

# Reflection Paper

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## **0. Introduction: Archi-Nature, creating the natural experience by architectural language to improve the healing environment in both psychological and physical aspects**

The AMC in Amsterdam is one of the largest hospital in the Netherlands. The monolith consists different departments, hospital, research centre, and university. While this building has been used for over 40 years, most facilities and function cannot achieve the requirements towards 2050. The better 'healing environment' for future is the main position in my graduation project.

'**NATURE**' is one of the core elements for future healing environment. Based on evidence-base design, the **experience of nature** can have good effect on patient health as well. A series of researches indicate that natural experience can enhance the quality of living, working and healing. Therefore, the project is trying to integrate the 'NATURE' with the healing environment in an architectural way. There are some problems to plant real green in hospital architecture, such as allergy, respiratory infections, and bacterial infection. The strategy of my project is using architectural language- structural design in my research paper- instead of real nature environment, to create a more pleasant, public, and animated healing environment.

### **1. The relationship between research and design**

As an Architectural Engineering student, design is supported by scientific evidence and research. That is to say, the research is the foundation and starting point of design process. Meanwhile, during the design process, the research should be modified synchronously. The relationship between design and research is complementary and interwoven. Research (the way you understand) in the process of architecture design is as vital as the practices (something you do).

To be more specific, my position of design project is to create the sense of experiencing nature by architectural language. Therefore, in my research paper, I explore the various aspects and flexibilities of structure, which has potential to create the natural atmosphere. I

started with collecting literal materials and many existing cases and projects. Then, I made my own database to classify the characters and conclude different methods of interpreting natural experience. Last step is to test the conclusion in design context, AMC. The research intends to draw a framework in obtaining guidelines and general principles for creating the sense of natural experience in healing environment by structural design. Of equal importance, design cannot separate from its context. The research also analysis condition of the existing AMC, including its context, the materials, the components, technologies, climate effects. All these information give inspiration and idea of the design. Thus, the design process is supported by research conclusions.

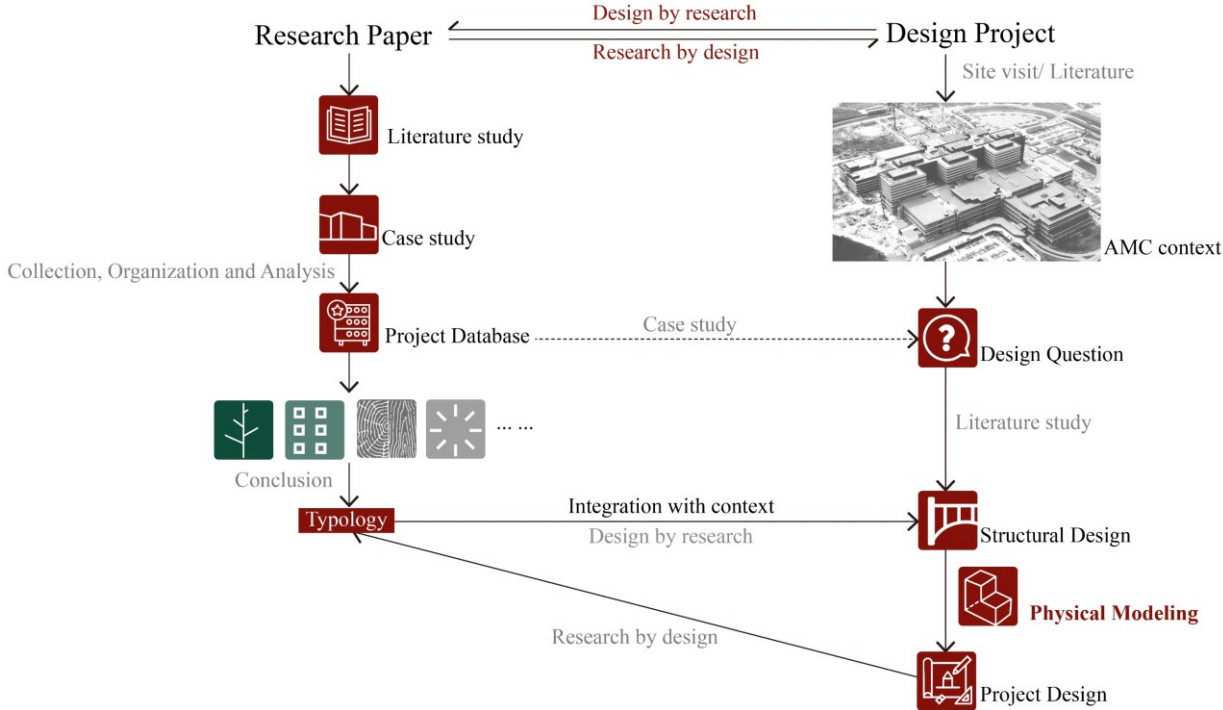


Diagram of research and design process (own image, 2018)

**2. The relationship between my graduation topic and the master track (Architectural Engineering)**

The main topic of Architectural Engineering studio is “INTECTURE”, which requires the combination of innovative knowledge in other domains and the architecture for dealing with the social and environmental problems. Furthermore, Architectural Engineering studio usually stands on a new technology as inspiration. The concept will instruct the whole design and help solve the social issues.

My graduation project is to renovate the in-between space of AMC city, which is same as the street in a ‘CITY’. The new intervention has three main functions. First one is to create the

natural atmosphere by tree-like structure, which is related to research part. It follows the MAKING track under aE studio and probe the innovative way to offer a better environment in psychological aspect. Second, the new in-between space will become a huge buffer zone in the AMC building to control the climate system, which is the main technical concept. This area will create a more comfortable healing environment in physical aspect that can achieve the requirements for future hospital. For instance, in summer, the openable skylights facilitate the natural ventilation in the building. The flowing fresh air help cool down the building. In winter, all windows are close. The corridors and atriums act as green house to warm up the whole building. Last one is to design a new public layers for different users and attract nearby people to use the public area. AMC is facing the transpiration from closed individual to public space for different groups of people. According to the existing functions and future needs, various layers of connection between city and individual, new participation and old users, new programs and existing function, intervention of new structure and original construction will be built.

My project creates a better healing environment in both physical and psychological aspects by the technical innovation.

### **3. Research method and approach in relation to the graduation studio methodical line of inquiry**

The position of my graduation project is to create a naturalistic phenomenon in renovation of a healthcare architecture. And my fascination is using the structure to interpret a space. Therefore, my research question is “How to transform the sense of nature experience into architectural space by structural design?”

To give an answer to my research question, series of methods are involved in the research, such as literature study, case study, category and simulation. I finished my research by following three steps.

First part is doing literature reading and case study. This part requires collecting relevant data from precedent theories and projects in order to arrive at a comprehensive understanding of the characteristics that people perceive and concise in natural experience.

Second, the research will analyse, select and classify this precedents including completed projects, exhibition devices, giant structures, and architectural facilities, which utilize different structure selection to create natural experience. The accomplished projects database helps to develop the general guidelines or principles for building natural experience.

Third part is to verify the previous guidelines or principles in specific context (AMC- Academic Medical Centre in the research). Context plays a core part in design process. The sense of natural experience, simulated by physical model (a full-scale, real-life mock-up), can be effectively investigated. The design strategies concluded in last step is more targeted and will directly conduct the next design process.

In conclusion, case study, making database, and simulation, I identify the key spatial features that creates natural experience, and conclude general principles that contribute to natural atmosphere.

#### **4. Relationship between the graduation project and the wider social, professional and scientific framework, the transferability of the project results**

With the development of living quality, people focus more on their healthy condition. Therefore, healthcare architecture become a popular topic nowadays. As an architect, we have the responsibility to create a comfortable healing environment for both patients and staffs in hospital.

Human beings are eager to living with nature. Nowadays the human need for nature and natural life is often not meet. Therefore, there is a wave of exploring how to integrate “natural elements” with built environment. It can be found in a large number of existing buildings that many architects have already implemented various methods to imitate the natural experience. Limited to the technological problem, in the past time, many hospitals born as functional industries. The healing environment is the last consideration for hospital. AMC is a typical example for this issue. The transition of AMC identity is happening. In the future, healthcare architecture will more like a living environment, even combine with elder living communities. The living quality become the primary factor for hospital.

My graduation is make different levels of transition of AMC building, from industrial to natural, from individual to public, from functional to experiential. The renovation of AMC building can be served as an example of the transformation of old healthcare architecture.

#### **5. The ethical issues and dilemmas**

AMC is asked for transformation until 2050. It is hard to predict the future needs from now. Along with the changes of therapeutic approaches and healthy concept, the future healthcare architecture will develop a new mode. The hospital will even disappear or replace by online clinic. Therefore, the existing hospital should explore the potential to transform to more complex architecture rather than simple the curative service. Whereas, the new intervention

will disturb the original traffic routes and configuration of the plan. To solve this dilemma, my strategies is to keep the flexibility of AMC and start with temporary components. The in-between space has great potential to change at any time when the AMC is developing. It does less damage to the original building and provides new possibilities.

In addition, the project is renovation of a heritage. I cannot ignore the existing situation. The construction problem and how to harmony with the monolith should be considered.

Therefore, the building technology is important in my design to solve some construction and fabrication issues.

Finally, I found that as an architects, I should meet different requirements of my clients not only for the users. Thus, the economic issue should be considered in my design as well.