

Commentary

A Green Roof Would Have Improved Eva's Penthouse View

By Robert Ryan

A generation of television viewers heard the glamorous Eva Gabor exclaim, "I just adore a penthouse view!" during the title scenes of the popular '70s situation comedy "Green Acres." Imagine how robust her enthusiasm would have been could she have gazed upon something more beautiful than a landscape of asphalt, tar and litter-strewn roofs.

Today, green roof design has empowered architects, landscape architects and urban planners with new ammunition to combat the blight of gray urban landscapes. The environment – and summer temperatures – are all the better for it.

Green roof design is the wave of the future to mitigate urban and suburban impervious surfaces. They entail more than putting lawns on top of buildings; they are a way to improve the environment and our quality of life while creating pleasing urban landscapes.

In our society, green roofs are an innovative and flexible solution that can simultaneously provide benefits for the urban ecology and for building owners by increasing property values. They involve a system of special waterproofing membrane, a drainage/retention system, a specific growing medium and a palette of plant materials. They can be built as a system of components or a prefabricated modular system.

The idea is catching on in North America as designers and developers notice the significant environmental benefits demonstrated by a longer track record in Europe and in local projects.

One local example employing green roof strategies is the Turner Entertainment Group's campus in Atlanta. In its first phase, a pre-development, 2.2-acre urban parking lot was transformed with an intensive green roof plaza and gardens linking new and existing facilities.

Atlanta, shown through a NASA study, has a significant urban heat island

effect. The Turner green roof employed significant strategies that can help alleviate this problem. Surface parking was eliminated and placed under the green roof. The landscape plaza reduces high temperatures and, in turn, reduces potential increases in ozone. Stormwater runoff is intercepted, delayed and absorbed in the landscape and returned into the atmosphere through evaporation and transpiration. The runoff is filtered before it enters stormwater and stream systems.

Like the Atlanta project, green roofs provide numerous benefits for the environment in addition to natural beauty. Stormwater control can reduce the need for detention facilities; reducing the amount of land used, or defraying stormwater treatment costs. Rainwater carries airborne pollutant particulates to the ground. The green roof can filter particulates out before they enter and pollute our waterways. Additional ecological benefits include improving outdoor air quality through reducing the urban heat island effect, lowering temperatures and reducing ground-level ozone. Also, dust and pollutants are bound by the plant foliage and increased oxygen is provided through photosynthesis by the plant material.

Benefits attractive to building owners that are quantifiable include extended roof membrane service life; sometimes by a factor of at least two, often three. A green roof can reduce cooling loads and generally improve the function of conventional insulation, reducing energy consumption.

Perhaps one of the most important benefits green roofs offers, though hard to quantify, is the positive impact on the quality of life in our urban environments. Plant life actively suppresses noise while the green space offers visual and aesthetic interest, recreation opportunities and positive psychological effects.

However, with all the advantages come some concerns. The greatest concern is leaks. Manufacturers have greatly improved the quality of waterproofing membranes.

Despite improved manufacturing and installation methods, costs still limit the use of green roofs. Realistic costs range from \$15 to \$20 per square foot, including everything from waterproofing to plants. Key planning considerations include structural capacity, waterproofing, water or drainage systems and plant selection.

As the various benefits are better understood, they will ultimately outweigh any negative hype placed on this technique. When considering a green roof, designers and developers should take into account the long-term cost savings from benefits such as stormwater retention and a healthier microclimate. Combined with the improved roof longevity and thermal insulation of a green roof, the benefits can easily outweigh the increased first costs for most installations.

Nature is at a premium in the urban setting; cities often effectively exclude greenery and nature. While green roofs are no substitute for open space and simply cannot replace the significant functions of forests, rolling green hills and open fields, they do provide green space, visual and aesthetic relief and wildlife habitat from which both urban and suburban areas can greatly benefit.

Bottom line, if green roof design had been widely practiced in Eva's New York City, Mr. Douglas may have never gotten her to that dubious little farm near Hooterville.

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