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ОЗЕЛЕННЯ ФАСАДІВ БАГАТОПОВЕРХОВИХ ЖИТЛОВИХ БУДИНКІВ

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GREEN FACADES OF MULTI-STOREY RESIDENTIAL BUILDINGS

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The present green building system is much more than a green space. There are numerous green systems available, such as green rooftops and green walls, they are technologically advanced innovations that will extend the efficiency and durability of a building. Green roofs and walls are often used as aesthetic appearances in buildings. When green façade buildings are used on a big urban scale, they benefit the urban area by contributing to urban biodiversity, ecosystem services, rainwater management, decreasing atmospheric pollution, lower temperatures, and the reduction of the urban heat island effect.

Similarly, the use of the green system can bring social and economic benefits, as well as environmental advantages. These systems promote the productivity of urban spaces, bring about beneficial effects by promoting mental wellness through the existence of greenery environment, improves the urbanization aesthetic features, increase the value and functionality of the building, and correspond to better acoustic and thermal protection. Façade green walls has a significant potential than green roofs. In comparison to green roofs, façade green walls in urban environments have a larger area of vegetation around the buildings. Vegetation may enhance the microclimate by functioning as an extra layer of insulation in the winter and blocking sunlight to promote evaporative cooling in the summer.

Although vegetation absorbs a lot of sunlight, the effects of plant evaporation can decrease the impact of radiation from the sun even more, resulting in higher humidity levels and lower surface temperatures than hard surfaces. According to recent research, the green wall system can control the increase and decrease of heat, improving thermal comfort of the room and reducing the energy required for heating or cooling.

The green façade is created by hanging/climbing vines or other greenery on the wall. When hanging at a given height, the plant can grow in a vertically up plane, as in the traditional example, or it can grow in a vertically down plane. Green facades can be categorized directly and indirectly. Direct green façade is a façade where plants are directly attached to the wall. Indirect green façade incorporates structures that support vegetation. The traditional green façade is a direct green system that uses self-climbing/clinging plants that are rooted directly in the ground. Living walls are a relatively new idea in the discipline of wall cladding. Living walls quickly cover large areas, grow more evenly along vertical planes, reaches a higher parts of the structure and adapt to all types of buildings that enables the incorporation of a broader range of plant species.

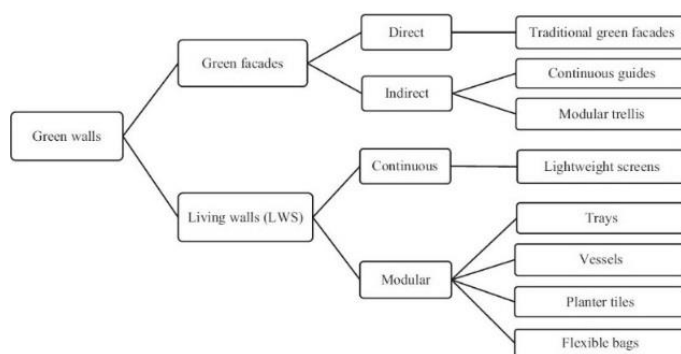


Figure 1. Green walls classification based on their construction characteristics.

Depending on the nature of the application, living wall systems (LWS) could be continuous or modular. Continuous LWS rely on the use of a lightweight, transparent screen through which plants are implanted one at a time. Modular LWS are features with a defined measurement, which include the expanding fulfilment of complete coverage that becomes very heavy, and increases the risk of falling. The indirect green façade functions as a "double façade," providing a gap between the building's surface and the plants.

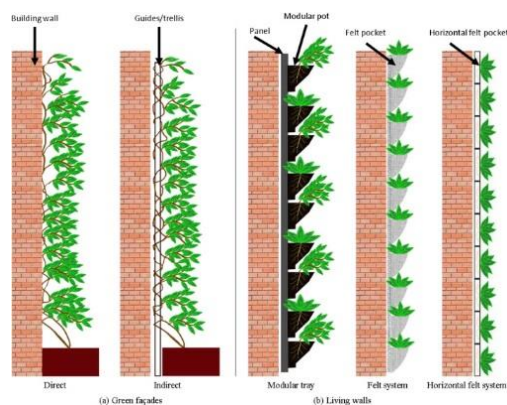


Figure 2. Vertical greenery system classification.

Conclusions

Green space is being depleted by modern urban development, particularly in highly populated areas where the urban heat island effect is a major concern. Vertical greenery systems (VGS), a historical technique of covering building façades with plants, and is gaining attention from architects, engineers, building planners, and academics in an effort to promote biodiversity in built-up areas, thereby helping to reduce the urban heat island effect in our city centers.

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