Application Solution
Environmental Monitoring & Control in Schools & Universities

Rising Energy Costs Eat into Dollars Allocated for Education

Energy consumption and costs within schools and universities is on the rise. Within the K-12 school districts this has a particularly painful impact as it eats up dollars that could be better used in the classroom. School officials constantly struggle with how to reduce costs and, inevitably, end up cutting programs, supplies and teachers.

Unique HVAC Problems Exist in Many of Today's Schools and Universities

Schools and universities have traditionally had very poor control of the environmental conditions within their buildings. Constant budget challenges have resulted in a lack of adequate funding for HVAC upgrades. As such, occupant discomfort, lost productivity and wasted energy have become the norm in many of today's aging educational facilities.

Many older schools are drafty and have poor temperature control. There are wide climate differences between offices, classrooms and wings within a building as well as unexplained climate differences between the times of day. Building areas are getting more or less heating or cooling than is necessary and there are often no provisions or schedules for night, weekend and vacation shutdowns or setbacks. And for those schools that may have established policies and procedures for maintaining temperature settings, there is often no easy way for custodians or staff to perform short-term overrides to accommodate after school activities and other events.

Mold Growth During Summer Months is a Big Problem in Many Schools

The summer months often result in significant mold problems for schools in many parts of the country due to higher humidity in the outdoor air; cooling system shut-downs during the summer months in order to save money; and extra indoor moisture due to summertime school maintenance activities such as carpet cleaning and painting.

Excessive moisture in the building leads to mold growth which not only does damage to the school itself but can also lead to an unhealthy environment which inevitably affects the performance and well-being of students and staff. As such, it is imperative to monitor and control moisture levels – even if the building is unoccupied.

Unique and Hard-To-Wire Buildings Often Result in Costly Retrofits

The structural materials used in older buildings (concrete blocks, stone or asbestos) can make retrofit projects extremely costly. The design of newer buildings can pose similar challenges with their open air atriums and extensive use of glass walls. The bottom line for many of these environments is that expanding their monitoring and control capabilities via a traditional wired solution is either too expensive or physically impossible.

Portable Classrooms Pose Unique Challenges

The ability to efficiently monitor and control randomly located portable classrooms is a challenge for many school districts. Requirements to meet indoor air quality standards prove to be more of a daunting task when you've got a large number of small, portable classrooms randomly located across a campus. Gaining control of the environmental conditions within these classrooms without breaking the bank has been a major frustration for many school districts.

Solution

The good news is that more and more schools and universities are beginning to realize that energy costs are controllable and can be managed by (1) negotiating lower energy rates and (2) managing actual energy consumption.

Application Solution

The question is how can they achieve reductions in energy and operating costs while also improving the indoor environment. Expanding measurement and control capabilities is the simple answer. The more difficult question they have been struggling with is how this can be accomplished without making a significant capital investment.

Enter Spinwave Systems: Spinwave wireless sensing solutions make it easier and more cost effective than ever to create and maintain a highly energy efficient school or university. Spinwave's wireless mesh sensor networks can turn your poorly controlled environment into a high performing educational facility - quickly, easily and cost-effectively.

First Step in Comprehensive Energy Audit: As the old saying goes, "you can't control it if you can't measure it". Begin by using Spinwave wireless sensors to establish a clear profile of energy usage. Measure, analyze and document comfort parameters within your building.

Gathering such knowledge is extremely valuable. It can be used to identify problems such as large sources of off-hour energy consumption from poorly controlled HVAC systems and/or energy management systems. Armed with this information, you can begin to develop, promote and implement plans to reduce energy costs while at the same time improving the comfort level within your building.

Reliability of Mesh Networks Provides Peace of Mind: By using Spinwave's wireless mesh sensor networks, you get the validation you need and can rest assured that you are maintaining the appropriate temperature and humidity levels necessary to ward off mold growth during the summer months. Wireless sensor data can be configured to trip a system alarm, notifying facility managers and other building personnel when out-of-range temperature or humidity levels occur.

Quick and Easy to Install: Spinwave's wireless temperature and humidity sensors can be easily mounted at key locations throughout your educational facility as well as mounted in your portable classrooms, capturing temperature gradients and relative humidity values and enabling you to synchronize heating and cooling schedules as well as allow for short-term overrides when necessary.

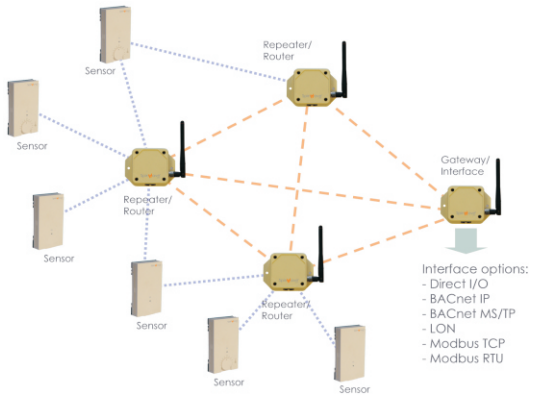
Installation is virtually transparent to students and staff. There is no inconvenience to them and the operations of the educational facility are not disrupted during installation and commissioning of a Spinwave wireless mesh network.

Integrates with Virtually Any BMS System: Temperature and humidity sensor data collected from within your buildings can be easily integrated with any new or existing building automation system. For older legacy systems, Spinwave offers a direct I/O interface and for newer, open protocol building automation systems you can take advantage of Spinwave's BMS Protocol Interface that makes wireless sensor data available as BMS protocol variables (LON, BACnet, Modbus, etc.)

Wireless is an Extremely Cost-Effective Solution: Spinwave's wireless mesh sensor networks deliver a total deployment cost that is up to 60% less than a traditional hard-wired solution. It requires roughly 1/10th of the installation labor of a hard-wired solution and your deployment time is reduced substantially. Project dependencies/delays are all but eliminated, allowing you to quickly and easily get up and running.

The Bottom Line

Spinwave's wireless mesh sensor networks can play a key role in your overall efforts to create and maintain a highly energy efficient school or university. Spinwave's wireless mesh sensor networks can turn your poorly controlled environment into a high performing educational facility - quickly, easily and cost-effectively.



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