

Casino Air vs. 100% Outside Air



Tobacco smoke is made up of tar, nicotine, paper ash, VOC's, and carcinogens. These byproducts require engineered remediation both in the design stage of the property and in retrofit applications where the original mechanical design of the casino floor has failed and tobacco smoke and odor complaints are prevalent.

In the last 20 years Mechanical Engineers (ME) have for the most part been designing casino floor HVAC projects utilizing 100% outside air systems. Early on this design included overhead supply ducts and open ceiling plenum returns. In the last several years the ME's have been pushing the 100% outside air design with underfloor supply distribution. Theory being the supply air will push the smoke up and out of the space and through the open plenum return and presto, no more smoke and odor issues. Unfortunately for the casino owners, this theory was, and still is...wrong.

To make sure you understand the 100% outside air design, this is what happens. The air handlers (AHU's) are oversized by the ME's by as much as 100%. None of the conditioned air in the casino is recirculated back into the space. All of the 70 degree conditioned air is exhausted out of the building. The AHU's and chillers work 24/7 to heat and cool the casino to 70 degrees, even in the early morning hours when the casino is basically empty. Talk about an energy hog, wow! It will cost nearly twice as much to operate this casino as it would using Casino Air technology in the specifications. It will also cost you twice as much up front to purchase the 100% outside air HVAC package than it would if Casino Air technology was specified. Oh, and even after you have spent all this money the casino will still stink.

In virtually every 100% outside air casino floor design the ME's will specify energy recovery wheels in an effort to reduce operating costs. Nice theory, too bad it is one of the worst products you can use in a tobacco smoke application. First of all, the wheels are expensive to buy and expensive to maintain. All of the return air being exhausted out of the casino passes through the wheels. The tar and nicotine stick to the wheels like glue. The cigarette paper ash and other massive amounts of particulate generated on the casino floor stick to the tar and nicotine rendering the wheel basically inoperative. Many manufactures of energy recovery wheels have finally realized it is a bad application and will not warranty wheels in tobacco smoke applications.

It gets worse. As the wheels plug up no energy is recovered. In fact, it takes more energy to operate the equipment because the plugged wheels create a large pressure drop that puts more demand on the AHU's and chillers to maintain temperature. It's a vicious circle and only the power company wins.

Eventually the 100% outside air design will fail. The energy wheels will plug. Contaminated air from the casino floor will hit the plugged wheels and cross contaminate the supply air. There will come a time when the casino will start to stink and you can't keep temperature in the building unless you recirculate conditioned air. If you have chillers you will last longer but eventually you will have no redundancy. We are not dreaming this up. We see it every day.

The bottom line here is involve us in the mechanical design of the casino floor and you will save millions on first cost and millions in energy bills over the life of the HVAC equipment. Not to mention your casino will be void of tobacco smoke and odor.

Here is what we can do for you.

- Fix the 100% Outside Air Design discussed above.
- Create a completely controlled environment on the casino floor totally void of tobacco smoke and odor.
- Allow you to re-circulate 50% or more of the conditioned air back onto the casino floor generating hundreds of thousands of dollars in energy savings.
- If applicable, prolong the life of your energy recovery wheels and reduce the maintenance in half.
- Prolong the life of your chillers and rooftop air handlers by reducing run time.
- Increase Gaming Revenue / Attract new customers, existing customers stay longer.
- Increase Employee Productivity / Eliminate 90% or more of the VOC's in the breathing zone. Use clean air as a tool to hire the most talented casino floor employees.

For More Information: Call and speak to one of our engineers. 800-488-2326