



# AIRXCHANGE®

partnering with industry for  
sustainable energy recycling technology

## Case Study: Eddy Village Green at Cohoes



### Innovative Nursing Home Saves Money With Energy Recovery Ventilation

Founded in 1928 by Elizabeth Hart Shields Eddy, Eddy Village Green skilled nursing care center began as a 19-bed nursing home in Troy, New York. Today, through an array of various housing, home care, and other senior services, “The Eddy” (as it is called) serves more than 40,000 people in 22 counties. Administered by Northeast Health, a regional healthcare network, the system includes Eddy Village Green at Cohoes, in Cohoes, NY. Completed in 2009, this facility consists of 16 ranch-style homes modeled after THE GREEN HOUSE®, an innovative concept that eliminates the institutional feel of traditional nursing facilities<sup>(1)</sup>. Serving the elderly of the Albany-Schenectady-Troy area, these efficient and cost-effective units uphold and enhance Elizabeth Eddy’s original vision of safety, comfort, and top-quality care.

Designed by architecture+, of Troy, NY, each home has 12 private bedrooms and baths surrounding a core public area, which includes a small library and a family-style kitchen/living/dining area. Although they are designed with the latest technology and security in mind, they are also very comfortable thanks to efficient heating and cooling systems that operate with outside-air ventilation 24 hours a day, 365 days a year.

In configuring an HVAC system for the facility, the architectural/engineering firm SMRT sought a system with minimal first cost as well as minimal operating costs. In the end, SMRT designed such a system — a 13-ton unitary HVAC unit with an integrated Airxchange energy recovery wheel (also known as a heat wheel or enthalpy wheel) to supply 3,500 cubic feet per minute of outside air to each “GREEN HOUSE”®. This system not only provides exceptional comfort and indoor air quality, it dramatically reduces energy costs — and because it operates so efficiently, SMRT was able to specify smaller HVAC units, reducing first cost as well. These units are mounted on a curb adjacent to each structure.

### Key Statistics

<b>Location:</b>	Cohoes, NY
<b>Project Completed:</b>	2009
<b>Buildings:</b>	16 Green House® structures, 8,400 sq. ft. each
<b>Building Occupancy:</b>	12 residents and 3-6 aides per building

### Impact of Energy Recovery Wheels

<b>Summer Outdoor Air Load (Design Day):</b>	185,143 BTUH (15.3 tons)
<b>Summer Recovered Energy:</b>	73,277 BTUH (6.1 tons)
<b>Net Summer Outdoor Air Load:</b>	9.2 tons
<b>Winter Outdoor Air Load (Design Day):</b>	356,912 BTUH
<b>Winter Recovered Energy:</b>	141,197 BTUH
<b>Net Winter Outdoor Air Load:</b>	215,715 BTUH
<b>Total Energy Recovery:</b>	6.1 tons
<b>Energy Efficiency Ratio (EER) of HVAC Unit:</b>	11.2
<b>Combined Efficiency Factor (CEF) of HVAC Unit:</b>	14.1
<b>Recovery Efficiency Ratio (RER) of Energy Recovery Wheel:</b>	80
<b>Estimated First-Cost Savings from Unit Downsizing:</b>	\$20,208 (\$1,263 per unit)
<b>Annual Energy Savings:</b>	\$23,168 (\$1,448 per unit)

With units operating 24/7, SMRT wanted the most efficient system possible, and Russ Bailey, P.E., of SMRT, knew integrated energy recovery wheels would yield significant energy savings. With rising energy costs and climate concerns, energy recovery wheels are an ideal way to reduce HVAC costs while complying with code-mandated outside air requirements. ERV wheels recycle the heating and cooling energy in exhaust air (not the air itself), thereby reducing the load on the HVAC system. This reduction in load not only translates into significant ongoing cost savings, but also allows the downsizing of HVAC equipment, thereby reducing first cost and providing an immediate return on investment. [According to Bailey, his firm always evaluates the energy savings and then employs the most cost effective strategy for heat recovery. For almost all projects, enthalpy wheel heat recovery is the best solution by far](#)

The results are impressive: Based on local utility rates, Northeast Health is saving \$23,168 every year, compared to what the not-for-profit business would have been paying with a conventional HVAC system. The system also has proven to be reliable and easy to maintain.

“There has never been a complaint about air freshness,” says Tom Gray, Northeast Health’s Director of Facilities Management. Gray also emphasizes the quiet operation of the system, which provides continuous comfort despite the region’s very cold winters and hot, humid summers.

“Keeping the wheel segments clean could not be easier,” adds Gray. “We slide the cassette part way out of the unit and remove the segments for quick cleaning when the filters are changed. We recently purchased a spare set for those times when an overnight soak is required to remove grease or oily contaminants.”

Airxchange offers a full line of energy recovery wheels that are sold through HVAC equipment manufacturers in integrated packaged systems, as accessories for packaged units, or as ERV options. Through its patented designs, new materials, and innovative manufacturing techniques, Airxchange provides practical energy recovery solutions for all HVAC systems (100–35,000 CFM). All Airxchange ERV wheels are AHRI-certified and carry a 5-year warranty.

Denis Boyce, Sales Engineer for manufacturer’s representative L.J. Early Company, Inc., provided support for architecture+ and SMRT in the design and selection of the Eddy HVAC systems.

*“I am seeing greater use of integrated units with energy recovery wheels. Our experience with Airxchange has been excellent. Their products are well-designed and reliable. Their technical support provides prompt and knowledgeable answers to our applications and after-market service questions. And their 5-year warranty gives our clients an added measure of confidence in choosing Airxchange energy recovery.”*

Denis Boyce, L.J. Early Company



A kitchen and dining area at Eddy Village Green. (Photo courtesy of AOW Associates, Inc.)



Tom Gray, Director of Facilities Management for Northeast Health (left), and Russ Bailey, P.E., of SMRT.

## About Airxchange

*Established in 1982 Airxchange has extensive experience in the design, manufacture, sale, and support of energy recovery ventilation components to manufacturers of Heating, Ventilating and Air Conditioning (HVAC) equipment. The company played a pioneering role in the formation of industry standards and third party performance certification programs, which validate their transformative technology. Airxchange technology is now widely available through leading HVAC manufacturers.*

*For more information about Airxchange, please visit [www.airxchange.com](http://www.airxchange.com).*