Green wall as surface and volume (photo: Jana Kozamernik)

Category: paper

Green Walls: Shaping Urban Communication

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In my doctoral research, I focus on urban open space design and incidence of green facades in Europe's temperate climate zone. The research concept proceeds from interest in the reasons that have led to the increasing use of vertical greenery (green facades, living walls and combination systems) in cities and questions about its contributions to or effects on the urban environment in the sense of both the physical environment and people perceiving and using the outdoor space. Green walls can be understood from various perspectives related to both physical reality itself (i.e., green walls as physical elements and their contribution to creating a greener living environment) and the broader architectural discourse on the importance of merging natural elements with architecture. Based on this, the research investigates various urban open spaces and basic types of vertical greenery that appear in various forms in the urban environment, and it raises questions about the relationship between traditional forms (which are conventional for a specific environment) and newly emerging forms, in which vegetation is incorporated into the facades in an unconventional way. Because of the environmental problems identified and changes that also affect the quality of life in urban settlements, awareness of the importance of natural elements in cities is increasing among both the professional community and the general public. These increasingly highlighted topics are also included in modern urban planning strategies, which not only focus on using sustainable construction materials, but also reflect on envisaged natural processes that can help improve the built environment. The latter may entail anything from providing a larger share of green areas and using trees to using greenery on buildings, in which using plants in designing building envelopes is especially highlighted in densely built parts of cities (Medl, Stangl, and Florineth 2017).

The facade is a key element of an architectural story or concept, in terms of both design and function. It may also be conceived merely as an external wall or a construction element. Establishing a green film over the "face" of a building impacts how the building's architecture communicates from the outside. Due to the intrinsic characteristics of the living material (i.e., vegetation) that defines a green building envelope, its architectural expression is in constant contrast with the non-living elements (i.e., the built outer shell that protects the building's interior). Together they represent both a boundary and contact between the outdoor and indoor environments. Modern technology, modern systems, and the modern use of (vegetation) material make it possible for designers to play with geometries, patterns, and textures, allowing them to create anything from diverse overgrowth to homogenous abstract surfaces, and hence the identity of both the building and the environment that the building architecturally communicates with. In exploring architectural expression, there is tension between the two extremes (i.e., the living and non-living) as a tendency to create new physical and semantic hybrids in architecture.

In studying the urban environment as an experience of a city, an important role is played by the socio-psychological aspect, which is closely connected with urban design and architecture. Alongside this, other characteristics of the urban environment that affect people's perception of space are also important. Studying green building envelopes and their impact on the outdoor environment is difficult because most qualitative aspects of such elements are not directly measurable and therefore their impact is difficult to determine accurately. However, it is clear that the facade is the part of the building envelope that is strongly present in people's field of view because it is mostly part of public space and its visual presence affects the perception of space, its recognizability, and attractiveness in terms of use.

Incorporating natural elements into architecture can be studied from various perspectives, either within the context of designing buildings following the basic principles of architecture (i.e., durability, utility, and beauty) or from the perspective of social and political changes and environmental awareness. With these facade forms, for example, the West does not emphasize biophilia or the concepts of vertical forest cities, and so on, which are especially typical of Asia, but it tends to primarily direct architecture toward using green, ecological solutions (addressing environmental problems, especially urban heat islands and using green infrastructure to regulate their effects). This topic always extends into the social context and the philosophical discourse on Western culture and its architectural activity; what is valued and sought in modern times is the authenticity of (architectural) experience alongside the simultaneous satisfaction and validation of ecological views. Questions arise whether every green building is also ecologically acceptable and sustainable. The need to understand the connections between the cause or purpose of using green facades as a building design element and the consequence or (both short- and long-term) effects on its surroundings is an issue with both a social and environmental character.

Part of the background of the research topic is thus connected with green architecture design itself. This research explores the occurrence of these elements of architecture from the perspective of their impact on the urban environment studied. The communication of green walls is a metaphor that addresses this topic in the wider sense of both the exchange of flows or processes in the physical environment (as green elements they affect the physical environment) and expressiveness. All this influences people, their perceptions, and indirectly their quality of life in the urban environment. The purpose of this research is to investigate people's perceptions towards urban environments and to create criteria for evaluating selected urban areas and the prudence of implementing green walls, while also addressing sustainability and the relationship between environmental preferences and environmental responsibility.

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Design-Driven Research

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Design is the main driver of this study, including its premises, the background of the research topic, and the research tools. The urban environment, green or less green with green walls, is studied using a combination of subjective and objective methods. The research process comprises theoretical issues, collecting data through a survey, makes it possible to combine and use material for application of the experimental method, and includes qualitative and quantitative indicators of evaluating urban space. The design perspective is part of all research stages, but it is included in various ways: as an identified co-creator of spatial relationships, as one of the analysis criteria, through the creation of concrete examples during the preparation of research material, as a perceived generator of value judgments, and as part of research conclusions.

Bio

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