



Enhanced Security Through Energy Upgrades

By Dan Dowell

A Pennsylvania school district uses energy and operational savings to upgrade security.

West Mifflin Area School District, a suburban district south of Pittsburgh, Pennsylvania, wanted to upgrade the safety and security infrastructure of its facilities, but like many school districts, it did not have available funds.

Rather than take on additional debt, district officials began looking for ways to cut energy consumption and use utility savings to fund the upgrades.

The district partnered with a local energy performance contractor to study the district's energy usage. A technical audit provided data that helped the district and performance contractor develop a customized energy usage solution.

By installing energy-efficient equipment, district officials could decrease the district's operating budget and reallocate those savings to fund the infrastructure and security upgrades.

Creating Savings with Better Control

The energy performance contractor and school officials studied the district's six buildings, examining their structure, water usage, lighting expenses, and building automation system performance to identify areas for improvement.

For example, each facility's building envelope—the physical separator between the conditioned and unconditioned environment of the building—was assessed for gaps, cracks, and holes, which were sealed to control air infiltration. Repairs reduced wasted energy, discomfort, and humidity-based issues, including mold and allergens.

A detailed survey of the facilities' lighting fixtures uncovered opportunities for additional energy and operational savings. For example, based on the assessment, lighting will be upgraded and retrofitted with



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Upgraded security systems at Pennsylvania's West Mifflin Area High School include captive entrances to control access to the building.

high-efficiency LED systems at each of the district's six facilities.

Although a plan to reduce energy focuses on mechanical and electrical equipment, water usage can also play an important role in a facility's energy consumption. School districts consume a large amount of water every day for heating and cooling, restrooms, drinking fountains, locker rooms, and cafeterias, among other uses. Water conservation systems were installed at five of the school district's six facilities, including low-flow fixtures and pedal valves.

The district will be able to realize savings by updating building automation control systems to maximize energy and operational efficiency, ensuring that officials can minimize wasted energy. The building automation controls provide administrators with the opportunity to customize temperatures



West Mifflin Area High School is benefiting from the district's energy savings in the form of facility improvements and security upgrades.

and lighting levels for each room, including reducing energy usage in unoccupied rooms.

The customized solution includes a preventive maintenance plan to keep the energy-efficient equipment operating at peak performance for the district's facilities. West Mifflin Area School District's staff members were trained to use the facilities' building automation systems and developed schedules for equipment maintenance.

The training provides in-house staff with the ability to monitor data and quickly address inefficient energy usage. It also increases the opportunity for the school district to achieve the greatest savings possible.

More than Just Energy-Efficient Facility Upgrades

The district's goal is to provide a safer environment for students and staff. The savings from the infrastructure and energy-efficient upgrades across the school district's facilities will allow officials to install state-of-the-art security upgrades district-wide.

The upgraded security systems will include captive entrances in each facility, enabling staff and administrators to monitor and control access to the buildings. It will include new surveillance cameras

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at each building, as well as a rapid emergency response system to give staff an instant connection to local first responders.

With such robust energy and operational savings across the district, West Mifflin Area School District officials are able to provide additional educational opportunities for their students as well.

As the demand for graduates with science, technology, engineering, and mathematics (STEM) skills increases, the district plans to add a customized STEM laboratory at West Mifflin Area Middle School. The district has already implemented a robotic STEM program to drive educational initiatives aimed at supporting critical and analytical thinking. The new STEM laboratory will support the program and help district officials build on its robotics curriculum.

Investing in the District's Future

West Mifflin Area School District found the solution to providing a

safer, more secure, and comfortable learning environment using energy and operational savings without adversely affecting its budget. The savings will be achieved by consuming resources differently and reallocating those funds to other areas.

Facility improvements and enhancements began in October 2018 and are expected to be completed in September 2019. By late 2020, the district is projected to have saved \$495,000 in energy and operating costs. Overall, it should see energy and operating costs of more than \$9.9 million over 15 years.

By investing in its facilities' infrastructure to reduce energy consumption, West Mifflin Area School District can make impactful upgrades that will help provide long-term financial stability, enhanced education, and a safe, secure learning and teaching environment.

Dan Dowell is senior vice president for bundled energy solutions at ABM Industries. www.abm.com.