



FEATURED STORY

Green Up Top

BY: KELLI B KAVANAUGH, 6/4/2009



Like pretty much every other building component, roofs are going green. If you're late to the game, a green roof is one that is partially or completely covered with vegetative matter. Those who sing their praises often cite benefits ranging from environmental to economic to aesthetic.



Environmentally, green roofs absorb and, in some cases clean, storm runoff. Habitat is created for insects and birds. Because the ambient temperature of a building is reduced, less energy is required to cool it. Economically, green roofs tend to last a lot longer than traditional ones. Aesthetically, well what would you rather look at, grasses and plants or a flat black surface glimmering in the heat?

Talking about green roofs in Southeast Michigan is a classic example of a dichotomy. On one hand, it is home to one of the world's largest and most famous, at the Ford Rouge Plant in Dearborn. On the other, it sorely lags behind places like Chicago, New York,

Minneapolis and most European cities in terms of sheer numbers of examples.

Metromode will take a look at some local and non-local examples of green roofs, describe some obstacles to implementation, and, on the flip side, share some resources that might help demystify the process of making a green roof happen.

Look up and around

A highlight of the factory tours of the [Ford Rouge Plant](#) is the incredible view of the 454,000-square-foot green roof, recently featured in [National Geographic](#), installed to great fanfare in 2004. It's part of a site-wide 600-acre stormwater management system that accomplishes an impressive list of objectives, including: the establishment of habitat at roof level, reduction in ambient temperatures, and protection of the roof membrane.

Ford estimates a seven percent decrease in energy usage, the retention of 447,000 gallons per year of rainwater, and a doubling in the life of the roof from 25 to 50 years.

A few miles up the road, in Southfield, [A. Alfred Taubman Student Services Center](#) at Lawrence Technological University has a 10,000 square-foot green roof, planted with sedum (the same low-maintenance plant used at the Rouge). Any rainwater that is not evaporated back into the atmosphere is filtered by the sedum roots before running into the Rouge River. Some of the water, however, is captured in a cistern so that it can be used to flush the building's toilets.

Two smaller, local projects show that green roofs don't always have to be enormous to make an impact. There's a cute tiny one on a gazebo at Ann Arbor's Matthei Botanical Garden, and one was recently installed on the roof of the Joe Louis Arena Detroit [People Mover](#) stop. Again, the lifespan of the roof is estimated to double, this time to 40 years.



"Its short-term expense is perhaps a little bit more, but in the long run we get twice as much usage," says DPM manager Dennis Green.

Other notable locals include [Upland Hills Ecological Awareness Center](#) in Oxford, the [Coleman A. Young Municipal Center](#) in Detroit, which is going green little by little, as its pavers need replacing.

But these local efforts pale in comparison to our big city neighbor, Chicago, which as of 2006 [recorded](#) more than 250 public and private green roofs totaling more than 1 million square feet. In 2007 alone, the city added yet another 517,633 square feet, making it, by far, the city with the most green roofs in the country. To make their commitment perfectly clear, [Chicago's City Hall](#) also sports a much-lauded green roof.



Some notable green roofs around the country include the [California Academy of Sciences](#), which is topped by rolling hillocks; and the School of Art, Design and Media at [Nanyang Technological University](#) in Singapore, which slopes down to enable people to walk on it from ground level and enjoy the green space it provides. It must be seen to be believed.

Obstacles

In the mind of [WARM Training's](#) green programs manager Jacob Corvidae, there are two primary reasons why there aren't more green roofs in the Detroit area: a lack of understanding of their proper applications and financial incentive. "The biggest obstacle in my mind is getting people to realize when they are a good application and when they are not," he says.

A good example of when they would not be a good application is a high rise apartment building -- its verticality in comparison to its relatively tiny roof size make it not worth the bang for the buck. On the flip side, any low horizontal building -- big box retail or warehouse or a boxy office building -- can make immediate financial sense. Documenting the energy savings and even the value in reducing storm runoff is an important first step to take.

On the financial tip, Corvidae says, "Revolving loan funds to help make this thing move would be big -- upfront loan packages would make it make sense in more places."

Other cities have made bold moves to increase their number of green roofs. Across the border, Toronto's City Council adopted a law in May that requires up to 50 percent green roof coverage on multi-unit residential dwellings over six stories, schools, non-profit housing, and commercial and industrial buildings. Larger residential projects require greater green roof coverage, ranging anywhere from 20 to 50 percent of the roof area. The city is hoping to challenge Chicago's lead, estimating 50 to 75 new green roof projects annually.

New York state has a tax credit program that is designed to defray about 35 percent of the cost of installing a green roof on a standard roof. Portland, like Toronto, requires all municipal-owned roofs to be replaced with green ones when repairs become necessary. The city also launched the ["Grey to Green Initiative" program](#) last July, which grants subsidies of up to \$5 per square foot for new green roofs on residential properties.

Overseas, Switzerland mandates that all flat roofs are green -- something Germany's been doing since 1989. It's now estimated that 12% of all flat roofs are green across the country.

While mandates might seem like the classic "stick" approach, for some municipalities it's the only way to overcome political and public inertia. Incentives such as subsidies and tax credits take the kinder, gentler "carrot" tact. Either choice would be a marked improvement over our current lack of effective policy. An incentive in the Mitten State similar to the state of New York's could do wonders to the spread of green roofs in Michigan -- and would do wonders to bolster our environmental image in the eyes of many.

Interested?

So, now you're wondering about the logistics, costs,



and innovations in green roofs, right?

Step one: Cruise the interweb, of course! Green roofs are a hot topic and there's a tremendous amount of information out there. A great inspirational piece on green roofs in [National Geographic](#) will show you the possibilities (the pictures are amazing) and Canadian-based [Green Roofs for Healthy Cities](#) has an info-laden site.

Do-it-yourselfers looking for a small start should check out [Green Roof Blocks](#). The company makes it easy to green even a portion of a roof with a kit. The modular system can even be moved when a repair to the roof surface is needed. [Green Grid Roofs](#) is another option.

Also highly recommended, particularly with larger projects, is consulting with a professional that has experience with green roofs. Two locally are [Mannick & Smith Group](#) -- the company that worked on the Rouge Plant roof -- and Ann Arbor-based [A3C](#), an architecture and design firm with a sustainable bent that recently greened the roof of their 100 year-old downtown building.

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