

AQUANOMIX

AQUANOMIX WATER REUSE SOLUTIONS

CASE STUDY | SMITHSONIAN NATIONAL MUSEUM OF AFRICAN AMERICAN HISTORY AND CULTURE

The National Museum of African American History and Culture is a place everyone can learn about the richness and diversity of the African American experience and how it has helped significantly shape the United States.

The \$500 million, 350,000 sq. ft. project is on the National Mall in Washington, D.C. on a five-acre tract adjacent to the Washington Monument.

Excavators dug 80 feet below street level to lay the foundation at a very low point on the water table where all the surrounding groundwater drains to that point, putting 27.78 pounds per square inch on the walls. 85 gallons per minute of water were pumped out every day during construction.

Aquanomix was proud to work on the project to create a custom designed water reuse system for the Smithsonian that will monitor, collect, filter, and move all rainwater and groundwater for toilet water, for flushing, irrigation use, and other water features. "To be a part of something so historically significant to our country's past and future is absolutely once-in-a-lifetime," said Aquanomix CEO, Rob O'Donnell.

The Aquanomix Water Reuse System within the NMAAHC uses a 100,000 gallon underground cistern, 15,000 gallon day tank, with a 100 GPM filtration pump and 150 GPM triplex booster pump.



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ABSTRACT | THE GEORGE WASHINGTON UNIVERSITY SCIENCE & ENGINEERING HALL

To help combat the issues surrounding the pollution of DC's waterways and the Bay, the George Washington University installed an Aquanomix rainwater harvesting system in its brand new Science and Engineering Hall (SEH).

As the largest academic building dedicated to science and engineering in the nation's capital, this modern research hub offers wet and dry labs, collaborative teaching areas and convening spaces. Beyond that, a three-story high bay was built for large-scale experiments, as well as an imaging facility and a facility for nanotechnology fabrication. Eight of the floors are above grade; two are below for programming with an additional four below for parking.

Rain from the roof drains into a 42,000-gallon cistern to be treated by the Aquanomix system and used to flush toilets, that typically use a gallon of water each flush.

"Ballinger was tasked with pursuing LEED® Gold certification and a key component of the pursuit was the potable water demand reduction made possible by the custom-designed Aquanomix rainwater reclamation and reuse system," a spokesperson for Ballinger.

"Aquanomix was a conscientious and dependable company to work with throughout the entire project. By reusing rainwater in the water closet, GW estimates a savings of 850,000 gallons of city water annually."



"GW supports efforts to reduce rainwater runoff in the District, and the rainwater harvesting system in our Science and Engineering Hall is one example of how GW is contributing to improving our local ecosystem," says Meghan Chapple, Director of the GW Office of Sustainability, Official Website: seh.gwu.edu.

The unique system built by Aquanomix utilized the industry's best-in-class pumping and treatment systems and supported GW's sustainability initiatives to attain LEED® Gold certification through water efficiency.

The system helps GW save roughly 850,000 gallons of water per year, providing a major cost savings as the rainwater takes the place of purchasing city water. It also protects and preserves the capital assets that are installed downstream of the system, including the chiller plant equipment, plumbing fixtures, and irrigation systems.

"Once you witness the successful installation and function of a rainwater reuse system, it becomes obvious that flushing toilets with drinking water is an antiquated process," says Elias Mullane, Managing Partner and Head of Operations at Aquanomix. "It brings great satisfaction to a community when businesses support water conservation by repurposing rainwater in water closets, irrigation, fountains, and more."

The approximate 500,000 gross square foot building is registered with the U.S. Green Building Council and is pursuing LEED® Gold certification.

Design and Construction
Architect: Ballinger
General Contractor: Clark Construction
Plumbing Contractor: The Kirlin Group



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ABSTRACT | MARRIOTT MARQUIS, WASHINGTON, D.C.

The largest hotel in downtown Washington D.C., the Marriott Marquis Hotel & Convention Center is a 1,000,000 square feet, four-star hotel, boasting 1,175 guestrooms, 49 suites, and direct access to the Convention Center via underground concourse.

The Marriott Marquis was Marriott International's 4,000th hotel and one of only five Marriott Marquis flagged properties in the United States.

The project achieved LEED® Silver certification.

The building was designed and built using strategies aimed at improving performance across energy savings, water efficiency, CO₂ emissions reduction, and improved indoor environmental quality.

Aquanomix built a custom water reuse system that captured rainwater from the roof, and then filtered and reused it for cooling tower makeup water, water closets, and water features.



“Aquanomix was an attentive and enthusiastic company to work with throughout the entire project. GHT Limited is extremely pleased with the system and continues to design around their basis of design. We would recommend Aquanomix based on not just their project fulfillment, but their outstanding professionalism and unparalleled product knowledge.” – GHT Limited spokesperson.

The unique system built by Aquanomix utilized the industry's best-in-class pumping and treatment systems and supported Marriott's sustainability initiatives to attain LEED® Silver certification through water efficiency.

The controls on the system deliver real-time water quality data in order to condition the rainwater for its intended purpose in the hotel.

The qualitative and quantitative water quality data helps to protect and preserve Marriott's capital assets installed downstream of the system, like the chiller plant equipment and plumbing and fountain fixtures, mitigating any unforeseen CapEx or OpEx risk.

An innovative function of the technology includes the ability to access weather data from NOAA.



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CASE STUDY | GATEWAY VILLAGE, CHARLOTTE, NC

Cousins Properties partnered with Bank of America to revitalize Charlotte's historic Third Ward developing a 15-acre mixed-use site designed to bring business, retail, restaurants, new residents and visitors to the area. Cousins approached Aquanomix to retrofit a custom-designed water reuse system to achieve LEED Gold status while saving millions of gallons of city water for the cooling towers.



1.5 million sq. ft. high-tech office space
125,000 sq. ft. retail space
1,000 residential units

Water Source: Foundation water
Water End Use(s): Cooling tower makeup
LEED Gold Certified
3+ million gallons of water saved annually

DAVID EDWARDS
GROUP ENGINEERING MANAGER, COUSINS PROPERTIES

"Drought conditions and subsequent water restrictions had heightened the awareness of the availability and access to clean water at our property in Charlotte, NC. We brought in Aquanomix to discover our options, and developed the idea of reclaiming the non-potable ground water from our site and using it for cooling tower make up.

Shortly thereafter, Cousins Properties began pursuing LEED Gold certification for existing buildings. A major element of this pursuit was the potable water demand reduction made possible by the Aquanomix system.

Aquanomix was a vigilant and honest company to work with throughout the project. By using the foundation water reuse system, we have saved over 14 million gallons of city water thereby eliminating the need for city water for our cooling towers."



THE PROJECT AIMS TO INSPIRE OTHERS IN THE COMMUNITY TO CONSIDER WATER REUSE SYSTEMS AND OTHER PIONEERING STRATEGIES FOR EFFECTIVE AND EFFICIENT WATER MANAGEMENT.

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