoke a feeling. The functionality may not be in the foreground here, it is nevertheless implicitly present and only noticed when something doesn't work properly: when a door doesn't close or open, when a light switch doesn't work, when the roof or the façade is leaking...

Framework

Below this gallery, each group was able to opt for brickwork with an emotional, situational, value that matched their collective preference. This expresses the individuality of the groups. But the choice of façade finishing is not only a matter for the participating groups, also the residents group as a whole can make a statement about the finish of the façade. To this end, part of the façade can serve as a "framework" and be provided with a finish that reflects the taste of the entire group of residents. Thus both the unity of the plan and the division into groups can be expressed. In this case the framework is formed by all facades on the upper floors and provided with stucco. This way we also take care of the requested reference to the Mediterranean village square. Reinforced by, also requested, façade gardens, which are visually supported by a meandering decorative frame.



Instrumental qualities

Part of the project is primarily instrumental, such as the vegetable garden with the greenhouses on the roof of the low-rise building. Here the functionality is paramount. This can be read from a clear design in which it is clear which parts are important and how they form a functional unity.

Just as functionality is implicitly present in the situational part of the design, so the experience value can implicitly be present in the instrumental part of the design.

This is not new. For example, in modernist architecture designers have sought to express the instrumental character of this architecture through an idiom of abstract shapes. This introduced an implicit situational experience with an emotional value that referred to the rationality and the universal nature of the exact sciences. Theo van Doesburg spoke here of 'Neoplasticism'.

In this case this tradition has not been followed: the functional character of the instrumental spaces is expressed here by the use of wood, referring to wooden barns and fences.



On the right in the picture we see the (instrumental) vegetable garden with the greenhouses on the flat roof, with the parapets and the closed parts of the greenhouses being finished with wood. In the prismatic volume on the left, products from the vegetable garden are processed, sorted, divided into portions, to be and presented in the shop or in the meeting room in front of the court on the ground floor... to express its instrumental character this volume is also covered with wood.

Also visible is the cladding in wood of one of the reservoirs in which rainwater is collected for the vegetable garden and the gray water circuit. There is such a reservoir between all building blocks.



Further elaboration

The *final design* can now be further elaborated and adjusted in a number of consultations between residents, the architect and may-be other stakeholders

For the complete publication, see:

https://www.academia.edu/45374508/Designing_cohousing_A_manual_in_17_chapters