

MPS 2024 GREEN INFRASTRUCTURE UPGRADES COHORT 6 BUILDS STORM SMART SCHOOLS

How did Ferguson Waterworks help Milwaukee build storm smart schools with green infrastructure initiatives?

**Customer:**

Milwaukee Public Schools
(MPS)

Location:

Milwaukee, Wisconsin

Products:

R-Tank® Stormwater
Modules

PROJECT OVERVIEW:

Since their development in the 1970s, Milwaukee Public School schoolyards have been structured with hard, impervious surfaces. As a result, students lack connection with nature and shade. Milwaukee Public Schools alone account for over five hundred acres of impervious surfaces in the city. Without vegetation or stormwater control measures, these play areas do not provide heat protection or water quality benefits. In addition, they often flood. As part of the 2024 Green Infrastructure Upgrades Cohort 6 Project, our team of product experts helped the Milwaukee Sign Language and Morse Middle School update the schoolyard. Other schools that participated in the project include Forest Home Elementary School, Greenfield Bilingual School, Lincoln Avenue School, and Story Elementary School.

Each project is tailored to the specific needs and enthusiasm of the school's community. Often the stormwater upgrades include bioswales, native prairies and grasses, permeable pavers, underground cisterns, stormwater trees, outdoor classroom features, traditional tot-lots, pavilions, and improved recreational facilities and arts opportunities. The placemaking designs go beyond removing pavement, they maximize benefits for communities, the environment, and the local economy.

The 2024 Green Infrastructure Upgrades Cohort 6 Project Creates Storm Smart Schools

Through a partnership with the nonprofit Reflo, the team has received local grants from MMSD, the City of Milwaukee Department of Public Works, the Fund for Lake Michigan, and other organizations. As a result, selected engineer consultants design and reconstruct 5 green and healthy schoolyards annually. The project goal is to create smart storm schools by removing tens of thousands of square feet of asphalt in order to manage hundreds of thousands of gallons of stormwater runoff. In addition, the green infrastructure solutions provide significant opportunities for students to engage with their environment and eco-literacy topics firsthand. For example, the stormwater management design plan offers STEAM (science, technology, engineering, arts, and mathematics) curricular connections.

GOAL:

Specifically, the Milwaukee Sign Language and Morse Middle School green infrastructure design plan calls for the removal of approximately 191,400 sq. ft. of asphalt. Then, the area will be replaced with new green space and mixed-use recreation and educational areas. Overall, the design includes seven new outdoor classroom areas, bioswales with R-Tank® underground cisterns, a greenhouse, porous ground covering, and the addition of over 200 stormwater trees. The inclusion of a variety of native plantings allows for unique spaces in the schoolyard that represent natural Wisconsin ecosystems. Furthermore, they are complete with student-created signage. The smart storm school plan accommodates approximately 836,080 gallons of stormwater per rain event.

CHALLENGES:

MPS school sites have a lot of underground uncertainties. To further complicate the matter, archive files are difficult to come across. As a result, the ideal stormwater systems for this project do not require digging deeply and instead offer a shallow-profile storage solution. In addition, the soil composition is unknown. If soil stabilization is necessary, then it requires onsite handling. Lastly, this location desired a storage system for bioswales to drain into.

OUR SOLUTION:

In order to accommodate both the requirements and the wishlist for the green infrastructure project at the Wisconsin School grounds, we leaned on R-Tank® Stormwater Modules.

How did the stormwater management plan incorporate both R-Tanks and bioswales to create a storm smart school? As the team's local distributor, we supplied SD Single R-Tank systems. They were installed beneath 4 bioswales. During rain events, water from the nature play areas, grass fields, low spots, and more drains into the bioswales. Then, the runoff drains into the underground stormwater chambers. Once in the tanks, the stored water is slowly released into the storm system. As a result of this detention system, onsite infiltration is improved and downstream effects of storm sewer inundation are reduced during high-intensity rain events.