



Improving Sustainability Concept in Developing Countries

The Effect of Green Facades in Landscape Ecology

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Abstract

The rapid increase rate of urban population in developing cities causes the increasing of high buildings with dense constructions, and decreases the green areas which lead to a lot of environmental problems. Therefore, the urban landscape designs directed different searching produce important approaches based on ecological and environmental aspects, such as Vertical Garden. This paper will display the meaning, the advantages and the techniques of the green facades as a part of the sustainability strategy for the urban environment. The results confirm that the experience of using the Green facades in building environment is the source of positive ecological benefits.

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1. Introduction

For many reasons, ecological landscape today is producing an important and interesting approach between architecture and the environment. It creates a richer ecosystem, enhances biodiversity, improves mental health, and alleviates some of the environmental externalization generated by urban areas (including pollution, runoff and heat island effects). Within the challenges of energy crisis and climate changes landscape designers started to develop new approaches to address the cost of energy demands in environments and urban areas. One of these approaches is Vertical Gardens, which started to take an important place in the recent years.

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Vertical Garden or Vertical greening with its types; Green facades and Green living walls can provide a cooling potential on the building surface, it decreases the energy consumption by increasing buildings thermal performance; decreases the urban heat island effect; increases the interior air quality; decreases the noise pollution [1]. It improves habitat and biodiversity; it keeps the natural landscape processes original; it creates healthy environment; it provides a satisfactory connection between nature and perception of the sites [2].

A green facade the famous type of Vertical greening has advantages not only an active contribution to environmental and nature is to be assigned, but also for building long-term can lower operating costs. In addition, Green facade in larger Commercial areas of particular importance, since it is the local climate of a small settlement area affect materially. Here, these green forms are essential for dust control, for humidification and the cold air generation and hence to the promotion of human Health. They have, therefore, like a green roof, the function of a local, natural air conditioning. As many potentials and opportunities are already visible, is the subject a closer look in terms of an ecological future value.

2. Main types of vertical garden

Vertical Garden can be divided into two major categories: Green Facades and Green Living Walls (Fig. 1). Green facades are made up of climbing plants either growing directly on a wall or in specially designed supporting structures. On the other hand, in a green living wall the modular panels are often comprised of polypropylene plastic containers, irrigation systems, a growing medium and vegetation [3], [4].

The purposes of Green Facades and Green Living Wall's construction are very much in accordance with one another, distinctions exist between the two methods which dictate the viability of each system type and must therefore be taken into consideration when attempting to select the appropriate methods for application.

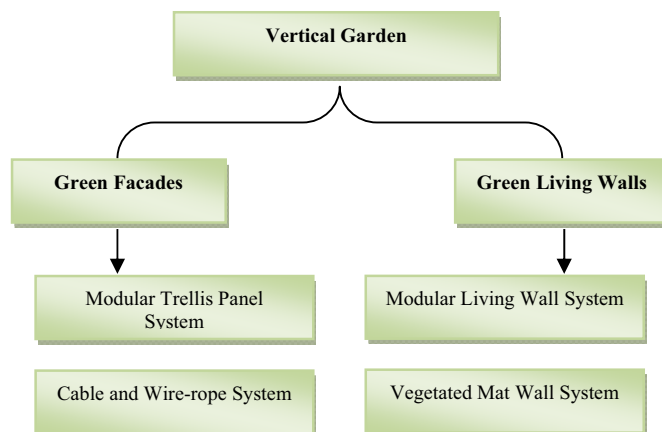


Fig. 1. Types of vertical garden

2.1. Green Facades

Green facades are a type of Vertical Garden system in which climbing plants or cascading ground covers are trained to cover specially designed to support structures. The plants are either grown in the ground or in elevated containers where they are watered and fertilized. To achieve full coverage of green facades, the plants should take 3-5 years to grow all over the facades [4]. Climbing plants in the urban environment are most often associated with a vertical mass of vines firmly adhered to a building surface.

Climbing plants that are able to utilize the flush surface of a vertical plane for the purposes of supporting new and existing growth are referred to as self-clinging. Self-clinging climbers are perhaps the easiest climbers to cultivate in facade greening schemes because they require less support to ensure their spread. But their sucker root structure enables them to attach directly to a wall, covering entire surfaces. These aggressive plants such as Ivy-lace can

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