Reflection of Graduation Project

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The creed of Faculty of Architecture in TU Delft is “Design by Research.” The graduation studio of Complex Project is really embodiment of this creed. In Msc 3, we put emphasizes on the research of Chicago City, which our graduation projects located in. We found many interesting facts about this city, which leads to the final master plan of Chicago south works and my own individual project.

Indeed, Chicago is the center city of Midwest of U.S., but it is said “Chicago is the capital of nothing”. In the national level, the economy and population share of Midwest in America decreased dramatically in the last few decades. So did the city ranking of Chicago. Chicago, a city without an obvious city brand, cannot compete with other big cities in America, such as L.A., D.C., or New York. The question is not whether Chicago belongs to the highly appreciated jet set of global cities: Chicago is a global city. It has the appropriate combination of human resources, manufacturing businesses and world institutions. It is control point for eleven of the most successful corporations in the world. Nearly 30% of the 104 Fortune 500 companies, which headquartered in the Midwest, are located in the Chicago metropolitan area. These companies generated over $443 billion revenues in 2005. However, Chicago's lacks critical attributes associated with a true global city: a critical center of a significant industry. Finance in New York, entertainment in Los Angeles, government in Washington, and so on. Perhaps this lack of definition, could very well serve to be its most strategic element.

For a city of this size its main vision is to become an “alpha” city, a true global player, one could assume that the overall image of the region and the involved cities, hold Chicago back from its true potential. However, the strategic organization of the region, via transportation and mobility, as well as its strong cultural definition, could provide Chicago the resources and ability to develop a Global Appeal. Therefore, the development of Chicago and its ability to unify the Midwest into a cohesive and functional region, will further define it as the ‘heart of the heat, and allow it to compete with New York and LA. The Lakeside city will be explored, as the site with an ambition to help Chicago achieve its Global ambitions.

In order to achieve its ambition, the strength of the Midwest should be unified, which are agriculture, academic research institutions, culture, landscape and fresh water resource in Great Lakes.

Therefore, the urban strategy is obvious, to propose an agriculture research center to unify the academic research and agricultural resource in Midwest and to propose a high speed rail station to improve its mobility and accessibility.

The methods we applied during the master plan phase are mainly collage. We conducted a lot of research on research center and research facilities, which helps us to propose the agriculture research center for South Works site. During the research of some well-organized research incubators, we research the program ratio of them, which help us to frame our
I split the program volumes into small pieces. The dimensions of these small pieces are based on the typology research of research buildings in those top ranking agricultural research schools and institutions. So, we can draw some simple conclusions of those own program bar in the proposed research park. Also, the sites of the research campus are collaged into our site, so that we can get the basic impression of the scale of research facility.

The south works site is formerly a steel company. The site is abandoned since 1970s', because of the shrink of steel industry. But, the south works site located near the Michigan Lake, which means the research center, would have a great view of the lake. The site is split into two parts by one slip river lies in the middle of site and goes from west to east. Therefore, in the north part, we proposed a research park concentrating on biogenetic research of agriculture, which needs a lot of indoor research space. This is an “urban” area. On the contrary, the south side is a “rural” area, which concentrates on agriculture research and asks for a vast land for research field.

My own individual project is in the south of the site, which is a high rise agriculture research building. In the master plan, we only proposed several buildings with high density. So that it would leave vast land for field. The agriculture research community would rather be a rural land area than an urban area. In addition to that, this area would have clear identity, the vast rural land and high rise agricultural research tower. (fig-01)
research buildings. Normally, the research buildings are in 'U'-shape or 'L'-shape. The width of a research building is normally 18m, which is suitable for a 3m corridor and two 7.5m wide labs are on both sides. The dimensions of offices and service area are much more similar to research part. The width of it is about 7.5m to 9m. The dimensions of conference hall are much bigger. In my case, the dimensions of conference hall are 24m by 36m, and about 15m high. And so does the reception part. Now that the dimension of each part differs from each other, we can create an interesting volume if we stack those volumes on top of each other. (fig-02)

From outside of the building, it is rather a random appearance. But in the sense of architecture design, it should be logical somehow. The entirely random scheme is assembled by small blocks and units. But what if I organize those building blocks in a logical way? What I'm thinking is to apply the organization of burr puzzle, which is a 3D puzzle to assemble some identical blocks into a stiff shape, so that it cannot be easily tear apart. (fig-03) For a high rise building, it should be resistant under two conditions, gravity and wind load. For structural concern, burr puzzle is a flexible system and can be easily withstand gravity and wind load when it is translated into building.
For my project, I think the most important aspect is the architectural expression of it. As a kind of abstract metaphor of the burr puzzle, the shape of the building is assembled by many similar two-storey cuboids with refined truss on the facade. The two high-rise towers are connected by a plinth. Some collective functions are contained, such as the auditorium, library and gym. The research programs are mainly in the high tower, while the research offices are mainly in the lower tower. The research part and office part are all in blocks with notches. Half of the blocks are connected to concrete cores, the other half are resting on the first half. The interlocking structure can guarantee the building to be persistent in gravity and wind load.

Research helps us to build our own toolbox which consists of all the information we got of the site and context. Although not all of them are directly helpful for the design, it helps to figure out what is needed to be done, especially in architectural design phase. The research we did about spatial condition before P2 helps to sharp the idea of what kind of intervention should be taken and why it should happen in the place we choose. It helps to make the storyline coherent from the urban strategy to an architectural project. And only by these means, after figuring out what should be there, we architects can bring our personal emotion and feelings to the design process. The research can protect the design process from being arrogant and make it more convincing.