



Battery Park City Water Reuse

The Battery Park City project includes the design, build, and operation of six decentralized water treatment and reuse systems serving eight residential buildings in one of the most sustainable urban redevelopments in the United States. In partnership with the Battery Park City Authority, Natural Systems Utilities treats wastewater, rainwater, and other on-site sources to produce high-quality reclaimed water for non-potable uses such as toilet flushing, cooling towers, and green roof irrigation.

The systems have a combined designed treatment capacity of 165,000 gallons per day and have operated successfully since the early 2000s. By capturing, treating, and reusing water onsite, the initiative delivers substantial potable water savings, alleviates pressure on municipal water and wastewater infrastructure, and demonstrates a scalable model for implementing water reuse in dense urban redevelopment environments.

- ✓ **REDUCE**
- ✓ **RECOVER**
- ✓ **REGENERATE**

- 📍 **NEW YORK, NY, USA**
- 💧 **WASTEWATER**
- 🥤 **DRINKING WATER**



CHALLENGES FACED

Implementing the Battery Park City water reuse systems required overcoming early regulatory barriers, coordinating across multiple high-rise buildings, and integrating decentralized treatment systems within complex urban infrastructure. The project demanded long-term operational commitment and ongoing technical oversight to ensure consistent water quality and performance across multiple reuse applications. Close coordination with city agencies was essential to establish standards for direct residential reuse.

TECHNOLOGIES & SOLUTIONS USED

The Battery Park City water reuse systems employ membrane bioreactors, hollow-fiber microfiltration, ultraviolet disinfection, and ozone to produce reclaimed water that meets New York City Department of Buildings direct reuse standards. Installed across six residential buildings, these decentralized systems capture, treat, and redistribute wastewater on site for toilet flushing, cooling tower makeup, and irrigation, delivering high-quality reuse water within a dense urban residential setting.

IMPACT & INSIGHTS



- 165,000 gallons per day total design treatment capacity for wastewater and on-site captured water
- >55% reduction in potable water consumption compared to similar NYC residential buildings
- >65% reduction in wastewater discharge to the municipal sewer versus comparable base-case buildings
- Significant diversion of wastewater from centralized treatment facilities
- Reduced peak demand on city infrastructure and long-term cumulative community water savings

LESSONS LEARNED



- Engage regulatory agencies early to establish clear on-site reuse compliance pathways and streamline approvals.
- Build early consensus among building owners, tenants, and municipal authorities to align performance and monitoring expectations.
- Invest in advanced real-time monitoring and digital controls to enhance transparency and quickly address performance deviations.
- Educate building users on the benefits of on-site reuse to foster acceptance and reinforce value.

“The Battery Park City water reuse systems have become a model for other urban reuse initiatives and have set a precedent for incorporating advanced reclaimed water solutions into residential high-rise developments.”