

Decatur County Community Schools *Energy efficiency upgrades save nearly \$600,000/yr, prevent emissions of more than 3,200 metric tons of carbon dioxide annually • Greensburg, IN*

Decatur County Community Schools includes two elementary and two high schools, serving approximately 2,195 students in grades Pre-K through 12. The school district believes in personalized student learning opportunities through the integration of technology and curriculum, and focuses on encouraging students to persevere to meet academic challenges with openness, enthusiasm, and a willingness to solve problems.

Challenge

An assortment of outdated HVAC equipment at Decatur County Community Schools had become inefficient and expensive to operate. Pneumatic controls required the facilities manager to travel between four widespread school locations to manually maintain and adjust equipment, a time-consuming and difficult to manage process. The district sought to replace its outdated systems to improve comfort and the educational environment for students, as well as reduce energy consumption and operational costs.

Solution

The upgrade was broken down into several smaller projects, each providing increased efficiency for Decatur County Community Schools. Based on a competitive bid process, and trusted relationships with technicians and account personnel, the district selected Trane for the upgrade.

Ensuring reliable comfort

A 225-ton Trane® Helical Rotary Air-Cooled Chiller (RTAC) was installed at each high school, and a 155-ton RTAC split chiller with remote evaporators was installed at each of the two elementary schools. The RTAC chillers with direct drive, low speed compressors offer lower life cycle costs and have been extensively tested to help ensure reliable operation over a wide range of operating conditions. Energy efficiencies of the chillers exceed ASHRAE 90.1 standards.



It is the mission of the Decatur County Community School District to create a safe and caring environment where each individual can grow intellectually, socially, and emotionally.

Improving indoor air quality

Trane UniTrane™ fan-coil units improve indoor air quality with design features, such as closed cell insulation, sloped drain pans and fresh air dampers, and feature low operating sound levels to provide a comfortable learning environment. The units are constructed with heavy gauge steel, and offer attractive styling so as not to detract from the aesthetics of the buildings. With factory-installed piping packages and unit-mounted controls, installation time and labor costs were reduced. Having few moving parts, the variable speed EC motors in the fan coil units require less maintenance, and are reliable and energy efficient.

Reducing energy costs

Each fan coil unit is set up for single-zone variable-air-volume (VAV), adjusting motor speed, temperature and air volume in response to individual needs and varied occupancy levels within the building. Operating at low speed for partial loads lowers energy use and improves dehumidification, a key factor for IAQ and comfort.

Streamlining operations

The school district uses a web-based Trane® Tracer™ SC building automation system (BAS) to customize settings and control its heating and cooling systems. Unique sequences are employed to reduce energy consumption, and maintain classroom comfort during the school day and for after-hour activities. Using an iPad, the facilities manager can remotely check and adjust air conditioning run times, water temperature, and fan speeds in each of the district buildings. Tracer™ ES links all four building sites to provide an enterprise-wide view of the district schools, helping to streamline operations and reduce travel time between schools to manage each building. The Tracer™ system is also used to track energy usage patterns, allowing the facilities manager to investigate unusual consumption. To further reduce energy cost, occupancy sensors are used to turn lights off automatically in rooms unoccupied more than five minutes.

Maintaining optimal system operations

To keep systems running at their best, Trane factory authorized service technicians perform periodic maintenance, saving the facilities manager the time required to plan, schedule and manage routine service. The proactive approach helps ensure more efficient system operation, extends equipment life, and is less costly than emergency repairs.



Trane Helical Rotary Air-Cooled Chillers provide reliable operation and exceed ASHRAE 90.1 energy efficiency standards.

Results

With energy efficiency upgrades saving nearly \$600,000 annually, Decatur County Community Schools has been recognized by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy as one of the nation's most efficient school districts. According to the EPA, the district's efforts prevent the emissions of more than 3,200 metric tons of carbon dioxide a year. The funds saved through the improved efficiencies have allowed the district to designate more dollars for teacher salaries and higher quality education.

"Controls are a huge part of the energy savings," said Don Lewellyn, maintenance director and energy manager, Decatur County Community Schools. "The prior equipment could only be turned on or off, which meant maintenance crews could not make daily adjustments in all buildings, only seasonal ones. Now, I make scheduling changes just about every day."



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