REFLECTION

The research results have played a significant role in the development of the architectural project. Dealing with 1D, 2D and 3D systems, the graduation research has been continually referenced to make more informed decisions and proved to be a useful tool during the schematic phase of the project, helping to determine the sizing of CLT elements, influencing the overall composition of the design. Once the design began to develop, it was realized that the combination of all three systems can provide a great amount of flexibility for residential and educational typologies.

However, what proved to be a challenge was the ambition to maintain the existing function of a parking lot. The existing parking space is 5 x 2.5 meters in size, influencing the proportions of the entire site resulting in the building having to fit within this proportioning system while still functioning as a quality residential building. It was important that the proportions of the kit of parts (1D, 2D and 3D) fit within the existing parking lot proportions as that would result in the ability to construct on top of any parking lot throughout Delft Campus. After a lot of trial and error through physical and digital model making, a proportioning system was determined for the 1D, 2D and 3D parts. Allowing for a variety of floor plans to be quickly generated and reconfigured upon further iteration. For example, if an additional fire stair is needed, then one would simply take out a 3D module part or 2D CLT floor part and replace it with the fire stair. This way of working allowed for the ability to establish a kit of parts that could continuously be developed throughout the term. Once the proportioning was determined, it became easy to generate large scale plans in a short amount of time simply by repeating elements. The aim was then to generate the most ambitious of options and from that, exceptions within the kit of parts would emerge and new parts would be designed and implemented. It was discovered that every 'part' in the project is a repeating element, avoiding any one off custom pieces in order to attain the design. This repeatability can then be transformed into reconfigurability, allowing for completely different design opportunities using the same kit of parts. Moreover, it allows for the project to take over different parking lots throughout campus, with each parking lot having site specific conditions that the kit of parts is able to respond to.

The different possibilities that the kit of parts can generate results in small, medium, large and extra large configurations, allowing for specific responses depending on the context of that time. Allowing for the buildings to grow and shrink rather than producing a static product. The opportunities go even further with the parts once you start utilizing them for other applications. For example, the parts can be utilized to develop spaces on top of existing buildings, or can quickly generate communities in brownfield sites, the opportunities become limited by the designers ideas rather than being limited by the parts. The transferability of the project can go beyond parking lots, just as it can only focus on residential typologies or only educational typologies as well as different scales of each. Flexibility becomes a major component of what the designed kit of parts can offer. As the project has developed, the complications of combining all three timber systems (1D, 2D, and 3D) has been realized. It becomes difficult when switching back and forth

between 1D/2D and 3D, with the goal of attaining maximum flexibility. Although it does appear to be possible, the combination of the two systems may result in using more material than needed. However, throughout the project development and research, it must be acknowledged that every system has its drawbacks and must try to be mitigated as much as possible. The significant benefit of combining all three systems has resulted in being able to quickly iterate and develop the project, allowing for the building to consist of typical details that can quickly be rearranged as needed.

Throughout the graduation project, exploration has gone from generating ambitious sketches of building ideas to researching existing tools and techniques within 1D, 2D and 3D timber systems and establishing rules of thumb for each. To then explore the proportional implications of the parking lot and how that dictates the sizing of the timber elements within each system while referring back to the established rules of thumb. While along the way constantly testing through physical model iterations to gain a greater understanding of how things come together and function. Going back and forth from different scales between 1:1000 to 1:5 has provided a great deal of insight in order to figure out specific design aspects and functionality of the project. Then exploring materiality and quality of space through visualizations to see how the expression of the different parts contributes to the architectural quality of the project. I believe that exploring all of these different aspects and using a range of different approaches to do so enables the design to develop in such a way that may not be possible through only one means of exploration.

The graduation project topic itself explores a pressing issue of the lack of housing that is provided on Delft campus along with its need to maximize the use of space. Which relates to the ambitions of the architecture track to positively influence the built environment in such a way that is innovative and relevant. Moreover, the project relates to the overall master program, addressing the need for housing as well as exploring how the development of different parts from different systems (1D, 2D, 3D) come together, figuring out the detailing of each component, essentially creating a large scale meccano set.

Going forward, there is a great potential to develop the kit of parts further, solving the issues of the 1D to 3D transitions to create a truly highly adaptable built environment. The parts can be pushed further to create different housing or educational typologies, not limited to existing parking lots but to be placed within different contexts. The current proportioning allows for the building to be configured in a way that meets the designers needs, the parts are no more limiting than a typical structural grid. Breaking the norm of what prefabricated construction can produce, building in contexts otherwise designed for a single purpose and to react to site specific conditions.