



Low Slope Roofing Systems
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Vegetative roofs

presented by

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Vegetative Roof Systems
Sometimes called “green roofs”



Definition

The NRCA Vegetative Roof Systems Manual, Second Edition

Vegetative roof system: A roof area of planting/landscaping installed above a waterproofed substrate at any building level that is over habitable space.



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Benefits of vegetative roofs

- Aesthetic improvement
- Storm water management
- Mitigation of heat island effect
- Energy efficiency
- Air quality improvement
- Noise reduction
- Increased roof system durability
- LEED® credit
- Rebates and other incentives



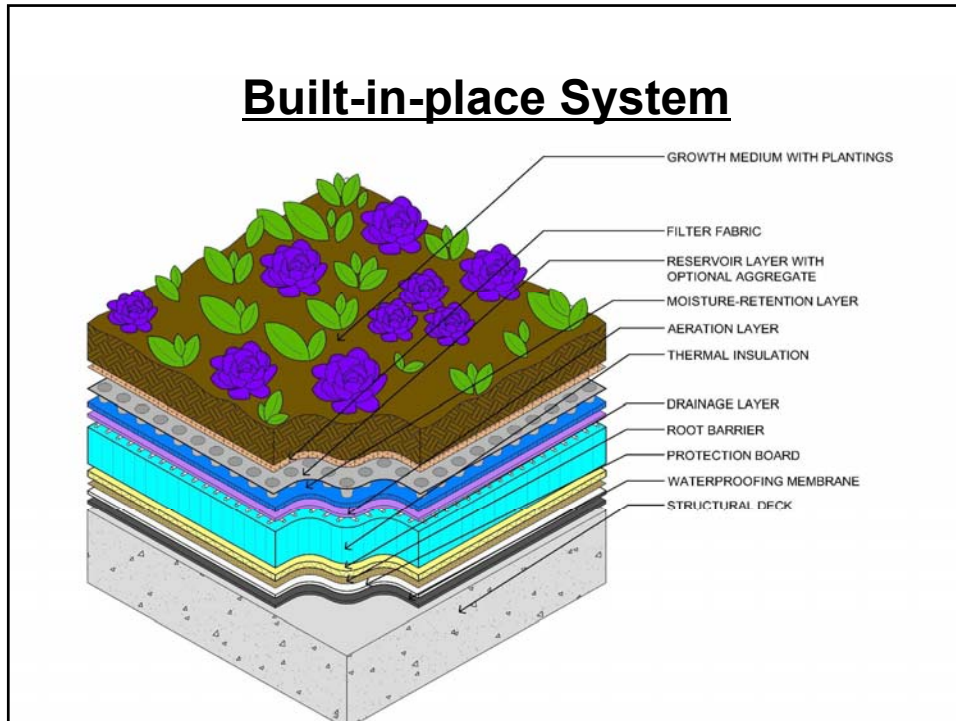
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Basic configurations

- Modular systems
- Built-in-place systems

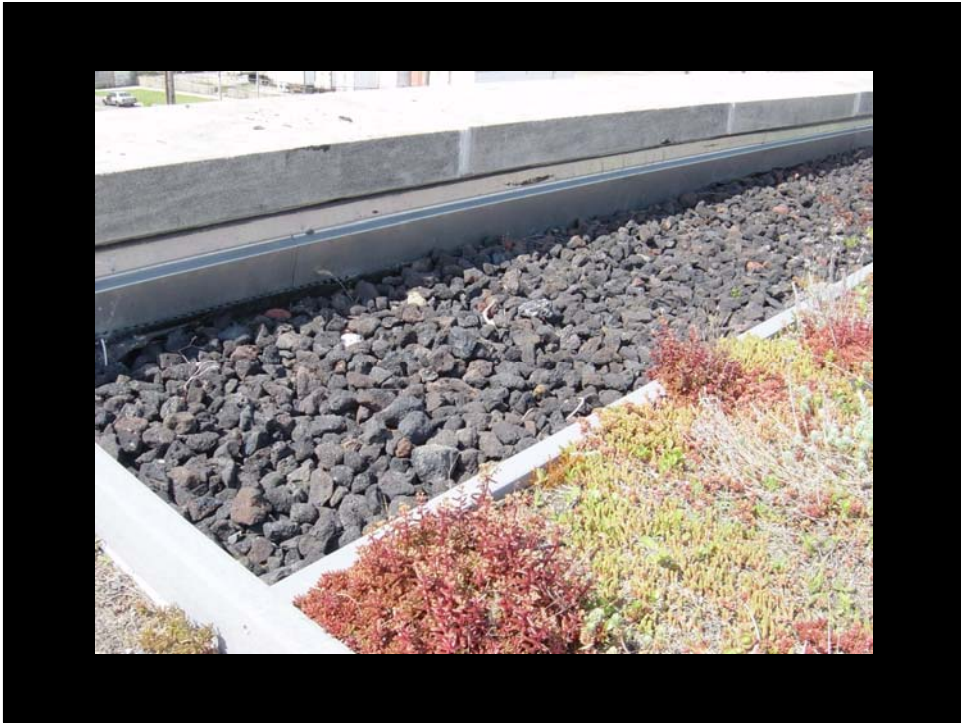






Construction Details for Vegetative Roof Systems









Membrane Integrity Testing

- Flood test
- Flowing water test
- Electronic field vector mapping



Vegetative roof systems require regular maintenance



Design standards -- ANSI/SPRI VF-1

www.spri.org

ANSI/SPRI VF-1
External Fire Design Standard
for Vegetative Roofs

This standard was developed in cooperation with Green Roofs for Healthy Cities
Approved January 20, 2010

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Disclaimer
This standard is for use by architects, engineers, roofing contractors and owners of low slope roofing systems. SPRI, its members and employees do not warrant that this standard is proper and applicable under all conditions.

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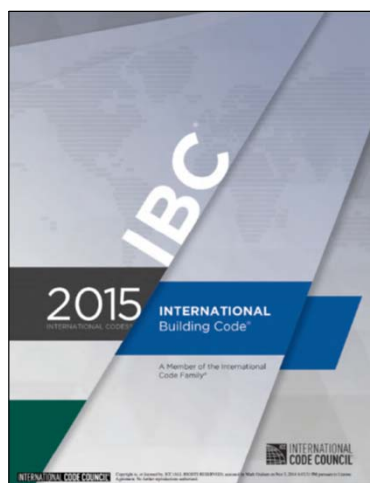
Design standards -- ANSI/SPRI RP-14

www.spri.org



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Code requirements for vegetative roofs



IBC 2015:

Ch. 15: Roofing

- Sec. 1511: Reroofing

Ch. 13: Energy efficiency

- References IECC 2015



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Code requirements

International Building Code, 2015 Edition

1507.16 Vegetative roofs, roof gardens and landscaped roofs. *Vegetative roofs*, roof gardens and landscaped roofs shall comply with the requirements of this chapter, Sections 1607.12.3 and 1607.12.3.1 and the *International Fire Code*.

[BF] 1507.16.1 Structural fire resistance. The structural frame and roof construction supporting the load imposed upon the roof by the *vegetative roof*, roof gardens or landscaped roofs shall comply with the requirements of Table 601.



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Code requirements

International Building Code, 2015 Edition

Sec. 202-Definitions

VEGETATIVE ROOF. An assembly of interacting components designed to waterproof and normally insulate a building's top surface that includes, by design, vegetation and related landscape elements.



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Code requirements

International Building Code, 2015 Edition

Sec. 1505-Fire Classification

1505.10 Roof gardens and landscaped roofs. Roof gardens and landscaped roofs shall comply with [IBC 2018: Section 1505.1,] Section 1507.16 and shall be installed in accordance with ANSI/SPRI VF-1.



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Code requirements

International Building Code, 2015 Edition

1607.12.3 Occupiable roofs. Areas of roofs that are occupiable, such as *vegetative roofs*, roof gardens or for assembly or other similar purposes, and marquees are permitted to have their uniformly distributed live loads reduced in accordance with Section 1607.10.

1607.12.3.1 Vegetative and landscaped roofs. The weight of all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil as determined in accordance with ASTM E 2397. The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m²). The uniform design live load for occupied landscaped areas on roofs shall be determined in accordance with Table 1607.1.



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*Code compliance for vegetative roof systems
is a challenge*

--Mark Graham



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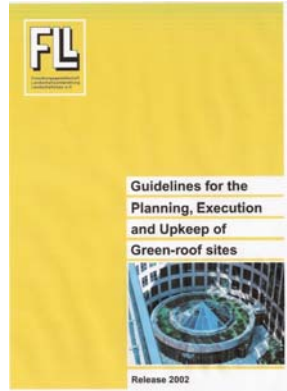
Some useful references...

Vegetative roof systems



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FLL, “Guidelines for the Planning, Execution and Upkeep of Green-roof sites”

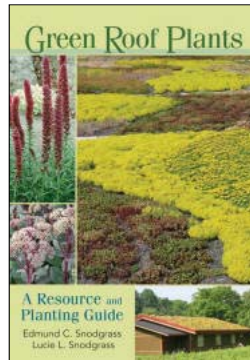


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Green Roof Plants

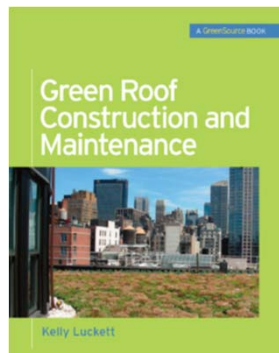
Authors: Edmund C. Snodgrass & Lucie L. Snodgrass



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Green Roof Construction and Maintenance

Author: Kelly Lockett



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