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## Perception of Green Roof as a Tool for Urban Regeneration in a Commercial Environment: The Secret Garden, Malaysia

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### Abstract

Urban dwellers are receiving benefits from the extensive new development of the commercial environment in the city. However, improper planning and rapid developments often result in the destruction of the natural elements and the loss of green space. Therefore, the combination of greenery element with urban structure such as a green roof become a trend in many developing and developed country to solve the problem. However, study on the perception of green roof for urban regeneration is less been investigated in Malaysian context. Thereby, this study aimed to discuss the topic based on a survey from 104 respondents.

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*Keywords:* Green roof; commercial area; perception; urban regeneration

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### 1. Introduction

Extensive research on the perception of landscape was reported in academic writing. As time moving, landscape is evolving where the application is not only on the ground but also on the building's rooftop that known as a green roof. Green roof is defined as a roof covered with vegetation (Study on Green Roof Application in Hong Kong, 2007; Tan & Sia, 2008; Niekerk et al., 2011; The GRO Green Roof Code, 2011). There are two types of green roof, which are extensive and intensive. Commonly, intensive green roof is recognised as a roof garden. According to Rahman et al., (2013), the number of a roof garden in

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Malaysia is higher than the extensive green roof. The study also stated that most of the roof garden was constructed in the urban residential and commercial area. There are various advantages reported in the previous study of green roof which beneficial towards the environment, economic and social. Among the environmental benefits is urban heat island mitigation (Oberndorfer et. al, 2007), decrease air pollution (Currie & Bass, 2008), increase the quality of air through carbon sequestration (Getter et. al, 2006; Yang et al., 2008), and improve the management and quality of storm water (Stovin, 2010). Meanwhile, the economic benefits are increasing property value through aesthetic element and enhance energy savings through effective thermal conductivity (Wong et al., 2003). In term of social benefits, green roof become a refugee oasis and gathering place for recreational activities for urban society (Dunnnett and Kingsbury, 2004). Previous studies posits that urban greening such as parks and gardens, urban agriculture and urban forestry has greater influence in ecological, social and economic. However, green area in the city is getting lesser while the city with new building features is increased due to urban sprawling. Thus, create an option for the professional in the construction industry to plant vegetation on the exterior surface of the building that is the roof and wall facade. Both of these innovative greening options are green roof and green wall. Considering all of the benefits of green roof stated previously, it is undoubted that green roof can contribute for urban regeneration in the city, especially in a commercial area. However, the benefits could not be gained if the citizens are lack in terms of green roof awareness and knowledge. Moreover, the incorporation of green roof into building development is not widely received in Malaysia either by professionals or layman. There are few studies investigate on the perception of green roof as reported by (Cañero et al., 2013). Therefore, study on the perception of green roof in the country must be done to investigate the level of awareness among the dwellers in a commercial environment. Regards to this issue, the study is aimed to investigate the perception of green roof as a tool for urban regeneration in a commercial environment. The objective is to ensure the perceptions of a layman are considered and acknowledged by experts in future assessments

### *1.1. Theory of perception study*

Clearly, different people will have a different perception. Perception allows people to criticize, interpret, differentiate and analyzed their surrounding environment based on their intrinsic values in order to adapt with the environment (Villagra Islas & Gastón Vergara, 2012). The study on perception concentrated in many fields such as psychology, environmental issues, human and sustainable development due to its significant contribution towards these fields. Perception is the process of awareness, alert and identification of the process that happens in the surrounding (Goodey, 1971). In fact, many studies indicated that the way people perceived their environment was affected by their demographic factor (Erickson et al., 2002; Kaltborn & Bjerke, 2002; Gude et al., 2006; Benjamin et al., 2007; Bauer et al., 2009). While according to Zube et al. (1975), perception in the landscape is also influenced by an individual's memory and experiences, background cultural, beliefs and preference. According to the "Biosphere" theory proposed by Bechtel (1987), human perception is influenced by social value and built environment.

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