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# City & Region



Robert Kirkham/Buffalo News Combined talents of, from left, David G. Lanfear, Kevin V. Connors and Mike Jackson have turned NFTA's bus shelter at North Division and Ellicott Streets into a green success story.

## 'Living roof' brightens downtown bus shelter

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The crowds of people who wait for the bus at North Division and Ellicott streets can take shelter under one of the most cutting-edge and subtly beautiful environmental projects in the region.

It's a "living roof," planted with short, hardy succulent plants called sedum in shades of green, yellow, blue-green, brick red and burgundy.

"I think it's really cool," bus rider Anne Green, of South Buffalo, said as she waited at the stop. "I noticed it the last time I was down here, but I didn't really have time to look at it. I think it's a great idea, and I would love to see more of this sort of thing around here."

The green roof provides a burst of natural, visual relief on the bustling corner. Like all green roofs, the 5-foot-wide, 11-foot-long planting helps clean the air and slows rain runoff, preventing it from flowing into the storm sewer system. The roof also keeps the shelter a few degrees cooler in the summer and a few degrees warmer in the winter.

That few degrees of temperature difference will also assist the solar panel perched atop the green roof, says Mike Jackson, a local sustainability advocate who suggested the living roof idea to Kimberley A. Minkel, executive director of the Niagara Frontier Transportation Authority.

Jackson got the idea from photos he saw of a planted living roof on a bus shelter in Sheffield, England, and he wrote to Minkel to suggest it be tried here.

"I was pleasantly surprised that just a short time later I got an email from her," he says. "She said she

really liked the idea and would like to learn more about it."

"My background is environmental, so I have a real passion for this sort of thing," Minkel said.

Jackson called on Kevin V. Connors, an architect and principal of eco\_logic STUDIO, architecture and engineering, and David G. Lanfear, who operates Green Top, a living roof company, to work on the project.

The trio examined and measured an old bus shelter roof to design the shallow box to fit on top and hold the thin layer of soil and plants.

An important part of the design was determining whether the bus shelter would be able to hold the added weight of the living roof. State building code requires that the shelter has to support twice the expected weight of the roof, Connors said.

"It's hard to imagine snow accumulating 2 or 3 feet on top of one of those, but that's the equivalent of what we had to test," Connors said.

The trio loaded bags of sand and other heavy materials atop the curved roof, which is made of a hard translucent polycarbonate.

"The roof made it through 24 hours at load, and when we took the load off, it bounced back to where it was," Connors said.

To install the living roof, the team laid down a waterproof membrane, attached the shallow box to the top of the roof, then applied a thin layer of soil mixed with inert recycled material. The plants, which had put down roots into a tangled, airy mat, were laid on top of the soil. Finally, stainless steel wires were strung through the roof to further secure it.

The sedum planted on the roof, which includes blue spruce, greenish-yellow "Angelina" and red dragon's blood, will need little care.

"Sedum is drought-tolerant," said Lanfear, who planted one of the region's first living roofs on his West Side garage in 2008.

"It doesn't need a ton of root space or a lot of nutrients. It's used to really sparse conditions, including mountains and deserts, and it has attractive color."

The plants go dormant in the winter and are not affected by snow or cold.

A solar panel that illuminates the ad on the side of the shelter was placed atop the living roof. Although it will shade the sedum directly underneath it, Jackson, Lanfear and Connors are not worried.

"The plants under there might grow a little differently," Lanfear said.

"A lot of people have taken notice of that shelter," Minkel said. "I have gotten so many compliments and comments, all of them positive. Some people have made jokes about it, but I have not heard one single negative comment, and that's amazing."

The project, which cost "a couple thousand" dollars may be just the first of many, Minkel said.

"This is a small feasibility project so we can evaluate how well it works before we put it on some other, much larger facilities," she said.

"Buffalo is a very green city, and I don't think we give ourselves enough credit for how progressive we are when it comes to different environmental initiatives."

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