



Seagate Towers Wins the Battle Against Humidity

CASE STUDY

The Challenges of Moisture and High Energy Costs on Florida's Atlantic Coast

Seagate Towers is a twin-tower luxury condominium complex in Delray Beach, Florida. Constructed in 1970, the towers contain a total of 149 units that each feature more than 1,700 feet of living space and unobstructed views of either the abutting Intercostal Waterway or the Atlantic Ocean, which is only blocks away. In 2011, Seagate Towers Condominium Association manager Jon Branson and his facilities management team decided that it was time to replace the original heating and cooling units in both buildings with modern and energy efficient heating, ventilation, and air-conditioning (HVAC) systems. Along with increased efficiency, the other primary goal of the upgrade was to improve upon the inadequate humidity control provided by the 41-year-old water source heat pump ventilation systems. The original design exhausted air through the roof and sent fresh make-up air to the corridors of each building, which was then drawn into the living spaces by bathroom and kitchen fans through undercut doors. The system routinely struggled to dehumidify the make-up air, especially in summer.



An Innovative Solution

With an eye toward both efficiency and comfort, Branson and his team chose to incorporate energy recovery wheels into the replacement unit specification for each building.

Energy recovery wheels recycle energy from building exhaust air to pre-cool and dehumidify fresh air prior to that air being treated by an HVAC unit. The condominium association hired Thompson Youngross Engineering Consultants (TYEC), of Delray Beach, to design the replacement HVAC systems. Dan Thompson, of TYEC, recommended Airxchange energy recovery wheels based on previous experiences designing systems for oceanfront buildings. While most energy recovery wheels remove a high percentage of moisture from incoming air when used in warm and humid locations, the advantage of Airxchange's standard stainless steel wheel and patented polymer energy transfer media is ideal corrosion resistance under even the most challenging environmental conditions.

Four 12.5 ton packaged rooftop units and four integrated Airxchange energy recovery wheels were specified for the renovation. Each Airxchange wheel provides an additional 9 tons of capacity to each rooftop unit. The new system utilizes the original exhaust and supply ducts that run along the elevator shaft of each building. The exhaust airstream of each building now "on-site" energy to be recycled by the Airxchange wheels, drastically reducing the demand for energy by the new HVAC units. With the upgraded HVAC systems in place, aided to a large degree by the output of the four Airxchange

wheels, Seagate Towers reduced their total mechanical equipment load (and associated operating costs) by 36 tons.

Savings on Equipment Offset Installation Costs

Though savings may vary based on the application, the installation costs for Airxchange wheels are often largely offset by the downsized, lower cost heating and cooling units allowed by the increased system efficiency.

Energy and Operational Savings, all with Improved Humidity Control

The intelligently conceived and executed renovation ultimately helped Seagate Towers win the battle against humidity. Indoor air comfort improved noticeably after the new systems were installed and balanced. “The new units have done an excellent job of providing fresh outside air with better humidity control than we had previously,” notes Branson. “We used to get sweating on the grills and registers, and that no longer occurs.”



In addition to living in a dryer, cleaner, and more comfortable environment, the owners of the individual condominium units were also treated to noticeable cost savings. “Unit owners tell me that their individual unit electric bills have dropped since the new system was installed,” adds Dave Slovak, a former HVAC contractor who currently works on the Seagate Towers facilities management team.

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Dave Slovak - Seagate Towers Facilities Management Team

Value of New Energy Recovery Wheels at Seagate Towers

Location: Delray Beach, FL
Project Date: 2011
Project Scope: 2 Building Condominium Retrofit

Building Size: 140,200 sq ft. each (2 Buildings)
Cooling Load: 819,464 BTUH
Heating Load: 148,144 BTUH

Impact of Energy Recovery Wheels

Total Recovered Cooling Energy: 343,632 MBTU

Total Recovered Heating Energy: 280,184 MBTU

Estimated Annual Energy Savings: \$11,296 (\$0.10 per KWH)

**To study the impact of energy recovery wheels in any space, visit airxchange.com for a variety of simulation and design software tools.*

A Well Deserved Energy Rebate

Seagate Towers was awarded a commercial rebate by the utility provider, Florida Power and Light (FPL), based on the lower electricity usage allowed by the new HVAC systems. These types of rebates are offered by FPL, along with many other utility companies throughout the country, as an incentive for customers to lower demand.

Potential Savings Throughout the Region

The success story at Seagate Towers is part of a growing trend on the eastern coast of Florida that is seeing facilities managers and contractors conserve energy, reduce both operating costs and humidity, and ensure high quality air in older oceanfront buildings by utilizing energy recovery technology as a vital part of HVAC system renovations.

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.