



Case Study: Hilton 2.0 Hotel
Columbus, Ohio

Hilton 2.0 Hotel – Columbus, OH

Purple-Roof® Rooftop Detention System

The Hilton 2.0 Hotel in Columbus, Ohio, completed in 2022, is a 14-story property with 500+ guest rooms, 24,000 square feet of event space, and a 14,500-square-foot green roof. During construction, the team discovered the underground detention tank was undersized. Expanding it was either structurally impractical or would have required raising the main lobby floor—compromising the design intent.

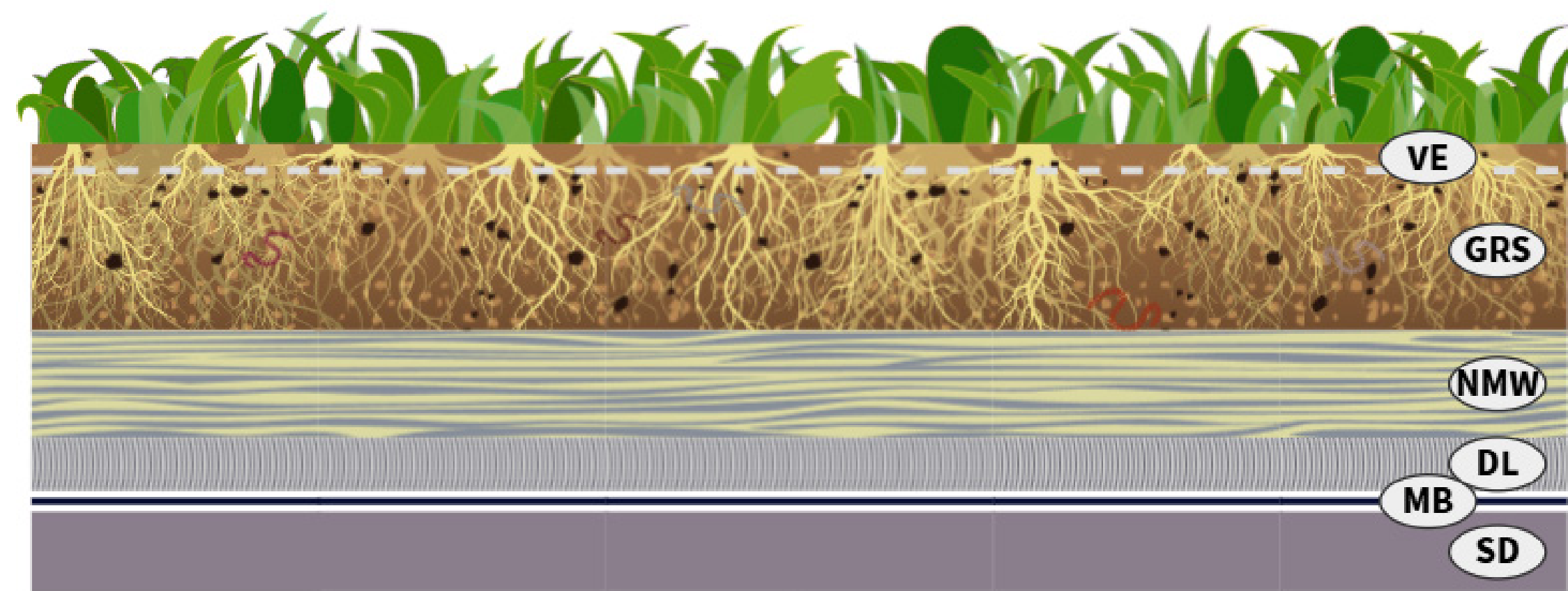
The solution was on the roof itself. The specified green roof was upgraded to a Purple-Roof® system by replacing the 1/2-inch drainage panel with GRSP's DL5 Detention Layer. Unlike most Purple-Roof applications that use a honeycomb storage layer, the combination of mineral wool and detention layer alone provided the required detention capacity, eliminating the need for a traditional tank.

Modeling confirmed the “3.5+1+0” vegetated Purple-Roof profile would deliver 2,033 cubic feet of detention storage over 14,448 square feet of roof, reducing peak outflow by 77% in a Type II 4-inch, 24-hour storm. The additional load remained within snow-load tolerances, so no structural modifications were required.

Financially, the choice produced both immediate and long-term value. Eliminating the detention tank avoided roughly \$225,000 in construction costs, while the Purple-Roof upgrade cost only \$72,000—netting \$153,000 in savings. Removing the tank also preserved 400+ square feet of interior space, protecting the lobby's design and unlocking future retail revenue.

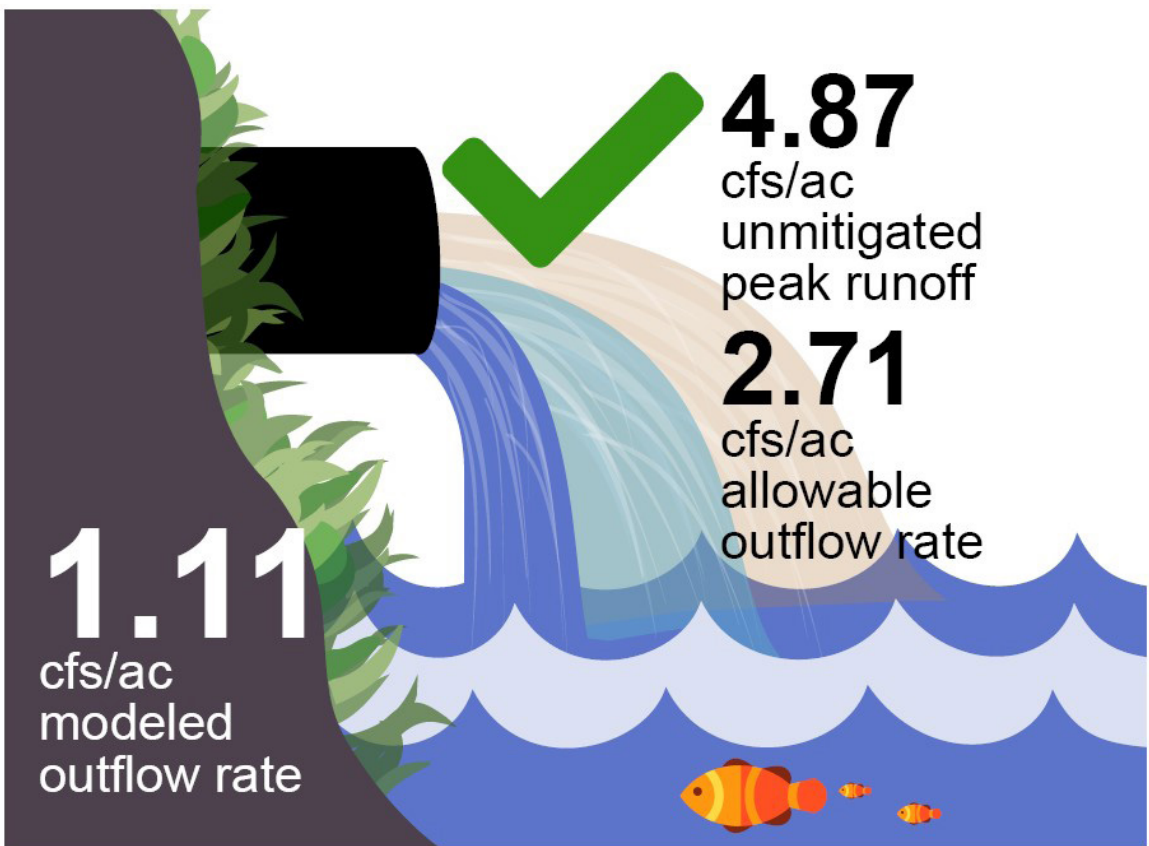
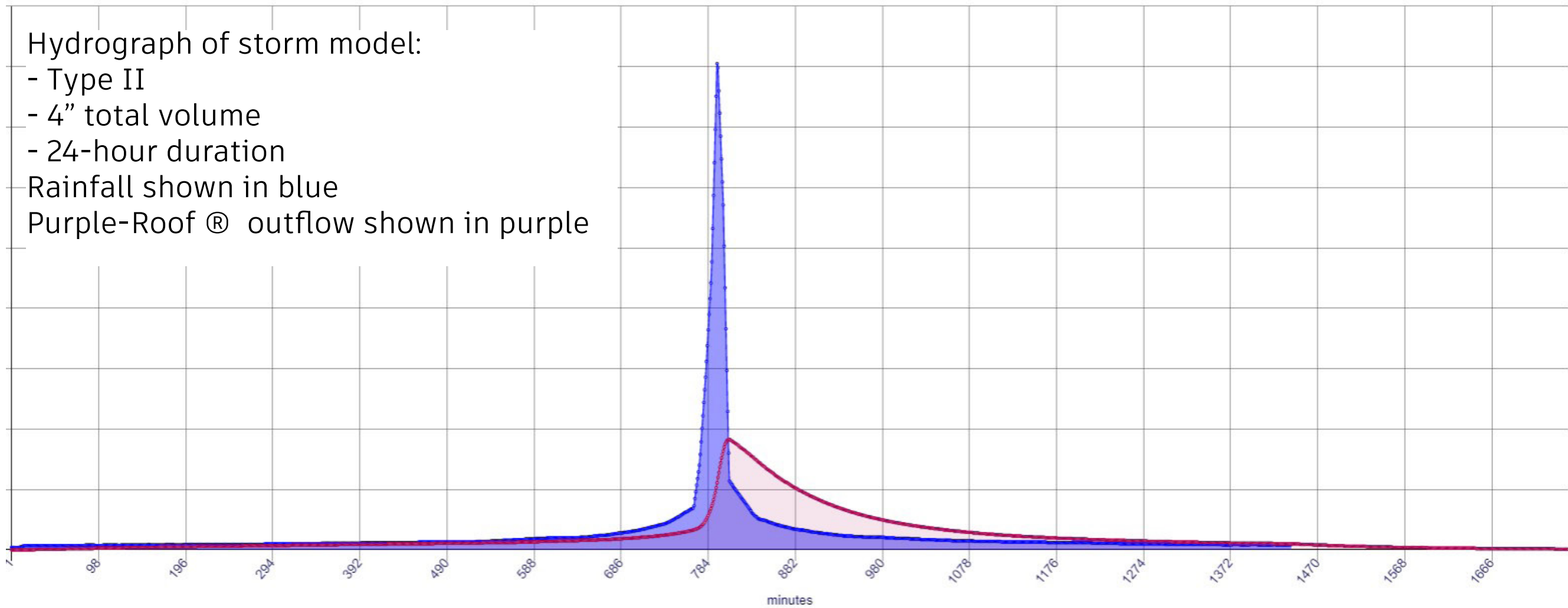
This case demonstrates the adaptability of Purple-Roof technology: even without honeycomb storage, Hilton 2.0 achieved full detention performance while preserving architecture and delivering measurable ROI.



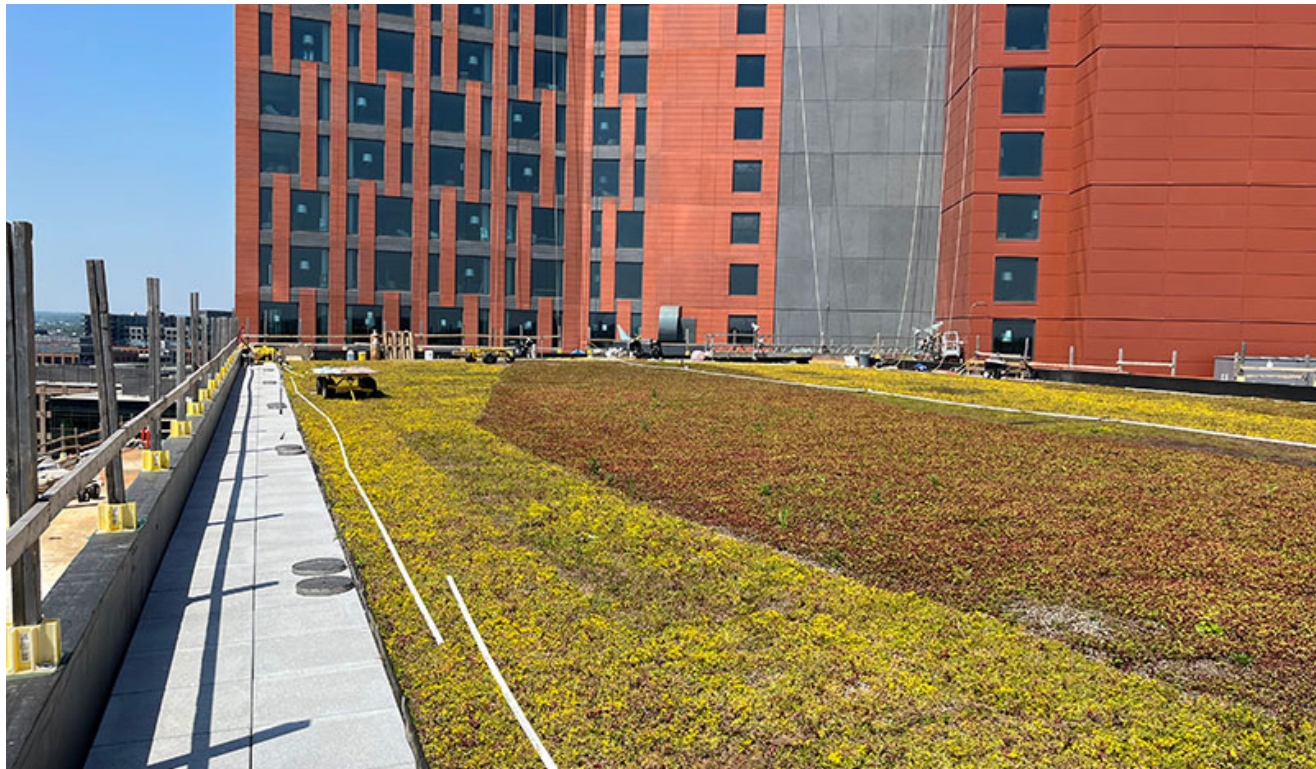


property	value	standard
total thickness	5.99 inches	
dry weight	18.44 lbs/sf	FLL B.2 & ASTM E-2399
max dead load (wet)	37.64 lbs/sf	FLL B.2 & ASTM E-2399
max live load ***	4.16 lbs/sf	FLL B.2 & ASTM E-2399
max combined dead and live load ***	41.8 lbs/sf	FLL B.2 & ASTM E-2399
max retention storage volume	2.3 gals/sf	FLL B.2 & ASTM E2399
	3.69 inches	
max detention storage volume	N/A	
	N/A	
anticipated max flow rate**	0.24 cf/s/acre	ASTM D4716++
typical plant palette	grasses and sedums	

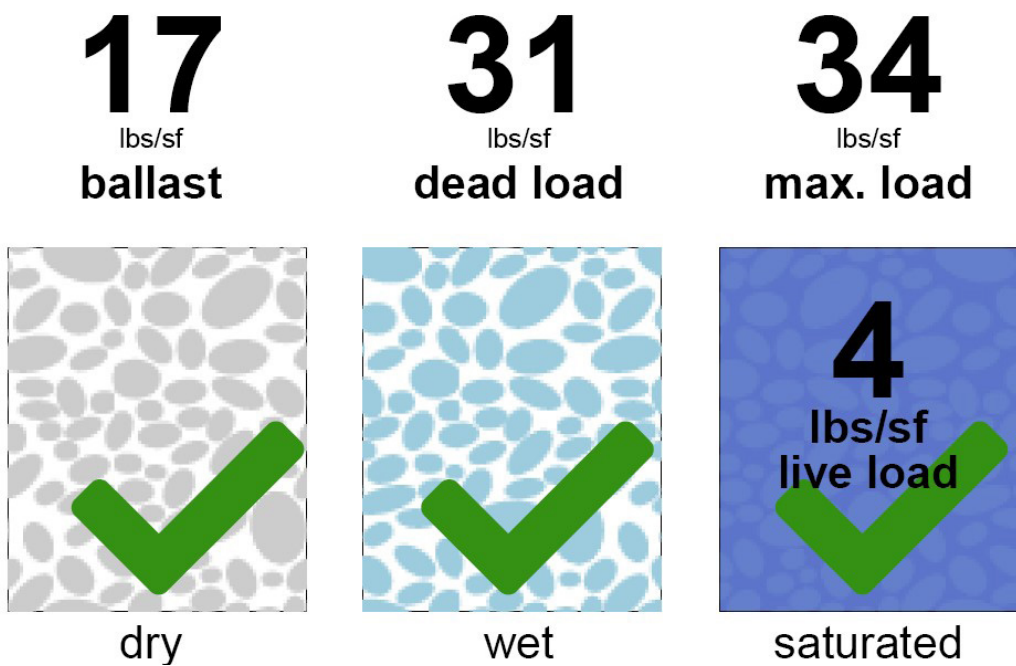




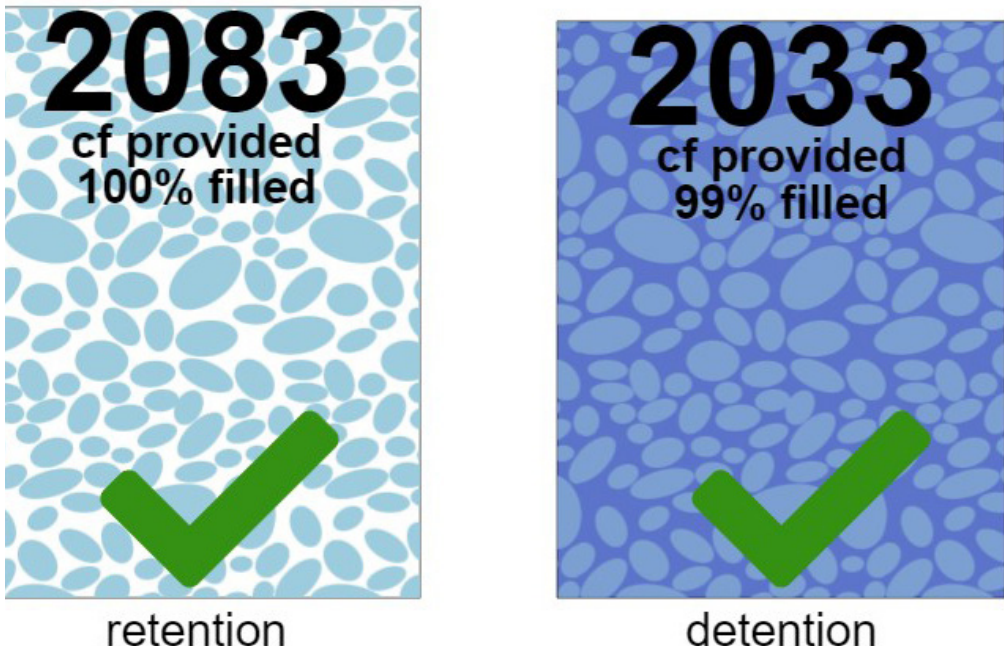
stormwater outflow reduction info



sedum shown during establishment



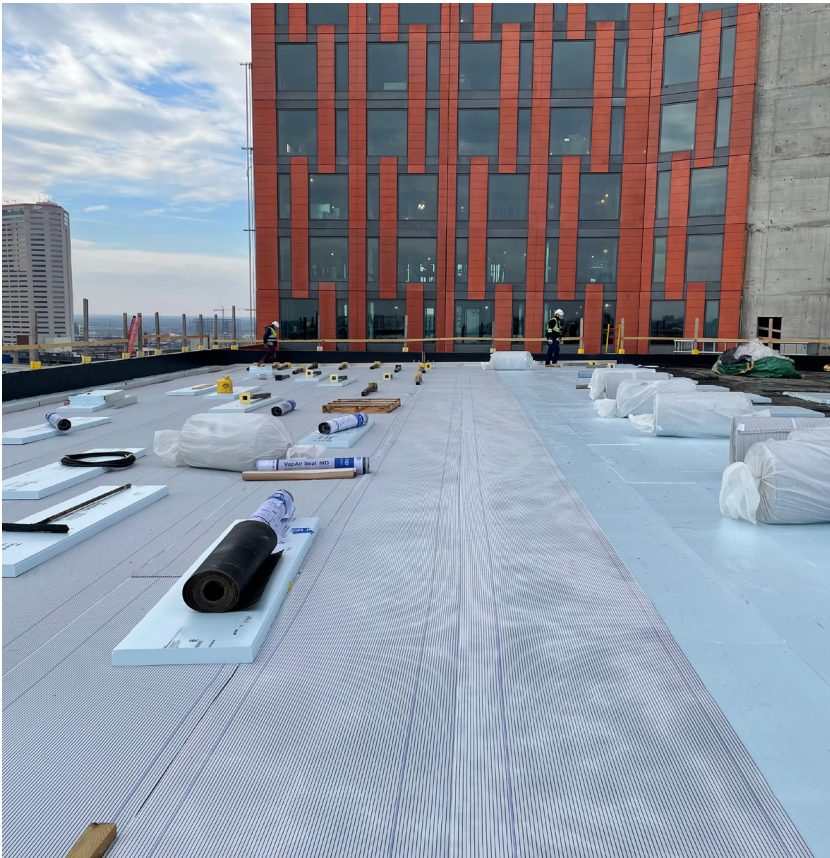
structural loading info



stormwater capacity info



Root barrier and insulation layers being installed



Detention layer being installed



Detention layer being installed



Needed mineral wool being installed



Needed mineral wool installed



Growing media being installed



Project: The Hilton 2.0 Hotel

Location: 402 North High Street, Columbus, Ohio 43215

Owner: Franklin County Convention Facilities Authority

Architect: Cooper Carry, Alexandria VA

General Contractor: Turner Construction Co. & Smoot Construction (JV)

Waterproofing: Hydrotech / Sika

Civil Engineer: EMH&T

