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UNION STATION



LOCATION:

Kansas City, MO

SERVICES:

Building Automation System, Facility Upgrades, Building Intelligence Platform and Multi-media promotion

\$203,000
PROJECTED ANNUAL SAVINGS

850,000
SQ FT FACILITY

STRATEGIC ENERGY & MAINTENANCE PROGRAM

Union Station, located in the heart of Kansas City, is home to a museum, movie theatre, restaurants, planetarium, historic train station and internationally renowned Science City educational center for children. Union Station and their operations manager, MC Realty, partnered with Performance Solutions to optimize their building systems and create a self-funding deferred maintenance and energy plan that would keep Union Station running at optimal performance for years to come.

Challenges

MC Realty wanted a partner to help address inconsistent temperatures and humidity for visitors and tenants, a failing building automation system, and deferred maintenance. They needed a long-term solution that would help automate central plant operations and free up maintenance staff to work on preventative maintenance.

Solution

Building Automation System

A Building Automation System (BAS) is a facility's centralized control center, ensuring critical equipment turns on and off as designed. To generate more savings, Union Station replaced most of its BAS and elevated their operations from a desktop based controls systems to a web based system. Now Union Station's maintenance team receives notifications on their phones via emails, texts, or calls. Previously, the security office printed a copy of the alarm, alerted the maintenance staff on call to drive down to the Station and address the issue. Now staff can remotely review the alarm and decide on the appropriate course of action.

Facility Upgrades

Our team repaired and recommissioned equipment in Union Station's central plant and surrounding buildings. We optimized the chiller plant by taking control of the motor speed in all pumps and cooling towers. We also converted 9 Air Handling Units from constant to variable volume to control humidity. One exterior wall in Science City had a large opening above the ceiling allowing outside air in and cooled/heated air out. Once the wall was extended, and the hole fixed, the units servicing Science City experienced a dramatic decrease in load. Three chillers were upgraded with new control panels which allowed more detailed data to be pushed to the BAS. This data is used for improved control of the chillers through the BAS and to monitor the health of the machines.

Building Intelligence Platform (BIP)

To maximize the value of the BAS upgrades, a Building Intelligence Platform (BIP) was implemented. MC Realty and Union Station can dig deeper into the data and find trends in performance issues. Discovering these trends can help further troubleshoot underlying causes of alarms. If needed, the teams can analyze the performance of equipment in real time. BIP also includes an energy management portal where all utility bills are collected and audited. This also tracks utility consumption and cost which helps ensure energy goals are on target.

Multi Media Promotion

To encourage others in the community to take the same steps toward sustainability, the team created an educational kiosk housed in Union Station's Science City. The kiosk was designed to share the power of energy efficiency on utilities with the community. The kiosk is modeled after Union Station's central plant. The kiosk integrates sound bites from the chiller housed in Union Station's facility and is designed to reflect aspects of the replacement equipment. An interactive game educates the user on energy efficient practices and reducing waste at home.

The kiosk teaches visitors tips and tricks for energy efficiency and highlights its importance. BCS Performance Solutions is hopeful that this kiosk will help spark the continued growth of sustainability in the Kansas City area and teach residents easy ways to reduce their utility spend.

Results

Union Station is on their way to a 16% decrease in electricity consumption and a drastic increase in energy efficiency. Union Station has saved 2,811 metric tons of Carbon Dioxide. That's equivalent to 15 railcars worth of coal burned or 6,508 barrels of oil consumed. Their projected annual savings is \$203,000 and the utility rebate will be \$741,000.