

# auri research brief

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## Improving Building-related Landscape Systems to Create Green Infrastructure

The purpose of this study is to suggest an improved direction for the domestic building-related landscape system in order to implement green infrastructure construction. The details are as follows. First, we examined the functions of building-related landscapes from the perspective of green infrastructure. Second, we analyzed the changing process of laws and systems related to building landscaping, and suggested a basic direction for system improvement. Third, we estimated the quantitative value as a green infrastructure that could be provided by the building-related landscapes based on the results of analysis on the current building-related landscaping areas in Korea. Fourth, the problems of maintenance and management were derived through the field surveys. Fifth, we examined the perceptions of the building-related landscape system through surveys from building owners, public officials, and experts. Sixth, the implications for the improvement of the building-related landscape system in Korea were derived from the analysis of the building-related landscape system and policy cases. Seventh, we proposed a plan to improve the building-related landscape system in terms of social awareness, quantitative and qualitative studies, and maintenance and management, and simulated landscape design for small and medium sized buildings.

The main results are as follows. First, as the components of green infrastructures, the functions of building-related landscapes are divided into five aspects: aesthetics, amenities, environmental performance, functionality, and connectivity. Second, the review on the laws and regulations related to building-related landscapes found unclearness of the purpose in installation of landscapes and gradually alleviating regulatory factors. Third, as of 2016, there were about 2.23 million buildings and about 135.2 square kilometers of building-related landscaped areas in Korea, which is estimated to generate about 843.3 billion won in environmental benefits. Fourth, many cases of illegal use and neglect were found in the maintenance and management of building-related landscape spaces. Also, the buildings that satisfy the legal area standard were found to be inadequate in the layout and arrangement of the landscape space. Fifth, the questionnaire survey of the building owners, public officials and experts found that all three groups are highly aware of the necessity of building-related landscapes. The quality of building-related landscapes can be improved if it is necessary to verify the effects of these landscapes to spread a social consensus and to support measures at the local level. Sixth, according to the analysis of the architectural landscaping laws and policy cases of advanced countries such as Japan, the USA, and Germany, it is necessary to manage building-related landscapes in the dimension of urban green spaces, and to provide specific landscape design and management techniques to reflect local conditions and characteristics through ordinances and guidelines. Seventh, it was determined that the domestic building-related landscape system should be improved in terms of social awareness, quantitative and qualitative aspects, and maintenance and management. This improvement of the system, then, can contribute to the improvement of the local environment and amenities in designing small and medium size buildings.

## Case analysis summary of laws, systems, and policies of overseas building-related landscape

Classification	Korea	Japan	USA	Germany
Related laws and regulations (central government)	· Building Act	· Urban Greening Law · Building Standard Law	—	· Federal Construction Law · Federal Nature Preservation Law
Related laws and regulations (local government)	· Building ordinances	· Greening area system · Green town development ordinances	· Landscape ordinances · Tree ordinances	· Biotops Area Ratio system
Personality	· Building permission standards	· Building permission standards	· Urban planning permission standards	· Building permission standards
Related plan	—	· Afforestation master plan · Urban plan	· Guidelines for landscape and plant ordinances	· Landscape ecology plan · Detailed district plan · Land use plan · Green space maintenance plan
Purpose	—	· Easing of the heat island phenomenon · Biodiversity recovery · Expansion of convenience facilities · Enhancing landscapes	· Focus on visual aesthetic aspects · Enhancing urban images · Rising values of real estate	· Conservation and promotion of ecosystems · Urban landscape protection · Improving urban microclimates and air quality · Enhancing urban soil and water circulation · Habitat creation for animals and plants
Regulations	· Mandatory landscaping area percentages · Tree standards	· Greening ratio for buildings · Estimation standards of greening facility areas	· Landscaping and shielding criteria · Plants materials · Installation, maintenance, and management · Landscape and planting plans	· Biotops Area Ratio · Greening rate according to building height
Characteristics	· Establishing a basis for quantitative expansion of building landscaping as permission standards according to the Building Act	· When calculating the greening rate, it is applied differently considering the usage area, urbanization area, and the building-to-land ratio. · Promotion of policies to support the greening of various private buildings · Supervision and management of continuously built green facilities	· Concrete and clear guidelines that support the ordinances that define the landscape · Comprehensive range of landscaping-related regulations	· Close link between construction laws and environmental laws · Various financial support systems for implementing the Biotops Area Ratio
	· Regulations for individual building landscaping areas	· Building-related landscape regulations as a major green component at the urban and regional levels		
	· Lack of recognition of the public value of building-related landscapes	· High level of awareness of the public value of building-related landscapes, such as urban landscape protection, climate change measurements, and local value increases		
	· Lack of subsequent supervision, creation, maintenance, and management	· Provided guidelines on the design, construction, maintenance, management, and support for building-related landscapes		

Listed below are policy suggestions for constructing urban green infrastructure through building-related landscapes. First, accurate statistical data for national building-related landscapes should be gathered. Second, there is a need to establish and manage related plans by including building-related landscapes in the green space of the “Urban Parks and Greenery Act.” Third, there is a need to revise the landscape standards (Ministry of Land, Transport, and Logistics Notice) to reflect the functions of building-related landscapes needed in today’s cities, such as permitting the introduction of permeable flooring areas, increased ratios of the green space areas facing the road, and allowing conditional gardening. Fourth, it is necessary to apply different criteria for building-related landscape areas according to zoning. Fifth, it is necessary to develop applicable building-related landscape design guidelines for each type of housing providing with building owners, architects, and local governments. Sixth, types of plants that can be exemplary planted in the land of each local government should be determined. Specification of planting, maintenance, and management methods should be provided so that citizens can easily understand them. Seventh, an investigation should be conducted on the building-related landscapes to impose a strong penalty on illegally employed or neglected clients. Eighth, it is necessary to consider revising the “building-related landscape system” to the “ecological building-related landscape system” in order to reflect the climate change response and ecological functions of building-related landscapes required in a modern city. Ninth, there is a need to promote building-related landscape improvement projects in vulnerable areas in connection with government policies such as the Urban Renewal New Deal Project and the Green Remodeling Project.

**Keywords :** Building-related Landscape, Green Infrastructure, Urban Green Space, Landscape Area, Landscape Space.

