

HVAC/R Contractor Eliminates Industrial Recycling Plant's Reoccurring Ice Machine Mold with UV Lamps

UV light system eliminates 1/4 to 3/8-inch-thick mold and eight-hour contractor service call cleanings every three months.

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Gaithersburg, Md.--Refrigeration service tech Sean Hanyok has seen plenty of ice machine mold throughout his 16-year HVACR career, but nothing tops the microbial build-up he recently encountered at a Washington, D.C., area recycling plant.

The "no ice" service call for the facility's 500-pound/day ice machine required a full eight-hour day of mold removal. Mold growth was 1/4 to 3/8-inches thick in some accumulations that traversed the water distribution bar, the water trough, the water level sensor, evaporator coil and other areas. "Mold was blocking the ice harvest cycle and the machine was shutting off on safety," said Hanyok, one of 45 HVACR service techs employed by Harvey W. Hottel Inc., Gaithersburg, Md., which is rated one of the top ten mechanical contractors in the Washington metropolitan area.

Mold accumulations of this magnitude are no fault of the ice machine itself. No ice machine model would stand up to the facility's inherent environment

of cans, bottles, jars and other collected refuse that act as mold Petri dishes before they're separated, cleaned and recycled.

Besides cleaning, the service call also included a new water filter and gasket inspections. However, three months later Hanyok found the unit again experiencing similar mold accumulations. Although he had successfully used ultraviolet (UV) lights to reduce maintenance and HVACR coil cleaning costs in the past, Hanyok had yet to experience the technology's efficacy inside an ice machine. Regardless, the plant maintenance director immediately opted for its potential in cutting cleaning service call costs and providing healthier ice for employees.

Hanyok installed an Ice UV system by Fresh-Aire UV, Jupiter, Fla., a manufacturer of more than a dozen models of UV light systems for residential and commercial air conditioning systems, ductwork and ice machines. Ice UV is specifically designed for the tight confines of ice machines. It offers a choice of one to four 8 (L) x 3/4 (W)-inch, Teflon-coated lamps powered from an internally-mounted power supply that's hard-wired upstream of the ice machine's control center. Hanyok's 30-minute installation included dual lamps positioned in the most mold-prone areas--the water distribution bar and the door interior. The UV light system runs 24/7 and is independent of the refrigeration circuit; however a safety cut-off reed switch deactivates the unit when the front cover is opened.

The results were impressive. The next three-month periodic check-up showed no mold growth. The original eight-hour cleaning period was reduced to just two hours of routine ice machine lime scale removal. "There was no mold

after the UV light installation and we had a very surprised, but very satisfied customer," said Hanyok.

UV light systems prevent mold, thus they reduce maintenance costs and increase coil efficiency. They're typically positioned inside an ice machine's evaporator area to provide a continuous, chemical-free disinfection with UV-C light. UV-A (used for black lights), UV-B (used in tanning salons and causes sunburns) and UV-C wavelengths are all present in sunlight. However, higher frequency UV-C wavelengths are filtered by the Earth's atmosphere, therefore microorganisms such as mold have no experience or defense against it. UV-C light kills microbes by scrambling their DNA, which prevents reproduction. For that reason, UV-C light is strong enough to sterilize microbes, but not enough to degrade an ice machine's plastic materials.

While ice machine UV lights are a new frontier for Hottel, the 70-year-old mechanical contractor has installed dozens of maintenance-reducing UV light systems on commercial and residential HVACR units. "We've always been very progressive with new technology such as solar and geothermal, so we now recommend UV light systems with all of our commercial design/build project designs," said Leslie Titcomb, operations manager/Commercial Service Group for the award-winning contractor that has completed prestigious design/build projects such as Riversdale House Museum, Riversdale, Md.; Decatur House, Washington; Morven Park Museum, Leesburg, Va.; and the St. John's Church, a Washington-based Episcopal church popular with all recent presidents.

Residentially, the 115-employee contractor has installed hundreds of APCO air purification units as a result of customer inquiries for home indoor air quality (IAQ) improvements, according to Todd McCunn, Hottel's residential operations manager. The units combine UV light for microbial disinfection, gas phase carbon media for volatile organic compound (VOC) purification and photocatalytic oxidation (PCO), the latter which chemically converts the media's adsorbed gaseous contaminants, such as chlorine and acetones, into harmless water vapor and carbon dioxide.

With the success of the ice machine, Titcomb said Hottel commercial salespeople will now be actively marketing UV light systems to their many restaurant customers.

For the recycling client, the UV light system installation payback was nearly instantaneous. An estimate of more than 25 hours of annual cleaning is no longer needed, resulting in more than \$1,000 in service call cost savings. More importantly, the recycling center's employees are getting healthier, mold and odor- free ice.

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About Fresh-Aire UV[®]: Fresh-Aire UV[®] is a division of Triatomic Environmental Inc., Jupiter, Fla., a leading manufacturer and developer of germicidal UV light systems designed for commercial/industrial and residential HVAC systems and ice machines. Among their products is the patented Blue-Tube UV[®], the first 24 volt low-voltage germicidal UV light for HVAC, which has become the most popular product of its type in the world. Fresh-Aire UV's revolutionary APCO[®] (advanced photocatalytic oxidation) system, which combines UV-C light with activated carbon cells for comprehensive odor, VOC and microbial control, was an International Innovation Award winner at the 2011 AHR Expo. Fresh-Aire UV[®] systems are sold through wholesale HVAC/R distributors, specified by consulting engineers and installed/serviced by air conditioning contractors. Fresh-Aire UV[®] continually strives to engineer, develop

and market products to meet the demand for a greener world and healthier environment. The UV products improve air quality, enhance the efficiency of HVAC/R systems and reduce maintenance costs. For more information please visit www.freshaireuv.com, call 1-(800) 741-1195 or email: sales@freshaireuv.com.