



## Improving Efficiency, Air Quality, and Student Comfort with UV-C Technology

Indoor air can contain mildew, mold, bacteria, and viruses—and numerous research reports prove that indoor air quality (IAQ) **affects the health and productivity of occupants**. On top of all of that, air contaminants are also responsible for mechanical issues, including decreases in HVAC cooling capacity, increased need for maintenance, and unexpected coil problems. Ultraviolet (UV-C) technology can be used to remedy many of these issues. When applied properly to air handling units, UV-C can help reduce the maintenance needed on the cooling coil and drain pan, while simultaneously disinfecting the moving air stream.

### How UV-C Technology Works

The National Air Filtration Association states that 95 to 98 percent of all UV-C technology in HVAC systems is applied to coil irradiance to reduce system maintenance. UV-C protects the air handling system by killing microbes that accumulate on the coils. This helps maintain the original heat transfer capacity and pressure drop levels, preventing an energy cost increase of as much as 25 percent. These cost savings are crucial for school districts with strict budgets looking for ways to offset capital improvement costs.

Plus, UV-C lamps typically only need to be changed once a year and provide continuous 24/7 protection. This means that replacements can be scheduled during the summer break, in order to minimize disruptions to regular school activities.

### Helping Promote Student Health and Productivity

Microbes are often too small for the human eye to see. If not controlled, these agents grow and spread throughout a school building, leading to odors, illnesses, allergies, and associated allergy symptoms. Molds and odors cannot accumulate on clean coils and surfaces.

Energy efficiency and high air quality are essential in HVAC equipment. UV-C disinfection technology is one way to help protect HVAC equipment, reduce maintenance needs, and save money. Common microbes in air handling units include:

#### Surface Microbial Agents

This mainly includes fungi (mold) which grow on surfaces. In uncontrolled environments it can survive for extended periods of time.

#### Airborne Microbial Agents

This includes viral and bacterial microbes, which account for 60 to 80 percent of indoor air quality problems.

Preventing accumulation helps improve indoor air quality, which often results in increased comfort and productivity for occupants.

Now more than ever, it's essential that education institutions do all they can to promote a safe, healthy learning environment— including improving IAQ.

## UV-C Service Options

To control surface and airborne microbial growth and transfer, we utilize:

### Surface Decontamination:

We typically focus on this type of UV-C disinfecting method, which is designed to treat the surface of the cooling coil and drain pan of the air handling unit. UV-C lights are placed downstream of the cooling coil and drain pan, where they are attached to mounting brackets installed in the coil segment to help ensure continuous exposure to the coil and drain pan.

### Airborne Inactivation:

UV lighting is placed lengthwise, end to end, in a long section of ductwork. It is designed to attack and eliminate airborne viruses in moving air streams. By increasing the time that the particles in the air are exposed to the light, the UV-C lights can disinfect microbial agents when the air moves past them.



Havel employs highly-qualified technicians to install and maintain UV-C solutions. Our teams are specifically trained to work on these systems, using all required safety protocols and UV-specific PPE. Plus, they have years of experience working in the education sector, which means they prioritize quality service that minimizes disruptions to regular school operations.

## WHAT CAN WE DO FOR YOU?

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