Desiccant system sews up savings and IAQ for Oklahoma City surgical suites.

St. Anthony Hospital in Oklahoma City was founded in 1898, and is a private, not-for-profit, multi-campus hospital and regional referral center. The 615-bed tertiary care facility provides general and acute care services including cardiology, oncology, behavioral medicine, surgery, kidney transplantation, orthopedics, and a variety of other disciplines. With approximately 2,600 employees, the hospital administration understood the need to update their facility and equipment to compete with other hospitals for doctors, staff, and patients. Thus a 10-year, $220 million renovation is underway to enlarge the facility and incorporate the latest in medical technologies.

Operating on the surgery center

The first major phase of the renovation was a complete overhaul of the surgery center.

This $30 million project required a new chiller plant, boiler plant, air-handling systems, and an active desiccant system. Munters Corporation was selected as the vendor of choice for the desiccant system that would pre-treat the outside air for the new surgical suites.

Humidity is a constant challenge in surgical environments. Surgeons need

Construction teams renovated the St. Anthony Hospital in Oklahoma City. This project provided for doctors, staff, and patients advanced equipment and cutting-edge features in the hospital's facilities.

Case Study: St. Anthony Hospital

BENEFITS

- Cost-effective temperature and humidity control in surgical environments, providing a more comfortable environment for doctors, staff, and patients
- Healthy, clean dry air, free of moisture and discouraging bacteria growth
- Reduced liability/risk
- Assured structural integrity
- Easier building maintenance

the operating rooms to have both a low temperature and a low rh. This ensures that surgical surfaces and instruments remain free of moisture, discouraging bacteria growth. For some surgical procedures, low temperature reduces the metabolic rate to lessen the impact of the surgery. Low humidity is also required to avoid "fogging" of optic systems used in minimally invasive surgical procedures. Any failure to maintain those conditions is completely unacceptable.

"Cooling-based systems are inefficient because they must cool the air to the desired dewpoint in order to provide the humidity required," said Michael Hayes, sales engineer for Munters. "This requires a very low leaving air temperature and low temperature refrigeration systems. Additionally, they overcool the air and require substantial reheat to keep the rooms from getting too cold. These systems are costly to operate and may not provide the desired conditions under all circumstances."

The desiccant dehumidification system at St. Anthony provides the desired temperature and humidity without the need for special refrigeration systems and without the inefficiency of cooling and reheating. This ensures better IAQ and a more comfortable environment for doctors and patients. The desiccant dehumidification system at St. Anthony was specified to provide the required temperature and humidity without the need for special refrigeration systems and without the inefficiency of cooling and reheating, ensuring better IAQ, and a more comfortable environment for doctors and patients.

Above: The desiccant dehumidification system installed, will not only provide cost-efficient temperature and humidity control, but also a more comfortable environment for doctors, staff, and patients.
Bottom left: With the new dehumidification systems installed, surgeons have noticed an improved performance of their medical equipment and the conditions of the surgical facilities.

Investigating all possible options

Mitch Green and Chuck Mayfield of Engineered Equipment worked closely with hospital personnel and design engineers to ensure the best system was installed. Green noted, "Most of us on the team have been patients in this hospital or have had family in this hospital over the years. We were very motivated to create the best possible facility, so we made a lot of trips to investigate every possible option before settling on this technology as the best combination of performance, operating cost, and first cost. The system has been operating for some time now and has exceeded our expectations in every way."

"The architects and engineers working on the surgery project included the physicians and surgeons throughout the entire design process," said Sandra Payne, executive director of marketing for St. Anthony. "It was important to St. Anthony's that the building's designers valued the input from the physicians, because ultimately they know what is best for them and their patients. The hospital has been successfully recruiting surgeons since the completion and opening of the new surgery facility."

A pleasing performance

The mechanical contractor was also pleased with the performance of the new equipment. "The renovation and surgery addition at St. Anthony Hospital includes the addition of 39,000 square feet above an existing building to support surgical suites with sterile core functions and approximately 30,000 square feet of backfill to accommodate pre-op, PACU, and surgery support spaces," said Mike Clark of Matherly Mechanical Contractors Inc.

With 15 state-of-the-art operating rooms that range from 675 to 900 sq ft, the surgery center now offers the most advanced equipment and features.

"We are very excited about the new Margaret Vessels Love Surgery Center," said Joe Hodges, president of St. Anthony Hospital. "It offers the very finest in cutting-edge surgical care, with special, small touches that provide comfort and ease for patients, families and medical professionals alike."

The surgeons are extremely pleased with the results of the renovation and addition to the hospital. The excitement from the project's completion has also encouraged more surgeons to practice at the hospital.