Why green roofs? 'Because we can do it'

BY STEPHAN M. COHAN, PH. D.

The many key players in a green roof installation — landscape architect, civil engineer, roofing contractor, landscape contractor and of course the client — indicate the potential complexity of these types of projects.

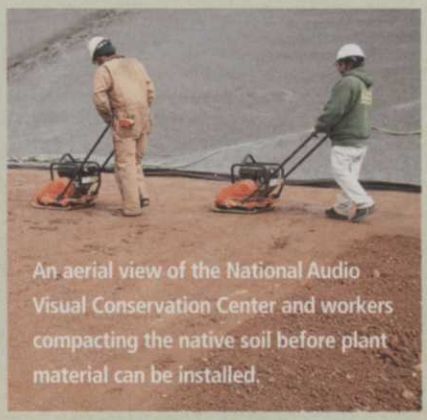
Why would a landscape contracting company bid on such a project? Michael Martin's answer is simple. Because "we can handle it," says the vice president of Outside Unlimited, Inc., a commercial and high-end residential landscape construction company. Outside Unlimited has dealt with structured soils, site preparation and planting, so why not a new service, such as a green roof?

Daunting material list

The project that OU got involved in was the National Audio Visual Conservation Center, Culpepper, VA. The total green roof installation involved 5-1/2 acres wtih roof sections up to a 2:1 slope. OU's team — estimator Rick Webster, superintendent Tom Harrington and project manager Jim Scarborough — faced challenges they hadn't faced before, such as:

- locating tons of native soil,
- screening 10,000 tons of soil and transporting it to the roof surfaces,
- installing 3,951 cu. yd. of a soil mix comprised of 55% rotary kiln slate, 30% root zone sand, to a 6" - 8" depth in designated areas,
- compacting the native soil and soil mix areas,
- planting 250,000 plug of sedum, grasses and herbaceous perennials and
- sowing 26 varieties of a meadow mix over a 106,035 sq. ft. roof area on a 2:1 slope.

Before bidding the project Martin and his team researched the technology with roofing contractors, the Green Roof Center at Penn State University, soil mix vendors (Stalite tech reps) and Ed Snodgrass of Emory Farms. Snodgrass has extensive experience developing green roof plant palettes and producing millions of plugs. They also determined which roofing contractor bidding on the project had the most experience with green roof installations. The landscape contractor was bidding as a sub for the roofing contractor.



An aerial view of the National Audio Visual Conservation Center and workers compacting the native soil before plant material can be installed.

The bidding process involved constant communication and brain storming by the OU team members. They discussed every phase of the project and particularly in regard to systems that needed to be developed to implement the installatio. And, of course, there were important financial considerations.

Expensive challenges

For example, in seeking an alternative to paying $270,000 to blow 4,000 cu. yd. of soil mix on to the roof, they purchased two used mulch-blowing trucks for a total cost of $150,000. Then there was the costly hurdle of getting 10,000 tons of native soil to the roof. They installed a conveyor system to move the soil.

Seeding 106,000 sq. ft. of a meadow taxed sparked an equally creative solution. This operation was estimated on the basis of employing broadcast spreaders (on ropes) to distribute a seed and sand mix. This turned out to be tricky work since seed had to be planted at different depths. The first mix had to be raked into the top 1/4-in. of soil mix and the second mix had to be broadcast over the surface and covered with a hydroseed cellulose mulch. In effect, the OU team developed production standards as it progressed on the project. In most cases, there weren't any base lines.

In the end, the biggest challenge became the sheer volume of the soil and growing medium, including locating 10,000 tons of native soil, said Martin. He contacted local developers to find a source about 30 minutes from the project. Moving the soil kept a truck hauling company busy for a month.

The project-hardened Outside Unlimited team felt the project went well in spite of some setbacks. The experience it gained and the success of the installation at the National Audio Visual Conservation Center convinced it that it can add green roofs to its service officers.

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