Designing co-living housing with green and ecology architecture concept

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Abstract. Architecture has a major role in the issue of global warming today. Therefore, the architects began to endorse the concept of ecological architecture and green building design. This study aims to examine a project of a co-living boarding house in sub-urban area of jakarta based on ecological and green architecture principle theories by Sim Van Der Ryn and Stuart Cowan as well as Robert and Brenda Yale. Both principles were used to identify the ecological and green design parameters to test the boarding house. Results of the study revealed that there are 4 parameters of ecological-green architecture design, such as nature should be the main actor of the design; nature becomes a solution for every problem in the site; honor the user by involved them as a designer; and be a climate conscious building by conserving energy. From the examination conducted, it is also revealed that the boarding house qualified as an ecologic and green architecture design.

Keywords: co-living housing, concept, green architecture, ecology architecture

1. Introduction

This research investigated some rental space for students near some universities in Jakarta, Indonesia. The rental space is now called as co-living housing. This research found some typical condition in those co-living houses. Mostly the co-living house designed as a single loaded building with two rows of rooms.

Another finding was most of them did not have proper natural ventilation and lighting. Due poor of the natural lighting, the light in those co-living hoses should be at on condition during the day. Same condition happens for thermal and humidity controller, such as the poor of natural ventilation that cause the air conditioner should be on all day long. The air conditioner doesn’t solve the problem; the humidity outside the rooms cannot be reduced due to the stuck air flow.

The uses of the electricity after turn on the entire equipment (lamps, air conditioners) rise up the maintenance fee of every co-living house. It’s not only the electricity fee that matters, but the uses of non-renewable energy for equipment surely bring on bad effects to the surrounding. All the humanity should be ready to think in other way to solve the problem.

This research, then, delivered questionnaire to some students who live in the co-living house. Most of their opinion is that the co-living house does not bring good mood for them to enjoy their life. That
bad mood discourages them to be more productive in life. It is telling us that bad living environment bring to poor psychology condition for anyone who lives in.

2. Materials and Method
To achieve ecological architecture, architecture should aims things in this table [1]:

| No. | Parameters | Principles | Source          |
|-----|------------|------------|-----------------|
| 1.  | Nature should be the main actor of the design | Respect the site | Vale and Vale |
|     | Design with nature | Make nature visible | Ryn and Cowel |
| 2.  | Nature become a solution for every problem in the site | Solution grows from place | Ryn and Cowel |
| 3.  | Honor the user by involved them as a designer | Everyone is a designer | Ryn and Cowel |
|     | Respect for user | Conserving energy | Vale and Vale |
|     | Working with climate | Working with climate | Vale and Vale |
|     | Minimizing new resources | Minimizing new resources | Vale and Vale |
| 4.  | Be a climate conscious building by conserving energy | Ecological accounting informs design | Ryn and Cowel |

In this paper, writer tried to give suggestion how to design a co-living house that achieves the green architecture parameters.

3. Results and Discussion
According to [2], “Many of us have already lived, are living, or will live in a shared student house - a good mix of cheap housing and intense socializing with friends and school mates. For a reasonable price, it is possible to have a single private room and share common spaces. In fact, not only university students are living this way nowadays. The concept of co-living is becoming more and more an attractive and effective solution.

The high prices of real estate and an increasingly solitary lifestyle are leading people to seek new ways of living. Despite the similarities with a student house, co-living combines many other aspects, such as a sense of community, sustainability, and collaborative economy. This concept emerged in Denmark in the 1970s - originally under the name of co-living. The Sættedammen initiative, for example, consisted of 35 families living in private homes while sharing communal spaces for socializing and activities, such as dining, housekeeping, group gatherings, festivities, and other events. Today, co-living offers a multitude of possibilities, ranging from people who simply live together - solely sharing the physical space - to communities who also share values, interests and a philosophy of life.

Nowadays, newly graduated people - for whom the appeal is often financial - are a great niche in the co-living market. Unable to afford the costly rents in big cities, they find the solution in sharing.
However, these people are seeking places that are better-maintained, better-structured and more conveniently located than student houses. Co-living spaces - designed and managed by companies specialized in house-sharing - are an increasingly popular option in this niche. Instead of looking for flatmates, and having to deal with shared contracts and bills, one can simply rent a dormitory in one of these developments. Most of them offer pre-furnished and decorated rooms, communal amenities - including kitchens, social areas, and co-working spaces - as well as professional cleaning services and even social workers available to help the residents adapt to their new neighborhoods.

The object of this research is an co-living boarding house which located in Depok. Depok is a residence where University of Indonesia established. As a campus area, the existence of a communal living is needed. This is why nearby the project there are so many boarding house built. Normally, boarding house nearby is built full of rooms and no space left for natural ventilation within the rooms. It made the consumption of energy increase. The uses of energy for light up the bulbs and air conditioner are significantly high. There should be a way to make a more energy efficient building as a boarding house.

MQ co-living boarding house is designed in a 1300 sqm size of land. It will be 4 stories and consist of 92 rooms. It is currently building when this paper was written. According to the architects, this boarding house is designed by concerning the principles of green and ecological sustainability concept to gain an energy efficiency building.

Here is where the building is located:

![Figure 1. Aerial View of Site location](Source: Google Maps)

The site area consist of 1300 sqm facing the west. By facing the east, heat is coming in the morning only. Here is the design of the MQ Boarding House:
Figure 2. First Floor Plan
MQ House at Depok
(Source: Studio Denny Stiawan Project)

Figure 3. Second & Third Floor plan
MQ House at Depok
(Source: Studio Denny Stiawan Project)
Figure 4. Fourth Floor Plan & Roof Plan. MQ House at Depok
(Source: Studio Denny Stiawan Project)

Figure 5. Front View, Back View, Left View and Right View MQ House at Depok
(Source: Studio Denny Stiawan Project)
Figure 6. Section A-A’, Section B-B’, Section C-C’ and Section D-D’
MQ House at Depok
(Source: Studio Denny Stiawan Project)
The architects designed MQ boarding house by putting some single loaded 4 stories tower in a land. After doing some analysis, the architects decided to build 6 interconnected towers. There are gaps in between every towers. The gap is a way to make sure that every rooms has its own cross ventilation from outside to inside. The gaps are the key to lighten up spaces so there is no spaces dark in the day.
4. Conclusion

The designs bring on natural cross ventilation and lighting. The ambience that formed by the gap in between the two corridors give an opportunity to the wind to flow through. The wind flowing bring out the over humidity and reduce the temperature in without consume electricity energy. The gap itself light up all the corridors and rooms in natural way with daylight. Based on this study, to achieve students will get a good mood for students to study better, it is necessary to implement an ecological co-living house.

5. Reference

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