REVITALIZING PHILIPSBURG

Towards a sustainable, densified, and vibrant neighbourhood.

- Reflection paper -

Reflection Paper

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Towards a sustainable, densified, and vibrant neighbourhood.

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0. Introduction

The island Sint Maarten, an island in the Caribbean, is located in a hurricane and earthquake sensitive area. On the 6th of September 2017 the island was hit by hurricane Irma, leaving approximately ninety per cent of the built environment damaged. Now, three years later, the island is still struggling to recover from this catastrophe. The Down Street district, the residential area of the islands capital city Philipsburg, caught my attention because of the large contrast between the vibrant tourist area and this mostly deserted neighbourhood. It seems like there are two different worlds in the same city. In Down Street there are still a lot of abandoned houses and vacant lots due to the destruction of Irma. With the departure of its residents, the sense of community in the neighbourhood also disappeared. Due to the destruction combined with population growth there is a housing shortage on the island. My design objective during this project is to examine weather urban densification is an opportunity to meet the demand for extra housing, while taking the climate challenges into account.

1. The relation between research and design

Within the field of Architecture, research is done to create a design. During the process towards a design proposal research is needed to create a clearly substantiated argumentation for the design, but in the process they are inextricably linked. Reflection on the interplay between the research and the design process has strengthened my opinions and the related argumentation of choices made within the project.

Experiences from the past can serve as the basis for what is possible in the future. Throughout history the island is connected to natural disasters. I wanted to understand with what housing typologies the islanders are familiar with, starting analysing the traditional domestic architecture of Philipsburg, followed by the current, see figure 1. To rebuild after a natural disaster, self-building was commonly used within the local building culture. However, this tradition was lost in the last three decades. To find a possible solution for the current housing shortage on Sint Maarten, I have investigated if a form of organized self-help housing (OSHH) could be a strategy to fulfil the extra need of housing and turn Down Street into a lively neighbourhood again. For my research I have written the paper "REVITALIZE PHILIPSBURG" in which I have tried to find an answer to the following thematic research question: *What can be learned from the local building culture and -history of Philipsburg to fulfil the current need of affordable housing while taking natural disasters and self-help housing into account?*

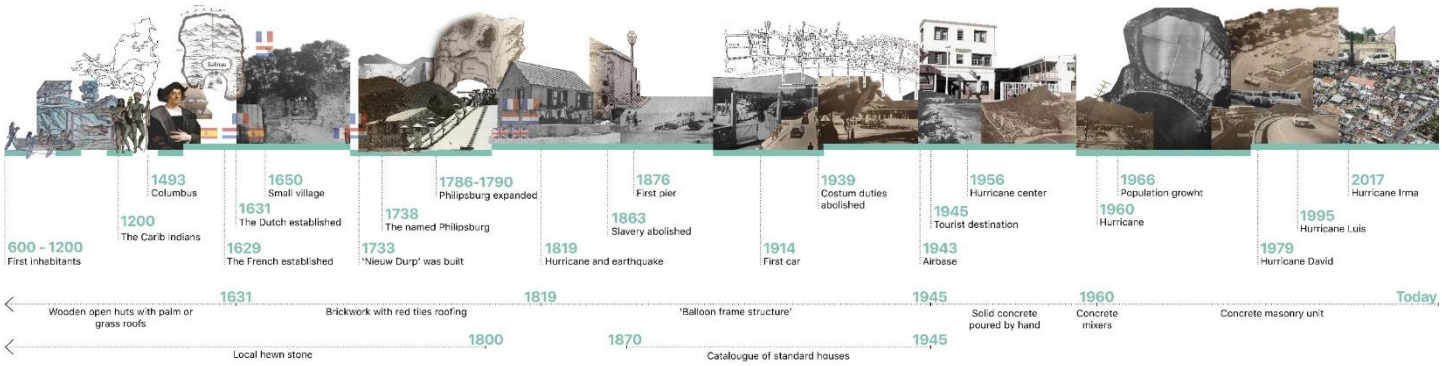

Figure 1: The origin of the current Philipsburg, Sint Maarten (Own work).

The traditional building culture has proven that unskilled people can build with simplified building system if they build together as a community. However, since hurricane Luis (1995) the islanders became more individualistic and the principle of building with the community was lost. The historical research showed that traditional Balloon frame timber construction was identified with slavery and poverty. In order to leave this identification behind residents needed a different kind of architecture that met the wishes of modernity and could resist hurricanes. The contemporary building culture is bases on the use of reinforced concrete. However, the currently used concrete system is not sustainable and does not takes the negatives aspects as heat accumulation and earthquake resistance into account.

Case studies are chosen because of their relevance regarding the (re)construction after a natural disaster on the bases of local building principles through an organized self-help housing. They have shown that building together have increased the sense of community which led to a community being resilient for future disasters, creating a sustainable community. But this does not alter the fact that case study 'Nqibikan Village' already had a strong Community-Based Organization (CBO) before the earthquake of 2006. Furthermore, within case study 'Banda Aceh' non-profit organization (NGO) Uplink was already present on the island Java before the tsunami of 2004. Within OSHH the community is the builder with technical assistance from NGOs or CBOs. Currently there are no NGOs or CBOs at Sint Maarten that focus on OSHH. The NGOs and CBOs have a short-term vision and want quick results to show what they have done with the funding.

Until the first couple of weeks after the P2 prestation I was deeply interested in creating a building system which the inhabitants could build themselves in the form of OSHH. OSHH was the leading theme during the first semester. A leading theme provides guidance during the process, but I have tried to stick too much to the leading theme. Design options where overlooked because of this, which has led in being limited in the design freedom. Meeting the guiding theme became a goal in itself. This resulted in being stuck for a while within my project process. The mentors made me aware of the fact that this approach of the building organization does not suit the contemporary lifestyle of the current islanders. Within OSHH the community have to build themselves, so residents need to have time to realize the project. But if this is not the way things are done on the island the project will not be accomplished.

This unexpected change of building organization made me think in options instead of problems, also known as "kill your darlings". A possible solution is found in the bottom-up approach of Collective Private Commissioning (CPO) which is a form of social project development in which future residents jointly commission their own new construction project, contribute together in a mortgage and have organized savings for future maintenance.

By choosing to have a contractor build the project, the urban densification can be realized with multi-layer buildings and the traditional Balloon frame, with which only two layers can be realized, no longer has to be the starting point. This made the introduction of the second "manipulated" ground level as a unifying element possible. The project is accomplished by a contractor who is responsible, but to reduce the costs the future residents have the option to help within the building process. As a result, the contractor is able to hire them for future developments, as there are not enough skilled labour on the island.

2. The relation between the graduation project, the studio ´Shelterlands Sint Maarten´, the department of Architecture, and the Faculty Architecture and the Built Environment

The studio 'Shelterlands Sint Maarten' focuses on the circular reconstruction of Sint Maarten. The location 'Sint Maarten' has been determined from the studio, but a specific assignment is not given. I had to develop my own scope of interest. Mainly as a result of conducting the thematic research paper and a fieldtrip I realized that besides the natural disasters (hurricanes, earthquakes and flooding) and the housing shortage the islanders have to deal with several other problems such as; a hot climate, unstable politics, one-sided economy, unemployment and environmental pollution.

Motivated by my main pursuit to fulfil the demand for extra houses in Philipsburg my focus lies in urban densification which fits the urban context and the resident's needs. This corresponds to the aspiration of the department of Architecture to integrate research and design with aspects of social relevance and find the coherence of the building with the urban context. So, the project does not only includes the building. During the process I have worked through the different scales of the build environment. The relationship with the studio focus on circular reconstruction is two-sided. Firstly the choice of materials takes into account that there is almost no suitable building material on the island and everything is imported. By avoiding the use of concrete and using as much renewable wood as possible, the CO2-footprint will remain limited despite transport from abroad. Secondly the resilience towards hurricanes is increased

by climate related aspects, structural aspects and social aspects. The building limits the heat island effect (local concentration of heat storage in stony materials in the city), makes the use of air conditioning unnecessary and reintroduces the cistern. CLT makes use of the rigid box principle making damage to the building structure minimal. The CPO approach strengthens the social coherence and sense of community making people willing to help each other.

3. The relation between the graduation project and methodical line of inquiry of the graduation studio of architectural engineering

Due to the hot climate and the urbanization residents prefer to stay in their homes with the air-conditioning on. The traditional outside life turned inwards, see figure 2. The residents alienate from each other and become isolated, see figure 3. Down Street does not have clear spaces for people to meet. The public space consists of concrete and pavements with hard transitions from public to private. People prefer to pass by this area instead of staying here.

The urban densification of Down Street with the goal to encourage the sense of community is the challenge I try to achieve within my project.

Figure 2: A traditional Backstreet in Philipsburg. The residents sit on the staircases in front of their houses ("Backstreet Philipsburg Sint Maarten", 1910).

Figure 3: The contemporary Backstreet in Philipsburg. There is a distance between the built environment and the streets (Own work).

Within the studio architectural engineering there are three different directions given 'how' I can achieve my goal; flow, stock and make, see figure 4. Although the boundaries between these directions seem to be fixed, from my point of view they are interwoven, see figure 5.
Maintaining the link with history a small traditional house is incorporated in the project to gain more appreciation for the few monuments that remain (stock). However, my graduation project is mostly related to make and flow. As I described, in the first part of my graduation project I had the intention to develop a low-tech building system constructible by the future residents themselves. Due to new insights during the process, building by unskilled workers was not realistic in the current situation on Sint Maarten. Adequate guidance is not available and inhabitants do not have time because they have to work for their income, so I let go of the low-tech building system.

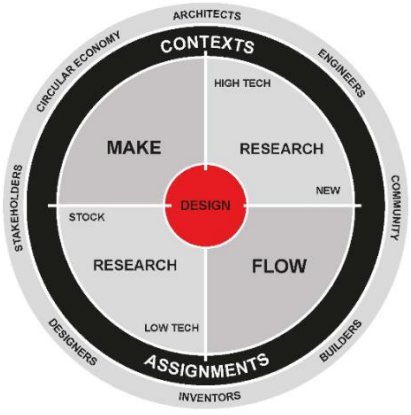

Figure 4: Flow, make, and stock (Asselbergs, 2019a).

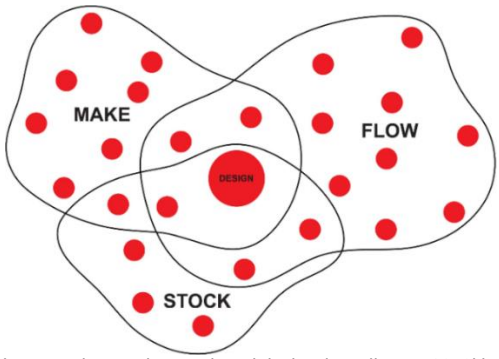

Figure 5: Flow, make, stock and design (Asselbergs, 2019b)

The project will make use of a modern wooden building system, cross laminated timber (CLT), that is not used on the island yet and makes it possible to build multiple floors to realize urban densification. This building system can be a new approach, based on a reinterpretation of the traditional building system, to cope with the climate and natural challenges such as heat accumulation, earthquake resistant and due to it thickness it is most likely to protect the residents against flying debris during times of a hurricane (make).

The project consist out of high-density low-rise apartment buildings. The encouragement of my main mentor to think out of the box combined with my conviction to create more unpaved public spaces, in the sense of vegetation, led to the design idea of a second ground level, see figure 6. Within this project various disciplines intertwines harmoniously. This project tries to embolden the residents to make use of the open air again, strengthening the social cohesion and creating a future resilient community (flow).

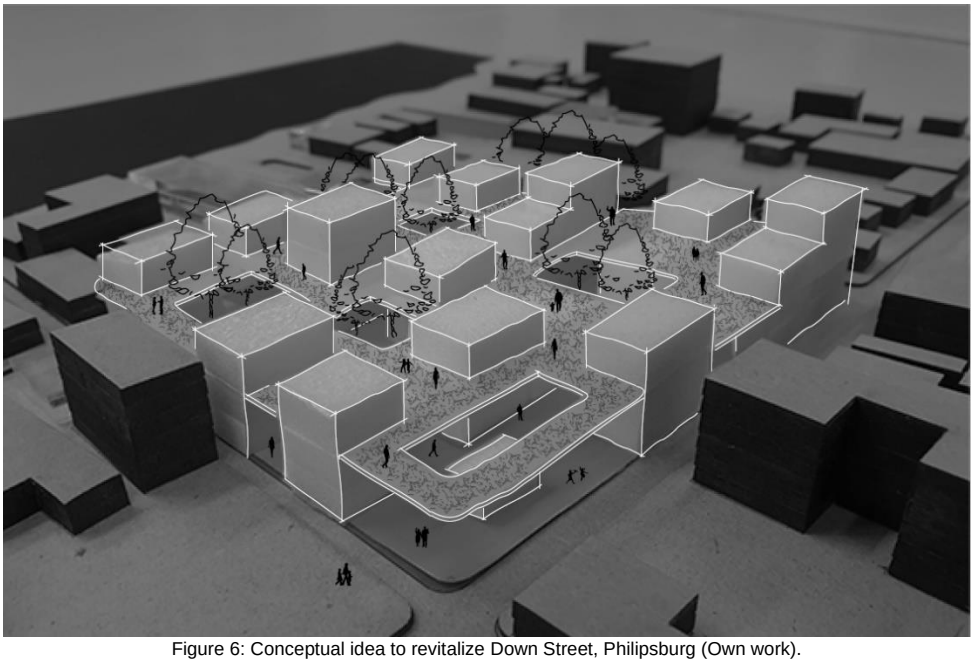

Figure 6: Conceptual idea to revitalize Down Street, Philipsburg (Own work).

4. Relationship between the graduation project, the social/professional/scientific framework and its transferability.

The demand for extra houses does not only play a role on Sint Maarten. Due to the growth of the world population I believe that there is no escape of urban expansions. Globally people are going to live together in an increasingly high density. This is remarkable since the city dweller often answers the question ‘what is missing in their living environment’ with: “greenery, space and tranquillity”.

By integrating greenery and meeting places in my design, the city will transform into a landscape. To design with natural materials and vegetation, not only in the scale of the building, but on different levels of the built environment is my way to create architecture in a climate responsive way.

Building in wood, especially CLT coming from sustainable forests, is part of the circularity idea. Furthermore CLT is an emerging building system for multi-layered buildings that allows building in higher densities. CLT buildings are earthquake and hurricane resistant since there is a form of flexibility combined with firmness of walls, floors and roof

thus protecting residents against flying debris. Therefor the system is suitable for locations with harsh climate conditions.

The subject of my graduation project is not only applicable on Sint Maarten but this train of thoughts is also relevant for other densifications. I am aware of the fact that my project is based on the needs of Philipsburg. So the design is not directly transmittable to other places. However, the ideas behind it, such as making public spaces, encouragement of the social cohesion, incorporating greenery and the use of sustainable material can be a starting point for projects all over the world.

5. Ethical issues and dilemmas

At the beginning of the project I looked at the problems on Sint Maarten too much from a Dutch perspective. I gradually realized that this had to be adjusted by taking the residents and the possibilities of Sint Maarten as a starting point. At first I assumed that, given the high unemployment, there were enough people who had nothing to do and could therefore help to build. The reality was different, many people had part-time jobs badly needed to make a living.

The historical research showed that traditional Balloon frame timber construction was identified with slavery and poverty. In spite of this sentiment, I chose to design a modern version of traditional timber construction, partly because it fits the technical demands and partly because it is part of the cultural heritage of Sint Maarten and in my opinion residents can be proud of it.

Traditionally, land was owned by the family and other family members could also build a house on this property.
A new form of this use may be found in Collective Private Commissioning (CPO).This is not a common system on Sint Maarten and the current owner of the land needs to participate. Financially, the feasibility depends on finding suitable CPO partners and a bank that dares to introduce something new. I think the project can revitalize this district, making the area attractive from an urban development perspective and increases social cohesion, thus convincing the government to make a financial contribution

For a long time, I had doubts whether building by a contractor was a good option and whether it was not at the expense of the possibility of reducing unemployment by educating residents about building. Choosing a contractor allows for a higher urban density, which addresses the housing problem. By drafting the contract with the contractor in such a way that future residents, if they have the opportunity, can learn construction skills, the possibility is left open to reduce costs and acquire building knowledge.

Urban densification by building low rise houses close together without much public space can be seen in various neighbourhoods at Sint Maarten. The additional heating due to pavement and the lack of greenery and shade in these areas is a problem for the quality of life from my point of view. Multi-layer residential construction is rare on Sint Maarten but would be an opportunity for higher density. My dilemma was if a four story building fits in a residential part of Philipsburg. By introducing the second ground level and an abundance of public space, greenery and shade I think the experience is in line with small-scale housing.

6. Personal comments

In the current time, with the measures against corona, guidance is given through Zoom. Coaching used to be a moment of sparring together, switching quickly and putting a sketch over it. Now that is not possible and every coaching session has to be prepared, it is more a presentation of the work done in the past week and a response to previously stated feedback. The feeling of a spontaneous interaction has partly disappeared and the extensive preparation requires extra time. However, it is nice that the consultation is no longer tied to a specific day.