# VERITUS HEAT PUMP WATER HEATER SOLVES SPACE, COST AND EFFICIENCY CHALLENGES IN NEW YORK RETROFIT

**PROJECT:**
212 WARREN ST. - HIGH-RISE RESIDENTIAL BUILDING

**LOCATION:** BATTERY PARK, MANHATTAN, NYC

**LOCHINVAR PRODUCTS INSTALLED:**
1 – VERITUS® AIR SOURCE HEAT PUMP WATER HEATER

**PLUMBING CONTRACTOR:**
LEARDON BOILER WORKS
**MEP ENGINEER:**
BAZINI ENGINEERING
**OWNERS REPRESENTATIVE:**
ALTERNATIVE SUSTAINABILITY

**MANUFACTURERS' REP:**
WALLACE EANNACE, INC.

*A high-rise residential building in Battery Park, Manhattan replaces an aging gas-fired DHW system with a high-efficiency air source heat pump — achieving Local Law 97 compliance and significant energy savings.*

### The Challenge

The owner of a high-rise multi-family residential building in Battery Park, Manhattan faced a pressing infrastructure decision: replace an aging, gas-fired domestic hot water (DHW) system that could no longer deliver reliable, efficient service to residents.

The upgrade needed to prioritize energy savings and meaningfully reduce the carbon footprint — a requirement driven by New York City's Local Law 97, part of the 2019 Climate Mobilization Act. Buildings over 25,000 sq ft that fail to significantly reduce greenhouse gas (GHG) emissions face a per-ton carbon penalty.

Retrofitting a Manhattan high-rise with commercial heat pump water heating technology is no simple feat. Space constraints within the building and rooftop mechanical room along with the difficulty of rigging large equipment into an existing building presented serious obstacles. Hiring a crane for this project was cost prohibitive.

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**An Innovative Installation Approach**

The idea of using the building's general exhaust air for the heat pump's air supply was the result of some creative thinking from John Stevens with Alternative Sustainability and Wallace Eannace, Inc. That air supply was ducted into the unused space in the penthouse mechanical room. Once the approach was established, finding the right piece of equipment was key.

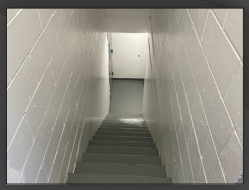
The Veritus was selected for a few key reasons:

- Its compact size enabled it to fit in the freight elevator and be rigged up the narrow stairs leading to the penthouse mechanical room.
- The selected Veritus model matched the base load of the zone, and its source airflow closely matched the available building exhaust airflow.
- The Veritus uses R-513A refrigerant, which is non-toxic and non-flam mable, making it safe for indoor installation.
- The Veritus has a double wall heat exchanger that allows for direct heating of the potable water; eliminating the need for glycol.

The Lochinvar Veritus was placed in a previously unused section of the mechanical room. A wall, ductwork and louvers were installed, and this section of the mechanical room was converted into a dedicated plenum room. Three nearby exhaust fans were ducted into this plenum room, positively pressurizing the space.

When the Veritus unit operates, building exhaust air provides 100% of the air supply. Any excess air exits freely through an outside air louver, which always remains open. The unit's discharge air is ducted to the exterior to prevent recirculation.

By reclaiming heat from the building's exhaust air, the Veritus unit operates with maximum efficiency. John Stevens worked with building management to confirm existing fan airflow, determine electrical modifications, and provide the necessary ductwork.



*The narrow stairwell leading to the mechanical room*

*Veritus unit located in the plenum*

*Veritus unit with discharge ducting*

*Outside air louver (left), Building Exhaust Air (right)*

**LOCHINVAR WORLD HEADQUARTERS**
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**System Performance**
The building had existing domestic water storage tanks, that the Veritus heat pump feeds to supply DHW. Three new Lochinvar electric water heaters were added as backup capacity for periods of peak demand.

The water flows from the storage tanks into the electric water heaters. When the heat pump is meeting the demand, the electric water heaters remain off or in stand-by mode and act as additional storage. If the temperature in the system drops below set point, the stand-by electric water heaters energize to satisfy the requirement.

**Addressing NYC's Unique Challenges**
Electricity costs in New York City run approximately 50% above the U.S. average — one of the highest rates in the nation. In this environment, a heat pump's coefficient of performance (COP) is a critical economic metric. The Veritus HPWH's CoP of up to 4.61 means it delivers up to 4.61 units of heat energy for every unit of electrical energy consumed — making decarbonization financially viable even at NYC electricity rates.

Despite the particularly harsh winter conditions New York City experiences, the unit performs exceptionally well. During the last week of January 2026, with exterior temperatures reaching as low as 9°F (-12.7°C), the temperature inside the heat pump room remained at 65°F (18°C) — a testament to the effectiveness of the building energy recovery / plenum room design.

*"The Veritus meets the base load of the DHW. In typical day-to-day operations, the backup electric water heaters rarely turn on — that's how well the Veritus unit has been performing. We have yet to find another unit that operates as efficiently while simultaneously offering incredible installation benefits."*
*— John Stevens, CEO, Alternative Sustainability*

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*Existing gas-fired unit left in place; available as back-up*

*Rooftop discharge ductwork - covered in snow yet the system continued operating without interruption*

*New electric water heaters alongside storage tanks*

*Left to right:*
*Jim Mazzo (Leardon Boiler Works),*
*John Stevens (Alternative Sustainability),*
*Jeff Cwirko (Leardon Boiler Works)*

**About the Veritus® Air Source Heat Pump Water Heater**
Designed, engineered, and assembled in the USA, the Veritus HPWH is built for demanding commercial applications. Its modular design means units can be deployed individually or manifolded together for larger loads. Each module ships separately, enabling installation in buildings where conventional large-format equipment simply cannot go.

*Internal components: ECM fan, copper-tube evaporator, scroll compressor, stainless double-wall condenser, and reversing defrost valve*

*Veritus® AHP280: two 140-module configuration, manifolded for larger DHW demand*

| VERITUS: KEY FEATURES | |
|---|---|
| High CoP | Up to 4.61 — delivers substantial energy savings vs. gas-fired systems, even in NYC's high-cost electricity market |
| Cold Climate Ready | Operates efficiently at temperatures as low as 23°F with a unique reversing defrost cycle |
| Modular Design | Compact footprint enables transport via freight elevator and stairs — no crane required |
| Low-GWP Refrigerant | Uses R513A, minimizing global warming potential |
| Remote Control | Remotely mountable control system for flexible facility management |
| Non-Toxic, Non-Flammable Refrigerant | Safe for indoor installation |

*"This installation required trust from everyone involved, and thankfully, we had willing participants. John Stevens, CEO of Alternative Sustainability and the acting building engineer, was instrumental in providing the necessary understanding of the existing systems and identifying a feasible solution. Leardon Boiler Works was enthusiastic about the solution, and Bazini Engineering's willingness to try something new was key. My part was easy; from Lochinvar's portfolio of high efficiency equipment, I selected the right tools for the job and provided schematic details to assist the team."*

**— Robert Barrett, Director of Building Systems Group, Wallace Eannace**

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