

REFLECTION

P4

BIOBASED MATERIALS
SHOPHOUSE BANDUNG



LOUISA DE RONDE

4087356

Architectural Engineering Graduation Studio
Delft University of Technology
Department of Architecture

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Tutors

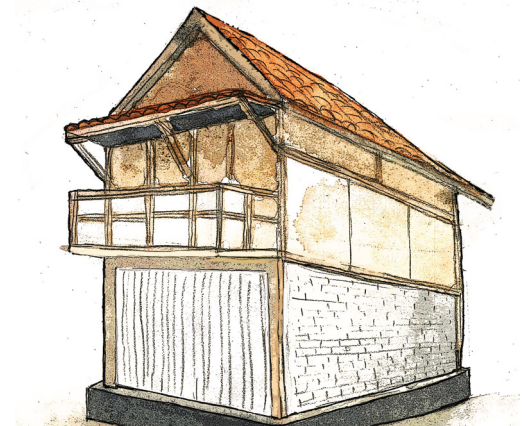
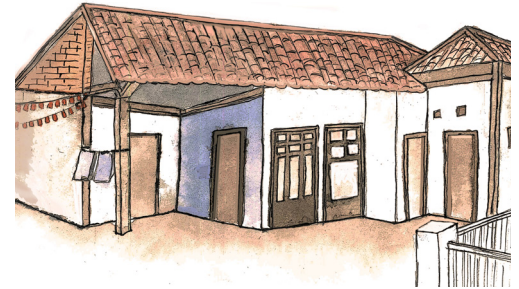
Architecture Teacher	-	Monique Smit
Building Tech	-	Marcel Bilow
Research Teacher	-	Marcel Bilow

ASPECT 1:

WHAT IS THE RELATIONSHIP BETWEEN RESEARCH AND DESIGN IN THE GRADUATION PROJECT?

In the studio, Architectural Engineering is the technical research one of the most important aspects of the graduation studio. The technical research, that takes place in the first half year of the graduation project, forms the foundation for the design. The main research question of my research is "Which biobased materials can replace the current building materials and improve the building process and methods?". So the research was mainly focused on biobased materials that could be locally produced and used for building houses in the kampung of Bandung.

In my research, a significant difference is seen between where the research started and where my actual design ended. From the beginning of the research, I had in mind that every part of a house could be made out of biobased materials. But in the end, it was clear that the development of biobased materials was relatively new and that it was not possible to find materials for every part of the building. But the library of biobased materials that I created within the research defined a guidance for my design. In the actual design, I applied different biobased materials from the research and integrated it into the story of the concept and the design that formed the foundation of my graduation project. Conclusively, research and design were intertwined on certain levels in this graduation studio.



ASPECT 2:

WHAT IS THE RELATIONSHIP BETWEEN THE THEME OF THE STUDIO AND THE SUBJECT/CASE STUDY CHOSEN BY THE STUDENT WITHIN THIS FRAMEWORK?

The Architectural Engineering studio is divided into three themes; stock, make and flow. Within these themes multiple locations are possible. For this graduation project, I chose Bandung Indonesia with 'Make' as a theme. The Bandung group is guided by Monique Smit. She is currently researching a project, the Fashion Village, for the Cigondewah Kampung in Bandung Indonesia. For this project, student ideas are used to improve the housing for migrant workers in Bandung. The group of students of Bandung has the main goal; improve the kampungs of Bandung by using architectural and technical knowledge. This research was part of the third group of students that chose this location. So the students had to choose their own fields of interest based on the previous graduation projects. Some of these topics were already researched, for example; using local waste as building material or improving the quality of the water by implementing urban scale filtering systems. My specific topic was to improve the current building system by using biobased materials. Some of the former students did already research by using different techniques and materials to create a better structure, but I was more interested in the completion of the structure. In the end, I am very glad I chose this location. This context compiles a different mindset because of the unfamiliar location and culture. You have to search for specific solutions that fit in the current context to create a successful design.

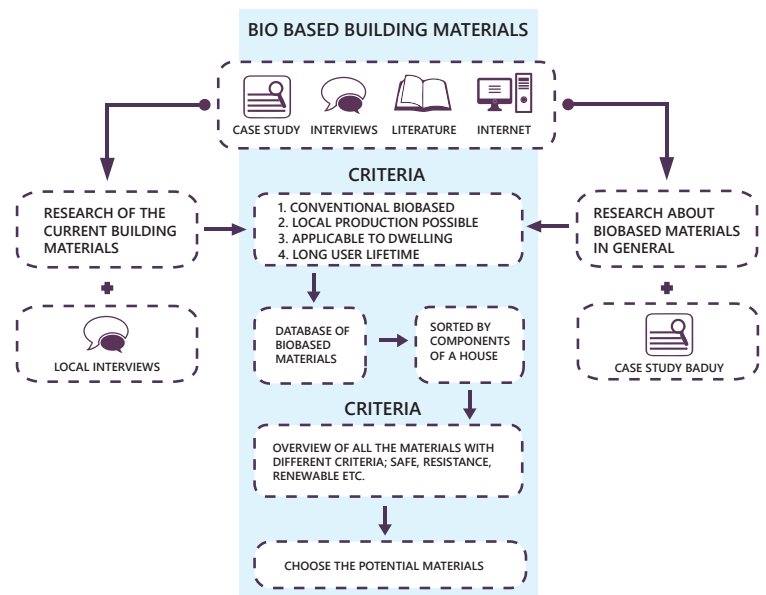


ASPECT 3:

WHAT IS THE RELATIONSHIP BETWEEN THE METHODOLOGICAL LINE OF APPROACH OF THE STUDIO AND THE METHOD CHOSEN BY THE STUDENT IN THIS FRAMEWORK?

The studio Architectural Engineering focussed mainly on the coherency between architecture and technology. Technological innovations are often the starting point for the architectural design. The technical research within the graduation provides not only requirements for the design but is also serves often as a source of inspiration. Because of the specific location that I have chosen, the research about the context was also an important aspect. The local conditions and requirements formed the basic criteria for my research.

The strategy within my research was to improve the building system by using biobased materials. Through the development of the design, the building method became an architectural building system. This system should provide new business models for the locals inhabitants and opportunities to build their own houses in a sustainable way.



ASPECT 4:

WHAT IS THE RELATIONSHIP BETWEEN THE PROJECT AND THE WIDER SOCIAL CONTEXT?

In the future and the present, we face a lot of problems that have a negative influence on the world, for example, the rise of CO2 emissions and the lower fossil fuel level. As an architect, we can have a lot of influence on this kind of problems. We can design sustainable cities, buildings, and environments to change the future.

The Kampung in Indonesia are self-build housing areas that are inhabited by mostly low to mid-low income inhabitants. These kampungs originate from rural villages that are being transformed to polluted cities. In the traditional way of building the local villagers used natural materials out of the local environment to build houses, but the currently building method is based on self-knowledge and current offer of materials such as concrete, bricks and metal. Through the years the kampungs have transformed into high-density cities. Local building knowledge is not sufficient in building up more than two stories high. With the solution of a self-prefab building system, that creates the possibility to build higher, based on natural and sustainable materials should have a positive influence on the area and environment of the inhabitants.

