

LIVEABLE CITIES

GREEN WALLS AND ROOFS

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Introduction

Green Walls and Roofs improve urban amenity and create positive environmental outcomes within the built environment and broader green infrastructure network.

With increasing density and associated demands on open space in our growing cities, it is imperative that government, in partnership with the private sector, implement strategies to encourage innovative building and landscape solutions.

Green Walls and Roofs can contribute to healthy living and environmental sustainability through:

- Reducing the urban heat island effect
- Improving building efficiency and energy savings by reducing heat absorption and reflection, and insulating structures
- Enhancing biodiversity by increasing the available area and quality of habitat
- Enhancing food production capacity at a local level
- Enhancing green space in urban areas using limited space to achieve multiple outcomes
- Reducing greenhouse gas emissions and improving air quality
- Reducing urban runoff and enhancing water quality

Landscape architects operate in the open-space realm, dealing with the interaction of complex natural systems through public parks, civic spaces, corridor landscapes and private open space. Green Walls and Roofs are an extension of many of these same principles in a vertical or rooftop environment.

Landscape architects are well placed to partner with allied professionals to deliver Green Walls and Roofs to improve the amenity of urban environments and contribute positively to environmental outcomes.

Key issues

Adapting Green Walls and Roofs to buildings and infrastructure requires a firm commitment from project stakeholders to ensure the project scope is realised. Exemplar projects remain in the minority.

Key barriers to the implementation of Green Walls and Roofs include:

1. **Limited policy and planning scheme measures in local government. Most Green Wall and Roof projects have been implemented as voluntary initiatives often linked to Green Star building ratings**
2. **Poor data access, collection and analysis limiting the recorded benefits of Green Walls and Roofs. Comprehensive data can validate the anecdotal evidence of efficiency gains**
3. **Cost escalation perceptions for Green Walls and Roofs infrastructure due to lack of lifecycle cost consideration**
4. **A lack of experience within the Australian construction industry due to the relatively limited number of installations, particularly those of a larger-scale**

AILA position

AILA recommends that all levels of Australian government introduce policy and regulatory measures to promote Green Wall and Roof implementation.

Development of appropriate planning policy can positively guide a sustainable approach by demonstrating acceptable solutions through design criteria, performance standards, and planning codes for building, urban and open space design and planning.

Policy outcomes should focus on the following key objectives:

- Visual impact and enhancement of amenity values
- Biodiversity values and, in particular, appropriate species selection
- Longevity of installations and lifecycle cost
- Structural integrity of installations
- Increasing access to and functionality of open space
- Food production capacity

Local government planning schemes, strategic plans and policy documents are effective means for articulating guiding principles. Local government is ideally placed to partner with community and developers to increase Green Wall and Roof implementation. As part of a wider green infrastructure network, this will be an effective method to enhance biodiversity, and reduce carbon, heat and urban stormwater impacts on urban environments. In the case of extensive green roofs, it is possible to increase the amount of accessible green space for passive recreation within the building footprint.

Landscape architects must play a leadership role by partnering with allied professions to actively develop and promote green infrastructure outcomes such as Green Walls and Roofs in new developments and in the redevelopment of existing infrastructure.

Case Studies



At 24.5 acres, Millennium Park is the largest green roof in the world. It covers two parking garages, a railway, and an opera hall.

by Photo by Vito Palmisano

The City of Chicago puts Green Walls and Roofs at the forefront of new urban design and building projects. Recent projects include the **Chicago Town Hall**, with a green roof, and Millennium Park, which is one of the largest green roof projects in the world.



One Central Park, Sydney, is an Australian exemplar of Green Walls and Roofs in new urban development.

Image courtesy of Central Park www.centralparksydney.com



The High Line, an aerial greenway in New York USA; the vegetation was chosen to pay homage to the wild plants that had colonized the abandoned railway before it was repurposed.

Image courtesy of Wikipedia

[https://en.wikipedia.org/wiki/High_Line_\(New_York_City\)](https://en.wikipedia.org/wiki/High_Line_(New_York_City))



The Burnley Living Roofs at the University of Melbourne's Burnley Campus is a world-class research and teaching facility – and the first of its kind in Australia. The University has established the facility to demonstrate to the wider community how green transformations can be achieved in our cities, aspiring to lead through example.

Image courtesy of Hassell, Photography Peter Bennetts.

<http://www.hassellstudio.com/en/cms-projects/detail/burnley-living-roofs>



Lady Cilento Children's Hospital project

The project was a partnership between architecture and landscape architecture disciplines to achieve a best practice outcome in the absence of any formal policy position of BCC or Queensland Government.

The total area of roof garden is over 3,200m², features over 46,000 individual plants, offers 320m² of high quality turf, eight garden shelters, 12 green monoliths and 33 epiphyte columns. The green sloping roof is made up of 1,400 individual planting cassettes and contains a total of 23,000 plants.

Image courtesy of Conrad Gargett <http://www.conradgargett.com.au/designed-for-healing-the-gardens-of-the-lady-cilento-childrens-hospital/>



Supporting research/links

Sydney City Green Roofs and Walls Policy:

<http://www.cityofsydney.nsw.gov.au/find?q=green%20walls%20and%20roof%20policy>

City of Melbourne guidelines:

<https://www.melbourne.vic.gov.au/Sustainability/CouncilActions/Pages/GreenRoofsWallsandFacades.aspx>

Melbourne University Burnley Campus Green Roof Research project:

<http://thegirg.org/burnley-green-roof/>

Urban Green Cover in NSW, Technical Guidelines

Other links:

<http://www.growinggreenguide.org/>

<http://www.growinggreenguide.org/policy-option/>

<http://www.doitontheroof.com/>

<https://greenroofsaustralasia.com.au/>

Other position statements

Cooling Cities

Further information

AILA National Office www.aila.org.au

Telephone **02 6248 9970**

Email admin@aila.org.au

Post **GPO Box 1646, Canberra ACT 2601**