

# Breathing SPACE

More casinos turn to air purification systems to mitigate smoke and other airborne problems

BY PAUL DOOCEY

It's no secret that indoor cigarette smoking is a pressing dilemma for most casino operators.

Which is a far cry from just a few decades ago, when a smoky atmosphere was de rigueur for a vibrant gaming space, much the same as it was for bars, nightclubs, sports arenas, movies; really, any popular indoor adult event. That started to change in the 1970s, when the harmful effects of cigarettes and second-hand smoke became known and increasingly well-publicized. Today, smoking is banned in just about every enclosed environment... except for casinos and other wagering facilities.

How and why gaming properties have been able to successfully maintain smoking privileges is the subject of a much longer and likely contentious article. Suffice to say smoking is likely to remain a staple right for most U.S. casinos going forward, which puts operators in something of a quandary—short of an outright ban on lighting up indoors, what can they do to insure a healthy atmosphere for numerous resort employees and guests that insist in working or playing in a healthy environment?

This is the niche air purifications system providers are rushing to fill. In their world, cigarette smoke is just one of many harmful indoor pollutants or noxious odors their technology and products either lessen or mitigate entirely. Most purification systems work as an adjunct to a property's heating, ventilation or air conditioning (HVAC) unit. Some products, however, take a different route toward cleansing casino air. What follows is a rundown of some of the leading companies in this space and a description of how their systems work.

## CASINO AIR

Established in as Clean Air Systems in 1972, Bellevue, Wash.-based Casino Air migrated toward the gaming space when it installed a number of its systems at card rooms and bingo facilities throughout the Northwest. The company has since spread nationwide, and its list of clients includes both small and large commercial and tribal gaming properties such as Boomtown Casino New Orleans, Riverwind Casino in Norman, Okla., Agua Caliente Casino in Rancho Mirage, Calif., and Turning Stone Resort Casino in Verona, N.Y.

"We had been trying for nearly eight years to solve the cigarette smoke issue at Turning Stone," wrote Stephen Beniamino, superintendent of construction and property management for Turning Stone in a Casino Air testimonial. "...The results were dramatic from the moment we turned the Casino Air system on. I had management from all levels of operations thanking me for finally solving this problem."

Casino Air executives credit the company's success to a straightforward product development plan that featured three central goals: the technology has to work better than the competition; the technology has to be invisible to the customers, which means it has to integrate into the existing HVAC system; and the technology has to be as simple as possible to own and operate.

Indeed, simplicity is at the core of the Casino Air solution, which consists of three primary components: a molecular oxidizer that transforms



Turning Stone turned to Casino Air to combat persistent complaints about cigarette smoke.

atmospheric oxygen into ozone that oxidizes and eliminates tobacco odor and other offensive gases; microprocessor controlled sensors to regulate the flow of ozone to optimize indoor air quality; and filter enhancers that use electrical charges to remove cigarette ash, tar and nicotine from the air.

“We decided very early on to focus our expertise on the elimination of cigarette smoke and odor,” said Denny Barringer, CEO of Casino Air. “With cigarette smoke, getting rid of the odor is pretty critical. Fail to do that, and smoke odor settles into carpets, clothes, furniture and fixtures. What our system does is efficiently remove 80 to 90 percent of all volatile organic compounds from casino air.”

In addition to smoke removal, the system also helps to mitigate a lot of other nasty airborne problems such as bacteria, virus droplets, Legionella microorganisms, mold, and mildew.

### AIRISTAR TECHNOLOGIES

While Casino Air attacks the problem of atmosphere cleansing at the HVAC level, other air purification companies emphasize solutions that work closer to the ground. One such enterprise is Waukegan, Ill.-based Airistar Technologies. Formed in 2003, the Airistar air purification line is comprised of small but powerful portable units that cleanse and process up to 500 to 1,000 cubic feet of air per minute, depending on the size of the unit, according to company literature.

The devices utilize a patented six-stage purification process called HEXAFLOW, which features High Airflow Particulate Air (HAPA) filter media. HAPA filters have improved depth loading capacity and are able to clean more air using less filter surface. HAPA is rated to capture

99.97 percent of particles larger than 0.3 microns at airflow ratios that surpass the performance of traditional filters, and remove dust, smoke, allergens, irritants and chemical/gas contaminants from the air.

Being portable allows gaming operators to place Airistar units wherever air and odor issues are a concern. The product was purposely designed to be at ground level according to the company, since all contaminants in the air are heavier than the air itself and will ultimately settle to the floor. Airistar products sit on the floor and pull air in from the base of the unit where particulate levels are the highest. After passing through six-stages of purification, the air exhausts out the top of the unit and re-circulates to push even more air back through the bottom of the unit. This unique circulation pattern assures that air from all levels of the atmosphere is continuously cleaned.

The Airistar purification system has received accolades from the tribal gaming community. “We use Airistar air purification units in our casino for smoke reduction and there has been a noticeable improvement in the quality of our air,” said Margret Oberly, general manager of Comanche Spur Casino in Elgin, Okla., said in a prepared statement. “We change our filters regularly and can tell the units are working just by seeing how dirty the filters become.”

### TATE ACCESS FLOORS

Like Airistar, Jessup, Md.-based Tate Access Floors believes the path toward cleaner casino air starts at the floor or, better yet, under it. Tate’s initial line of business was providing raised floor systems for business looking for more efficient ways to wire computers and other devices. It wasn’t long before the company discovered the space

it created beneath floors could also house other applications, such as ductwork for fresh air distribution systems.

The idea behind the Tate solution is that an underfloor system is more efficient when it comes to integrating and distributing clean, fresh air throughout a facility. In turn, this air pushes smoke and other pollutants and odors up toward the ceiling, where it can be either processed or dispelled by HVAC units, improving indoor air quality.

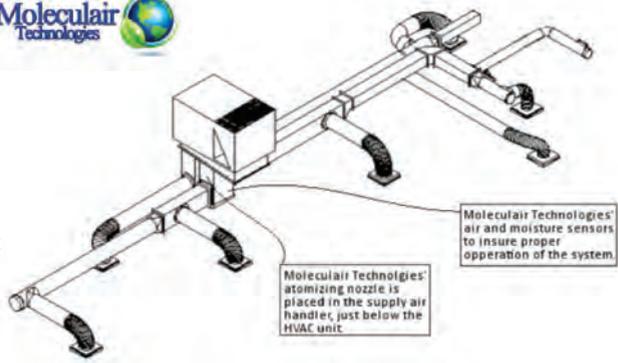
“The system takes advantage of natural convection—the ability of air to rise as it heats,” said Scott Alwine, marketing manager for Tate Access Floors. “Our system essentially cools the air for the first six feet; then as it heats it rises and takes all the pollutants with it to exit through vents in the ceiling. It is a one way air flow system as opposed to the traditional two-way flow (air ingress and egress through the ceiling).”

Tate is able to accomplish these goals through a specialized system that includes:

- **Air»Connect diffusers** that provides significant advantages in maintaining air quality, flexibility and the aesthetic integrity of a casino’s gaming environment;
- **EcoCore access floor panels**—steel welded shells filled with a unique mixture of structural cement and PCM that allows the panel to absorb thermal energy while maintaining a high level of integrity and quality;
- **In-Floor Active Chilled Beams** that provide the energy savings and comfort of a chilled beam solution while avoiding the worry of running chilled water above an occupied space; and
- **Swirl Diffusers** that offer complete flexibility, better indoor air quality, and greater personal comfort while reducing energy consumption.



FireKeepers Casino is one of a growing number of properties using an underfloor air circulation system from Tate Access Floors.



The end result of this system is an underfloor air distribution service that provides energy efficiency, improved indoor air quality, enhanced comfort control, floor to ceiling height optimization and improved acoustics.

Tate Access Floors have found homes in a number of gaming properties across the U.S. including FireKeepers Casino in Battle Creek, Mich., Greenbrier Casino Club in White Sulphur Spring, W.Va., Palazzo Casino Resort Las Vegas and Tulalip Casino in Marysville, Wash.

### MOLECULAIR TECHNOLOGIES

A relative newcomer to the air purification business, Las Vegas-based Molecularair Technologies was formed five years ago when founder and CEO Joseph DiLeo, according to company literature, took notice of a new product, PUR, a packet of powder that was capable of purifying water anywhere. Thinking that if science could produce the cleansing power of an industrial water treatment plant into a convenient pouch, he hypothesized why not develop a similar technology to purify

The Molecularair air purification system works in tandem with a property's existing HVAC system.

air in such a simpler, more affordable and convenient way.

Starting small and working with a chemical engineer also devoted to the task, a science-based approach was eventually developed, then repeatedly tested and refined. The end result is an innovative, proprietary and patent-pending technology grounded upon the principals of organic chemistry. Using only naturally occurring products, the technology, which attached to a property's existing HVAC system, is based on the molecular level mist that binds to the byproducts of smoking and other air containments and breaks them apart.

"The formula changes the molecular weight of the pollutants, the byproducts of secondhand smoke," DiLeo explained. "It breaks their intrinsic chemical bonds and allows the contaminants to be neutralized. It is a very fast-acting process that is long-lasting without the use of toxic or synthetic chemicals; the byproduct of its reaction is clean, fresh air."

By mid-2011, the company had initiated its first site test with success and since has been able to bring its technology into a fast-growing group of the most uncontrolled indoor environments in the country: the bars and gaming venues in Las Vegas where secondhand smoke is a significant issue.

Molecularair claims that not only has this technology proven it can eliminate key indoor air pollutants, especially secondhand smoke; it also provides substantial reduction in general heating and air conditioning costs. In that regard, the technology has demonstrated it can pay for itself in the reduction of overall building operating costs. 🌍



## Tate underfloor service distribution: It's a Safe Bet!

Tate's underfloor service distribution solutions provide significant advantages in creating a flexible gaming environment with improved indoor air quality and thermal comfort.

### Advantages of Underfloor Service Distribution:

- Delivers supply air near floor level to create a one directional airflow which helps to eliminate smoke and improve thermal comfort.
- The modular system provides flexible power & data distribution to allow for fast and easy machine layout changes with minimal disruption.

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