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Chiller Technology Fits Varying Needs of Customers

Chiller technology continues to reflect customer needs. Consider two recent projects involving Carrier. In one, a water-cooled screw chiller running on R-134a was installed in a downtown office building renovation. In the other, an air-cooled chiller featuring scroll compressor technology and running on R-410A was chosen for a college campus project.

DOWNTOWN

When CityView Properties of Buffalo, N.Y., bought the old Larkin Co. building (known as the LCO building) in downtown Buffalo, the owners were committed to renovating the building's cooling system in two phases as the building filled with tenants. As building occupancy exceeded 60 percent in rapid fashion, CityView needed a second chiller to meet increased load demand while still saving energy. CityView and its consulting engineer, C. Gary Jones of Jones Engineering, worked with Carrier to install an Evergreen® 23XRV chiller, which was one of the first such units to come off the assembly line.

The variable-speed water-cooled screw chiller was selected to augment an existing Carrier centrifugal chiller. Officials said the 23XRV's efficiency, use of R-134a, and variable load capacity were deciding factors.

The building had been in disuse for many years when CityView purchased it in 2002 with plans to renovate it into a multitenant, mixed-use office building.

During the first phase of the building's modernization program, all of the existing HVAC equipment was removed and the centrifugal chiller was installed. The chiller was sized for about 60 percent occupancy and was an effective short-term solution. When occupancy approached 60 percent, it was time to address the HVAC system's need for additional capacity.

For the second phase, Jones presented the Evergreen option with 500 tons of total cooling.

"Our building was quickly filling with a variety of tenants occupying anywhere from 800 to 120,000 square feet that required individual cooling control to meet their unique needs," said Bill Jones, vice president of CityView. "When Gary came to us with the 23XRV chiller, he presented a solution that met the load and flexibility requirements but was also a forward-thinking, future-proof system."

Speed was critical in getting the chiller in place to meet the LCO

building's growing tenant list. "We installed it and started it up with the intention of running it for an afternoon as a test and to look at the data," said Gary Jones. "It ran so smoothly we just kept it running."

An important consideration was the flexibility to meet the individual needs of a variety of tenants including office space, conference center, day care center, and a full-service restaurant. "One of our tenants' biggest concern is the cooling of the computer server rooms. With the new system, they don't have to employ any special, costly cooling systems," said Bill Jones. "We are finding it easier and cheaper to exceed expectations thanks to the new chiller."

The 23XRV serves as the main chiller for the building with the centrifugal acting as a back up.

ON CAMPUS

At Rice University in Houston, the Autry Court sports complex had an older air conditioning unit with compressors whining to such an extent as to cause the tennis players at an outdoor stadium nearby to complain about the noise. Since the old unit also ran on soon-to-be phased out R-22 and had energy consumption issues, the university decided to look for some alternatives.

Hugh Ton-That of Rice's facilities engineering and planning department turned to Carrier AquaSnap® air-cooled chillers with scroll compressors. The 30RB models were said to have quiet operation, high-energy efficiency, low maintenance and long-life R-410A refrigerant, according to officials involved in the project.

The Autry Court recreational facility is home to NCAA men's and women's basketball and volleyball teams, as well as serving as a recreational facility for students and staff. It also has a swimming pool.

In addition to the complaints about noise, the original 20-year-old system was experiencing a high number of compressor failures. When Ton-That decided to explore a long-term solution for Autry Court, he had other criteria in mind in addition to reducing noise in the sports complex.

"First we were migrating to newer, environmentally sound refrigerants and wanted to eliminate R-22. We were comfortable with R-410A and designed the new system to be compatible with that refrigerant."

Another consideration was the chiller's ease of maintenance, particularly the ability to replace parts quickly. "The old system forced us to send out broken compressors to be rebuilt," said Ton-That. "We needed a unit that would allow us to just order a part



TOP: According to officials at Rice University, the AquaSnap 30RB system has quiet operation and high-energy efficiency. **ABOVE:** Owners of the LCO building in Buffalo were committed to renovating the building's cooling system in two phases.

and make a change if needed. The AquaSnap uses smaller parts that can be ordered and replaced.”

According to officials, the updated system is saving Rice University 17 percent on electricity over the old system.

And the tennis players are satisfied with the noise reduction. ■

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