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Styroblock™ containers

the afterlife—a zero-waste solution through re-use on green roofs

| Jolyon Hodgson

ABSTRACT

Nurseries that produce a variety of plant species often grow them in Styroblock™ container systems. A major problem with these systems, however, is finding a method of disposal for "retired blocks" once they are no longer useable. One solution can be to recycle old blocks as light fill for landscaping, particularly in green roof applications. They can provide an economic and environmentally sound alternative to traditional landscaping products.

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KEY WORDS

green roof technology, Terrafill, expanded polystyrene, recycled materials

All photos by Jolyon Hodgson.

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Interest in the technology of "green" roofs, also known as "vegetative," "living," or "eco-roofs," is increasing worldwide. Although the market in North America is early in its development, green roof products and services in Germany, France, Austria, and Switzerland are well established and have become multimillion dollar industries. Modern green roof technology (GRT) started in the early 1970s in Germany, and, in 1997, the green roof industry in that country had 700 million DM in sales (GRFHC 2005; Philippi 2006). In Germany alone, it is estimated that 10 million m^2 (108 million ft^2) of green roofs have been installed in recent years, or approximately 10% of all new roof installations (Daniels 2000; Swanson 2001).

Rooftops comprise anywhere from 15 to 35% of the land area in most developed countries (Peck 2005). Green roof infrastructure has become the highest profile component of green building design, providing a unique opportunity to transform barren roofscapes into areas with economic, social, and environmental benefits.

BENEFITS OF GRT

Economic

The energy conservation that can result from the increased thermal efficiency of a green roof can provide a financial benefit for the owner or developer of a building. The cooling and shading properties of a green roof can significantly limit heat flow into a building, thus resulting in reduced loads on interior cooling systems.

Green roofs can extend the service life of roofing membranes and materials from extreme temperature fluctuations and the negative impact of ultraviolet radiation. North American roofs have an average lifespan of 10 to 15 y. Protected membrane roof (PMR) assemblies, where the membrane is buried beneath insulation, can have an average lifespan of 20 to 25 y (DOW 2009). Experience with green roofs in Germany has shown that a green roof assembly can be expected to outlast a comparable conventional roof by a factor of at least 2, and often 3 times (Miller 2003), and most commercially built roofs in Germany now include a 30-y warranty (Swanson 2001).