



## **SMRT delivers innovative energy engineering with ROI**

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How does one improve HVAC energy efficiency by 42% and save \$23,000 annually?

SMRT - Architects and Engineers of Latham designed an innovative HVAC system for Eddie Village Green in Cohoes, featuring energy recovery wheels that recycle the heating and cooling energy (versus the air) while impressively reducing the load on the HVAC system.

SMRT was able to specify 13-ton HVAC units with an integrated energy recovery wheel (ERV - a heat or enthalpy wheel) versus standard 18 ton HVAC units without heat recovery that would be required for the 16 ranch style homes at the assisted living facility.

ERV technology is well suited for many types of facilities - particularly those running 24-hours per day. Healthcare facilities, labs, offices - especially those attached to a manufacturing operation - can benefit from the enhanced efficiency of an ERV system. There are many variations of ERV systems, manufactured specific to both heat recovery goals and the make-up of the exhaust stream. These factors will determine both the suitability of using an ERV and the engineering and sizing of the system. The suitability of using an ERV in an industrial facility, for example, will be largely determined by what's in the exhaust stream. If the exhaust stream contains a high concentration of acids, it's likely another technology would be better suited.

The Eddie Village Green homes, designed utilizing "The Green House" model, reduce the institutional character of the skilled nursing center while delivering an economically feasible nursing care facility. "The Green House" model is designed to help seniors retain - and sometimes regain - competencies in daily living. Eddie Village Green consists of 16 ranch homes, with each 8,400 s/f unit boasting 12 private bedrooms/baths located around a core public area.

The 13-ton HVAC units supply 3,500 cubic feet/minute of outside air to each Green House, ensuring superior indoor air quality and temperature controlled comfort, despite the extreme cold of the region's winters and highly humid, hot summers. The HVAC system is also easy to install and maintain. Facilities staff simply slide out cassettes to remove wheel segments for cleaning as the filters are changed. Located curbside adjacent to each Green House, the HVAC units are quiet, ensuring unobtrusive operation.

As energy costs continue to be both unpredictable and expensive, utilizing an integrated energy recovery strategy not only reduces operating expenses but provides a level of certainty for future planning and allows Northeast Health to deploy savings to enhanced services. In every project we do, we strive to enhance the business objectives of our clients.

The units have an energy efficiency ratio of 11.2 and a recovery efficiency ratio of 80, delivering a 42% improvement over HVAC systems lacking energy recovery. Northeast Health saves \$1,448 annually per unit, which adds up to \$23,168 annually across the 16 units. Energy recovery wheels can be utilized effectively in many building types. Whether in a technology driven manufacturing facility, a hospital or a University academic building, ERVs can deliver significant cost savings,

compliance with code-mandated fresh air make-up requirements, reliability and ease of maintenance.

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