



CASE STUDY

South Plant Intake Center | Sunset Hills, Missouri

BILCO Roof Hatches Help Protect Pumps From Ravages of Flooding

On several occasions in the past decade, flooding overwhelmed Missouri American Water's South Plant Intake Center. The pump station supplies raw water from the Meramec River to MAW's South Plant, where it is treated and distributed to residents in St. Louis County and parts of St. Charles County.

Goodwin Brothers Construction built a new pump station on the edge of the Meramec that keeps the system well above flood levels. Designed by CMT Engineering, the new pump station rises 45 feet above grade.

"The existing pump station was quite old," said Jon Reader, Senior Project Manager for Goodwin. "They had issues with the pumps and the elevation where the pumps were at. When the Meramec River surpassed the 100-year flood level, the motors on the pumps would become submerged. We needed to get everything above the 500-year flood level so that it wouldn't go underwater."

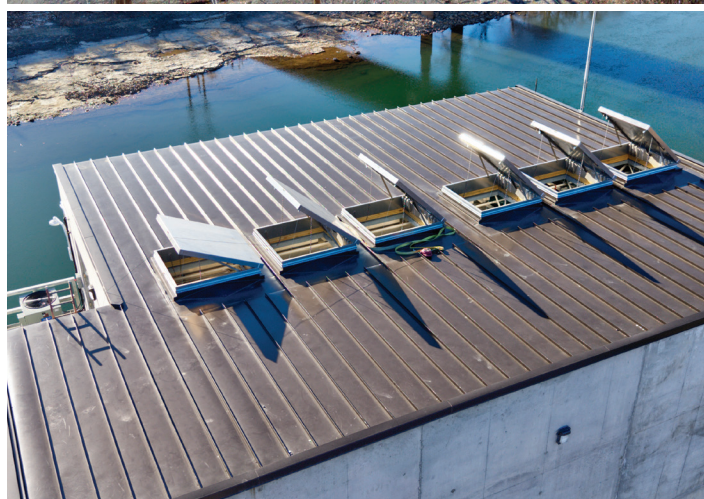
The new pump station extends 45 feet below grade and 10 feet below the bottom of the river. Goodwin's team used 11,000 square feet of sheet piling to install a cofferdam to allow for the construction of the pump station. Workers used 3,500 cubic yards of concrete and 160 tons of rebar to help ensure the structural integrity of the building.

"There are intake screens outside the pump station to bring river water into the wet well for the pumps," Reader explained. "Those have to always stay submerged. In order to do that, we realized we had to get pretty close to bedrock."

A cofferdam is a watertight enclosure that is frequently used in water management projects near rivers. Once the enclosure is sealed, pumps remove water from inside the cofferdam and create a dry area where workers can establish a concrete base, install pipes and other products to facilitate the operation of the pump station. The cofferdam was removed after the project was completed.

The new pumping station includes six 70-foot, 250 HP vertical turbine pumps that can deliver 6600 gallons per minute of raw water to Missouri American Water's South Plant in Sunset Hills.

When the vertical turbines require maintenance or replacement, workers can access them through stainless steel roof hatches from BILCO, the century-old manufacturer of specialty access products.



The hatches allow the pumps to be lifted out of the building with a crane. The BILCO hatches include hand winch operation that permits workers to open and close them easily from inside the building.

"We can winch them open and closed from floor level inside the pump station. This is very convenient and doesn't require someone to get on the roof to open the hatch," Reader said.

Goodwin also included a BILCO floor door in the building's pump room. The door is BILCO's largest and includes fall protection grating. The doors are constructed with a channel frame and are used where there is concern of water or other liquids entering the access opening. Southeast Sales, BILCO's manufacturer's rep in the region, procured the products for Goodwin.



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