

# UP ON THE ROOF

## *An inside look at Music City Center's rainwater catchment system*

By Renee Barker

**F**rom construction to the present day, the Music City Center has focused on sustainability initiatives. Shortly after opening in 2014, the Music City Center achieved LEED Gold for New Construction. Conferred by the U.S. Green Building Council, this certification identifies our venue as a showcase example of excellence in green building and sustainable design. One of the most successful features is our green roof's water catchment system that was integrated into the design of the building. With help from TVS Design, the lead architect, Roofmeadow, responsible for design and construction, and Greenrise Technologies, responsible for construction and maintenance, Music City Center is now home to the largest green roof in the Southeast. In the past fiscal year, water collected from rain plus condensation collected from HVAC equipment accounted for 48 percent of our overall water usage. A total of 3,244,788 gallons of rainwater was saved from becoming storm water runoff! Aside from the great environmental effects, this system has also produced significant cost-savings every year by reducing our need for metro-supplied water.

Storm water is water that does not soak into the ground. As it travels along, storm water runoff picks up pollutants and deposits them directly into our local bodies of water without being treated. Like many venues, we are located in an urban area surrounded by many impervious surfaces. A lot of storm water runoff in Nashville eventually reaches the Cumberland River, which is a source of our drinking water. One way that we are lessening the amount of contaminated water reaching our rivers and streams is by using a green roof on our facility.

### **THE ADVANTAGES OF NATIVE SEDUM**

Native sedum plants cover over four acres of the wavy rooftop designed to evoke the rolling hills of Tennessee. Choosing the right vegetation is important to ensure the plants will thrive in the climate they are in. Native plants often require much less maintenance since they are more adapted to local conditions. Our green roof supports 14 different types of native sedum that require a depth of soil of only three inches and are heat and drought tolerant. Thin pre-vegetated mats were used for installation, which are especially useful for positioning plants on sloping areas. Although they may not look as exciting as showy flowers or tall meadows, the makeup of sedum species results in a color-changing landscape depending on the season. Summer displays a bright green with small white or yellow flowers scattered throughout, while fall and winter bring a deep burgundy and red color. These plants also provide habitat for insects and wildlife. Ongoing maintenance involves watering



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and weeding, with an annual checkup to track plant inventory, coverage, biodiversity, soil condition and the overall health of the green roof system.

Underneath the vegetation lies a layer of waterproofing membrane that allows storm water to flow into our rainwater catchment system. Because the sedum is low growing, the roots of these species will not push into this protective membrane past the layer of soil. Water filters through the vegetation and into our underground 360,000-gallon cistern, which is then reused throughout the facility. In other areas of the roof, rain is directed to drains in low spots between the rolling hills. This captured rainwater is sent from the cistern to over 500 toilets and urinals, and irrigates the surrounding outdoor landscaping as well. To save even more water, our facility uses low-flow and sensor technology in all toilets, urinals and faucets. This type of system reduces the amount of contaminated storm water in urban areas, and when partnered with other technology can minimize any venue's municipal water usage.

### **SHOWCASING THE GREEN ROOF**

An educational aspect is also important to show guests why a green roof is beneficial. Although it is not accessible by the public, our green roof is viewable from a set of windows on the highest floor. We also have signage in every restroom about using water from the catchment system. Showing the facility's commitment to managing the sustainability of the building is important, and can be done by informing our visitors about how these initiatives lead to a cleaner and healthier environment for everyone to enjoy. With the right design and planning, converting to or building a green roof can be a great cost-saving measure with many long-term benefits for the surrounding region.

*Renee Barker is the Sustainability Coordinator for the Music City Center in Nashville, TN. She is responsible for coordinating and implementing sustainability initiatives, including waste and recycling goals, donations, tracking data, community outreach and engagement, and collaborating with clients to plan green meetings. Barker is a LEED Green Associate with a Bachelor of Science degree in Environmental Science, Policy, and Management from the University of Minnesota.*