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Vegetation Systems Atop Buildings Yield Multiple Environmental Benefits

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Roofing technology developed in Germany is starting to take root in North America

By Nancy B. Solomon, AIA



Continuing Education

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD / AIA Continuing Education article.

Learning Objective:
After reading this article, you will be able to:

1. Describe the components that make up a green roof.
2. Explain the environmental benefits of a green roof.
3. Identify types of plants suitable for a green roof.

With a few glorious exceptions, rooftops have played a rather unglamorous role in modern construction. The top surface of a typical building is a necessary, utilitarian component that is technically addressed during design and construction and then goes unnoticed by all but, hopefully, the maintenance crew. The horizontal surface that once defined the building's site—teeming with life and engaging in countless rejuvenating processes—is replaced by an inert, one-dimensional plane several stories in the air. Slowly but surely, owners, architects, and planners are beginning to recognize the valuable opportunities inherent in these virtually forgotten patches of real estate.

One very promising option is a green roof, a waterproof protective covering featuring a top layer of plants embedded in a growing medium. Conceptually speaking, the new vegetation replaces the ecology destroyed at grade by the building footprint. The plants can form a ruggedly simple carpet or a lusciously elaborate garden. Popular in Europe for decades, green roofs are only now beginning to sprout up in North America.

Sowing the seeds

Roof vegetation is not new. For millennia, indigenous architecture was covered with plant material—from sod to thatch. Twenty-five hundred years ago, Babylon was renowned for its hanging gardens. And, in the early 20th century, Le Corbusier extolled roof gardens in his vision of the new city.

According to Linda S. Velazquez of Alpharetta, Georgia, who publishes a green-roof Web site (www.greenroofs.com), the idea for contemporary green roofs came from medieval Iceland and Scandinavia. For inhabitants of these resource-limited regions, sod was one of very few readily available building materials.

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