Residents’ Preference Towards Rooftop Garden: A Case of The Heritage Condominium, Selangor

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ARTICLE INFO

Article history:
Received 12 October 2014
Received in revised form 26 December 2014
Accepted 1 January 2015
Available online 17 February 2015

Keywords:
Preference, Rooftop Garden, Function

ABSTRACT

Rooftop garden system can become an absorbing. Also, rooftop gardens have positive impact on residents. In addition, urbanization has brought about a number of challenges such as greater ambient noise, increased environmental stressors and information overload. The aesthetic value of rooftop garden is considered important in cities where roof garden can reduce consumption of energy for heating and cooling. Moreover, rooftop gardens include five or six layers on top of the building where each layer contains a waterproof membrane, a protective layer, the growing medium and people. In addition, a high volume of storm water runoff can come to municipal sewer systems. As a result, roof garden or green roof reduces transport heat (both into and out of the building), besides it can reduce consumption of energy for heating and cooling. Moreover, rooftop garden system can become an absorbing. Also, rooftop gardens have positive impact on residents. In addition, urbanization has brought about a number of challenges such as greater ambient noise, increased environmental stressors and information overload. The aesthetic value of rooftop garden is considered important in cities where roof garden can reduce consumption of energy for heating and cooling. Moreover, rooftop gardens include five or six layers on top of the building where each layer contains a waterproof membrane, a protective layer, the growing medium and people. In addition, a high volume of storm water runoff can come to municipal sewer systems. As a result, roof garden or green roof reduces transport heat (both into and out of the building), besides it can reduce consumption of energy for heating and cooling. Moreover, rooftop garden provides that facility to reduce 2% of electricity consumption and 9-11% of natural gas consumption. Roof gardens can reduce the heat island [2].

INTRODUCTION

Nowadays, Urbanization has brought about a number of challenges such as greater ambient noise, increased environmental stressors and information overload. This has led to increasing incidences of Direct Attention Fatigue contributing to increase stress and mental fatigue among urban residents [1]. Also, urbanization is related to increasing greenhouse gas emissions from increased energy expenditures in rapidly expanding cities [1]. Roof gardens are an important technology and planning tool that can be used to help urban center to respond to the climate changes and improves urban environmental quality [2].

Excessive runoff has the positive effect on flooding and it increases the chance of damage to the property and people. In addition, a high volume of storm water runoff can come to municipal sewer systems. As a result, roof garden or green roof reduces volume of storm water runoff [2]. Roof garden can sequester carbon and for this reason, the selection of plant is very important because some plants have different effect on the roof.

Also, light absorption and reflection are different in each plant [2]. Moreover, roof garden tends to experience lower surface temperature than the original exposed roof surface. In areas well covered by vegetation, over 60% of heat gain was prevented by the implementation of green roof system[2]. This technology can reduce heat flux. For example, the temperature of downstairs in a building with roof garden has been noted as 10 degrees Celsius lower than other buildings which lack the roof gardens [2].

In addition, Roof garden or green roof decreases transport heat (both into and out of the building), besides it can reduce consumption of energy for heating and cooling. Moreover, roof garden provides that facility to reduce 2% of electricity consumption and 9-11% of natural gas consumption. Roof gardens can reduce the heat island [2].

Rooftop garden or green roof is a roof with vegetative cover, trees, shrubs, grass and even frut vegetable that can be used as natural environment in an urban setting [3]. Many roof gardens include five or six layers on top of the building where each layer contains a waterproof membrane, a protective layer, the growing medium vegetation materials and irrigation system [4]. Roof garden is inclusive of two forms i.e. extensive is between 50

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and 150 mm layer of plant life and intensive roof gardens have layers between 150 mm and 1200 mm, which support layer plant life [5].

Rooftop garden includes different plants which are suitable for growing on the roof and some layers that are necessary for the rooftop garden [5]. Rahman et al. (2013) stated that “the common type of green roof in Malaysia is an intensive green roof (93 responses forming 77.5%) while extensive green roof (27 responses forming 22.5%) is less found in the country” [6]. Use of rooftop garden can help to reduce flash floods in Malaysia [6].

“Landscape perception and assessment research has engaged the interests of individuals from an array of disciplines and professions including: forestry, geography, landscape architecture, psychology, environmental studies and recreation” [7]. A different set of methods, constructs and theoretical orientations have been brought by each of these professions and disciplines to the research endeavor in order to diffuse a collected set of studies and findings where no interesting theoretical structure is available [7].

The aesthetic value of green roofs is considered important in cities where roof escapes are dominated by gray color and unattractive structures. To set up compulsory planning permissions or designing subsidy systems for this type of green technology by designers and planners the people’s preference and expectations are extremely important [8]. Prediction in preferences for living roofs are limited by existing knowledge of landscape preferences, due to uniqueness of the perspectives people view the living roofs [9].

Although, rooftop garden is very useful and this technology has so benefit but, factors which, influence the cost of a green roof include things like ease of access regarding installation, structural integrity of the building, type of drainage system, composition of media and depth, inclusion of an irrigation technique and the use of a modular, mat or conventional built-up continuous roof system [10]. In a nutshell, it can be concluded that rooftop garden has many advantages for example, it can reduce runoff, volume of structure, heat flux, noise pollution, increase in the life of the roof, environmental advantages and urban biodiversity.

All these features can help with sustainable landscape for a building. Using rooftop garden or green roof structure may help Malaysia alleviate flash floods which usually occur just about any calendar year through the monsoon time of year [6]. rooftops gardens in Malaysia are getting to be ever more popular recently not only because it’s aesthetical value but additionally due to its positive effect on environmental issue [6].

Methodology:
This research evaluate the preference of function of the people who live in buildings and having a green space to the heights (roof). Also, research process illustrates data collection, analysis and potentials that are important for this study. This study was conducted by using a questionnaire survey (Quantitative Methodology) in order to better understanding of residents preference of function of rooftop garden. The study finally adopted a technique to gather quantitative data i.e. questionnaire survey. So, one case study in Malaysia which located in the Selangor area.

1. The Heritage, Seri Kembangan Jalan SB Dagang, Seri Kembangan, Selangor:
This study was considered that the questionnaire should be distributed among a number of residents in the one condominium. Hence, the sample size for this study was demonstrated as 110 people, a whole number. The number of the population of the Heritage condominium. The answers are the same number of respondents living the Heritage (110 residents). Also, the majority of respondents have master degree who, participant in survey questionnaire for this research.

RESULTS AND DISCUSSION

(i) Resident’s Preference of function of Rooftop Garden at The Heritage condominium:
These tables show the number of respondents, including, mean and std. deviation from The Heritage condominium in Selangor.

As shown in the table 4.3, 110 residents who participated in this survey questionnaire provides the mean value as 4.59 (agree) for the question that roof garden provides residents with a place for spending their leisure time and relaxation, whereas for the question that the roof garden provides residents with a place for accessible and convenient neighborly relations, the mean value is 4.45 in the Heritage. In addition, this table represent that the mean of the question that the roof garden provides residents with a place for making the environment more attractive is 4.60 (agree) and the mean of minimum 1.00 (strongly disagree) and maximum 5.00 (strongly agree) is 4.40 for the question that the roof garden provides residents with a place for observing a landscape.

Also, the mean for the question that the roof garden provides residents with a place for walking is 4.25 as well as the mean of roof garden provides residents with a place for study is 4.09. Moreover, the result shows that the mean of the question that the roof garden provides residents with a place for better air quality is 4.50 (agree) for minimum 1.00 and maximum 5.00. Additionally, the result of this table shows that the mean value is 4.54 (agree) for the question that the roof garden provides residents with a place for entertainment and exercise,
while the mean of the question that the roof garden provides residents with a place for a better living environment question is 4.48 this case study.

In summary, the majority of respondents related to their resident preference of function of the Rooftop Garden strongly agree in the Heritage condominium and also the residents of this condominium believe that the roof garden facilities they would like to have in their condominium.

<table>
<thead>
<tr>
<th>Table 1: Resident preference of function of Rooftop Garden (The Heritage)</th>
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<tr>
<td>Leisure time and relaxation</td>
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<td>Accessible and convenient neighborhood relations</td>
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<td>Making the environment more attractive</td>
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<td>Observing a landscape</td>
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<td>Place for walking</td>
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<td>Place for better air quality</td>
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<td>Place for entertainment and exercise</td>
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<td>Place for a better living environment</td>
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**Summary:**

The rooftop garden has a positive impact on environmental issues. Also, Malaysian people perpend aesthetic value this technology. So, rooftop gardens are increasing in Malaysia [6]. Rooftop gardens are so benefits for cities. So, The Heritage condominium in Selangor describe awareness about function of rooftop garden in the condominium. Because of the most of the respondents have master degree who, live in the Heritage condominium, so they have more information about function of rooftop garden. The majority of residents were strongly agreed with the function of rooftop garden in the Heritage condominium. Finally, this research illustrate that the majority of residents who are participate in this survey questionnaire, they have awareness about function of rooftop garden in this condominiums and In conclusion, this study help to residents for receive a beautiful landscape on roof of their condominium and it help to people for have a perfect environmental in their live area.

**REFERENCES**