



## **Building management systems are going wireless: This technology can greatly benefit your property**

September 10, 2012 - Long Island

iPads - iPhones - Droid - Smartphones it's quickly becoming a wireless world so why not capitalize on wireless technology in the Building Automation arena. Building Management Systems (BMS) are used to gather information and control all aspects of the Heating Ventilation and Air Conditioning systems (HVAC), lighting, door access and sub-metering, and more. The information collected by the BMS is used by building owners and operators to manage their buildings and contain operating costs. Traditionally these systems are made up of components that are hard wired from component to component and then back to a front end where the information can be utilized. The cost of deploying these systems can be expensive and time consuming due to the installation of the device wiring and system networks.

Wireless technology is not new, it just didn't work very well in the past due to weak signals, proprietary protocols and no standards within the industry. Emerging technologies along with marketplace demands have allowed for the standardization of BMS protocols such as BACnet and LON, and these same standards have found their way into the wireless world.

One standard that has had a profound impact on the industry is ZigBEE. ZigBEE is a wireless networking standard that conforms to the IEEE wireless standard, 802.15.4-2003. By adopting this standard, control manufacturers can produce modules that are relatively inexpensive and can be easily incorporated into the wireless network. Each device would contain a radio chip and the needed software to communicate to other devices. These chips consume very little power resulting in years of use prior to the battery needing to be replaced unlike years ago.

Another advantage of ZigBEE is that it is very reliable. Years ago, each device required communication from device to device similar to a daisy chain network. If one component failed the wireless network would be down. ZigBEE works on a "mesh" network principle. Think of the "mesh" network like a big spider web. There are many paths that are available within the web. If a device should fail, the ZigBEE Mesh network is smart enough to simply redirect itself and find another path of communication within the network. The result is a wireless network that is robust and virtually indestructible.

The deployment and engineering of these wireless systems has also become simplified. A trained technician can use tools like a hand held Radio Frequency (RF) transmitter and receiver to survey a site to insure proper signals can be sent and received within a facility. This reduces the guesswork and allows for strategic placement of all devices. As with any wireless system you need to be considerate of the environment you are in and where you are deploying the technology. Things like concrete block, lighting, electrical wiring can impact the quality of wireless signals in the same manner as these items can sometimes affect the operation of your cell phone. Proper planning and engineering is critical to a successful project.

As within any wireless application security is a factor. One could say that a BMS is not as critical as a company's "network," however, these systems are typically intertwined. Adhering to good wireless practices and standards like the use of Wired Equivalent Privacy (WEP) keys, WPA2 "WiFi Protected Access" allows for a stronger encryption of those security keys for a safe secure system. It's always good practice to involve the IT professional on staff where you plan on deploying these systems so you can adhere to their standards and practices.

We have come a long way with wireless technology in our everyday lives and as it pertains to Building Management Systems. Although you may not want to have an entire facility built around wireless technology these devices certainly have their place. We are seeing more of this technology due to cost saving and speed of deployment. As with any technology you need to understand it and the rest is simple.

Scott Schelin, CEM, LEED AP, is the president at Advanced Control Solutions, Bayshore, N.Y.

New York Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540