

FACILITATING HOUSING COOPERATIVES THROUGH DESIGN

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ABSTRACT

This paper describes the housing shortage twofold through the shortage itself and influences on it through the process of ageing. Afterwards the concept of collaborative housing is introduced, one form of collaborative housing is a housing cooperative. Following the introduction of a housing cooperative this paper describes ways of facilitating a housing cooperative through design. A literature study and four case studies will be used in answering this question of how to facilitate. Through an elaboration of the process of starting a housing cooperative this paper identifies inclusion, physical meetings and information transfer as the main problems. Following these problems the following design methods are identified as solutions: Open building plan, incorporation of a meeting space and an Incremental housing system. Lastly the paper concludes the design of a housing cooperative should embody the philosophy behind the housing cooperative: a decommodified type of housing.

KEYWORDS: *Housing cooperation, Collaborative housing, Design, Social sustainability*

I. INTRODUCTION

The housing crisis in the Dutch context knows a plethora of expressions. Some estimates say the deficit is almost a million homes. However, in reality The reality there is not a million people living on the streets. Instead, the problem lies in the fact that people live in homes that do not fit their needs. Homes that aging members of the population inhabit were homes that suited the needs of a young family and are currently very spacious for one or two individuals, on top of that stair lifts need to be installed due to decreased mobility or health issues. This paper will start with a problem formulation that is twofold: the shortage itself and the influence of an ageing population. This will be followed by discussing a potential solution: housing cooperatives. This solution is one of a plethora and will for the sake of this research be analyzed in isolation. The isolation should not be confused with it being proposed as a single solution, but is one of many solutions on the market to this problem.

1.1 Housing shortage

ABN Amro (2025) has identified the biggest reason for the deficit to be the amount of single person households to the number of available homes per person available. The average household consists of 2.14 persons however, with the available number of homes would require each unit to contain 2.19 persons. The number of single-person households has been steadily rising for the last 60 years (figure 1). This increase is also related to the extended life expectancy and ageing of the population.

Figure 1 Amount of single person households, CBS

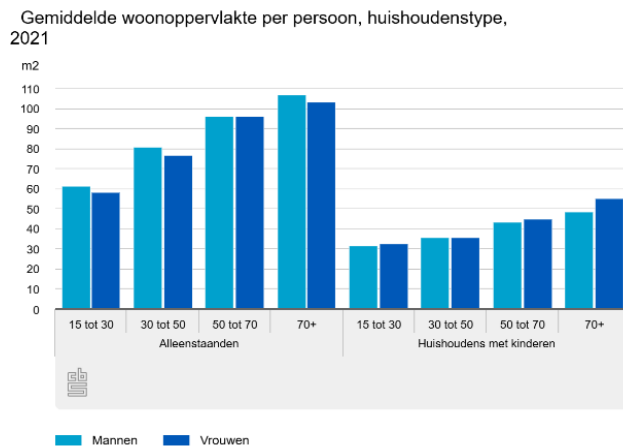


Figure 2 amount m2 of living area per age bracket, CBS

Figure 2 shows that elderly often have the highest amount of m2 living area. At the same time they experience the highest amount of moderate loneliness (figure 3). Given the fact that the amount of living area often increases with age one could argue that the housing shortage, and the incompatibility of homes, negatively impacts the younger age brackets. At the same time the housing shortage creates social inequality for middle-income households. Boelhouwer (2019) describes it as falling between two stools: people are ineligible for social rent due to too high annual income, while they often cannot apply for a mortgage that equals the rent price that is asked for on the private rental market.

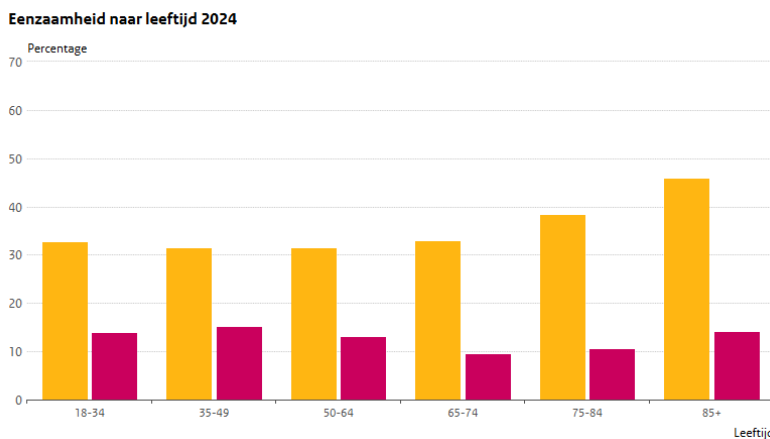


Figure 3 yellow: moderate loneliness, red: strong loneliness, CBS RIVM

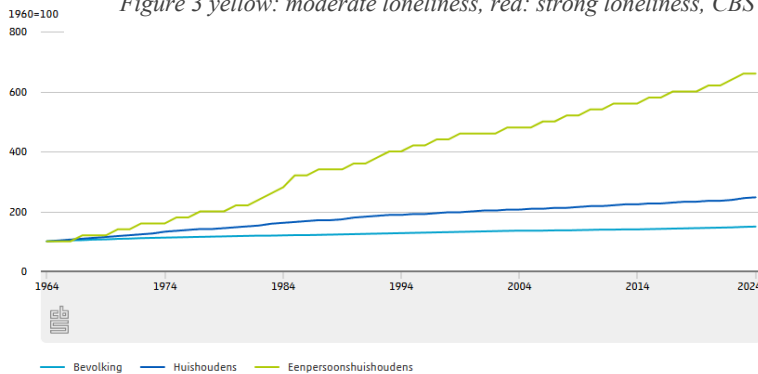
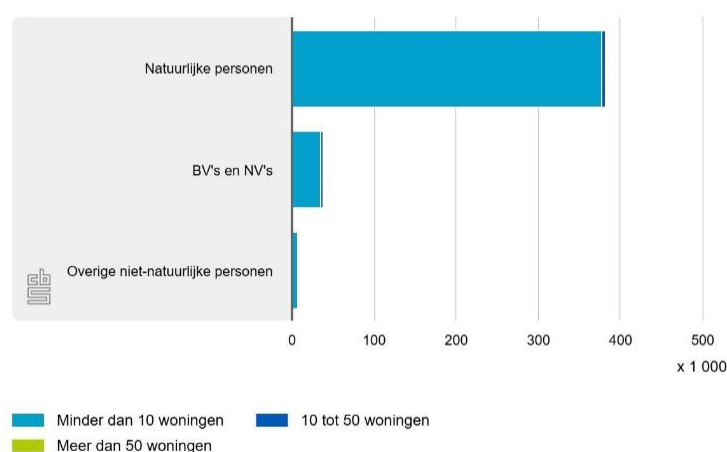


Figure 4 amount of private landlords, 1-1-2023, by size of housing portfolio CBS, kadaster

The current housing landscape is characterized by private rental housing, ownership through mortgage and social tenure though government or market owned housing. Figure 4 describes the amount of private landlords grouped by the size of their housing portfolio. The margin that is “other non-natural persons” is just over 10.000, that own about 24.000 housing units. (rough estimation, not considering the owners of more than 50 units). The category “other non-natural persons” constitutes to just over 0.3% of the housing market.

1.2 Ageing in rural areas

The incompatibility of homes comes as a result of an ageing population. An increasing number of small cities and towns in the Netherlands experience ageing (Planbureau Voor De Leefomgeving, 2022) and a shortage of housing that hits mainly 18–35-year-olds. Gemeente Schiermonnikoog has even identified “triple aging” in their municipality: 1) ageing of the population as a whole, 2) an influx of elderly moving to Schiermonnikoog, 3) amount of youths leaving the municipality increases. For that reason gemeente Schiermonnikoog seeks to house youths on the island in order not to lose that part of their demographic. Interestingly the



municipality is exempted from the “Urgentieverordening Fryslân” a ruling that seeks to house those in urgent housing need, in order to preserve housing units for youths that grew up on the island. Despite that effort, the influx of elderly that can afford homes in a market that is in shortage due to overvalue on their current homes. Youth often cannot compete in this housing market and therefore leave the island. At the same time housing shortage is also a problem at Schiermonnikoog: not enough suitable and affordable homes for youths on the island. A Collaborative Housing project in Schiermonnikoog called Waddenwonen tried to answer some of the municipality’s challenges. At the end of March 2025, the municipality of Schiermonnikoog had proposed a building to be reused by the Waddenwonen group. Unfortunately, its last core member resigned in early 2025 from the project, ultimately halting the project since it missed the active members that had a connection to the Island.

1.3 Collaborative Housing

Waddenwonen is only one example of collective action as a response to the housing shortage. Because of these initiatives it is no wonder scholars look towards alternative modes of tenure as a field of study. As a result an entire category of housing that is making a comeback in the entirety of western Europe (Lang et al., 2018).

Collaborative housing fits among these alternatives, it describes a form of tenure or ownership that is collectively governed (S. L. Brysch & Czischke, 2021). Collaborative Housing is an umbrella term popularized by Lang et al. (2018). Different varieties of CH projects include: CLT’s, CPO’s and Housing Cooperatives. A Community Land Trust is an organisation that owns ground that the properties will be built on, but the ownership of the home is to one household they are non-profit organisations. A CPO (Collectief Particulier Opdrachtgeverschap)

is a group of individuals that collectively organise the contracting of the homes and have a focus on the freedom in design that comes with collective organisation. A housing cooperation is a non-profit cooperative that not only collectively owns the ground but also collectively owns the entire building including all of the homes increasing the focus on collective spaces.

Housing Cooperatives make their tenants full owners of the shared property but generally describe forms of governance that are horizontal and collaborative. Another example of collective action is the project Iewan in Nijmegen that pioneer these alternative forms of living in the Dutch context. These forms of living are new to the Netherlands but from a European perspective they have been around for over a century (Cooperative Housing International, 2025). The success in other European countries, such as Switzerland, counted as an inspiration. In Januari 2015 the term “Housing cooperatives” (Dutch: Wooncoöperaties, from this point on HC for short) was finally adopted in the Dutch housing law (Tummers, 2015) (Lang et al., 2018). Early 2025 the Ministry of the Interior and Kingdom Relations (2025) opened a 35 mil. euro revolving fund for cooperative forms of housing. Ontop of that, the municipality of amsterdam has set an ambitious goal: realizing 10 % of their entire housing stock to be HCs by the year 2040 (De Kracht Van Het Collectief - Wooncoöperaties in Amsterdam, 2022). It is for that reason that organisations such as !WOON and Cooplink were subsidized to formalize the information on HCs in order to assist individuals in formin cooperations.

As a second part of this introduction of Collaborative Housing it is of importance to note the effort made by scholars and policy makers to make these “alternatives” more viable. The goal is not to realize individual projects but rather to set up an institutionalized system as seen in Switzerland.

Scholars like Lang et al., 2018 have formalized the field in the Netherlands by creating terminology and an overview of the field. Collaborations with CH projects such as Collectief Wonen Delft have demonstrated that collective housing is not simply living together in socially sustainable ways but also broadening the audience of the collective housing movement. Collectief Wonen Delft was a project that displayed many variations of collective housing and gave an overview of what forms might fit those interested (forms such as CPO, CLT, Baugruppe).

This research will focus on Housing Cooperatives as one intervention to address the problem statement. Therefore the following research question will be answered:

How can the design of a HC facilitate its members through the formation processes of a HC?

The following sub-questions will aid in answering the main research question:

- What characterizes the process of creating a HC?
- What troubles in the formation process could be addressed through its design?
- In what way can the design of a HC embody and aid the further development of HCs as a formalized system?

II. METHOD

This research will consist of literary research and four case studies. The case studies will be used as examples in relation to results that the literary research brings forth. The four case study project are the following: 1) Iewan, Nijmegen 2) Boschgaard, Den Bosch 3) De Nieuwe Meent, Amsterdam 4) de Bundel, Amsterdam

The literary research uses sources that are used in practice today by starting HCs, such as !WOON and Cooplink. !WOON is an organization that has compiled a guide on creating a HC

specific to the municipality of Amsterdam. !Woon is currently working on a nation-wide version. These guides are invaluable in creating insight on the formation process of a HC because this information is open-source and includes information that HC will be using during their own formation.

Iewan is developed as an ecological neighborhood that is developed in collaboration with a housing **corporation** and consists of 24 social rent apartments. The project has a large communal garden and the amount of living area per unit that is reduced in order to enlarge the amount of shared facilities. Within the communal garden lies de Kleine Wiel, which functions as a community center for the neighborhood with various functions.

Boschgaard is another project where the residents are co-developers next to a housing corporation that develops 19 new social rent apartments. This project is not only a new construction but also a renovation of an existing complex, with special attention to the reuse of materials used for the construction. This project also contains a community center that is open to the neighborhood.

De Nieuwe Meent (dNM) is a HC of 25 units that also houses 15 individual social rent units in its plinth. The volume itself contains a large communal space of 180m² that also houses public functions like workspaces. The different levels of the tower houses different living communities each with their specific amount of shared spaced catered to their needs.

De Bundel is a large HC that spawned from members of dNM, it is a projects that houses 132 units. It will contain a large ground floor with many public functions and a 1700m² public garden that has historically been a public square.

III. RESULTS

3.1 Process of a HC

A formal definition of a housing cooperative as a legal body is as follows: A housing cooperative is an association with **full legal capacity** that aims to enable its members to independently provide for the **management and maintenance** of the residential properties they occupy and the immediately adjacent environment (article 18a of Dutch housing law).

This definition helps to define the scope of the activities that members of a HC need to fulfil. Not only are their activities managerial (financial and vision documents) but also physical (Maintenance or part of the construction). The extent of these activities differs for each HC. One might work together with a contractor, the other might rely solely on the contractor (Iewan, 2025). Constructing the HC together with a contractor can be a great asset to the overall success of a HC.

Cooper and Rodman (1994) highlight the housing satisfaction experienced by members of cooperatives to be of the highest, this was mostly achieved through the perceived social control but to a degree perceived physical control. Perceived physical control (meaning: full legal capacity to manage and maintain) contributes to the satisfaction of living and can be considered an imperative to cooperative living. Perceived social control, however, is something that is *maintained* through democratic decision making later in the process of a HC. Bresson and Labit (2019) note that members who bring essential skills (such as financial, construction or legal knowledge) to the formation process of a HC experience a higher amount of social inclusion. This is one of the crucial factors to keep in mind when designing the process of a cooperative; keeping the members involved (to an acceptable equal degree) in the formation of the housing cooperative.

The first organizational steps until the start of the construction can take up to 5 years, however as Mira (TTA, 2025) states: “so can waiting on social housing waiting lists”. This narrative seems

the reason why there are currently 449 cooperatives actively forming or in their maintenance phase (COOPLINK jaarverslag 2024).

Like the long waiting times, troubles experienced through the housing system can form the reason for taking this form of collective action through creating a HC. Goals such as: Affordable, Accessible and (socially) Sustainable housing often form the basis of all HCs (!WOON, 2025) (TTA, 2025). Beyond these primary goals of a HC, each HC can present their own collective ambitions. For dNM those ambitions were “care” and “diversity” which lead to the creation of committees of residents that were to be advocates for those topics throughout the design and management (TTA, 2025). dNM aims to create a community that contains a broad spectrum when considering age, gender, religion and bodily abilities. What that meant in terms of design was ultimately opting out of creating a roof garden, because the inclusion of it would have asked for an elevator (which was outside the budget) to allow all residents access to it (TTA, 2025). These decisions made for “the few” was part of the vision for dNM. For persons that align with the inclusive decision making dNM and similar HCs can be the best fit solution for housing that aligns with their values.

Some collaborative housing projects have a clear focus on creating elderly friendly or intergenerational living (Fromm, 2012). This is especially interesting when taking into account the problems that municipality Schiermonnikoog experiences, it would go beyond describing elderly as the lucky few that are able to buy residency on Schiermonnikoog. It would allow a project to focus on the mutual benefits the actors could pose for one another.

Having established the measures of success (perceived control and values) in forming a HC, we will look at a typical development process as described by !WOON. The manual provides nine steps:

1. Formation of a Housing Cooperative
2. Enlisting Housing Cooperative overview
3. Selection for a location
4. Selection through vision
5. Method and Case presentation
6. Option agreement
7. Leasehold agreement
8. Delivery plot
9. Start of the construction process

Interestingly this guide ends with the start of the construction process. One could argue it should not end there. Scholars like Brysch and Czischke (2021) state that “in CH projects, the building is often **not** considered a **finished product** but rather an **ongoing process**, as the end-users can change and expand their housing units.” However, the current model of !WOON does not consider the maintenance phase or even additional steps as part of its guide. It does mention the inclusion of future-members of the cooperative in the guide, the group often sees an accretion of members during or even after steps 1-9 and these future members are taken up in the statutes of the cooperation to secure their vote. When future members require different layouts of spaces and different number of shared spaces there is a need for re-evaluation and even reconstruction of the building. Design methods that fit these types of iterative processes are Incremental housing (Aravena & Iacobelli, 2012) and the Open building principle (Habraken & Teicher, 1972) (S. L. Brysch & Czischke, 2021).

3.2 Problems and related design interventions

The following paragraph will summarize three problems that are specific to HC projects, given HCs are a possible solution to the problem outlined in the introduction. Afterwards three design interventions are identified that target specifically the three problems identified earlier.

3.2.1 Inclusivity

Labit (2015) argues that collaborative housing has become a viable option for seniors, only four years later the following question was raised: “Is collaborative housing accessible to all ... ?” (Bresson & Labit, 2019). Bresson and Labit (2019) note that the problem with some collaborative housing projects is that persons with higher technical mastery (financial, legal, construction) tend to have a stronger leadership role and in turn create less diverse collectives. Nonetheless, mixing of demographics within a CH project can be used to strengthen social structures (Labit & Dubost, 2016).

3.2.2 Meetings with municipality officials

Throughout the entire process of developing a HC officials of municipality amsterdam need to be convinced of the project’s potential. These officials include a typical dutch organ the aesthetics commission (Welstandscomissie) which influences the projects exterior to a tremendous degree. Details concerning the project are discussed back and fourth between the HC and the aesthetics committee (TTA). The contact with these officials can be rather strenuous for these groups and can take many meetings and revisions (TTA, 2025).

3.2.3 Information on HCs

In the pursuit of aiding HCs there is a lot of open-source knowledge gathered by !WOON and Cooplinc however, there exists a difference between legal/ procedural and Tacit knowledge (Avermate et al., 2023). Tacit knowledge is a form of implicit knowledge that is derived through multiple ways, of which one is experience. There are more obvious examples of this division in the construction of a HC. Many inhabitants of Iewan have participated in the building of de Kleine Wiel and a few of them were instructed by a contractor on how to do a clay and reed façade finish. Later these individuals passed on the knowledge to the others that participated in the construction, this is a perfect example of tacit knowledge transfer. The only tacit knowledge that seems illustrious to transfer is how individuals can balance their personal life and the development of the HC.

3.2.4 DIT

Do-it-together is a derivative of do-it-yourself or a collective form of self-building. Forms of self building include Incremental housing or creating housing that is partly delivered partly to be finished by residents themselves. This is interesting from a financial standpoint (S. L. Brysch & Czischke, 2021) but also from for the social cohesion it induces (Iewan, 2025). From a design perspective it is interesting to develop a DIT method that is inclusive to the highest amount of users possible.

3.2.5 On-site meetings

Another important aspect of housing cooperatives are the shared spaces from project to project the amount of shared space varies even within different living groups within a cooperative they can differ like dNM. This flexibility is something that Cooplinc is presenting in the information days used to inspire newly interested. The amount of shared space can vary from cooperative to

cooperative depending on their vision on housing and the sharing of facilities. Lengkeek and Kuenzli (2022) have analysed 10 HCs that are all situated in Munchen, Vienna or Zurich. A very interesting statistic that they highlighted is the ratio of usable collective surface area to total surface area housing + collective. It expresses the percentage of shared space and varies from only 2.2% to 41.3%, this variance really adds onto the narrative that HCs can increase the housing satisfaction for a wide group of users. When these shared spaces are used in a public function they can house a plethora of functions;

urban farm (Boschgaard)

office space (de Bundel & dNM)

flexible workspace (dNM, Iewan, de Bundel, Boschgaard)

rented public functions (de Bundel)

grocery cooperation (Iewan)

The flexible workspace is sometimes used by HCs to house internal meetings but there could be tremendous potential in hosting meetings with external parties on the HCs property. These meeting spaces are currently held in spaces such as de Kleine Wiel. At de Bundel the project team is working on a pavillion that can be placed on site before or during construction to provide to display fundamentals of the project to the public. This forms a practical meetingspace that serves also as a buisness card for the project. This process of making the site “ready” for development is also seen in the many temporary cultural functions that preceede urban developments. Examples of these processes are the Merwe 4 Haven in rotterdam and the former Glass factory terrain in schiedam. These projects form strong advocates for temporary buildings with flexible use after a HC’s site has been confirmed.

3.2.6

Many actors of “first-generation” CH-projects have now started businesses that specialize in supporting emerging groups to critically assess their goals and means of realizing and maintaining them. Bureau Viertel is a process-guide office that specializes in CPO’s, they were once the initiative takers of Iewan in Nijmegen. Within this research CPO’s are housed under the same umbrella term as HCs namely, Collaborative Housing (Lang et al., 2018). Some members of De Nieuwe Meent are currently working for the municipality of Amsterdam as advisors of HC projects (TTA). A possibility that requires no expertese in a field is having members of a starting HC spending a few days at an existing HC. On top of that they could join their committees to gain experience on how to organise their own. Intercooperative knowledge transfer could be a primary goal of each HC and can be made physical through a communal space that is used like a meetingroom. In addition, the weekly activities like maintenance of the project are moments of tacit knowledge transfer.

3.3 Reproductivity through design

When looking back on the system of HCs as a whole it is not only the goal to realise individual HC projects but also to recreate an instutionalized system that Switzerland and Austria have. In addition, Lengkeek and Kuenzli (2022) have even titled their work as “Operation housing cooperation” hinting at a collective task that is at hand. As an architect it could prove especially helpful to include this filosophy within the co-design and even co-making of future housing cooperativesThe strength lies in the network that multiple HC form, we can refer to it as inter-cooperative resources. Inter-cooperative resource sharing is part of as a list of priorities described by Droste (2015) however only as a second point and a short side note. This short note, however, can be greatly explored throughout the architectural practice by perceiving the recourses not only

as knowledge and experience, but as physical elements. Reusing elements of decommissioned buildings treated as resources is becoming a more explored way of designing buildings that have a lower carbon and material footprint. Therefore it could prove helpful to treat HCs in the same way, not in isolation but rather as a network. Zimmer (2023) describes HCs as Reproductive Housing mainly because of the way they are a form of de-commodified housing. That element of re-productiveness is one that aligns greatly with it being self-sustaining or socially sustainable and could be incorporated in the design of future HCs. The design of a HC could also include an element that embodies the re-productiveness to convey this important aspect of HCs as a de-commodified third housing sector that is cooperative (Zimmer, 2023). This element can combine earlier mentioned methods such as open building plan and DIT.

IV. CONCLUSIONS

The following sub-questions will aid in answering the main research question:

- What processes of creating a HC need to be incorporated in the design?
- What troubles in the formation process could be addressed through its design?
- In what way can the design of a HC embody and aid the further development of HCs as a formalized system?

One of the main conclusions to draw is that the amount of cooperation with specialists is always customized each project. Therefore, each HC project should identify what parts of the process can be solved “in house” and what needs specialty. Designing the process of starting a cooperative should include at which times residents can help co-produce the project. A HC is a highly customized form of living, and the freedom can and should be used to answer local problems. The emphasis on future users should be expanded from decision-making all the way to the design of the project. In turn, creating a flexible floorplan that can cater to its future users. At all levels a HC should be considered an iterative process rather than the delivery of a final product through an OpenBuilding design.

The problem of an insufficiently inclusive design could be addressed through the DIT design principle. When creating a construction method the inclusion of residents could prove an answer to a lowered amount of social inclusion.

Meetings with officials of the municipality can seem strenuous for a HC, there is serious potential in designing a temporary structure that can function before the project itself is delivered.

A lack of methods to transfer tacit knowledge could be covered through a dedicated space incorporated in the design of each HC.

Finally the design of a HC could also include an element that embodies the re-productiveness and de-commodification of this form of housing. A demountable and temporary space for the sake of tacit knowledge transfer that belongs to no one HC but the collective of HCs can be part of the design of individual HCs during their first steps towards the start of the construction.

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VI. REFLECTION

The graduation project started off with Housing cooperatives as a model for supplying adequate housing. Through the design of a process, the process of creating a housing cooperative, architectural qualities of the building could be explored. The process-oriented approach created constraints on the design that helped drive the research-by-design. During the design phase from P2 onwards I was able to explore the architectural techniques that lend themselves well for a housing cooperative. The idea of having a roaming building that facilitates the housing cooperative opened up the design towards a demountable structure. A demountable structure is a well-documented subject which aided the research-by-design process excellent. Another term that originated in the MBE realm: DIT (do it together, a play on DIY do it yourself) was one that found its physical manifestation in the architectural realm fast through low-tech do it yourself building techniques. The design was heavily influenced by such an approach, culminating to individual building elements that required no heavy machinery to construct.



Figure 1 reflection- sketch of watchtower New Delft

Figure 1 portrays the construction technique that uses metal packaging bands as construction material to form composite load bearing beams out of smaller beams in order to create not only a demountable structure with low waste but also allows individual beams to not exceed the

wight limit for two persons to carry the beam. The design in turn required a central element in order for it to be grounded. For some time up to the P3 the design was a demountable self-built structure that could be adapted to various contexts, however that made the plans and sections so amorphous that it lacked a hierarchy. The research in turn stressed the importance of self-building as a method for improving group dynamics of the housing cooperative, using that data and creating a workshop that is central to the design helped to create a direction not only in the building design but also the design of the process that this graduation project delivers. From that point on the project starts off with a workshop and office that are constructed (Figure 2) that will be used to refine materials for the construction of the rest of the project.

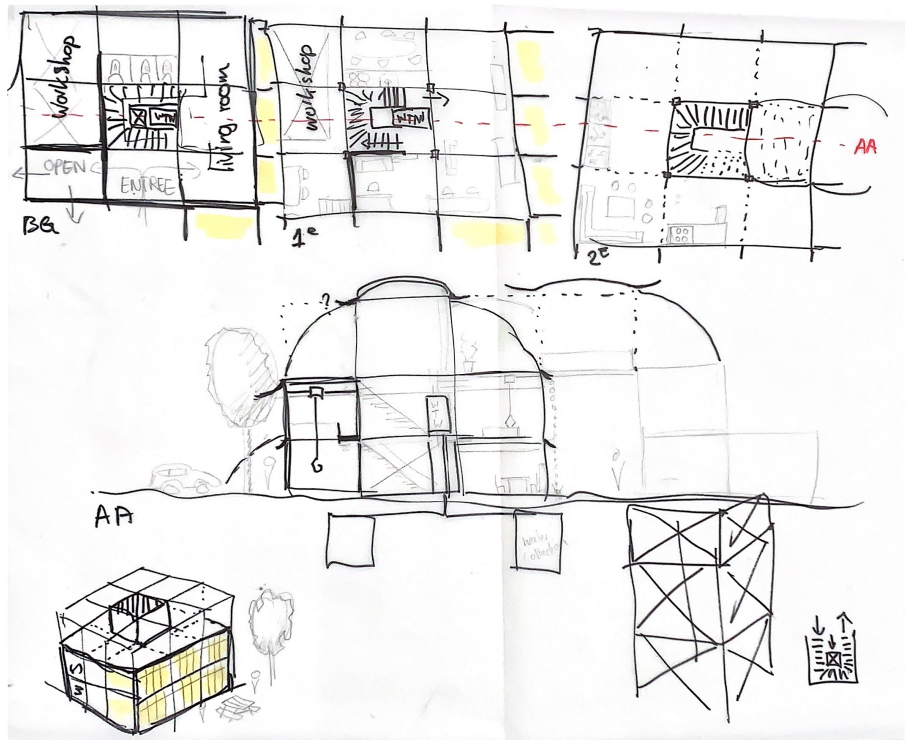


Figure 2 - Reflection, project core of building

That concludes a good example of the influence that the Research and Design posed on one another. The design of the loadbearing structure allows for an incremental building approach and makes the process flexible enough to be implemented by multiple housing cooperatives with varying sizes and contexts. The limits might be reached however when larger scale cooperatives use this approach because of the limiting grid size (3.2m x 3.2m). When the grid size is scaled up for a larger cooperative the individual beams become larger and no longer meet the maximum weight allowed for individuals to be carried. The project poses a clear design-kit with constraints (grid size) but allows for flexible use of materials in the finishing layers of the building. It would be extremely interesting to explore one unit of the design delivered at the P4 with an actual housing cooperative that could use it as their base of operations. My design delivered at P4 sketches a picture of how it could aid a housing cooperative in its infancy, conclusions on the actual effect of it on the process of creating a housing cooperative are hard to be measured. However, it does supply existing cooperatives with a kit-of-parts to be experimented with, therefore I feel the project begs to be experimented with on a 1:1 scale.

The feedback by my mentors helped me emphasize the project as not only being a design for a temporary building that facilitates a housing cooperative but also as a process. Since the project covers a relatively small area, the design of a process was essential to create a level of depth. In design-research that meant thinking about how the facades will be reused and donated to the

final housing cooperative (permanent residence) while the demountable construction will be passed on to a new housing cooperative in need for a base of operations.

This project has helped me to translate basic architectural skills (sections, plans, exploded view) into meaningful examples for a client such as a housing cooperative. I feel that translation has helped me to distinguish myself as a designer, using a certain background of knowledge in a context that is very practical: creating a housing cooperative. This project has helped me reestablish my desire to design for people and create meaningful collaboration between them through a design.

In the final part of my graduation, I want to approach the 1:1 scale of the project and create models that help viewers of my project get enthusiasm use this method that I have created. Questions that could still be answered are: what effect has demountability on the lifespan of materials? What is the degree of self-expression a housing cooperative can articulate within a design that is only temporary?

A large-scale façade fragment model, could bridge the gap between the technical drawings that prove the credibility of my design and the human use it could potentially see later. Therefore, I would like to develop physical models in the last phase of the graduation project.

Supplementary impressions through sketches would accompany the tangible models quite well.

To conclude this reflection, I would like to express my joy in working on this project and I sincerely hope that I can find myself later working together with groups like a housing cooperative through design but also the actual construction of their project. I would also like to express a moment after the P3 where I felt like “I had to enjoy the project more” which was directly sabotaging the enjoyment I attained through the project. Luckily soon after, through sketching and modelling I did find my enjoyment again.