Daylighting and Occupancy Controls Save on Energy Costs at Chisholm Middle School

An increase in utility costs at Chisholm Middle School prompted facility managers to look for ways to save energy. The implementation of a lighting system, which included a number of occupancy sensors and daylighting controls from The Watt Stopper, Inc, reduced energy costs without compromising student and teacher comfort.

David Jordan, PE, of Architectural Resources Inc., who oversaw the project, chose The Watt Stopper's products due to their ability to integrate both daylighting and occupancy based control in classrooms.

We anticipate the greatest savings will be seen from the daylighting controls … since all of the classrooms receive adequate daylight, lights are dimmed a great deal of the day. This saves energy continually.

– David Jordan, PE, Architectural Resources Inc.

The middle school, a 26,000 sq ft campus located in School District ISD 695 in Chisholm, Minnesota, is now equipped with lighting controls throughout the building, including the corridors, offices, bathrooms, the copy room, and classrooms.

The priority for the project team was to take advantage of the abundant daylight present in each classroom. Since daylighting does not fall uniformly across a room, they required a control option that would ensure lighting always remain at required levels in specific zones. The Watt Stopper's LightSaver daylighting controls offered the ideal solution.

The LightSaver LCD-103 Dimming Controllers were installed in each classroom along with LS-190 Light Level Sensors and LS-4 Dimming Wall Switches. The classrooms are divided into three zones, based on how much daylight each zone receives. The LS-190s continuously read daylight levels. The readings are sent to the LCD controllers, which adjust lighting in each zone according to preset footcandle levels.

The LS-4 switches provide manual dimming and on/off control for times when lighting is not needed, such as during films and presentations.

Each classroom also received two Dual Technology DT-200 occupancy sensors. The DT-200s ensure that all overhead lighting remains off when no one is present.

Other areas featuring energy efficient high output T5 lamps (HOT5) were also equipped with lighting controls. Corridors and bathrooms received WT-600 ultrasonic ceiling sensors. Mounted on the ceiling, the WT's ultrasonic technology provides the most effective coverage in restrooms because it can detect occupancy over stall doors.

WPIR passive infrared sensors were installed to control lighting in small offices. The ceiling sensors keep lighting off when it's not needed and were chosen for their reliability in small enclosed areas.

The school's classrooms proved to be an ideal application for The Watt Stopper's daylighting control, with lighting dimmed significantly throughout the day. David Jordan said, "We anticipate the greatest savings will be seen from the daylighting controls. Since classrooms are occupied much of the day and since all of the classrooms receive adequate daylight, lights are dimmed a great deal of the day. This saves energy continually."

By using a combination of daylighting controls and occupancy sensors, in addition to new energy efficient HOT5 technology, the school managed to dramatically reduce energy usage.

Students, teachers, and project managers are pleased with the controls, and similar projects at others schools in the area are in the works.