



FREQUENTLY ASKED QUESTIONS (FAQs)

1. What is UVGI?

Ultraviolet Germicidal Irradiation (UVGI) utilizes the light energy in the UVC bandwidth (UVA is used for tanning lamps and black lights, UVB for dermatology and tanning) which produces germicidal effects on pathogens, scrambling their DNA thus “killing” them and making them ineffective.

It has been scientifically proven effective. Thousand of drinking water plants in Europe and waste water plants in the United States use UV as the primary disinfectant.

2. Is UV new and does it work?

The use of UV for disinfection dates back to the late 1800s. It began to become commercially used in the late 1930's by Westinghouse (Louis Veloz, father of the President of UVDI was one of the Westinghouse engineers who developed UV applications). UV has been used widely in water applications as well as in air applications.

3. What is the difference between air purification and surface irradiation?

The primary difference in using UV in air purification and surface irradiation is “residence time”, i.e. the amount of the microorganism is exposed to the UV light. In a moving air stream pathogens are traveling at a high rate of speed and therefore may be exposed for only a fraction of a second. Because of this, it becomes important to apply more UV energy (lamps) to get the disinfection desired.

With surface irradiation, there is an unlimited amount of “residence time”. The UV is irradiating the surface constantly and therefore less UV energy is necessary to “kill” and maintain the surface free of microorganisms. The dose delivered to disinfect is a product of UV energy and time.

4. I have heard that you need “high output emitters” to properly kill microorganisms. Is this true?

Not necessarily. As noted above, UV's ability to be effective depends on residence time. With air purification, more UV energy is needed to “kill on the fly”. This can be accomplished with any UV lamp combination.

With surface irradiation high output lamps are not needed because of the unlimited residence time. In fact, having high output lamps is not energy

efficient and the excessive UV irradiation can be detrimental to other component in an HVAC unit.

5. I have heard that one high output lamp is sufficient to irradiate coils. Is this true?

Not necessarily. UV can only “kill” what it sees. Depending on the size of the air handling unit and the coil, one lamp will not be sufficient regardless of output. The key is to reduce the “shadowing” effect. UVDI recommends that the entire surface of the coil be bathed by UV to reduce the shadowing effect.

6. I have heard that you do not need to clean the coils prior to installing a UV system. Is this true?

A UV system can be installed without prior cleaning of the coils, thus killing a large build-up of organic material and allowing it to be distributed by the HVAC system, which is not recommended. It is UVDI’s recommendation that the coils should be cleaned prior to installation. Following installation, the UV will maintain the clean coils and reduce if not eliminate the need for coil cleaning.

7. Are the UVDI UV units UL approved for use in HVAC systems?

Yes. UVDI took the extra step to have their units UL approved to UL’s Category Code ABQK specification, HVAC Accessories, Air Duct Mounted. Competitive models chose not to seek this approval, instead they received UL approval for “damp environments”, using a light fixture that is not necessarily suitable for use in an air duct.

8. In relation to a cooling coil, where should the UV system be installed?

Placement of the UV system depends on what you see. It is UVDI’s recommendation that the coils be inspected, following inspection a determination can be made as to where to place the unit depending on what you see (e.g. mold on the downstream side of the coil with clean coils upstream).

9. Do the UVDI systems produce ozone?

No. The consensus among experts in the field of IAQ is overwhelmingly against ozone in air of inhabited spaces. The lamps used by UVDI do not produce ozone.

10. Does it replace filters?

No. UV does not remove particulate. The lamps are an additional component in a HVAC system. In combination with filtration, UV has been shown to be very effective in the “capture and kill” of larger airborne pathogens such as spores.

11. Do I need UVC if I use treated filters?

Studies have shown that after a layer of dust accumulates on the surface of an antimicrobially treated filter, the effectiveness of the antimicrobial treatment becomes ineffective. By utilizing a UV Modular Unit across the surface of a filter, you are insuring that regardless of dust buildup on the filter surface, UVC's antimicrobial attributes continue. Therefore, money can be saved by using a UV Modular Unit and forgoing the additional cost of a microbially treated filter.

12. Is installation difficult?

No. Vertical supports are mounted in front of the surface to be irradiated – often existing support structure can be utilized. The UV Modular Coil Rails are mounted with a sheet metal screw to the supports in a horizontal position. Once mounted, the UV Modular Coil units are simply slid on the rail from one end. A J-Box is provided and is slid on the end for wiring.

13. How do I figure out how many UV fixtures are needed?

UVDI provides a cross-reference sheet for quick specifying of equipment. However, the first goal is to provide enough UV so that the entire target surface is covered. The fixture sizes come in 18”, 24” and 36” and can be combined to properly fit the surface size. UVDI also recommends 1 row of lamps for every 48” of vertical height.

14. How often do the lamps need to be replaced?

UVDI recommends that lamps be changed annually if they are continuously run. While the lamps continue to illuminate, the UVC output degrades over their life. At end of life, the lamps used in the UVDI UV Modular Coil Systems put out 80% of its original power.

15. What is the warranty?

UVDI offers a one-year warranty on the fixtures.

16. Is UVC harmful?

Yes, it can be. Germicidal UV (UVC) can harm skin and eyes. It is important

to prevent exposure to a lit UVC lamp. UVDI has developed safety features into our products to help prevent accidental exposure. UVDI also strongly recommends that “cut-off” switches be placed at all doors and panels allowing access to an area containing a UVC fixture.

Exposure to UV can cause burning of the skin and temporary blindness.

17. Should fixtures remain on or should they cycled with the AHU (Air Handling Unit or blower)?

UVDI recommends having the UV Modular Coil fixtures continuously on, thereby taking advantage of the continuous residence time. As well, excessive cycling of the units degrades the lamp output.

18. Will adding the UVGI fixtures improve the energy efficiency of my HVAC system?

Yes. Studies have shown that clean coils translate in to efficiency in heat transfer and thereby translate into energy efficiency. These same studies show that as much as 37% additional energy is required in equipment with dirty coils v. clean coils. In addition, a build up of organic material (mold and bacteria) can reduce air flow through the coils and require the air handler to work harder. Adding UVGI fixtures helps keep the coil fins clean throughout the year by stopping the mold and bacteria build-up before it can get started.