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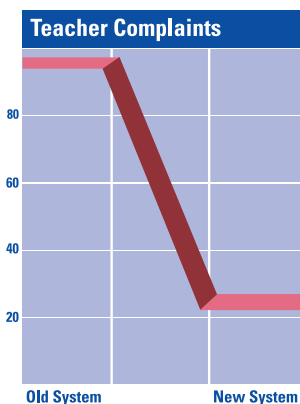
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Case Study – Prince of Peace Church & School

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



Carrier Chillers Reduce Maintenance Calls by 75%



Carrier's 30GTN air-cooled chillers helped the Prince of Peace Catholic Church & School improve air comfort and reduce teacher complaints by 75%.

Project Objectives

When it gets hot in Plano, Texas, it gets truly hot. Severe demands are placed on air conditioning equipment with 227 days each year exceeding 95 degrees and relative humidity often exceeding 80% during normal business hours. Unfortunately for the Prince of Peace Catholic Church & School in Plano, Texas, their nine-year-old gas-fired absorption chiller system just couldn't keep up with the heat and humidity. The system would frequently fail for extended periods, resulting in uncomfortable conditions and inordinate service costs. The church turned to Josh Kahn of Kahn Mechanical, and Carrier, to meet their need for improved comfort and reduced maintenance.

Solution

Two Carrier 30GTN 160-ton air-cooled chillers were selected to replace three existing 100-ton gas-fired absorption units. The 30GTN's history of high efficiency and low maintenance were key factors in the decision to replace the existing equipment.



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"Now, I'm getting at least 65-75% less calls from teachers complaining about the heat and humidity of their rooms. And that means 65-75% less calls to my mechanical services contractor. We set the temperature and let the system work as it was designed."

Bob Boese

Assistant to the Pastor
Prince of Peace Catholic
Church & School

Project Synopsis

The Prince of Peace Catholic Church & School is a mixed-use facility that operates 14 hours a day, every day of the year. Located in Plano, Texas, the church contains a private school (for 750-800 students and faculty) and a sanctuary for Mass and other ceremonies.

The original gas-fired absorption system was poorly designed and undersized for the building. If there was a slight bump in humidity, the system would lose 10-20% of its efficiency. With hundreds of children, teachers and staff in the building during the hottest parts of the day, this meant hot, humid rooms and an unhappy learning environment.

The complex design of the existing chiller plant, with its three 100-ton gas-fired absorption chillers and attendant piping, made any problem difficult to detect and correct. The old system's multiple cooling towers also wasted water and regularly overflowed meaning the roof was often wet. The gas-fired system, which consumed 3-million BTUs, was expensive to operate.

In addition to high operating costs, the plant also suffered from frequent failures resulting in unplanned service calls and higher than expected maintenance costs.

That's when Josh Kahn and the team at Kahn Mechanical stepped in to create a system that solved the comfort and maintenance issues while keeping within a tight budget. Kahn's award winning design prominently featured two Carrier 30GTN-160-ton Air Cooled Chillers.

Kahn turned to Carrier chillers for their proven dependability and operating efficiency. And the 30GTN's ComfortLink™ control system easily integrated with the existing open-protocol control system.

"The design build business is all about assembling the most responsive, knowledgeable team. This team must understand the ultimate goal of absolute adherence to the client's requirements, and possess an unending commitment to delivering on every promise. Kahn Mechanical has had great success with the Carrier brand and the team of Carrier North Texas in meeting the needs of our clients," said Kahn.

The church is now benefiting from significant gas and water savings. "We did a cost analysis before installing the system and are operating close to what we projected the savings to be," said Bob Boese, assistant to the pastor of Prince of Peace Catholic Church & School.

After a year with their new system, Prince of Peace has experienced far fewer comfort and service problems, resulting in immediate maintenance and service cost savings, and fewer headaches for Boese.

"Now, I'm getting at least 65-75% less calls from teachers complaining about the heat and humidity of their rooms," said Boese. "And that means 65-75% less calls to my mechanical services contractor. We set the temperature and let the system work as it was designed."

Kahn Mechanical was the recipient of *Contracting Business* 2004 Design Build Award (retrofit/renovation less than \$500,000) for the Prince of Peace Catholic Church & School.

Project Summary

Location: Plano, TX

Project Type: Applied replacement

Building Age: 10 years

Project Cost Range: \$415,360

Project Contact: Bob Boese, Prince of Peace Catholic Church & School

Building Type/Size: Church, Private School/approximately 120,000 square feet

Building Usage: Active religious facility for worship and education

Objective: Retrofit all central cooling, heating and electrical services

Major Design Drivers: Lowest life cycle cost. Major improvements have been delivered in reduction of energy (gas/electric/water combined), maintenance expenses, service repair expenses and equipment uptime.

Installation Dates: September 2003 – March 2004

Design Considerations: Retrofit of three nine-year-old 100-ton gas fired absorption units. The installation of all equipment, piping modifications, electrical upgrades over a short time-frame with only one 24-hour shut-down of the facility. The work was performed with no other disruption of service to the facility.

HVAC Equipment: Two 30GTN- 160-ton air-cooled chillers, ComfortLink controls

Unique Features: Fixed speed primary/variable speed secondary pumping

Total Cooling (tons): 340 tons

Contractor/Engineer: Kahn Mechanical