INNOVATIVE GREEN ROOF PROJECT 'THE REACH' IN WASHINGTON DC IS A TECHNICAL MASTERPIECE

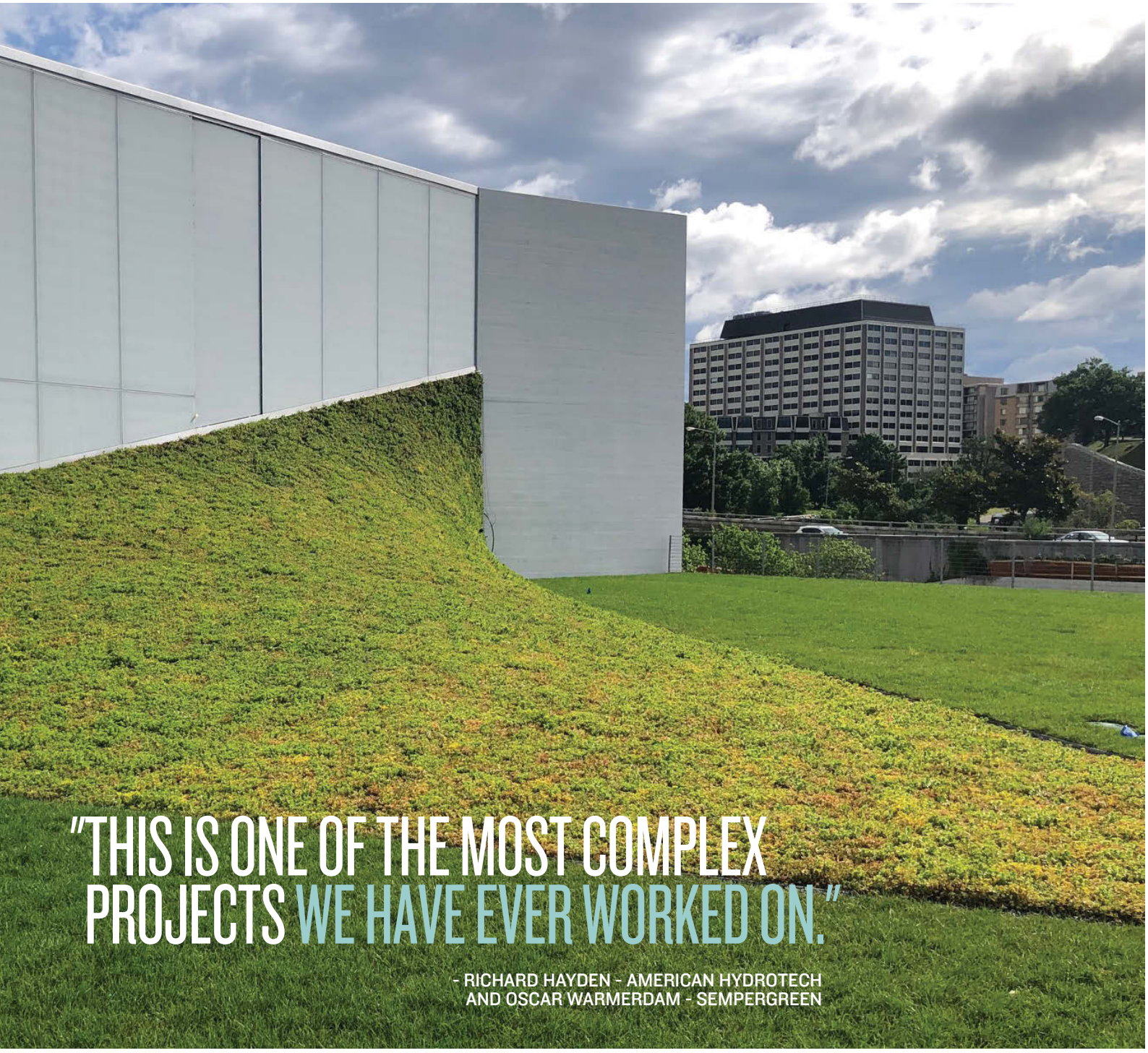
BY RIANNE SLOOTWEG, SEMPERGREEN

The John F. Kennedy Center for the Performing Arts is a historic venue, standing on the bank of the Potomac River in Washington D.C. The facility recently underwent a $250 million expansion called The REACH expansion, which is a true state of the art project.

The project incorporates an expansive landscape over structure containing a technical masterpiece: a three-dimensional cork-screw green roof for the public area of the project as never seen before. It was the result of a unique collaboration between designers, contractors and material suppliers. The Steven Holl Architects-designed project opened in October 2019 and has already achieved LEED Gold certification.

SPECTACULAR FUSION OF BUILDING, LANDSCAPE AND RIVER

As the living memorial that bears his name, the John F. Kennedy Center for the Performing Arts fulfills the vital mission of John F. Kennedy to set the artist free. Free to reach beyond hallowed halls and sacred walls into creative open spaces where audiences can reach back and connect with art and the artist who created it. As the institution enters its fifth decade, the expansion project The REACH is now a living theater where the community can engage and interact with artists and their creative output in inspired and meaningful ways. It was Steven Holl Architects' vision for the expansion of the building to fuse it with the landscape and river. The varied greenspaces provide opportunities for casual performances and events. Remarkably, nearly the entire facility is capped with a green roof. The buildings have a footprint of 72,000 sq. ft., and 69,000 sq. ft of that is covered by green roof. The slope of the vegetation varies from virtually flat to nearly vertical.

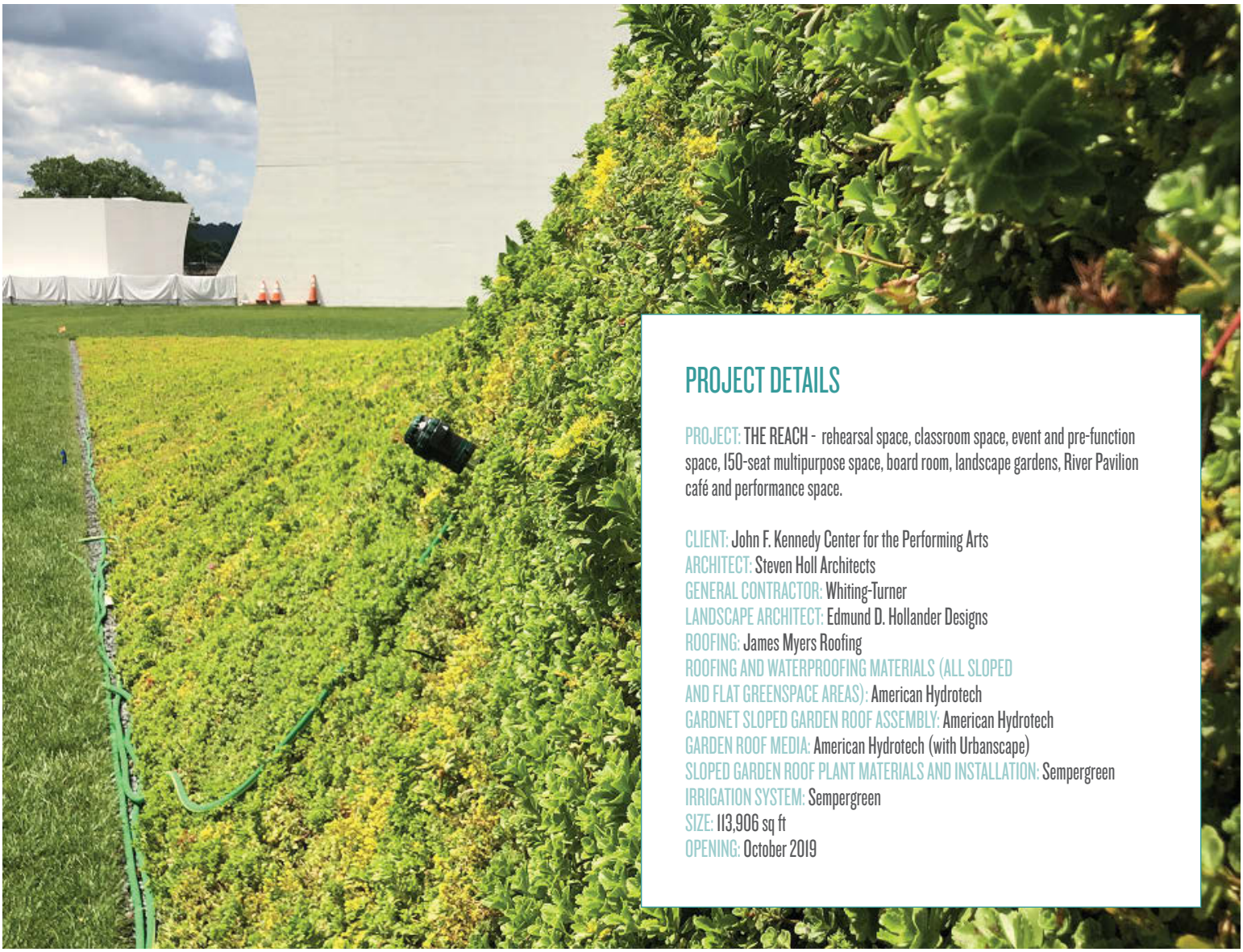


GREENING THE IMPOSSIBLE: THREE-DIMENSIONAL CORK-SCREW GREEN ROOF/ GREEN WALL

The open and engaging landscape provides small and intimate spaces to gather and visit at all times of the day. For this visually attractive landscape Steven Holl Architects created a three-dimensional green roof/wall design. It starts as a flat green roof, and then rotates into a green wall. Geoffrey Valentino - Landscape Architect from Edmund D. Hollander Designs - proposed the project to the collaborative team of American Hydrotech and Sempergreen USA to take on the task of 'greening the impossible'. The subsequent collaboration between Hydrotech and Sempergreen needed to address many of the issues with creating a 3-dimensional, corkscrew shaped green roof and accommodating all of the other adjacent architectural elements. This collaboration required frequent communications with the design and construction teams. Richard Hayden, National Garden Roof Department Manager at American Hydrotech and Oscar Warmerdam, president of Sempergreen USA remarked: "This is one of the most complex projects we have ever worked on. It required a deep collaboration between our two companies and the design team."

THREE DIFFERENT PLANT PALETTES AND MERGING SOIL MIXTURES

American Hydrotech took on the responsibility of water proof-



PROJECT DETAILS

PROJECT: THE REACH - rehearsal space, classroom space, event and pre-function space, 150-seat multipurpose space, board room, landscape gardens, River Pavilion café and performance space.

CLIENT: John F. Kennedy Center for the Performing Arts
ARCHITECT: Steven Holl Architects
GENERAL CONTRACTOR: Whiting-Turner
LANDSCAPE ARCHITECT: Edmund D. Hollander Designs
ROOFING: James Myers Roofing
ROOFING AND WATERPROOFING MATERIALS (ALL SLOPED AND FLAT GREENSPACE AREAS): American Hydrotech
GARDNET SLOPED GARDEN ROOF ASSEMBLY: American Hydrotech
GARDEN ROOF MEDIA: American Hydrotech (with Urbanscape)
SLOPED GARDEN ROOF PLANT MATERIALS AND INSTALLATION: Sempergreen
IRRIGATION SYSTEM: Sempergreen
SIZE: 113,906 sq ft
OPENING: October 2019

ing and designing a soil stabilization system that can move in a fluid-like motion from flat to vertical while rotating like a corkscrew. Sempergreen USA and Hollander Designs created sedum blankets into 3 different plant palettes. For the most vertical sections of the roof where it becomes a wall another partnership of Sempergreen USA and Knauf Urbanscape designed a growing media blend mix that starts with Lite-Top growing media from American Hydrotech and merges slowly into a Lite-Top/Urbanscape mineral wool mixture which in turn merges slowly into the vertical section that has 100 per cent green wall mineral wool from Urbanscape inside the Hydrotech sloped Garden Roof Assembly.

EXPERIMENTAL MOCK UP 'THE RAMP'

James Myers Roofing is the roofer that had to put all the pieces together into a finished project for general contractor Whiting-Turner. It was a monumental task. Nothing was straight, just mapping and calculating surfaces was extremely difficult to do on two-dimensional drawings that needed to represent three-dimensional shapes. To properly prepare, Myers, Hydrotech and Sempergreen built a JFK mock up called 'The Ramp'. Monthly visits from the Landscape Architect, the General Contractor and Myers to the sedum slope gave everyone confidence that it could be done. The Ramp is an actual replication of all the possible angles of the design and has been growing successfully at the Sempergreen farm in Culpeper. It allowed the team to work out any bugs and discover any practical problems before the installation.

SEMPERGREENWALL IRRIGATION SYSTEM HAS PROVEN ITSELF

To irrigate the vertical parts of the sedum based roof/wall, the Irrigation Management System for outdoor SemperGreenwalls was selected. The irrigation has an advanced web-based system with the ability to confirm water flow, water pressure, water temperature, and the ability to self-empty prior to frost, and refill right after temperatures warm up. This ability allow the irrigation system to effectively run 24/7, 365 days a year. Sixteen groups of irrigation with attached drip lines and sprinklers supply water year-round to the REACH. Now that the project is finished and the final piece of green art is into place, the system has proven itself because all of the plants are healthy and alive.

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