

Spotlight on Ashish Mathur, Vice President, Innovation and Technology at UltraViolet Devices, Inc.



Dr. Ashish Mathur serves as Vice President, Innovation and Technology at UVDI, a leading manufacturer and supplier of UV and molecular filtration products for both air, surface and water disinfection. Mathur has over twenty years of experience in platform technology development, product innovation, technology transfer, manufacturing and commercialization of products for the filtration industry.

Mathur received his doctorate and master's degrees in fiber and polymer sciences from Cornell University. His technical expertise is in ultraviolet disinfection technologies, filtration, photo-catalytic oxidation and activated carbon based products.

What is your background as a technology specialist working with UVDI?

I am currently Vice President, Technology and Innovation at UVDI and have been with UVDI for almost 7 years developing new products and technologies for our air purification and disinfection businesses. Prior to that, I worked in various R&D roles in the filtration industry for over 15 years. I have been heavily involved with ASHRAE, the leading industry organization for the HVAC industry – and am an active member of the technical committees on UV and gaseous air cleaning and have contributed to handbook, research projects and test standards.

How and when was the ultraviolet technology originally developed?

The germicidal benefits of ultraviolet light dates back a couple of hundred years to the 1870s, when researchers reported that bacteria were inactivated by certain wavelengths of sunlight. In fact, a Nobel Prize in Physiology or Medicine was awarded in 1903 to Neils Finsen, a Danish Scientist, for his ground breaking research on the effectiveness of UV light in killing micro-organism, especially for treating Tuberculosis.

The first commercial application for UV was for disinfecting drinking water and dates back to 1906. The first application of UV in air conditioning (HVAC) systems was around 1940s. The first demonstration of a UV based photocatalytic systems, such as our V-PAC air cleaning system, also dates back to the 1920s. These are not new technologies and have been thoroughly studied and widely used in various configurations.

What is the importance of utilizing an air cleaner in a casino type environment?

It is well understood by casino management that casino guests stay and play longer when they breathe clean and healthy air. In today's competitive market, casinos that invest in improving the indoor air quality see a direct increase in their revenues. Superior indoor air quality also keeps employees healthy and can dramatically reduce turnover.

A typical indoor casino environment is a hotbed for poor indoor quality due to packed spaces, tobacco smoke and a wide range of VOCs and odors emanating from carpets, furniture, slot machines, restaurants as well as people. Also, depending on the casino location, the outside air may be unhealthy and need to be cleaned as well. Since ventilation is not an option here, the choices available to improve air quality is to continuously bring in the relatively cleaner outside air and/or use an air cleaner. Continuously bringing in and conditioning the outside air increases energy costs for a casino. A well designed air cleaning system not only improves the air quality by getting rid of the tobacco smoke haze, VOCs and odors, but also helps reduce energy costs by allowing the casino facilities to recirculate the cleaner air from inside the casino.

How does your V-PAC system work to make air cleaner?

Our V-PAC system is a multistage photocatalytic air cleaning system that combines three well established powerful air cleaning technologies to provide superior air quality and increased energy efficiency. The three technologies utilized are photocatalytic oxidation, germicidal UV disinfection and activated carbon adsorption. In addition to the

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reduction of tobacco smoke, VOCs and odors, the powerful UV array in the V-PAC system also provides airstream disinfection to deactivate viruses and bacteria that could cause illnesses to casino guests and staff.

The V-PAC system capitalizes on 60 plus years of combined UVDI's expertise in these technologies along with manufacturing excellence, resulting in a modular design that is easy to install and operate.

What has been the response to your air cleaning products from the casino industry?

The V-PAC system was introduced to the casino market over four years ago and has exceeded expectations in each and every casino installation resulting in dramatic improvements in indoor air quality and reduction in energy costs. V-PAC systems have been installed in several of the largest Indian gaming casinos in the U.S. Some of these casinos replaced alternate air cleaning or odor masking technologies with our V-PAC system, as their previous systems did not deliver the performance needed.

It is worth mentioning that every casino that has installed our V-PAC system has come back and specified our V-PAC system for the entire casino, as well as their casino expansion projects. This is a good indicator of the positive impact the V-PAC system has made to the casino experience and bottom line.

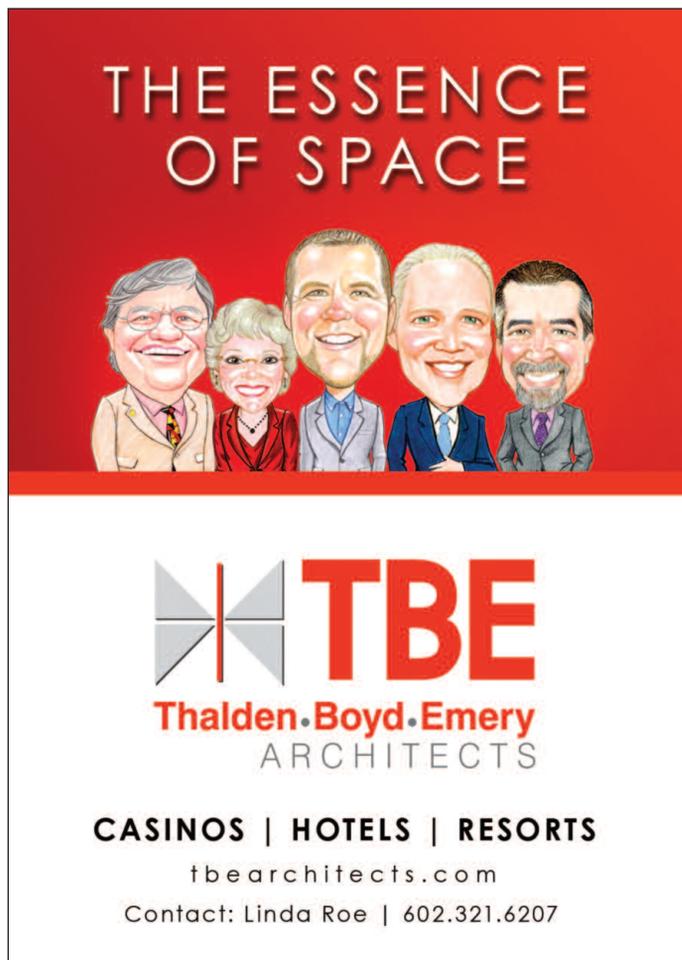
What other ultraviolet uses might be applicable for the tribal casino/resort industry?

Apart from dirty outside air and contaminated indoor air, indoor air quality can also be affected by a dirty cooling coil inside the air handler. Poorly maintained cooling coils inside an air handling unit are a breeding ground for bacteria and mold growth, which if not cleaned properly, may get released in the air leading to poor indoor quality. This has led to the Sick Building Syndrome or 'dirty sock' syndrome. One of the first uses of UV in HVAC systems was to disinfect the micro-organisms growing on the cooling coils. The advantage of using UV for this application is that it not only results in improved air quality, but also results in energy savings by keeping the coils clean and improving heat transfer through the coil. All air handling units have a cooling coil, which

makes this an important application for the casino industry.

UVDI also manufactures and sells a portable UV disinfection system to disinfect surfaces and objects in rooms, especially to disinfect patient rooms in hospitals. The use of this portable UV disinfection system provides an additional opportunity for casino resort owners to further enhance the customer experience in their casino/resorts. ♣

For more information about UltraViolet Devices, Inc., visit www.uvdi.com.



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