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AIRSIDE / **APPLIED** / CONTROLS / SERVICE / SPECIAL SOLUTION / TOTAL SYSTEM / UNITARY

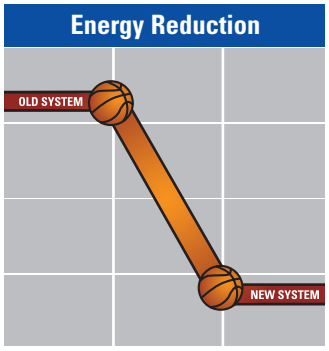
Case Study – Rice University

EDUCATION / HEALTH CARE / LODGING / MANUFACTURING / OFFICE BUILDING / RETAIL / SPECIAL

New Carrier Chillers Reduce Sound Levels and Cut Energy Consumption by 17%

Project Objectives

When you're trying to concentrate on your tennis match or baseball game, the last thing you want to be distracted by is the air conditioning system from the building next door. At Rice University's sports complex, the noise from the gym's air conditioning unit was enough to have tennis players complaining about the high-pitched whine from the compressors. Hugh Ton-That of Rice's Facilities Engineering and Planning Department set out to design a system that was less disruptive, eliminated R-22 refrigerant, was easy to maintain, and consumed less energy. He turned to a new Carrier AquaSnap® air-cooled chiller with scroll compressors to meet all four challenges.



Carrier's AquaSnap 30RB-150 air-cooled chillers have helped Rice University save 17% on their electricity usage.

Solution

Two Carrier AquaSnap 30RB air-cooled chillers featuring scroll compressors were selected to replace the existing chillers. The 30RB's quiet operation, high energy efficiency, low maintenance and Puron® R-410A refrigerant were all factors in selecting Carrier.

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"Athletes want to concentrate on their games, not be distracted by a noisy air conditioning system. The new AquaSnap 30RB system has eliminated the complaints from our sporting venues."

Hugh Ton-That
Maintenance Manager
Facilities Engineering & Planning Department
Rice University

Project Synopsis

Rice University's Autry Court recreational facility is not only home to the Rice Owls men's and women's NCAA basketball and women's volleyball teams, but also provides students and staff with recreational facilities, including a swimming pool.

The original 20-year-old air conditioning system was experiencing a high number of compressor failures and also was the source of complaints from the nearby Jack Hess Tennis Stadium (an outdoor tennis facility) and Rice's new Reckling Park baseball stadium (home of the 2003 NCAA Baseball Champions). A high-frequency squeal from the unit's compressors was identified as the culprit.

"In the evenings when the campus quieted down, you could hear the compressors from Autry Court while you tried to play tennis. It was distracting and players often complained," said Hugh Ton-That, maintenance manager from Rice University's Facilities Engineering and Planning Department.

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 Puron® R-410A and designed the new system to be compatible with that refrigerant," said Ton-That.

Another consideration was the new chiller's ease-of-maintenance, particularly the ability to replace parts quickly and with little effort. "The old system forced us to send out broken compressors to be rebuilt. We needed a unit that would allow us to just order a part and make a change if needed. The AquaSnap 30RB scroll chillers use smaller parts that can be ordered and replaced," said Ton-That.

And the new system had to deliver on Ton-That's goal of saving energy. The updated system is saving Rice University 17% on electricity over the old system. "The person at the University that monitors our energy consumption has told me, 'whatever you are doing, you're saving energy at Autry Court,'" said Ton-That.

The new system has also drawn rave reviews from Rice's baseball and tennis players. "Athletes want to concentrate on their games, not be distracted by a noisy air conditioning system. The new AquaSnap 30RB system has eliminated the complaints from our sporting venues," said Ton-That.

Project Summary

Location: Houston, TX

Project Type: Renovation

Building Age: 1951

Project Cost Range: Approximately $130,000

Project Contact: Hugh Ton-That

Building Type/Size: Sports facility, approximately 149,000 square feet

Building Usage: Basketball courts, racquetball courts, weight rooms, coaches' offices and swimming pool

Objective: Replace old air chiller system

Major Design Drivers: Reduce exterior sound, increase energy efficiency, refrigeration migration, maintenance/serviceability

Installation Date: December 2004

Design Considerations: Air-cooled chillers compatible with Puron R-410A

HVAC Equipment: Two 30RB-150 chillers

Unique Features: Acoustics

Total Cooling (tons): 280 Tons

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