

Purple-Roof®

Case Study: 863 St. Clair, Toronto, Canada



Project Overview

The Monza Condos at 863 St. Clair Avenue West in Toronto is a 10-story residential development in the Wychwood neighborhood. During the planning phase, a significant challenge emerged: the originally specified permeable pavers at grade were deemed inadequate to support emergency vehicle access, a city requirement. This necessitated a reimaged stormwater management approach to ensure compliance without compromising design or functionality.

Solution: Purple-Roof Stormwater Detention System

To address the issue, the project team integrated the Purple-Roof stormwater detention system into the already-specified green roof design. The system, installed on an area of approximately 1,400 square feet (130 square meters), included a detention layer and a 1-inch honeycomb reservoir. These enhancements provided the stormwater retention and detention capacity to meet the city's stormwater requirements.

By adding the Purple-Roof system to the green roof, the project team effectively shifted stormwater management from the ground to the roof. This innovation allowed the permeable pavers to be replaced with standard pavement capable of supporting emergency vehicles.

Financially, the Purple-Roof upgrade added approximately \$20,000 to the project. However, the elimination of permeable paver excavation and base preparation resulted in overall project savings of \$35,000.

Results

1. **Stormwater Compliance:** The Purple-Roof system provided the necessary retention and detention capacities, eliminating the need for permeable pavers.
2. **Cost Efficiency:** Integrating stormwater management with the green roof reduced costs while ensuring regulatory compliance.
3. **Design Flexibility:** The system supported emergency access requirements and preserved the project's design integrity.

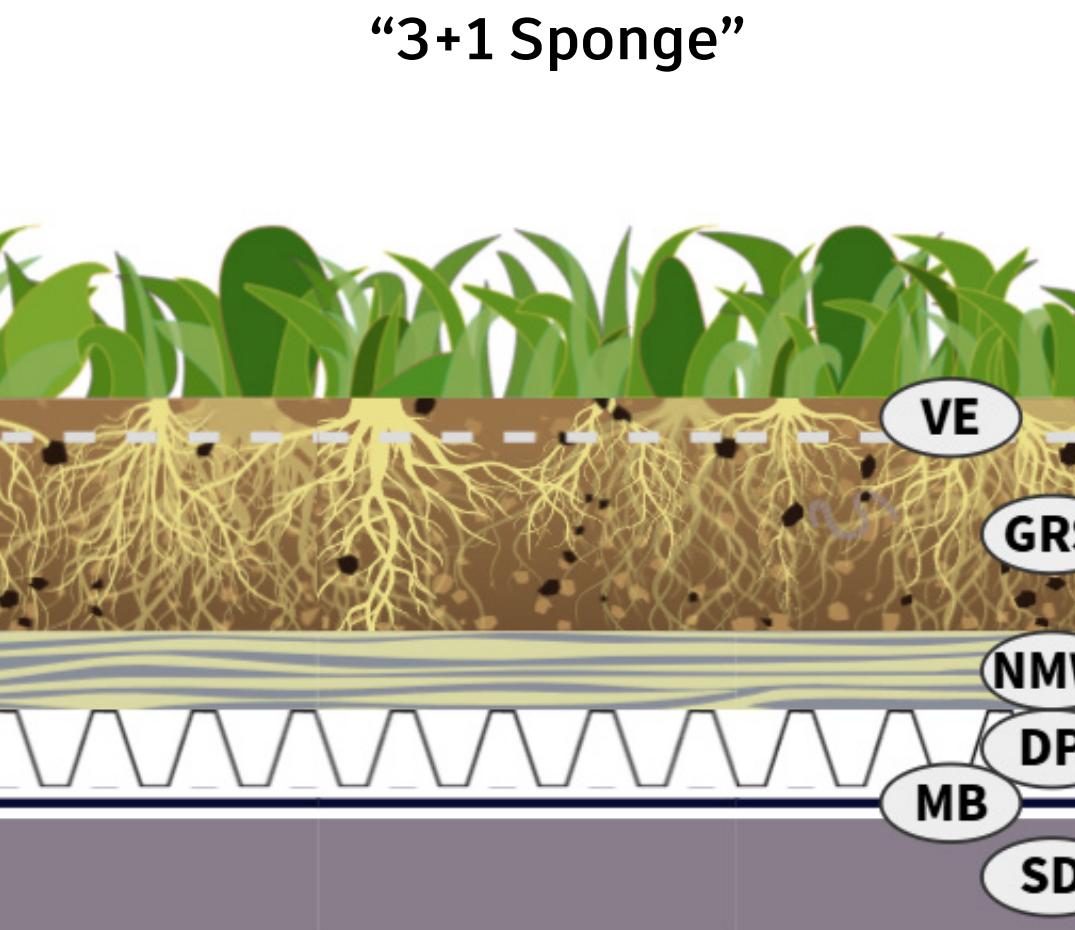
This case illustrates the versatility of the Purple-Roof system in solving unforeseen challenges, optimizing resources, and enhancing urban development outcomes.



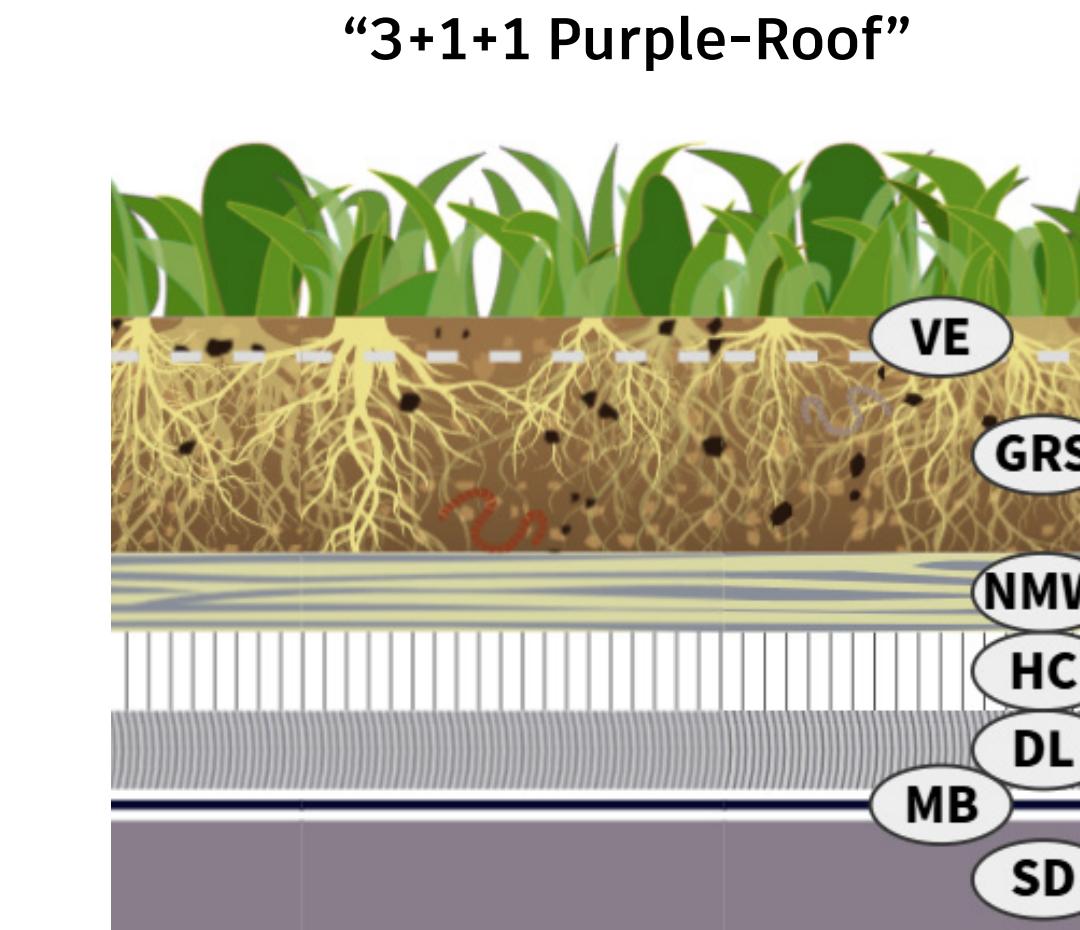
Purple-Roof®



Originally specified green roof profile



Upgraded green roof profile



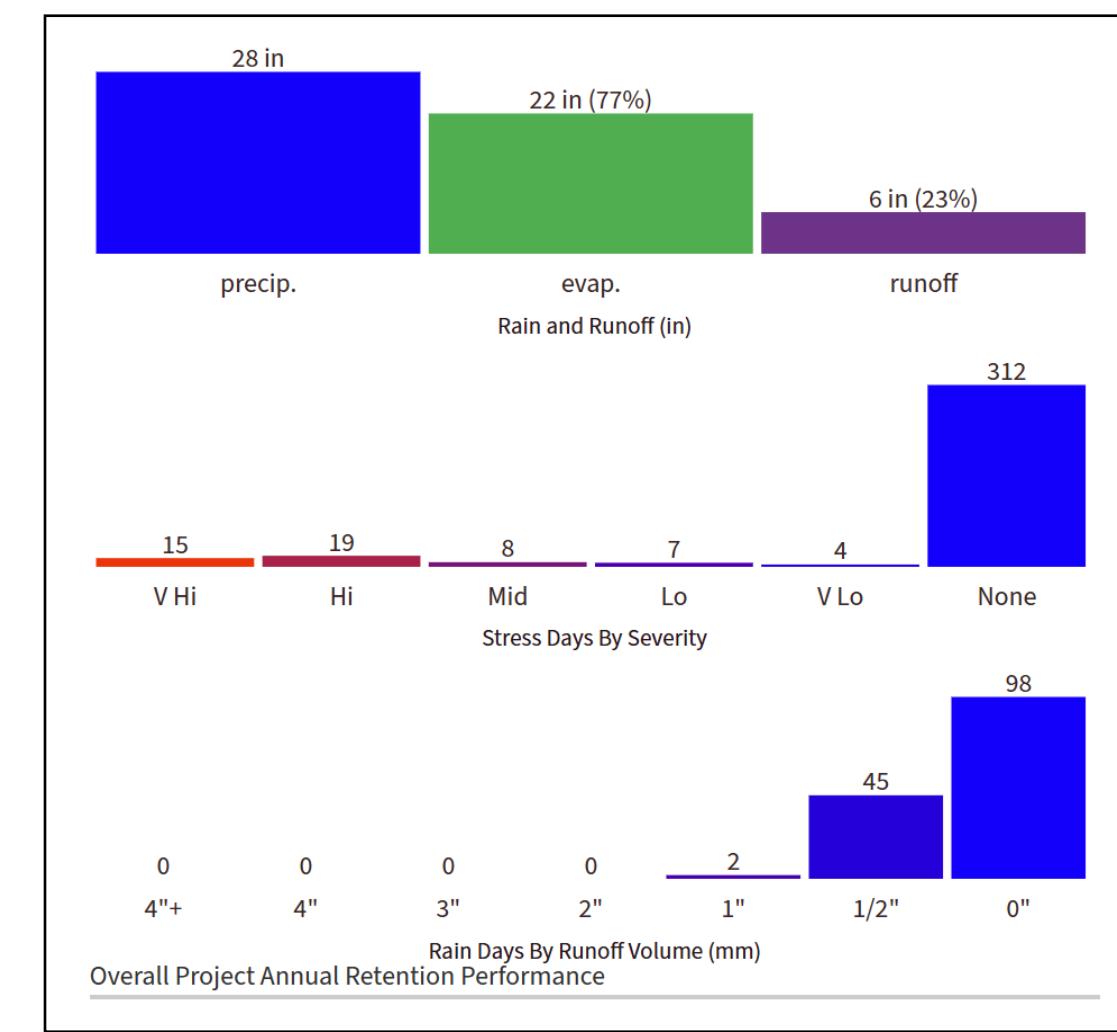
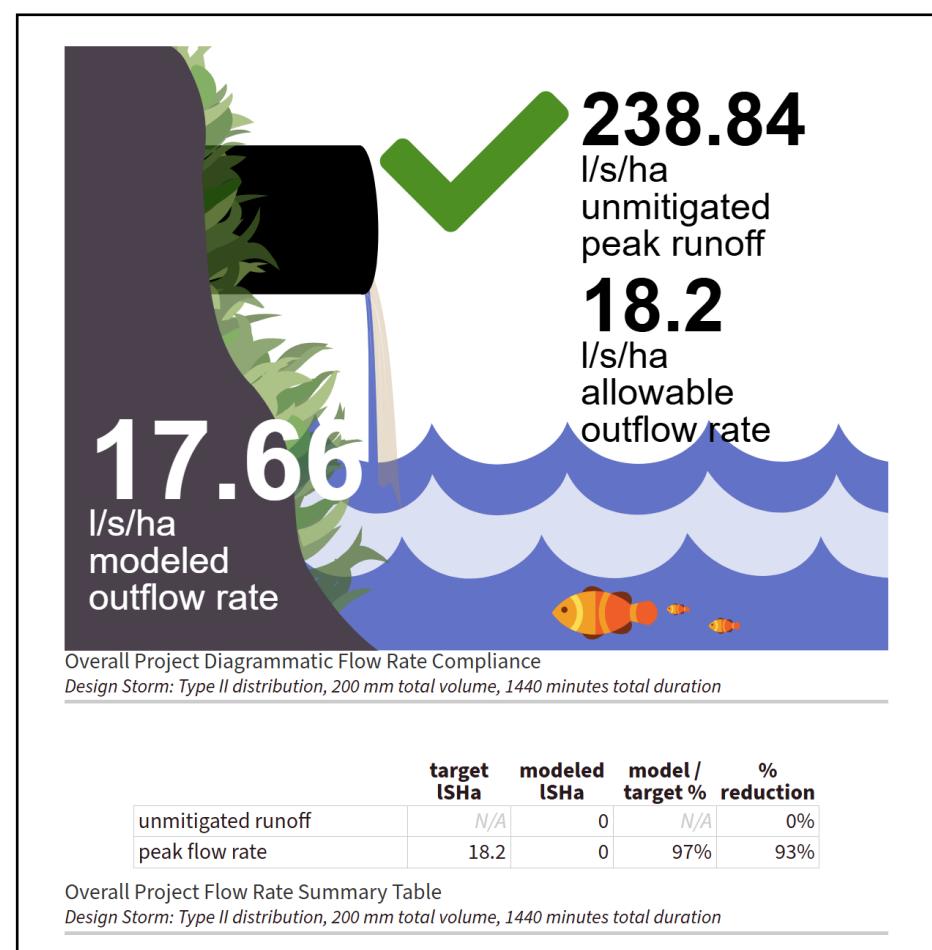
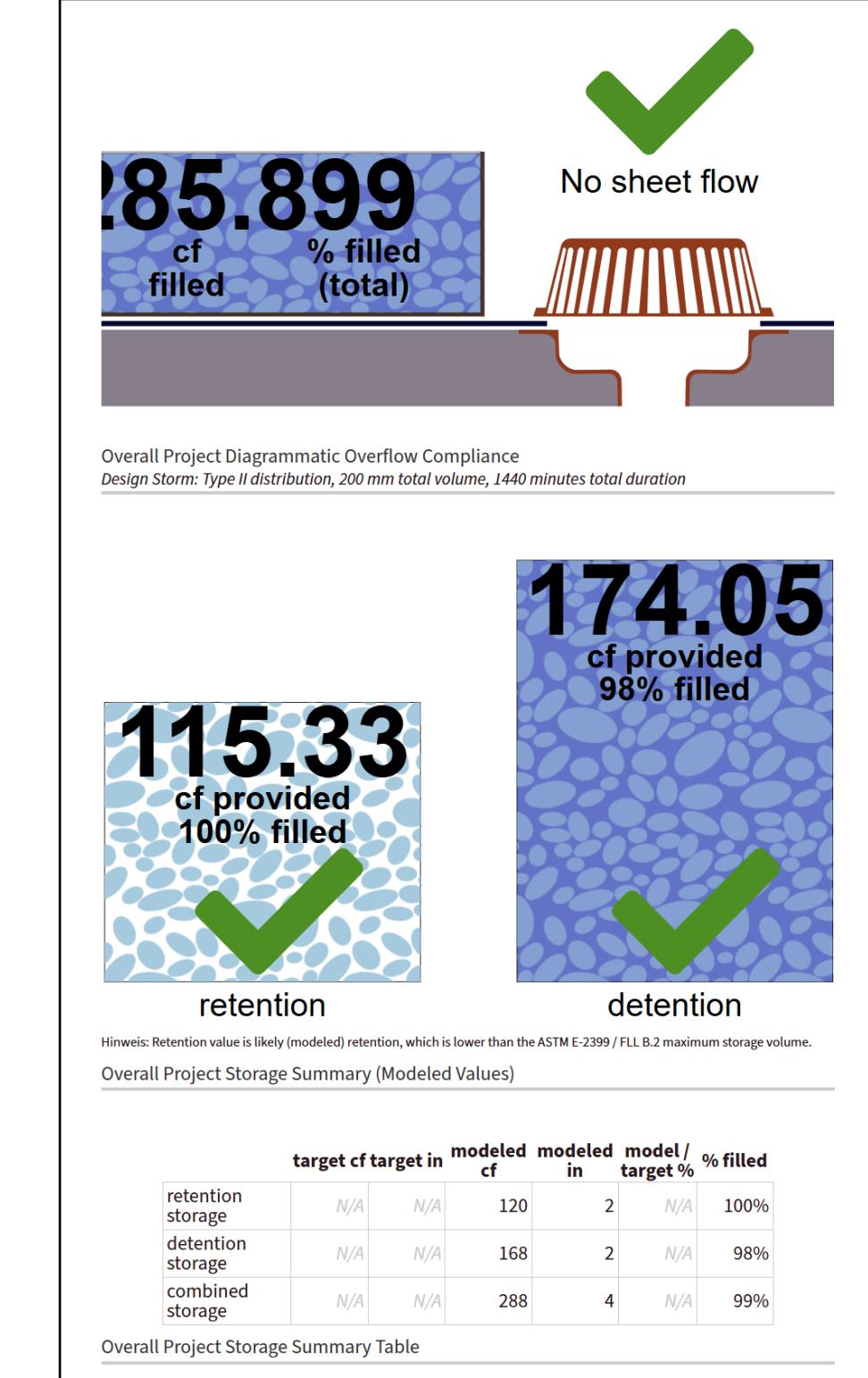
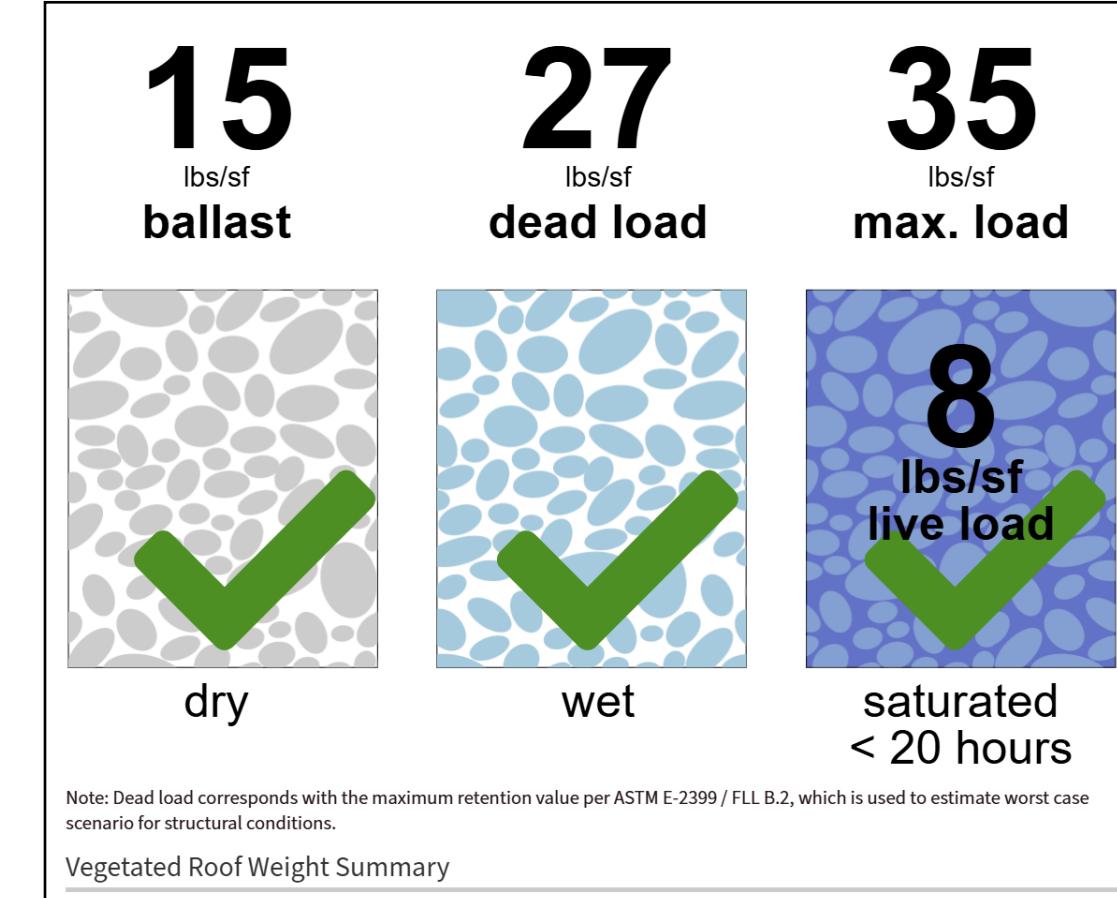
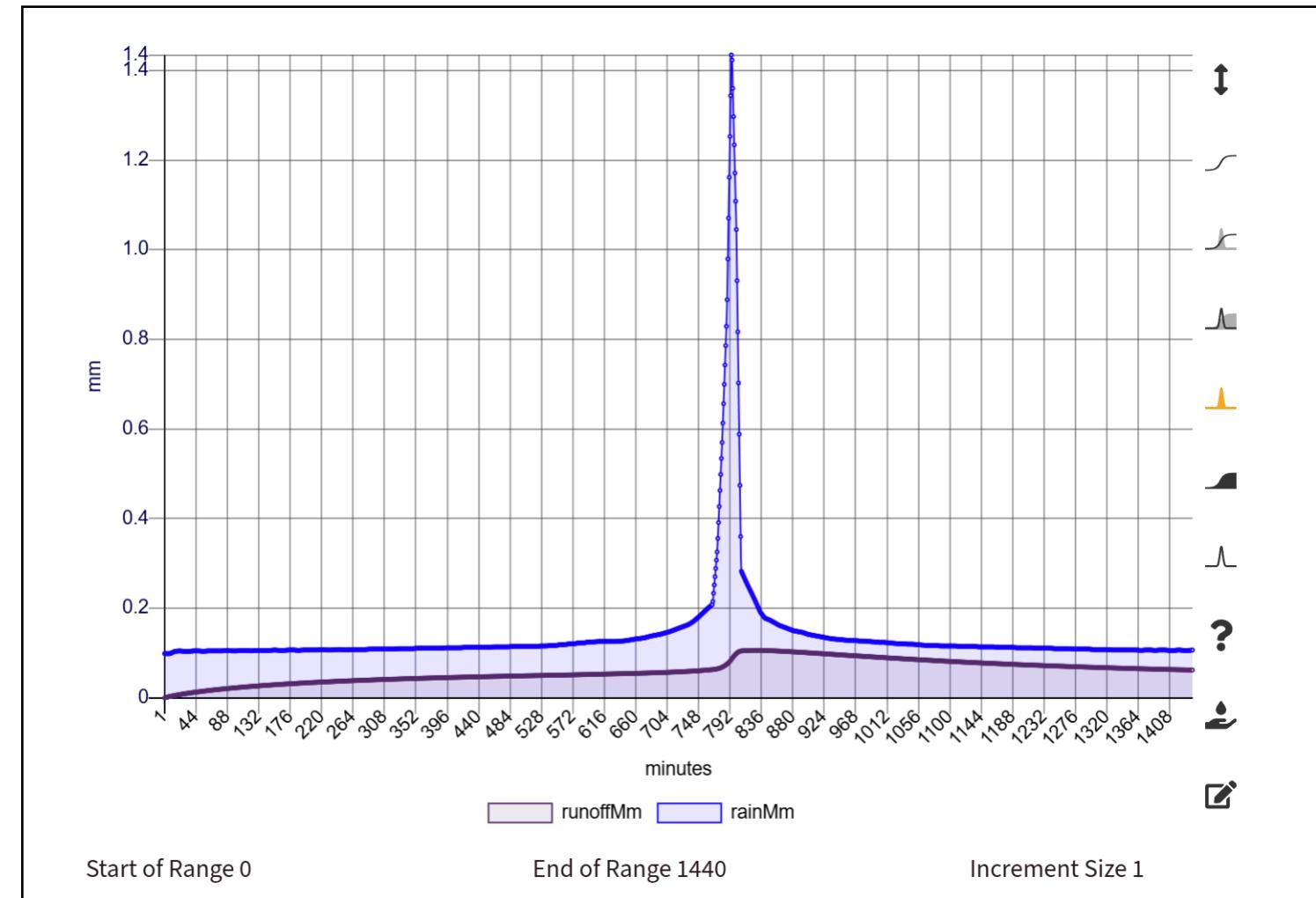
} Added 1" layer of Honeycomb Reservoir

} Replaced traditional drainage with Detention Layer

property	value	standard
total thickness	4.96 inches	
dry weight	14.19 lbs/sf	FLL B.2 & ASTM E-2399
max dead load (wet)	26.61 lbs/sf	FLL B.2 & ASTM E-2399
max retention storage volume	1.5 gals/sf 2.41 inches	FLL B.2 & ASTM E2399
max detention storage volume	N/A	
typical plant palette	sedums	

property	value	standard
total thickness	5.49 inches	
dry weight	14.54 lbs/sf	FLL B.2 & ASTM E-2399
max dead load (wet)	26.96 lbs/sf	FLL B.2 & ASTM E-2399
max live load ***	7.65 lbs/sf	FLL B.2 & ASTM E-2399
max combined dead and live load ***	34.61 lbs/sf	FLL B.2 & ASTM E-2399
max retention storage volume	1.5 gals/sf 2.41 inches	FLL B.2 & ASTM E2399
max detention storage volume	1.4 gals/sf 2.25 inches	GRD 2151
anticipated max flow rate**	0.22 cf/s/acre	ASTM D4716++
typical plant palette	sedums	

Purple-Roof®

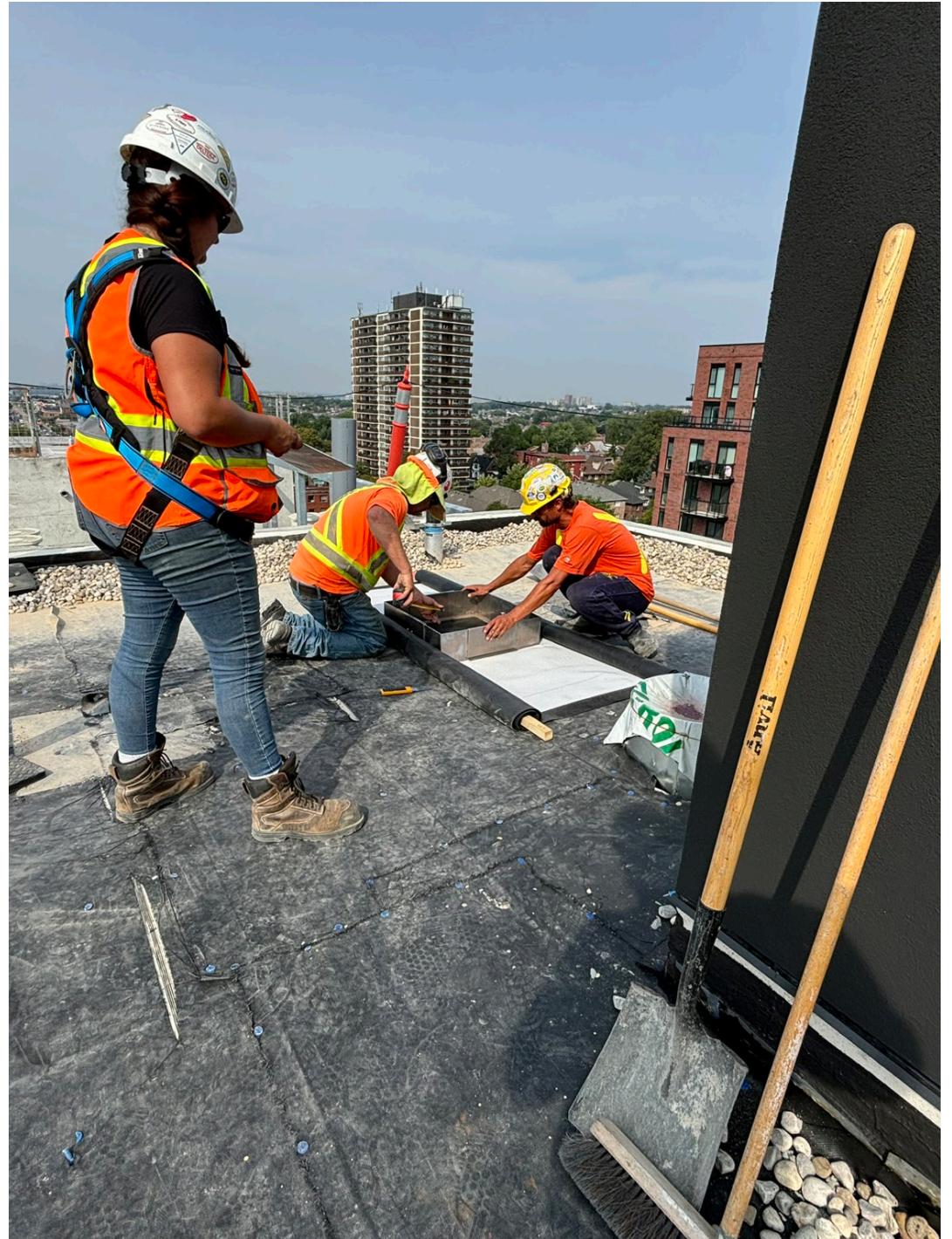


Data source: Detention Model of 863 St. Clair, Toronto, Ontario, Canada prepared by Matt Draus matt-d@sempergreen-usa.com +1 312.841.1549 Systems evaluated: profile: Purple-Roof System 3+1+1 Design Storm: Type II distribution, 200 mm total volume, 1440 minutes total duration Antecedent conditions: Green roof profile at 100% of ASTM F1815 retention capacity. I.e. gravitational water from any prior rain event has drained out. I.e. simulating conditions within approximately 1 day of a prior rain event. Modeled using Green Roof Diagnostics Green Roof Detention Modeler version 0.1.1

Purple-Roof®

sempergreen®
USA

Next Level™
STORMWATER MANAGEMENT



Drain Enclosures being installed at roof drains, followed by perimeter edging



Detention Layer installed and temporarily ballasted



Honeycomb installed at roof drain enclosure



Growing media installed over needle mineral wool, installed over honeycomb, installed over Detention Layer



Project: The Monza Condos at 863 St. Clair Avenue West in Toronto Canada
Owner: The Benvenuto Group
Architect: VG Architects
Civil Enginner: TBD
Waterproofing: Hydrotech
Green Roof Provider: Next Level Stormwater Management
Green Roof Installer: GINKGO Sustainability Inc