FläktGroup
SEMCO

THE GLEN AT WILLOW VALLEY

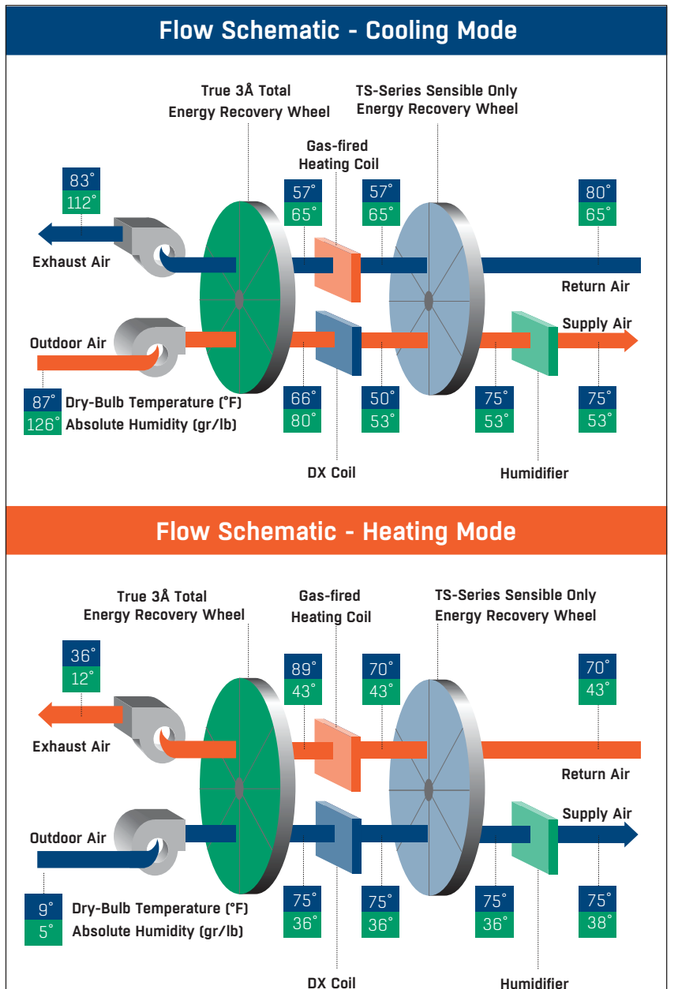
CASE STUDY

HEAT RECOVERY UNIT PROVES EFFICIENCY

WILLOW STREET, PENNSYLVANIA

The Glen at Willow Valley is a five-level, 140,000 sq. ft. life care facility for 94 assisted living patients, 120 patients needing skilled nursing care and 60 other patients suffering from Alzheimer's Disease and other dementias. Because of the county's rustic beauty and garden-like atmosphere, the appearance of new construction for the Glen is under Lancaster County government scrutiny. Besides the facility's appearance, the county required the building and the material used to build it to be of high quality and energy efficient. With this in mind, Willow Valley decided to construct

the facility using the design/build approach which offers a more cost-efficient method of building. Along with the construction the county wanted the HVAC system to be 15 to 20 percent more cost-effective than other similar life care facilities in the area. They also needed energy use and long-term maintenance to be substantially lower than normal for this type of project. In addition, the Pennsylvania Department of Health has very strict requirements for outside and exhaust air as well as proper room pressure maintenance mandates. To meet proper room pressures and outside and exhaust air requirements, the design team of Clark Electric Inc. called for the use of a FläktGroup® SEMCO® Dual Wheel Energy Recovery Unit, which is installed on the roof of the Glen. The unit provides 30,000 cfm of pre-conditioned outside air to multiple areas throughout the building at an efficiency level of 75 percent. As the energy recovery unit pulls in the outside air and moves it across the desiccant coated wheels, the higher temperature air gives up its sensible energy to the cooler airstream. Then the fresh air is distributed from the roof to all floors through a galvanized duct system. A humidification system inside the unit helps in maintaining desired humidity levels of the leaving air temperature. Therefore, the air leaving the unit is a constant 75° F with humidity levels ranging from 30 to 50 percent.



Weather Data: 0.4% wet-bulb temperature with mean coincident dry-bulb temperature for Harrisburg, PA. (1997 ASHRAE Fundamentals Handbook, chapter 26.)

WILLOW VALLEY COMMUNITIES

- The system provides 30,000 cfm of treated outside air and recovers 75 percent of the energy contained in the exhaust air stream.
- First costs were lower by replacing conventional HVAC equipment with a fresh air preconditioning unit.
- The energy recovery system significantly reduced the capacity and peak energy demand requirements for fresh air ventilation.
- The FläktGroup SEMCO Energy Recovery Unit dehumidifies the incoming fresh air, which reduces the latent load on the refrigeration system and allows the system to run drier.
- Similarly, during the heating season, the energy recovery unit pre-humidifies the incoming air, thus reducing or even eliminating the need for humidification.

The HVAC system remained within the guaranteed maximum price. The cost of the mechanical system was brought in 15 percent lower than in similar life care facilities and operates approximately 35 percent more efficiently than conventional systems today. Total energy cost including gas is $.69/sq. ft. for the most recent facility. Energy use is 45,000 BTUH/sq. ft. That compares to guidelines of 160,000 BTUH/sq. ft. for nursing homes.

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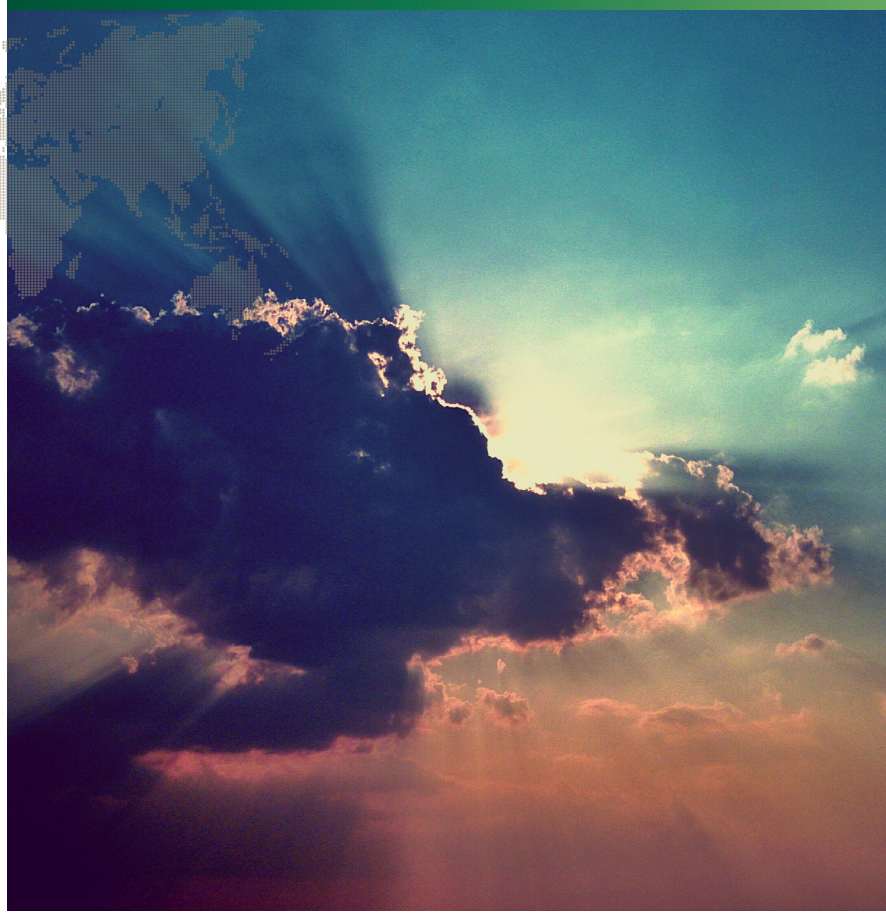

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Our constant aim is to provide systems that precisely deliver the best indoor air quality and performance, as well as maximize energy efficiency.

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