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# Case Study – Nemours Children’s Clinic

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



## 23XRV Evergreen® Chillers Keep Pediatric Patients Comfortable

### Project Objectives

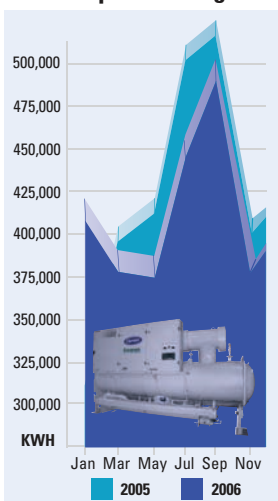
Nemours Children’s Clinic in Jacksonville, Florida is an eleven-story outpatient clinic dedicated to the specialized care of infants, children and adolescents with cancer, neurological and genetic conditions, hearing anomalies and other acute, often life-threatening illnesses. The clinic also serves many children from nearby Wolfson Children’s Hospital. Nemours Jacksonville sought to replace two aging chillers with new units, with three objectives in mind: to ensure a comfortable facility atmosphere for patients and their families; to provide significant energy savings; and to enable remote monitoring of the chillers by facilities personnel. They turned to their long-time service partners at Carrier for advice and execution of a solution that would incorporate the most advanced HVAC technology.

### Solution

Carrier Commercial Service recommended that Nemours Jacksonville replace their old chillers with two 23XRV Evergreen® Chillers combined with a Carrier Comfort Network® (CCN) control system. The 23XRV is an advanced variable-speed screw chiller that uses HFC-134a, an environmentally sound refrigerant. These units were selected for their energy efficiency, quiet operation and reliability. The variable-speed screw allows the unit to efficiently reduce capacity during evenings and weekends when there are no patients in the clinic. Furthermore, the 23XRV’s modular design allowed simplified installation in the confines of the existing chiller room. Finally, the Carrier Comfort Network® (CCN) control system enabled remote monitoring of the system by facilities personnel.

*By replacing aging equipment with Carrier 23XRV Evergreen Chiller units, Nemours Children’s Clinic—Jacksonville was able to offset rising energy costs with reduced kilowatt hours of usage, thereby maintaining a relatively stable HVAC budget in the face of adverse energy costs.*

2005 – 2006 Electric Comparison Usage





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## Case Study – Nemours Children’s Clinic *continued*

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The Carrier 23XRV Evergreen® Chiller reduces energy cost by matching the demand for cooling, even the very low load required by an unoccupied facility.

*The 23XRV:*

*Far exceeds other chillers’ ability to unload*

*Runs normally and efficiently under low-load conditions*

*Does not inflict abnormal wear on the system as other chillers do under similar conditions*

### Project Synopsis

Nemours Children’s Clinic—Jacksonville, like many medical facilities built in the 1980s, faced aging chiller maintenance challenges coupled with the uncertainty of fluctuating energy costs. To help contain costs, Nemours required both high energy efficiency and superior performance reliability from the new units. Reliability was particularly important because the comfort of its pediatric patients, many of whom are seriously ill and suffering from extreme physical discomfort and stress, was at stake. Early in the project, Carrier used System Optimizer Software to create a chiller life cycle analysis. This analysis demonstrated that upgrading to new chillers provided a better long-term value than refurbishing the existing units. Additional concerns included the need to install the new equipment in a phased manner so that the clinic was never without cool air; the need to conduct the installation without disturbing the daily life of the clinic; and the ability to monitor the chillers remotely when facilities personnel were working at other Nemours campuses.

Carrier Commercial Service recommended the 23XRV Evergreen® Chiller with variable-speed screw compressor technology, combined with a Carrier Comfort Network® (CCN) control system. The 23XRV Evergreen Chiller with variable speed screw compressor was ideal for a clinic installation because the variable speed operation allows for efficient reduction of system capacity during evenings and weekends when there are no patients in the clinic. The Carrier Comfort Network’s web-based management system enables remote monitoring and diagnostics by both Nemours personnel and Carrier technicians. Additionally, the 23XRV’s design is modular, making possible a phased installation with simultaneous dismantling and removal of the older units. Nemours Jacksonville installed two 23XRV Evergreen Chillers.

“Carrier has an excellent, long-standing relationship with Nemours,” said Damon Thomas, Service Sales Representative at Carrier. “Because of our service agreement, we were very familiar with their facility and equipment needs, and knew that the 23XRV Evergreen and the Carrier Comfort Network would meet their requirements. The project was carefully scheduled during normal working hours, evenings and some weekend work to minimize impact to the clinic. We’re working with Nemours right now to bring even more of their controls online to maximize their access to the system when they’re on the road.”

As anticipated, Nemours Jacksonville has experienced a highly successful first year with the new equipment. Nemours Facilities Manager Florida, Chuck Pittman reports, “We’ve had complete reliability with the 23XRVs, and I like the fact that if I am at the Orlando facility and my maintenance supervisor is not on-site at Jacksonville, I can check on the chillers from the online control interface. If we were to experience a problem, I could contact Carrier and have a technician sent out immediately, with minimal loss of comfort for the kids visiting the clinic.”

## Project Summary

**Location:** Jacksonville, FL

**Project Type:** System Upgrade/Retrofit

**Building Age:** 20 years

**Building Type / Size:** 220,000 sq.ft., 11-story facility

**Building Usage:** Pediatric medical clinic for specialty and subspecialty care of seriously ill patients

**Objectives:** Replace outdated equipment with new high-efficiency units with no disruption to clinic life; give Nemours facilities personnel remote access to chillers

**Major Design Drivers:** 100% reliable, comfortable indoor temperature; energy savings; remote monitoring and diagnostic ability

**Design Considerations:** Dismantling of old units for removal without door modifications; disassembly and reassembly of new units on site; phased introduction of new units so clinic was never without cooling capacity, or without backup equipment

**HVAC Equipment:** Two Carrier 23XRV Evergreen Chillers; Carrier Comfort Network controls system

**Unique Features:** The modular design of the 23XRVs made the phased upgrade possible, as the old units were dismantled one by one and new units introduced and brought online in a staggered schedule; work conducted mainly on weekends to avoid disturbing the patients and staff

**Installation Date:** 2006

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