

Just a Thought
By Kevin Delahunt

I had the fortunate opportunity to instruct a fourth-year refrigeration class at SAIT in February on Filtration and Indoor Air Quality. My thanks to Tyson Frank the instructor and Brian Zinter the Academic chair for the opportunity.

A question came up at the end of the class regarding the use of Ultraviolet Germicidal Irradiation (UVGI) in air handling units and its efficacy in Indoor Air Quality. A good question and a timely one as well.

UVGI uses short wave ultraviolet (UVC) energy to inactivate microorganisms (mold, bacteria, and virus) by disrupting their Deoxyribonucleic Acid (DNA). UVC doesn't kill the microorganisms but rather sterilizes them rendering them incapable of reproducing and therefore no longer pathogenic. The major application for UVGI is in the Health care industry where it is used effectively for controlling the spread of communicable disease in surgical suites, patient care areas, and Intensive Care units. UVGI is also effective in water disinfection and can be found in use at Calgary's wastewater treatment plants; Bonnybrook and Pine Creek.

The use of UVGI in the commercial market is a relatively new concept and along with filtration and ventilation can offer improved system hygiene, energy efficiency, and indoor Air Quality. Typically, you would install UVGI in the air handling unit to control microbial growth on cooling coils and other surfaces. Keeping the coils free of biofilm (a complex microbial mixture adhering to, and growing on coils, drain pans, and final filters) helps eliminate another potential air contaminant source. Although potentially able to incapacitate microbial growth in an airstream the speed of the air, and the intensity of the lights required, make it cost prohibitive with today's technology.

There are some safety issues associated with the use of UVGI systems, but I can foresee the day where it will be an effective addition to a building's IAQ strategy.

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