REFLECTION

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The graduation project focuses on the creation of new buildings, which falls into the “make” domain of the Architectural Engineering Graduation Studio. This domain includes aspects such as “structures, façade, craftsmanship”, which are all part of my project.

Approaching my graduation topic, I looked at general problems present in the sector of sub-urban housing, mostly considering factors that hinder a sustainable built environment. I noticed that rammed earth offers many opportunities no other current material in the building industry has, which could potentially form an answer to the identified problems, encouraging me to explore the material further. This, however, soon made me aware, that although rammed earth intrinsically holds many great qualities, there are quite some challenges in actually implementing the material in sub-urban housing on a larger scale, which motivated me to find answers to them.

An essential base for me was the acquisition of fundamental knowledge of the material rammed earth. For that, I included workshops (hands-on workshop on rammed earth at the AHK Amsterdam, 6-week online learning course “Introduction to Rammed Earth”), and established contact with people from the industry, both from the prefabrication (the companies Lehm Ton Erde and August Lücking) and material acquisition (BC Materials) business, as well as from the planning and architecture side (Patrick Krecl). These contacts essentially helped me in shaping my own understanding of the material and its fabrication, but also were key in assisting me with more specific questions regarding my own design. Thankfully, by now, also a variety of publications, as well as rammed earth buildings, exist, which helped me a lot in both my research phase, to create the value chain I apply to my system, as well as in the design phase, to have good case studies at hand and to allow for research by design.

Although prototyping was initially considered as a research methodology, I did not use that tool very much outside of the workshops. Eventually, the means of prototyping I used were more in the digital sphere, meaning exploring dimensions related to residential requirements, as well as model-making to refine shapes, since I did not encounter problems which I thought prototyping in rammed earth could have solved.

I believe that the academic and societal value of my research and design are very high. I did not follow the approach of creating entirely new methods of prefabricating rammed earth, but I used what was already there and tried to connect it in new ways to generate an innovative value chain which

follows the overarching principle of a circular built environment. For that reason, I argue, that it is even better that all methods I chose rely on machinery and technology that do not have to be acquired newly just for rammed earth but on rethinking the already existing. Great moments in that were also getting the approval and acknowledgement of my research from professionals in the industry, as well as discovering the rammed earth production of August Lücking, which had just started when I began my research – so other professionals from the industry I spoke to had not even heard of them yet. Since I tried to base all steps of my graduation project on very realistic circumstances and conditions, I believe that also the outcome is very applicable, both in research and design. At the same time, I chose to display quite an extreme way of applying my system, which makes the design in parts experimental. I did, however, try my best to back up the assumptions I took by with comparable case studies. At the beginning of this graduation project, I defined four main objectives for my design, namely the inclusion of elements of flexibility and adaptability to regulate irregular building occupancy better, to reduce highly specialised labour and the time of construction in rammed earth to make the material more affordable, to apply the material‘s already inherited beneficial properties of thermal mass and vapour openness to contribute to passive climate control, and to utilise secondary resource soil excavations wherever possible in the building. I believe that I managed to implement all of those aspects to a very sufficient level in my design, and my research helped me immensely in understanding the specifications of prefabricated rammed earth elements that I needed to take into account and that informed my design. One thing I would still like to improve on is the representation of the material also in the façade of the building since I believe it should be more clearly represented in its qualities.

The coming weeks until P5 will be mainly used to optimize my storyline, and to comprehensively frame the initially set goals, the final design, and the research. Part of that is model building to make the material rammed earth perceptible not only in plans and in visualizations, but also in person. Also, I would like to present more clearly the systematic scheme behind my design and its unique qualities, as well as its concrete application on my building site. For that, I would like to create a manual, similar to an “Ikea closet planner”, which guides through the planning process of such kind of housing step by step, leaving room for individual adaptation, but also explaining how my exemplary design is built up. Lastly, I see the creation of drawings and models which are also aesthetically pleasing, as key to engage a closer interaction with my graduation project and to fully represent it.