



Wentworth Institute of Technology Reclaims Lost Energy Savings

CASE STUDY



- Located in the heart of Boston, Wentworth is a nationally ranked university and leader in engineering, design, management and sciences education
- Approximately 4,000 full time students, most of whom live in dormitories across the urban campus
- Air handling unit (AHU) components are operating 24/7 and constantly exposed to airborne substances due to dormitory applications
- Under-performance and inability to maintain the equipment due to limitations of existing AHU location and design adds approximately \$5,000 per year in operating costs for the institution

Maintenance and Repair Challenge

After enduring 12 years of continuous operation, an existing six-foot diameter energy recovery wheel serving Wentworth's Huntington Avenue dormitory was beyond repair due to a limited ability to properly maintain it. With the combination of failed internal wheel bearings, plugged heat exchange media and loss of \$5,000 in annual energy savings, Wentworth was tasked with finding an economically feasible replacement

However, the design and location of the AHU posed a significant replacement challenge for the university's facilities group. Mounted in a small equipment room surrounded by piping and electrical conduit, the bulky construction and inflexible design of the current AHU made access extremely difficult and logistically challenging. The old wheel could be removed with a Sawzall, but there was no way to physically install a six-foot replacement wheel into the AHU without compromising the cabinet structure or causing disruption.

Innovative Wheel Technology

As the leading manufacturer of segmented energy recovery wheels, Airxchange developed and can provide a unique retrofit solution for any monolithic wheel that allowed the entire wheel and cassette frame to be carried into the mechanical room in manageable pieces for reassembly inside of an AHU cabinet with minimal disruption. The wheel is often compatible with the original control equipment, including the variable-frequency drive (VFD).

Wentworth's replacement wheel from Airxchange was efficiently assembled in less than a day, economically restoring the energy saving benefit to the air handling system.

The Airxchange Advantage Innovation - Reliability - Performance

In addition to reducing the replacement costs, the Airxchange design addressed the need for maintaining performance over the life of the equipment with minimal effort.

- Airxchange features fully segmented energy transfer media that can be easily removed, cleaned and reinstalled by a single technician in about 30 minutes. Cleaning time and methods can vary by circumstances
- The polymer energy transfer media is designed for easy maintenance, longevity and can be continually cleaned or replaced without affecting its integrity or performance.
- The Airxchange stainless steel wheel design ensures that the media's support structure will remain rigid and rotate true throughout the life of the HVAC system.
- Airxchange uses a robust outbound bearing design which requires no maintenance. A robust metal cassette frame removes all load-bearing responsibility from the stainless steel wheel, allowing it to rotate freely without restrictions
- A reliable 5-Year warranty is standard quality assurance for Airxchange wheels.

"The modular aspect of Airxchange's replacement solution helped WIT overcome all installation obstacles, and the advanced engineering of the wheel also addressed the service and reliability problems that tended the useful life of the original ERV wheel."

- Zone Mechanical, HVAC Service contractor of WIT



Airxchange segmented wheel resolves AHU restrictions without compromising the cabinet structure.

National Grid Energy Rebate Program: ERV Custom Express

- National Grid has a utility incentive program for Energy Recovery Ventilation in the Northeast territory.
- ERV Custom Express has been designed for both New and Retrofit ERV applications and produces upfront incentive values to offset up to 75% of the incremental cost of ERV.
- ERV Custom Express can be used by building owners and consulting engineers to quantify ERV incentives and paybacks upfront in the design process or when planning the replacement of older HVAC systems.

National Grid's generous "Custom Express" program offset most of the installation cost for this project, allowing Wentworth to implement an energy saving solution while enabling their AHU to once again operate at peak performance

About Airxchange

Airxchange has 35 years of extensive experience in the energy recovery industry. Our mission is to design and manufacture high quality products that perform reliably and effectively for the life of the HVAC system, reduce energy consumption, and improve indoor air quality. The addition of high-tech materials and innovative designs to a technology based on fundamental scientific principles has earned us the trust of our valued OEM customers. We will continue to innovate and support our customers to meet evolving market demands for energy recovery ventilation technology. Visit airxchange.com for more info.



Wentworth dormitories on 555 Huntington Avenue