



Kansas City Public Schools

Kansas City, Missouri

June 2017

Performance guarantee funds re-commissioning to restore mechanical equipment operation throughout District, resulting in significant energy savings to the District and \$1.3 million in rebates; keeps schools open during extreme hot/cold weather conditions.

Challenge

With approximately thirty-nine buildings in the district, Kansas City Public Schools was facing the overwhelming challenge to correct mechanical issues, needing to repair, update, or replace major pieces of equipment throughout the District. Unable to fund an extensive upgrade through conventional means, the District had tried quick fixes to keep systems running, but was unable to resolve its comfort issues. As a result of the broken equipment, many District schools did not provide an adequate educational environment and in some cases were not able to hold class due to equipment failure. Having reached a tipping point, the District sought a solution to its needs and turned to Trane after going through a competitive selection process.

"When I came to the District and toured the buildings, I quickly realized that the schools were in disrepair due to lack of preventive maintenance over a period of years," said Darrel Meyer, Chief Operations Officer, Kansas City Public Schools. "The equipment was older and in disarray, the louvers were dirty, and the incandescent lights in the gymnasium were buzzing. In some of the older schools with radiators, the only way to adjust room temperature was to open the windows. It was my goal to repair/replace outdated and broken equipment and develop a maintenance program to take care of the improvements. The District also implemented an energy and sustainability program that would make the District a leader in the educational community."

Solution

Investigating its options, Kansas City Public Schools hired Trane to perform an audit of equipment throughout the District.



Kansas City Public Schools boasts an enrollment of 16,000 students, spread across twenty-four elementary schools, two middle schools, six high schools and adult, alternative and technical education centers.

Trane proposed the use of an energy performance guarantee agreement from its Trane® Building Advantage™ portfolio of energy services to finance the needed improvements. The performance agreement would allow the District to use guaranteed energy savings to fund equipment upgrades, rather than financing through a difficult-to-obtain bond issue.

Knowing the customer could not afford to replace every piece of mechanical equipment, Trane proposed the concept of re-commissioning to fix, repair or replace broken pieces of equipment. Instead of spending its budget to complete major projects at a few of its facilities, re-commissioning would enable Kansas City Public Schools to perform smaller upgrades at all of its schools in need.

Maximizing funds and resources

Trane established a process and workflow for the widespread upgrade based on criteria outlined by the District. This gave the technicians authority to complete repairs as needed, while requesting them to get bids for larger upgrades. With extensive manpower available, Trane was uniquely qualified to perform the re-commissioning work without hiring outside resources, allowing them to maximize the District's budget.

Performing widespread re-commissioning

Trane implemented the re-commissioning concept, dedicating four technicians to the project over eighteen months. The technicians completed work at thirty-two of the thirty-nine buildings, evaluating more than 3,200 pieces of equipment to ensure that every piece was operational. The team repaired, tightened, or replaced components on a wide range of equipment, from a variety of suppliers, including 200 exhaust fan motors, VAV boxes, chilled water systems, and pumps. As part of the project, each piece of equipment was tagged and downloaded into the SchoolDude® asset management software tool. Preventive maintenance templates for major pieces of equipment were also uploaded to the software tool, providing a clear path for the school district to maintain the equipment.

Results

Kansas City Public Schools and Trane transformed the school district with widespread re-commissioning designed to restore operation of mechanical equipment throughout the District. The upgrades have drastically enhanced the educational environment for the students and teachers with improved comfort and humidity control, enabling District schools to open and remain open during extreme hot/cold conditions. Since project completion, test scores have improved, the District has earned the necessary points to put it on the path for full accreditation, and banks have opened up as a lending



Trane technicians spent eighteen months fixing, repairing and replacing more than 3,200 pieces of equipment at thirty-two District schools.

source. The efficiency upgrades have resulted in significant energy savings to the District. Trane also assisted the District in obtaining \$1.3 million in utility rebates from KC Power & Light.

"The energy performance project with Trane has been very successful," said Meyer. "On any given morning, we were dealing with emergencies related to heating/air conditioning systems, water services and lighting. Systems that hadn't worked properly for years were either replaced or repaired to provide a better educational environment for students, staff and parents. The District is educating staff and teachers on additional ways to save energy, and we are even taking some of the learnings into the classroom."

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