Sarah Cannon Cancer Hospital

Project Case Study

Overview:

Sarah Cannon Cancer Hospital tower provides critical health care services in Plano, Texas. Located on the Medical City Plano campus, the 138,000-square-foot facility holds 90 patient beds as well as additional operating and recovery rooms. The new tower includes 30 specially designed burn and trauma ICU rooms on the third floor that can provide emergency treatment in the event of a mass casualty event that results in multiple serious burn injuries.

Recently, the U.S. Green Building Council designated the four-story hospital with its Leadership in Environmental and Energy Design (LEED) v4 Gold certification – the first hospital to achieve this level of certification. It is the second health care project to earn LEED v4 certification, and the first in Texas.

Project:

When Texas AirSystems was chosen to select the HVAC equipment for the new tower expansion, the team chose three main focuses to create a safe, efficient, and comfortable hospital:

1. Protecting indoor air quality, temperatures, and humidity levels in patient rooms
2. Reducing energy consumption and costs
3. Mitigating external cooling tower noise pollution

Technical Solution:

The facility's patient rooms have specific temperature control requirements of 70-100 degrees Fahrenheit, varying humidity levels, and a need to improve indoor air quality for the overall health of the hospital patients and employees. By selecting Condair humidifiers, Texas AirSystems was able to ensure that relative humidity levels would be kept between 40 and 60% to limit the range where bacteria and viruses thrive.

On top of climatizing medical rooms, the Texas AirSystems team helped design the full building to be 26% more energy efficient than the energy code – not only besting the baseline set by ASHRAE 90.1-2015, but also creating a potential $112,000 annual savings in energy costs for the medical facility.

To help achieve this level of energy reduction, the team selected a chilled water system consisting of magnetic-bearing YORK chillers, which consume less energy per ton of cooling load than standard centrifugal chillers and can operate at lower condenser water temperatures. The team also introduced a heat recovery chiller, designed to carry the full heating load for the building throughout the summer months using the heat from condenser water.

Finally, with the new tower only 60 feet from the property line, it was important to prioritize noise-reduction technology. Special low-speed fans were chosen for the BAC cooling towers to control noise level while not compromising the capacity, and Vibro-Acoustics sound attenuators were provided for intake and exhaust around generator air.

Summary:

By prioritizing indoor air quality, energy savings, and noise reduction, the Texas AirSystems team was able to provide the Sarah Cannon Cancer Hospital with the perfect HVAC system custom-fit for the needs of their new tower – and were able to reduce energy costs in the long run.

As the first LEED v4 certified hospital, the Shannon Cannon Cancer Hospital has set the precedent for energy reduction in healthcare.