

# THE VISIONAIRE

## NEW YORK, NEW YORK

**Eco-condominium's thoughtful and innovative design includes state-of-the-art wastewater flow, treatment and recycling systems.**

**Project:** Design, construction oversight, and operation of a highly efficient water recycling system for a Manhattan apartment tower.

**Key Attributes:** A highly efficient process of water treatment and recycling resulting in water conservation.

**Project Type:** Design, procure, oversee/commission and operate

**Project Timeline:** January 2006 - June 2009

**Challenge:** In New York - one of the largest cities in the world - improving water efficiency while responding to the ever-increasing demand is a critical issue which is identified for action by Mayor Bloomberg in the PlaNYC Progress Report. Developers must reevaluate designs to ensure both water quality and maximum efficiency. Developed by the Albanese Organization and designed by world-class architect Rafael Pelli, the Visionaire luxury high-rise condominium in lower Manhattan's Battery Park City epitomizes this sustainable focus in an urban setting, applying the most advanced water treatment technology to assure a superior clarification and recyclability of the building's water supply. Conservation and reuse solutions are core skills of American Water.



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**About American Water:** American Water began designing and operating wastewater recycling systems for residential developments in 2000 with The Solaire, the nation's first sustainable residential high-rise. Since then, the company has implemented similar systems at Millennium Towers, Tribeca Green, River House and The Visionaire - all green high-rises in Battery Park City.

Founded in 1886, American Water is the largest publicly traded U.S. water and wastewater utility company. With headquarters in Voorhees, N.J., the company employs approximately 6,600 dedicated professionals who provide drinking water, wastewater and other related services to an estimated 14 million people in more than 40 states and parts of Canada. More information can be found by visiting [www.amwater.com](http://www.amwater.com).



## AMERICAN WATER

### POPULATION SERVED:

The Visionaire's 251 units are designed to accommodate approximately 778 residents.

### QUALITY STANDARDS:

The wastewater treatment and recycling system is designed to treat a total of 25,000 gallons of water per day. The system is able to store up to 15,000 gallons of treated effluent in its tanks.

### OPERATIONS:

The treatment and recycling plans designed by American Water are highly automated. In case of an imbalance or unanticipated disruption, the American Water team receives a direct alarm notice and an operator on call is immediately dispatched to handle the issue. The system is inspected twice a week with quarterly preventive maintenance checks.

To learn more about American Water, visit [www.amwater.com](http://www.amwater.com)



# AMERICAN WATER

**Solution:** American Water (AW) managed the design and construction of the unique wastewater recycling facility for The Solaire, a nearby Manhattan apartment tower also developed by the Albanese Organization. As a result of this experience, AW was able to enhance the service offering by providing new and improved design technology — for the Visionaire. The Visionaire’s innovative design treats 25,000 gallons of water per day. The system will offset the 40,000 gallons of water per day (GPD) demand of the Visionaire through a combination of the 25,000 GPD capacity generated by the wastewater treatment system, potable water and collected storm water.

Now considered to be the greenest high-rise residential condominium in the United States, the Visionaire truly reflects environmental stewardship in every sense of the term. In addition to the water recycling system, all residents enjoy rooftop gardens that are designed to collect and filter rainwater while reducing storm water run-off. This water harvesting system is capable of collecting 5,000 gal/day of storm water. Further, the building design incorporates sustainable building materials and energy efficient fixtures throughout the entire property, enabling residents to enjoy a truly responsible environmental lifestyle.

**Project Details:** The comprehensive wastewater treatment and recycling process is designed to assure the highest quality water possible. Domestic wastewater entering the system is subject to a rigorous cleansing process. Some of the treated water goes to the system’s cooling tower, furthering energy efficiency. The rest is used for maintenance and flushwater. The building’s sewers are linked to an aerated “feed tank” to provide mixing and “trash trap” to remove all non-biodegradable solids.

A subsequent biological process takes up to 10 hours for water to move through. It is designed to accumulate solids, in the range of 0.8% to 1.2%. These solids contain the biomass that reduces pollutants (Biological Oxygen Demand). This process also reduces total nitrogen and phosphorus.

Liquid/solid separation is accomplished thanks to innovative membrane ultra-filtration technology. These membranes have a pore size of less than .04 microns, discerning solid particles. The biomass is left behind and recycled back to the treatment process for further treatment.

In order to keep these membranes clean, a backwash system automatically reverses the flow of the filtered water for several minutes every hour.

Treated, filtered effluent then passes through an ozone generation and ultraviolet light (UV) system to remove any traces of both color and pathogens. Even after water is treated and stored, this water is continuously circulated through the ozone and UV systems whenever the permeate pumps are not operating.

