

Solving the HVAC Challenges of Kansas K-12 Schools

Johnson Controls

Like many elementary and secondary schools across the country, Kansas schools are currently operating with insufficient funding. In late June, the Kansas State Supreme Court ruled Kansas public school funding inadequate but gave the legislature another year to fix it.

Despite lack of funds, school districts are committed to providing students with a safe and comfortable learning environment. But as classroom size increases and school facilities age, indoor air quality is often compromised due to insufficient air conditioning and ventilation. These adverse conditions can make it difficult for children to concentrate and focus on learning.

In addition, rising energy costs and older, inefficient HVAC systems can put an ongoing strain on operating budgets. While installing a new HVAC unit is a major capital expense, it can be less challenging if school administrators explore new and smarter ways to do more with less.



Rooftop units offer a wide capacity range.

Rooftop Units

Schools need to be comfortable, but they do not require the precision temperature control necessitated by facilities such as hospitals and laboratories. Therefore, rooftop units (RTUs) are an optimal solution, since they offer a wide capacity range and are well suited when there is limited mechanical space in the building.

RTUs can be easily retrofitted in existing buildings or used in both additions and renovations. Many smart RTUs offer plug-and-play installation to get the system up and running faster and, in turn, further lower first cost. Additional short- and long-term savings can be attained by strategically placing RTUs to support classrooms with shared exposures, resulting in shorter duct runs and maximum cooling output in classrooms.

Maximum Performance

Tighter school budgets can also put additional pressure on maintenance staffing lev-

els, which only adds to the challenge of providing safe and comfortable learning environments for students. Many schools do not have the funds needed to invest in a building automation system (BAS) and lack training resources required to operate a complex BAS. Unfortunately, schools would benefit greatly from BAS intelligence to improve comfort and reduce costs.

Smart building control systems such as Verasys® provide simple, easy-to-use solutions for buildings ranging from 5,000 to 100,000 square feet. RTUs integrate seamlessly with smart equipment, which can self-identify on the control network without the use of special programming tools. Simple plug-and-play technology makes these systems highly affordable, easy to install and operate with minimal training.

Similar to a residential smart thermostat, the smart building control system and equipment connect through self-discovery, creating a data-enabled RTU at a lower cost with

easier installation, commissioning and service. Using simple and intuitive interfaces with easy to understand graphics, facility managers can administer individual temperature control of rooms dependent on their configuration and daily requirements.

Smart control systems also offer real-time access to critical data including space temperatures and setpoints, equipment scheduling, space occupancy, equipment status and notifications/alarms. Facility managers also have access to extensive operating history to make sound, informed decisions to fine-tune operations and increase efficiencies.

Proactive Maintenance

Studies show that a decision to correct a problem can take 20 times longer than the actual repair. Facility managers faced with an emergency repair know it can be much costlier than replacing a failing component. However, RTUs that are connected to a smart building control system can be outfit-

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ted with Fault Detection and Diagnostics (FDD) that monitor equipment continuously and detect when one or more critical parameters are outside specification.

Facility managers are alerted in real time via email, text or alarm via laptop, tablet or mobile device. Unplanned school closings and costs associated with unnecessary repairs can be prevented to help minimize downtime and costs associated with emergency service calls. With smart control systems, schools can reduce unplanned or emergency repairs by up to 66 percent as well as up to 65 percent in the overall time to repair equipment (www.verasyscontrols.com). Smart control systems also comply with building efficiency regulations and directives to help with code compliance.

Smart Control Systems

Due to budget constraints, facility oversight may just be a small share of a manager's responsibilities. Fortunately, smart building

control systems allow one person to remotely monitor the performance of an entire school district.

These systems use a highly secure, password-protected gateway with multiple layers of authorization commensurate with the level of responsibility. Additionally, they can be integrated with a variety of other building equipment including lighting, irrigation, refrigeration, electricity metering, and security and life safety alarms.

When it comes to maintaining these systems, schools located in remote communities may have limited access to HVAC technicians, supplies and expertise. The good news is, no special tools are needed to service and support the Verasys system. When Verasys is paired with a smart RTU, the skill set needed to maintain and repair the system is minimal.

Students and educators in Kansas K-12 schools deserve comfortable spaces to teach and learn. Facility managers saddled by

budgetary constraints need a low-cost HVAC solution that provides a high level of comfort while proactively reducing costs associated with unnecessary system repairs and failures.

Smart RTUs, when paired with Verasys building control systems, provide a powerful combination for Kansas K-12 schools to keep students and teachers comfortable while lowering the total cost of ownership for the lifespan of the unit.

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