Relation between Research and Design

Both the research and architectural design concentrate on one core concept: how to localize a prefab housing system with the existing labors and material to accommodate the housing shortage for lower-income people in Cigondewah, Bandung. The research mainly focuses on the different prefabricating methods, where the comparison was given to evaluate the proper way for manufacturing and assembling the housing in Cigondewah. The research provides me with a new perspective conducting an architectural design as well as approaching the unfamiliar site apart from the conventional space-oriented designing process. The effort I made in the research also helps me guide the design process throughout the program and quantifying the budget which increases the feasibility of it.

Theme and Subjective

The site locates at the edge of Bandung urban area, Indonesian. As an urban villages next to a mega textile factory PT Kahatex, Cigondewah is facing a series of problems caused by the ordered urban sprawl, including the gap between the ever-increasing population and the shortage of formal housing, the poor living condition brought by the informal housing, solid waste disposal both from the factory and the village, and the collapse of social characteristic, etc. The problem statement raises considerable challenges to the situation
challengers, making it difficult to be solved with only a few approaches. Although tough, some changes can be made through architectural research and design. The Design by Research methodology provided by Ae studio offers me a practical perspective to approach the complicated situation in Cigondewah and find the point of penetration to position myself in.

Due to the fact that, on the one hand, approximately half of the villagers are migrant labors working in or with the factory; on the other hand, the factory PT Kahatex has provided dormitories for a group of employers for years and would like to enlarge the group in the future, I choose the collective housing design for migrant workers as my starting point. The hypothesis is to accommodate the housing shortage with what is easily available on site and localize the manufacture and construction process, and thus villagers, Kahatex and other parties involved can benefit from it. Thanks to the affordable prefab housing system, a cooperative company can be set to realize the hypothesis. Local craftsmen and other labors can be employed; affordable dormitories for migrant workers can be provided by Kahatex in a shorter period; investors, such as private landlords, are able to increase their income after the payback period and reduce the maintenance of rental service.

Through the site excursion in Bandung, the existing second-hand construction material market also draws my attention. Villagers tend to purchase the second-hand material for housing construction, including windows, doors, bricks, and raw bamboo and wood. However, some trouble might be brought owing to their nonstandard size and quality. Therefore, to accommodate the current second-hand market as well as the prefab housing system, the modular system would be introduced as a fundamental principle. As a result, the value of the prefab housing system can be increased, and people can build their own residence with standardized modular construction elements.

Methodic Frame and Personal Approach

The design method of the Ae studio starts from the technical research that would guide throughout the entire research and design process. By researching on specific themes, the technical solution would be selected and developed corresponding to the chosen context, from which the design will be generated. To conduct the project, the methodology can be divided into several main aspects explained as follow.
Led by the tutor Mo Smit, the excursion to Cigondewah in Bandung has already been done in the P2 phase. The aim of the excursion is to understand the current situation on site and collect the primary data through the interview with various groups of people, housing visit and the factory visit. The information collected from the excursion provides a solid foundation for later research and design process.

To conduct the prefab housing idea, the prefab industry has been studied as my research paper. Pros and cons are compared among different prefab methods so that the proper method can be adopted. Then the bottom-to-top strategy has been introduced during the design process that starts with the minimum module unit and the structural joint.

At the same time, other branches of research, including but not limited climatic influence, housing requirement of the target group, estimation of the construction budget, the business model of the cooperative company, and the spatial characteristic of local housing, are synchronized that result in the final appearance of the collective housing project

**Debate in Wider Social Context**

My project aims to combine the natural material and textile waste from the factory to provide people with affordable housing options. It concentrates on the industrialized urban villages in Indonesia, which provides a reference for the similar context. The other developing countries in Asia, such as Vietnam, India, China, and Philippines, might face the same problem brought by the rapid industrialization.

The business model might differ from site to site though, it offers a hint to accommodate the housing requirement with the help of the factory, and let people and parties involved in the project benefit from the project. At the same time, some certain waste from the factory can be transferred to reusable construction material which reduces the waste and raises the social concern of the living environment.

Although the final design makes preliminary progress in combining the textile waste and bio-based material to make prefab modular housing with local labors, the project can act as a reference or can be further developed and adapted to other context in the following research.