Green Architectural Design Factors for Residential Environment and Lifestyle

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Abstract. This study aims to process the residential green architecture design factors on people's lifestyle and its environment. This study used a qualitative analysis method, which was Miles and Huberman model. The method consists of several stages, namely the data reduction stage, the data presentation stage, as well as the conclusion and verification stage. The results of this study illustrate that residential design will affect the environment and changes in a person's lifestyle after settling in a residential that has been designed by an architecture. It is also likely to change someone's mindset indirectly.

1. Introduction

The function of houses are as a place to stay and do a repetitive activity. The house is a place to rest. Therefore, it is important to build a healthy and prosperous life. A healthy home is a condition where chemical, physics, and the biological components are functioned properly to create a healthy lifestyle [1]. Green architecture concept buildings have become a regulation for every residential building construction, especially in Indonesia. The development developers focus and compete to implement the green architecture concept, especially on developed residential area to attract more investors or consumers [2]. Occupancy in urban areas becomes a factors that increase the pollution and it can trigger the depression factors for the occupants of these dwellings. Therefore, this study tries to apply the concept of “Green Architecture” dwelling. Green architecture is a movement for preservation the nature and its environment by prioritizing energy efficiency. Green can be interpreted as sustainable, earth friendly, and high performance building. The concept of green building that has been developed in developed countries can be applied to reduce the air pollution in urban environments [3,4]. From the development of the Green architecture concept in buildings will create a healthy environment and create a healthy lifestyle [5]. Green architecture is a residential design approach that minimizes several harmful effects on human health and the environment. The concept of green architecture is not only as aesthetics. It also has benefits including energy saving, healthier buildings, buildings that are durable, and the maintenance costs can be minimized [6-8].

This study aims to process the residential green architecture design factors on people's lifestyle and its environment. This study used a qualitative analysis method, which was Miles and Huberman model. The method consists of several stages, namely the data reduction stage, the data presentation stage, as well as the conclusion and verification stage.
2. Method

This study used the qualitative analysis method of the Miles and Huberman model. Qualitative data analysis methods are carried out interactively and continuously until the end to get saturated data [3]. Collecting the data is an advanced stage after the instrument and the sampling procedure is completed. To do this activity, researchers should understand the data collected types by obtaining such data as well as collecting the primary or secondary data as a method. The research data needs to be specific. Therefore researchers need to know the characteristics of the data that has been obtained [4]. This analysis activity consists of several stages, namely the data reduction stage, the data presentation stage, as well as the conclusion, and the verification stage. The next step is to withdraw the summary based on the data and verify the data. If the summary obtained in the initial stages is supported by strong evidence, the conclusions obtained are credible conclusions. Researchers' verification are needed to accept the input data, even though the data is not necessary. Data will be processed in a further analysis. While other data that are not necessary will be separated.

3. Results and Discussion

3.1 Urban Heat Island (UHI)

UHI is indicated by the temperature of the air whose intensity is higher in a dense environment or more precisely in the urban compared to the rural temperature (see Figure 1). It is factored by the rapid urbanization and changes in soil typography where more watertight surfaces such as asphalt, concrete, and glass are found more than grass or green space [5].

![Urban Heat Island Profile](image)

**Figure 1.** Urban Heat Island Profile

*a. Causes of Urban Heat Island*

The causes of UHI can be summarized as follows [5]:

1) Geometri Ngarai
2) Building material
3) Greenhouse Effect
4) Anthropogenic Heat Source effect
5) Evaporative Cooling Source
6) Wind pattern

Vertical garden implements plants into the building façade (see figure 2). Comparison with roof garden, vertical garden efficiently covers more open surface in an environment built by skyscrapers into a style of building [6].
b. Green Walls
If the building has a ratio of one to seven vegetation ratio, the building facade area is equivalent to three times the area of the building. Therefore, if the building is lined with vegetation two thirds of the facade, this contributes to doubling the widening of the vegetation radius at the location itself. So it can be a healthy building and can be said as a green building [7].

c. Green Wall Climbing
The type of wall green climbing is a wall method with a general and aesthetic green architecture concentration (see Figure 3).
For the process of a plant growth in the field of building walls, manual assistance with the help of trellis or other support systems is needed [6,7].

d. Benefits Of Green Walls In The Built Environment
The application of green space in a building or on an urban scale can provide quantitative benefits, in the form of health, lifestyle, and the environment in social and aesthetics. The two points are inseparable and must be applied in building an environment.

3.2 Effect Green Architecture for Human
Urban areas have an important role in educating about how important the conservation of buildings and biodiversity in the local community for the continuation of the era that continues to erode into the modern era. It is because more residents who live in urban and sub-urban areas often interact positively with fellow communities and help to raise the awareness for local diversity and social tolerance for environmental attitudes [8]. Human behavior can be directed by presenting good and correct designs [9].

3.3 Benefits for Health and Life Style
This analysis found the effect of improving environmental quality and lifestyle in residential spaces, in terms of health and productivity experienced by residents who moved residential buildings or apartments experienced positive health and productivity improvements. This analysis found that the increase contributed the decrease in stress levels, allergies breathing, and depression for the occupants. This finding refers to the fact that green buildings or green architecture concentrations can positively and automatically affect the health of residents in them [10].

3.4 Environmental Benefits
Green Architecture one of these concepts is a vertical garden or wall plants using plants that provide shade to buildings or residences. This is easy and dependent on this vertical garden plant. Therefore it is not only the building that is shaded outside that there is an atmosphere that will experience a low temperature drop. The benefits of temperature reduction not only affect buildings or dwellings, but will also have an impact on the urban environment. Then, it can improve the good air quality for the community by filtering the air in its leaves and its branches can absorb gas pollution through photosynthesis [11].

3.5 Economics Benefits
On the surface of the facade to hold and filter rainwater and water discharges from the top of the building or roof will help in minimizing the creation of rainwater drainage in the infrastructure sector. Vertical garden installation can summarize the intensity of climate press in the building or contemporary facade [12].

3.6 Social Benefits
Plants can provide various functions. According to Givoni, parks create places for sports, play and recreation, create community social communal spaces, relieve fatigue from the saturated urban atmosphere, and can also enjoy their aesthetics by feeling and seeing buildings or dwellings from any aspect. It is proven that interactions with visual and physical contact with vegetation give rise to health benefits and social lifestyles. Plants or vegetation can have a restorative effect that focuses on reducing stress and increasing community recovery and high resistance in terms of disease [13 14].
4. Conclusion
It can be concluded that the adoption of the Green Architecture concept in a residential residence, commercial buildings, parks in urban and sub-urban areas, and so on can affect social, cultural, lifestyle, economic, and environmental affect positively and relatively good for the place users. Meanwhile, human personality can also be changed indirectly. It was caused because humans do not need descriptive rules to change a better lifestyle, but humans need a healthy, safe environment, peace, and aesthetics of place, which is very influential in human lifestyle behavior.

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