Saddlebrook Green Roof & Bioretention Project

149th and Laurel Avenue, Omaha, NE

City of Omaha Stormwater Program

SITE AND PROJECT SUMMARY

The Saddlebrook Joint Use Facility is a multi-use building that houses Omaha Public Schools (OPS) Saddlebrook Elementary, Omaha Public Library Saddlebrook branch, and the Saddlebrook Community Center. Located in northwest Omaha at 149th and Laurel Avenue, this multi-use facility sits on roughly 20 acres of land, just upstream of Standing Bear Lake. This location provided a perfect opportunity for a demonstration project illustrating green infrastructure practices and techniques and stormwater management. Furthermore, Saddlebrook was designed to compare traditional "gray" infrastructure practices against green infrastructure practices.

In 2009, a sedum-type green roof was installed on the library portion of the building, which can be viewed from the community center's second floor walking/running track. Monitoring equipment has been installed on both the green and "gray" roofs to measure temperature, rainfall, and runoff data. Temperature loggers track both daily and seasonal temperature fluctuations above and below each roof surface. Water quality and quantity measurements track precipitation rates and runoff velocity and volumes during storm events. Collected data is used to test overall function and efficiency of the green roof compared to the conventional gray roof.

In addition to the green roof, a bioretention system was installed on the North side of the multi-use building. The bioretention system collects stormwater runoff from the west parking lot. A variety of native perennial flowers, grasses, and sedges were used to create a visually appealing garden. Water quality and quantity measurements are recorded for the west parking lot / bioretention system and the east parking lot / dry detention basin on the northeast portion of the property. Water velocity and volume measurements are used to compare infiltration properties and efficiency of the bioretention system and the dry detention basin.

PROJECT DETAILS

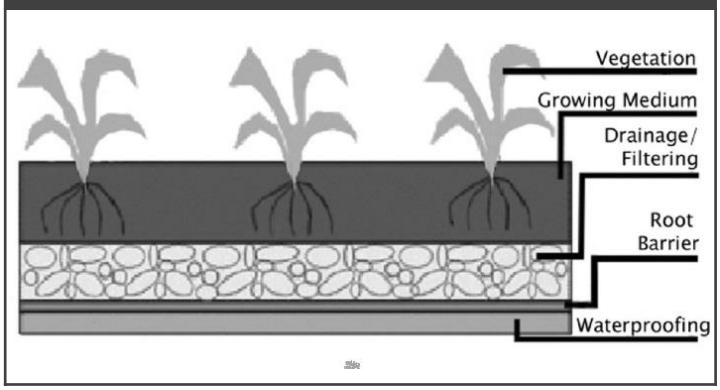
	GREEN ROOF	BIORETENTION SYSTEM
System Footprint	14,110 ft^2	10,755 ft^2
Contributing Area	0.21 acres	1.78 acres
Underdrain	None	6" Perforated PVC w/ valve
Percent Impervious (%)	100%	Approximately 85%
Pre-Treatment System	None	Catch Basin
Predominant Land Use	Institutional	Institutional
Predominant Soil Types	**Growing Media**: Redimix	**Native**: Classic Urban Complex, Silty Clay **Growing Media**: 50/50 Compost/Sand

MONITORING	METHOD
Weather Conditions	Rain Gauge
Volume	2150 Area Velocity Flow Module and Sensor
Water Quality	ISCO 6700 Portable Automatic Sampler
Plant health	Visual Assessment

DESIGNED BY	CONSTRUCTED BY	MONITORING/ ASSESSMENT BY	MAINTENANCE BY
BCDM, Alvine Engineering	Hawkins Construction Company	City of Omaha Stormwater Program	Omaha Public Schools

SITE LOCATION – 149th & Laurel Ave

GREEN ROOF CROSS SECTION VIEW



PHOTOS

PROJECT LAYOUT