Blue Sea Development's Arbor House

Opti
by **aliaxis**

LEED Platinum Building saves >85% on OPEX and Stormwater Storage Space while Harvesting Rainwater to Provide Fresh Produce for Residents

The Challenge

Developers of Arbor House, a 123-unit affordable housing complex in the South Bronx, needed to maximize space for rainwater harvesting to enable reuse in a 10,000 sf rooftop greenhouse, while mitigating stormwater pollution into New York City's waterways. Goals included earning and maintaining LEED credits for water conservation and meeting strict regulations for mitigating combined sewer overflows (CSOs).

Funded by federal, state and city grants, this project promised to be the first in the United States to provide residents and the surrounding community with fresh produce grown on a building rooftop using stormwater for irrigation while keeping it out of the sewer system. Government stakeholders, whose participation was critical, increased pressure for meeting expectations.

The Solution

Arbor House uses Opti's technology to reduce stormwater storage needs from two to one cistern while capturing, storing and retaining rainfall during storms. Installed in 2017, Opti's software controls the timing of water discharges from the single 15,000-gallon cistern. Ahead of a storm, the Opti system draws down the stored water level to ensure rainfall is captured during the event. After, stored water is retained for reuse.

At a Glance

- 88% space savings

- 87% OPEX savings

- Credits to help achieve LEED-Platinum certification

U.S. GREEN BUILDING COUNCIL — LEED PLATINUM — USGBC

blue sea

"Opti allows us to maximize stormwater capture and reuse for on-site irrigation, and minimize downstream CSOs."

Les Bluestone
Blue Sea Development

ECONOMICAL
87% OPEX Savings
$0.16 vs. $1.28 per gallon

RESILIENT
93% Flow Reduction
During wet weather

PEACE OF MIND
Compliance and Reuse
For food production

Results

Within one year, Opti's active system increased efficiency by 4.6X compared to traditional passive management. By adding Opti adaptive controls, the developer was able to:

➜ Convert a passive system with two cisterns for storing 134,650 gallons to an Opti active system requiring one cistern for storing 15,560 gallons, **reducing CAPEX**

➜ Reduce the footprint needed by relocating the cistern under a parking lot, **creating space** for alternative use and additional revenue

➜ Prevent sewer overflows while reusing stormwater on-site to achieve LEED credits, **reducing** water bills and OPEX
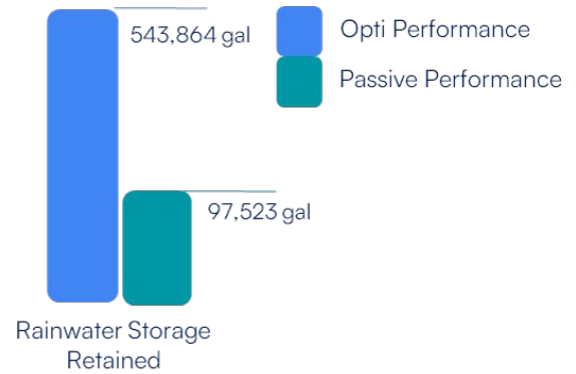
1 Year of Adaptive Controls

543,864 gal — Opti Performance
97,523 gal — Passive Performance

Rainwater Storage Retained

In one year, Opti's active system retained nearly 550,000 gallons in one cistern, 36X the volume and 5.5X the retention of a passive system with 2 cisterns. The Opti system also mitigated 93% of flow into NYC's combined sewer system, saving 87% on OPEX ($0.16 vs. $1.28 / gal).

Without Opti — With Opti

Inefficient Storage — Optimized Storage

Blue Sea Development deployed Opti to meet regulations while enabling stormwater reuse for urban agriculture on a rooftop.

Operation and Maintenance
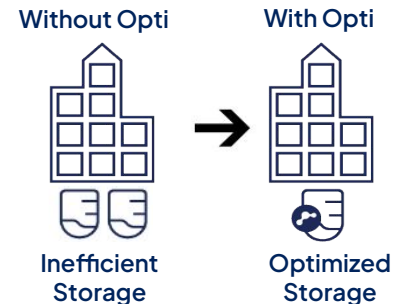
Opti's software controls an outlet valve installed 12" from the bottom of the cistern. Opti software ingests the National Weather Service forecast to predictively draw down stored water, maximizing storage capacity. Arbor House managers use Opti's web-based dashboard to monitor performance statistics, review historical data summaries, and enable automatic control of the outflow valve. The Opti platform also helps them prepare quarterly reports with performance data to achieve environmental compliance and maintain building LEED-Platinum and other certifications.

Powered by Microsoft

About OptiRTC

Opti, an **Aliaxis** company, is the leading provider of digital adaptive stormwater control solutions. With over 300 deployments to date, Opti empowers customers and partners to address the impacts of climate change, aging infrastructure, urbanization, and water pollution, enabling them to secure the sustainability of our communities and natural resources Opti's cloud-based platform optimizes stormwater asset performance through instant actionable insights to provide economic savings, resilient solutions, and peace of mind. With our commitment to innovation, we are driving a resilient and brighter future for all.

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