Graduation Reflection Danique van de Sanden
Explore Lab: A vision on the design of future sustainable homes.

''The good intentions and creativity of citizens and their willingness to make a difference, is one of the most underutilized resources we have today'', says Global Ecovillage Network Europe (GEN). Bottom-up initiatives like ecovillages and the recently emerged Dutch 'Tiny House Movement' are sustainable projects organized and shaped by people who adopted a sustainable lifestyle and with that, contribute to the reduction of climate change. It appears that similar people, also willing to live sustainable, can't find a suitable living environment in the current housing stock that fully meet their needs. While, in a world where nowadays climate change is a big problem, we should encourage this group of people to get most out of their willingness by giving them the right conditions in the built environment. As architects, we can learn from the way residents of tiny-houses and eco-villages organize and shape their sustainable environment and use this knowledge in the design of future dwellings.

I started Explore Lab, the only studio where it is possibly to create a project from your personal fascination, with my interest for sustainable lifestyles. My research was focused on finding the social and physical conditions in these environments (eco-villages and tiny-houses), which are crucial for being able to live this particular lifestyle.

To give answer to the question, I visited several example-projects and interviewed the residents/initiators of these projects. Since they were the creators of the homes, they know most of the projects. And since they also were the users, they could explain best how these environments gave shape to their (sustainable) lifestyle.

For the design project, I was fascinated by trying to create such a sustainable project in a dense area. Since the example-projects are situated on the countryside most of the time, I was wondering how such a project would take shape in a total different context. The assignment was to ''create a sustainable dwelling typology in a dense city that contains the right conditions for people to adopt a sustainable lifestyle''.

My chosen location is Rotterdam Wijnhaven. This area in the city center of Rotterdam is a relatively quiet area, which is now being transformed with more apartment buildings. The plot I have chosen is only 15 by 50 meters and right next to an existing building, which supports the challenge to build on a small area.

From the research, I subtracted elements that were needed for living sustainable. The elements that I tried to implement into one integrated design-concept, were:

1.   Trying to **go ''off the grid''** regarding energy, water and (partially) food;

2.   Trying to reduce the amount of 'empty' surface and the amount of stuff needed, by **going small** (smaller private spaces);

3.   Trying to reduce the amount of 'empty' surface and the amount of stuff needed by **sharing more** (changing the ratio of public/communal and private spaces and functions).

Besides that, the goal that is not subtracted from the research but fits with the overall concept, is to build with as much as sustainable materials as possible.

The outcome is a 100 meters high apartment building with around 50 apartments, communal spaces such as social gathering spaces and relaxation spaces, and public spaces such as a restaurant, flexible workspaces, children's daycare and a gym. The building consists of stacked

landscapes, which creates a 'vertical river' at the north-west façade. It also frames the groups of people, with communal and public functions in between. Behind the south façade, vertical farming is applied throughout almost the whole section. The basement consists of two levels of parking where shared cars are located and with room for technical aspects such as the water storage.

Reflection

I think the goal that I set myself, to ''create a sustainable dwelling typology in a dense city that contains the right conditions for people to adopt a sustainable lifestyle'', has worked well. The building contains similar circumstances as in the tiny houses and eco-villages that I have visited. When designing such a project in the future, however, I now know that more surface is needed to be able to fully say that I can go ''off the grid'' regarding the water supply, without having to prescribe rules and re-use a big amount of the water all the time. In that case, such a concept can then be made also for people that are not that willing to live that way, so for example use compost toilets. Then, such a sustainable project can be made more accessible. I also think that that would be maybe a better approach to start making a change in our standard of the way we design and live in homes. However, by setting this goal of a more extreme concept (so going fully off-grid on a small plot), it gave me a lot of insights in the difficulties and limitations when trying to design such a building.

Regarding my design process and how my building has formed itself within that, because of all the requirements or goals that I have set from the beginning (so: the technical performance of going off-grid, but also the different social aspects), I found it quite hard to design with creativity only and not limit myself in that. I used quite a systematic approach, also what Roel said quite often, which is true. But I was afraid that without that, I would not have been able to meet all of these requirements. Architecturally, the total form and some parts of this ''buffer-zone'' could have been a bit more playful or special, I would say. Other than that, I am not dissatisfied.

Upcoming period

Since practically all design-decisions are made now, I am only focusing on drawing the last details of some crucial aspects of the building. I also need to finish all floorplans, elevations and sections in its basis. Next to that, I am focusing on the presentation: what to tell, in which order and with which illustrations? Only after obtaining a GO, I will focus on making the illustrations and impressions looking better.