GREEN PATTERN CONCEPT FOR ROOFTOP LANDSCAPE ARCHITECTURE STUDY PROGRAM, TRISAKTI UNIVERSITY JAKARTA, INDONESIA

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Received : February 2021
Revised : May 2021
Accepted : August 2021

DOI: 10.25105/tjsl.v1i1.9938

ABSTRACT

A garden is an outdoor relaxation area, set aside for the display of plants and other natural habitats solitary to human life. However, due to the reduced open space in urban areas, turning parks into gardens has become common. Therefore, a roof garden is an attractive option because it is private, and accessible to only certain people. Presently, the Study Program Landscape Architecture Universitas Trisakti, Jakarta, Indonesia, has a roof garden used to support certain subjects' practical activities. However, the concept of a green pattern applied to the roof garden of this institution is not optimal. Therefore, this study aims to determine the design principles that have not been maximized in the roof garden of Study Program Landscape Architecture due to inaccuracy in the arrangement of the green pattern. This is descriptive research intended to describe and examine the characteristics, relationships, similarities, and differences of green patterns in the roof garden with other phenomena.

Keywords: Roof Garden, landscape, plant, The Study Program Landscape Architecture Universitas Trisakti Jakarta

INTRODUCTION

A garden is generally an outdoor planned space for displaying and cultivating numerous natural and man-made plants. Its refreshing view and the oxygen produced by the plants help in relaxing the human body after a day's activities. For instance, the plant colors make a person calmer, while the oxygen emitted by the plants is good for human health. However, not everyone has the capability to own a large garden, especially in an urban environment where the area is almost filled with new buildings. Therefore, due to this inadequate landmass, people resulted to converting their rooftops into gardens. Several studies defined a roof garden as an attractive choice because it is a private place for relaxation and allows access to only certain people.

According to Mawarsid (1997), the roof garden is a type of garden located on the roof of a building due to the limited land space. Zimmerman (2001) stated that plants used on roofs adapt to the environmental conditions of the building, namely wind, drought, and temperature. The roof garden is an area arranged using potted plants, unlike a green roof, which is an integrated structure that allows for a proper drainage management system on the entire roof surface of a building.

The Study Program Landscape Architecture Universitas Trisakti Jakarta also has a roof garden that functions to support practicum activities from certain courses and lecturers' research activities. The existence of this garden type is used to reduce the indoor temperature in buildings, protect the roof from ultraviolet rays and cracking due to extreme temperature differences. Currently, the condition of the Roof Garden in this institution is still not optimal. Therefore, this study aims to evaluate the initial concept of the green pattern on the roof garden in the K Building of this institution and then make it the basis for proposing a new concept by selecting suitable plants. The result of this study is hoped to serve as a guide when renovations are conducted.

RESEARCH METHODS

Time and Location

The research object is the roof garden located on the 9th Floor of Building K, The Study Program Landscape Architecture Universitas Trisakti Jakarta.



Figure 1: The location, K Building Universitas Trisakti, Jakarta Source: google earth app, 2021

Data Collection

The purpose of this study is to determine the pattern of the concept of early green applied on the Roof Garden of the Study Program of Landscape Architecture and evaluate it to determine the data that needs to be fixed proposed order to forecast the concept of the green new deal. This study consists of primary and secondary data collected through the survey method and documentation as follows.

- 1. Primary Data is generally obtained from direct observations. Therefore in this research, the authors used the following methods to collect data:
 - a. Survey

A surveyor field observation is carried out at the research location. The advantage of this method is its ability to directly feel the conditions and atmosphere in the field to help during the observation and research process. Based on the results of the observations, the following data were obtained. • Current Condition of the Roof Garden

- · Conditions and concepts of existing vegetation arrangement
- b. Documentation

In this case, the documentation is a photo, and the resulting image includes photos of the existing conditions and the atmosphere currently being built.

Secondary Data

Secondary data were obtained from literature or written sources relating to Roof Garden.

This research used the descriptive method to examine the condition of the associated subjects. Descriptive research is intended to describe existing facts in accordance with both natural and human implementation results. It is also used to describe the existing facts in both natural phenomena or human engineering. Therefore, this study examines the forms, activities, characteristics, changes, relationships, and differences of green patterns in the roof garden with other facts. Data were analyzed by stringing all the data collected with some of the procedures and techniques processed as follows.

- a) Carry out the data selection and preparation process.
- b) Edit the data for compilation.
- c) Confirm the data that requires deepening, such as the continuity between the theory of the concept of patterns green with the Roof Garden of the Study Program of Landscape Architecture.
- d) Conduct data analysis in accordance with the construction discussed.

RESULTS AND DISCUSSION

Presently, there is no unity between the arrangement of plants in the roof garden and the supporting landscape elements in The Study Program Landscape Architecture Universitas Trisakti. Furthermore, the combination of sizes between objects has also not been successfully created in this institution due to the use of green patterns to fill empty spaces with or without paying attention to the placement and selection of types, texture, and size.



Figure 2: The Laboratory of Landscape Architecture, K Building Universitas Trisakti, Jakarta Source: Personal Documentation, 2021

The Roof Garden is a planting technology inspired by Nabopolassar's Hanging Gardens of Babylon, while German landscape architects pioneered the modern technology. In the 20th century, almost all major cities built roof gardens, including Indonesia.

Some of the benefits associated with a Roof Garden are as follows:

- 1. Increase city biomass
- 2. Increase in oxygen levels with a decrease in carbon dioxide
- 3. As a natural filter against air pollution
- 4. Controls the microclimate
- 5. Creates visual beauty
- 6. Creates comfortable space

The selection of plants supported by the right arrangement is something that needs to be considered in making a Roof garden. Besides that, there are several criteria for the plants to be selected, such as resistance to drought and sunlight and easy to maintain.



Figure 3: The Laboratory of Landscape Architecture, K Building Universitas Trisakti, Jakarta

There are two types of roof gardens, namely intensive and extensive. An extensive garden only requires a soil depth of approximately 2.54-10.17 cm. This type of roof garden is the most traditional, simple and passive. Meanwhile, the intensive type of roof garden is active and requires a relatively high soil depth to be implanted on top of buildings. The types of plants are limited to shrubs and large trees, therefore, it presents a unified ecosystem. The plants used in the roof garden are of two types, namely ground floor with a height of approximately 7 cm, consisting of grass and small shrubs (50cm height), and trees with an altitude of 200 cm. The roof garden on the 9th Floor of Building K, The Study Program Landscape Architecture Universitas Trisakti Jakarta, is an intensive type because it is a facility for students and teaching staff in the development of Landscape Architecture.



Figure 4: The Laboratory of Landscape Architecture, K Building Universitas Trisakti, Jakarta Source: Personal Documentation, 2021

Landscape Design Principles

One of the principles in designing a garden is the need to pay attention to the unity of elements. This is achieved by effectively using the components of a design to express ideas through a consistent style. Unity is emphasized by the consistency of character between units in the landscape, therefore, it is achieved when the correct mass of the plant is used repeatedly in the correct positions. The use of elements to express a detailed theme creates harmony.



Figure 5: The Laboratory of Landscape Architecture, K Building Universitas Trisakti, Jakarta Source: Personal Documentation, 2021

A suitable design theme is needed to create an impression of uniformity. Themes tend to direct a design into a unified whole because it is associated with specific ideas repeated throughout the design on a site or land. In addition, repetitions also reinforce a design theme, using elements such as plants and hard materials.

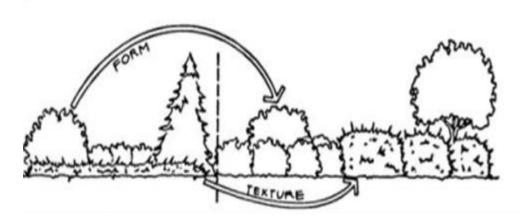


Figure 6:The example of repetition form in landscape design
Source: https://www.slideserve.com/lenore/principles-of-landscape-design

Interconnection also needs to be considered in designing a landscape. This is because applying a good interconnection to a design creates a significant effect on the user.

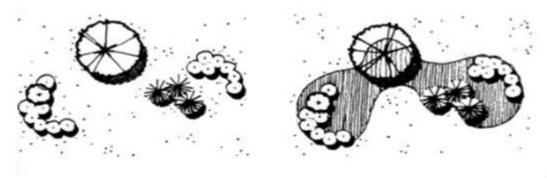


Figure 7: The example of interconnection form in landscape design Source: https://www.slideserve.com/lenore/principles-of-landscape-design

CONCLUSION

In conclusion, the use of design principles significantly affects the garden's design on land and roof garden. Furthermore, design principles such as unity, repetition, and interconnection significantly impact green patterns in an area. At the roof garden of The Study Program Landscape Architecture Universitas Trisakti Jakarta, located in Building K on the 9th floor, several points formed a unity. There is also repetition in using several types of plants, such as Kembang Paper, and shrubs which led to the maximum green pattern. However, the lack of visible themes built in the roof garden space made it less optimal. The arrangement of the pots lined up does not show the existence of a theme and application of landscape design principles capable of maximizing the visual results of the Roof Garden.

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