

UVC technology grabs LEED® points at city hall project

► When the City of Sammamish (WA) asked the design team to provide a LEED® Silver certified building for the new city hall at the 25-acre Sammamish Commons redevelopment project, Notkin Mechanical Engineers believed IAQ was of paramount importance.

A key aspect of improved IAQ is to reduce the risk of human exposure to microorganisms that can potentially occur in public buildings. At the same time, the project team wanted to find ways of reducing HVAC energy and operational costs. The use of UVC Emitters™ manufactured by Steril-Aire, Inc., installed in the AHUs downstream of the cooling coils, enabled them to achieve both objectives as well as an ambitious third goal: of becoming the first project to earn a LEED Innovation in Design point for the use of UVC germicidal lights in air handlers.

BLAZING A TRAIL

Being the first is never easy, so when Notkin project engineer Darren Schwend, P.E., saw an opportunity to earn a LEED point for UVC, he compiled a detailed narrative on its proven IAQ, energy, and coil-cleaning benefits. Working with Steril-Aire distributor Air Commodities, Inc., Schwend submitted published studies, articles, and other support documentation to the USGBC to make the case for UVC.

“In fall of 2007, we learned that the project received an Innovation in Design point for UVC as well as the overall LEED Silver certification that we sought,” said Schwend. John Rowland, P.E., Notkin partner, added, “The application of high output UVC lights in mechanical systems is a practical technique that offers benefits for many types of buildings, and we are very pleased that the USGBC now recognizes UVC under their LEED rating system.”

The new 45,000-sq-ft building contains the Sammamish City Hall, police station, council chambers, and public lobby on the first floor. A smaller second floor contains commercial space that will be initially leased while allowing for future growth of the city hall and police station.

Heating and cooling is provided by two packaged rooftop AHUs designed by Petra Engineering. Both are VAV units equipped with DX and hot water coils and are capable of 100% economizer cooling. AHU 1 (24,000 cfm) serves the first-floor municipal facilities, and AHU 2 (9,500 cfm) serves the second-floor leased space.

A DNA KILLING MACHINE

The UVC devices selected for the application are Steril-Aire, high-output, single-ended (SE Series) UVC Emitters, which are designed for easy installation in rooftop systems. UVC energy is the most germicidal wavelength in the ultraviolet spectrum. Properly installed in an air-handling system, UVC lamps emit enough of this energy to penetrate even the tiniest microbe to destroy its DNA and RNA, killing or deactivating it. UVC effectively stops both surface organisms that grow inside HVAC systems and airborne microbes that circulate to the occupied space — including troublesome viruses, bacteria, and mold and mold spores.

UVC continuously cleans coils, reducing or eliminating the need for coil cleaning as a scheduled maintenance task. Because coils stay clean and free of mold and organic debris, they operate at peak efficiency to save energy.

Sevda Baran, project manager for Sammamish Commons, said, “The air quality in the building has been excellent since the UVC lights became



Installing UVC technology in AHUs downstream of cooling coils enabled City Hall in Sammamish, WA to reduce HVAC energy and operational costs, improve IAQ, and become the first project to earn a LEED® Innovation in Design point for the use of UVC germicidal lights in air handlers.

operational about a year ago. We are very satisfied with the IAQ and operational benefits, and we are excited to be the first project to use this technology for LEED credit.”

Baran said that they run the lights 24/7 and plan to replace the Emitter bulbs annually as recommended by the manufacturer. These practices will help ensure that the UVC system maintains the germicidal output needed to prevent mold from growing on the coils or infectious microbes from circulating through the air. **ES**

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