

The Interaction of Trees and Buildings in Urban Landscapes



Marianna Olivadese and Alberto Minelli*

Department of Agri-Food Science and Technology, university of Bologna, Italy

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***Corresponding author:** Alberto Minelli, department of Agri-Food Science and Technology, university of Bologna, Viale Giuseppe Fanin 46, 40127-Bologna, Italy

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Introduction

In contemporary urban architecture and design, the interaction of trees and buildings represents a crucial aspect of sustainable and aesthetically attractive environments. This relationship is rooted in both ecological benefits and the enhancement of living spaces. The integration of trees and buildings is more than an aesthetic choice; it is a necessity for sustainable urban development. As cities continue to grow, the balanced inclusion of trees in architectural design becomes crucial for creating livable, healthy, and resilient urban environments. But the life of trees in man-made environments is often hard due to the difficulty of combining the needs of the plant with those of its surroundings, for example, the ordinary presence of sidewalks (pathways, roadways, parking areas, etc.) that disrupt the optimal conditions for root expansion. In this perspective, trees, are often seen as nuisance, and cutting down has been so far the easiest answer to the problem while the integration of trees and buildings is a key component of sustainable urban design, offering environmental, aesthetic, and social benefits. This approach indeed not only contributes to the creation of more sustainable and resilient urban areas but also enhances the quality of life for city dwellers.

The Role of Trees in Urban Settings

In an intricate ecological balance, humans emerge as actors of change with often destructive impacts. From deforestation to pollution, our presence has a significant environmental price. Perhaps the most fearsome enemy of plants is the human being himself, and awareness of this should inspire us to a collective effort to preserve and respect our precious world of trees and plants. The effects of climate change are already evident and will

become increasingly pronounced in the next 40 years. In this context, the presence and the right management of trees play a crucial role in any scientifically based and sustainable solution. Although planting and managing enough trees to solve all of Earth's issues may be impractical, recognizing trees as essential to addressing these concerns is vital to everyone's quality of life. Looking at trees as key elements for a better and more sustainable environment is of extreme relevance. Providing accurate and scientifically evidence-based information and promoting environmental awareness are essential. If citizens, policy makers and experts were all aware of the importance of extending tree coverage in our cities and managing it sustainably, we could ensure greater effectiveness and efficiencies in addressing climate change.

In the current scenario of global changes, tree planting is a fundamental aspect of many environmental improvement programs advocated by major international environmental institutions. Successful systems for planting and preserving trees in conjunction with buildings have long existed; until recently for example, felling turned out to be the final solution for trees with root systems that cyclically damaged walkways, squares, and bike paths. Today, the coexistence of trees and buildings, is possible! The specific knowledge of tree plants and, the technology developed in the last 20 years, allows us to select the problem and find appropriate solutions.

Trees play a vital role in mitigating urban heat islands through their shade and the cooling effects of evapotranspiration. They help moderate the microclimate around buildings, reducing the need for air conditioning in the hotter months and thereby

lowering energy consumption. They are of paramount importance for air quality improvement, absorb pollutants and carbon dioxide, improving air quality. This is particularly important in urban settings, where vehicular and industrial emissions are high. The foliage of trees acts as a natural filter, trapping particulate matter and other pollutants. Moreover, trees assist in urban water management by absorbing rainwater and reducing runoff. This helps mitigate flooding risks and relieves pressure on urban drainage systems. The incorporation of trees in urban planning, therefore, contributes to more effective stormwater management.

They also provide several aesthetic and social benefits; Trees add natural beauty and diversity to the urban landscape. They provide a contrast to the hard, often stark architectural lines of urban environments, creating a more visually appealing and varied landscape. The presence of greenery in urban environments has been linked to improved mental health. Natural elements like trees can reduce stress and enhance the well-being of urban residents. Green spaces and tree-lined streets create more inviting and relaxing urban areas. Trees contribute to the creation of vibrant public spaces. Parks, gardens, and tree-lined streets are places for recreation, relaxation, and social interaction, fostering community engagement and improving the quality of life for residents.

Planting Trees for a Sustainable Future

Modern architecture increasingly incorporates trees and greenery into building design. Concepts like vertical gardens, green roofs, and integrated planting contribute to building sustainability and energy efficiency. Green systems represent a shift towards more sustainable and ecologically responsible building practices. By incorporating green elements, architects and builders can create structures that not only reduce their environmental footprint but also provide healthier and more aesthetically pleasing spaces for occupants.

Trees serve as a bridge between the natural and built environments, providing a sense of nature and serenity amidst the bustling city life. Urban landscapes are often shaped by concrete structures, glass walls, and a geometry that speaks of modern architectural efficiency. In this context, the presence of trees plays

a crucial role in adding visual appeal and softening the often stark and angular urban environment. Trees introduce organic forms and textures that contrast with the predominantly linear and rigid structures of urban architecture. This contrast can transform the appearance of streets, squares, and buildings, making them more visually appealing and inviting.

They bring color to the urban landscape, breaking the monotony of gray and metallic hues prevalent in cityscapes. The change of colors across seasons – from the fresh green of new leaves in spring to the warm hues of autumn – adds dynamic visual interest to urban settings and the foliage and canopies of trees have a softening effect on the hard surfaces of urban infrastructure. This is not just visual; it also impacts the perception of the urban environment, making it feel more welcoming and less intimidating.

Enhancing Urban Environments with Trees

Trees have a humanizing effect on cityscapes. They create a sense of scale and proportion that can make large or imposing structures feel more approachable. Tree-lined streets and parks are perceived as more human-centric and less dominated by the built environment. Urban areas with abundant trees often have more inviting public spaces. Parks, gardens, and even tree-lined commercial streets encourage people to spend time outdoors, socialize, and enjoy the environment. Incorporating trees in urban design reflects a growing recognition of the importance of nature in creating healthy living spaces.

Trees are an essential element in biophilic design, which emphasizes the need to integrate natural elements into the built environment for the well-being of city dwellers. In conclusion, trees are indispensable in softening and enhancing urban landscapes. Their contribution goes beyond mere aesthetics; they fundamentally alter the character and perception of urban spaces. Trees in cities represent the vital integration of natural elements into man-made environments, providing not only visual relief but also promoting a more balanced, healthy, and enjoyable urban living experience. As cities continue to grow, the thoughtful incorporation of trees will be crucial in maintaining and improving the quality of life for urban residents.



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