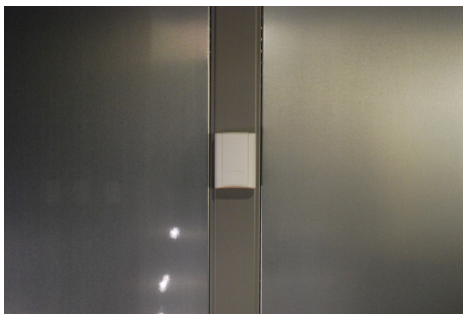
Wireless Environmental Sensing For a Modular Space

VERIS INDUSTRIES™
+1 503.598.4564
www.veris.com

Technical Specifications

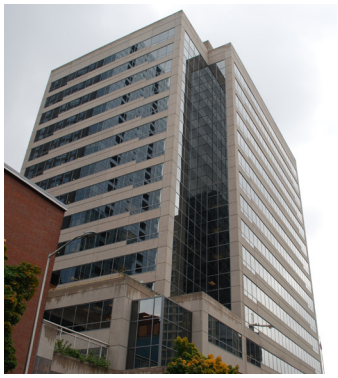
Scope of Installation: 7 floors in a 16-floor high rise
Products Used: Aerospond Wireless TWXW Series environmental sensors
Spacing: 5 sensors per floor, 15-20 feet between sensors. Farthest sensors are 80 feet from the nearest router.



Above: A single TWXW Series device mounted on a modular wall.

Below: A corridor with multiple TWXW sensors visible.

Cunningham Engineering was tasked with providing an Amazon facility with environmental sensing technology to control their HVAC system. The challenge was the office space. Amazon occupies several floors in a high rise building, and they employ a modular office space design for flexibility and future growth. Cunningham knew the solution was to go wireless, and Veris' Aerospond line of sensors eased installation and decreased costs.



Building exterior in downtown Seattle

Project Scope

Cunningham Engineering has used several mesh-style wireless systems in the past. However, mesh technology systems require line-of-sight proximity between sensors, which was not practical for this building. Additionally, most wireless systems utilize proprietary gateway technology to communicate with the sensing devices. This adds to the cost of both the devices purchased and the installation.

Searching for a new solution, Joe Borromeo, Controls Technician with Cunningham, found the Veris Industries Aerospond line of sensors. Veris devices do not require a proprietary gateway in order to transmit data, nor is line-of-sight necessary. Instead, they communicate over any Wi-Fi network. Since Wi-Fi routers were already installed in this space, Borromeo was able to avoid this expense for the HVAC system retrofit installation.

Creative Solutions

The design for the seven Amazon-occupied floors of this building includes modular interior walls that can be shifted as needed to modify workspaces. Borromeo knew that hard-wiring sensors to a building power source would cause difficulties in the future, since wall-mounted sensors would need to be re-wired for power every time the walls moved. John Tsui and Jim Klee at Veris worked with him and determined that the Aerospond TWXW sensors suited his needs best.

The TWXW Series provides accurate temperature sensing with the option to add humidity sensing if desired. Best of all, the TWXW devices are battery powered (5-year battery life if the measurement interval is set to 5 minutes), so no control power wiring is needed. Borromeo decided to affix the sensors to the interior walls using 3M double-sided tape to make it easy for the Amazon staff to shift them to alternate walls as often as needed.

Configuring the Aerospond Sensors

Compared to wireless systems used previously, Borromeo found the Veris Aerospond sensors to be very user-friendly, with an intuitive interface. With one router per floor, installed in a central location, all sensors on that floor are able to send and receive a strong signal. "It is working well, and we are having no issues," states Borromeo.

The HVAC system uses demand control ventilation, with 26 boxes per floor. The Aerospond sensors provide accurate data regarding the interior conditions, so that the HVAC control system is able to maintain a comfortable working environment throughout the day.

Borromeo also stated that Amazon hopes to expand to other floors in this building. When that time comes, he plans to use the same Aerospond system in future installations.