

Sandia Eliminates Unwelcome Fumes with Customized Ventilation System

Who can resist the mouth-watering aroma of char-broiled steak, frying bacon, or roasted green chilies? Apparently a lot of people can when those unwelcome odors permeate the guest rooms of a luxury resort casino 24 hours a day. That situation confronted the Sandia Resort and Casino in Albuquerque, New Mexico, after the casino added a hotel that proved to be downwind from multiple kitchen exhaust fans. Not long after opening, guests expressed their opinions to management, ultimately leading to the installation of eleven Smog-Hog® electrostatic kitchen emission control systems, which have gobbled up the smoke and odors and restored the ambiance needed to keep guests coming back. According to Sandia's superintendent of facilities, Paul Collins, "Guest complaints about food odors from the kitchens stopped immediately after we installed the Smog-Hogs. We've also gotten some relief on maintenance and don't spend nearly as much time on upkeep and cleaning as we used to with the old systems."

Sandia Resort and Casino merges the best of Las Vegas gaming action with a "get away from it all" location dominated by views of the Sandia Mountains and Rio Grande river valley – all still within sight of Albuquerque. Whether guests come for relaxation or action, the resort delivers, with 228 plush guest rooms, eight casual and fine dining restaurants, spa, golf, convention and live entertainment facilities.



Resort operations run 24 hours a day Friday through Sunday, and 20 hours a day the rest of the week, so multiple kitchens and restaurants are functioning nearly all the time, shut down only minimally for prepping the next meal and cleaning. The kitchen exhaust fans and grease catchers that were originally installed during the initial construction seemed adequate, but they did little to control odors and required frequent, time-consuming maintenance. The original rooftop units also were not designed with building aesthetics in mind. None of this was a big concern until Sandia added a hotel overlooking this rooftop and downwind from its exhaust fans.

"Our original exhaust fans worked to some extent," said Facilities Manager Mark Cuzzola, "but 'some' was no longer good enough, and guests told us." Exhaust fans simply push odors to another location and can't remove them, so when guests began complaining of kitchen fumes and smoke in their rooms, facility managers investigated other solutions for consideration by the Pueblo of Sandia Tribal Council.

Requirements for a new kitchen exhaust air cleaning and ventilation system included odor control, continuous operation, automated cleaning, minimal maintenance, and a color scheme that blended with the building's façade. Overall, Sandia Resort and Casino needed a customized system that could be retrofitted into the existing building structure and operating schedule.

Management considered two types of technology for a new system – the electrostatic precipitator (ESP) and media filtration. The Smog-Hog is a two-stage electrostatic precipitator. Cooking emissions and grease droplets receive a positive electrical charge in the first-stage ionizing section. Next, they enter the second stage, which consists of two passes of grounded aluminum plates, known as collection cells. The first collection pass is 95% efficient, and the second pass is 99% efficient on 0.1 micron (μm) particles. A final pass through an activated charcoal section neutralizes any lingering odors.



Shown on the roof at Sandia Resort and Casino, the Smog-Hog is a two-stage electrostatic precipitator.

Electrostatic precipitators are ideal for high-temperature, high-volume cooking applications because they are effective on heavy-duty emissions, such as charbroiling and grilling. Electrostatic precipitators also offer significant long-term energy savings because they operate with very low static pressure.

Media filtration kitchen systems are also available in multi-stage configurations, but often operate at lower efficiency levels. Cooking emissions pass through a low efficiency pre-filter, a slightly higher efficiency secondary filter, and then sometimes a final/absolute HEPA filter to finish off remaining particulate. Odor control can also be added to the system, using a masking agent sprayed into the exhaust, or a carbon filter box. Media filters are made up of durable blended paper that tends to clog more quickly with charbroiling and grilling applications – resulting in increased filter changes and susceptibility to fires. These filters are not cleanable or reusable.

Ultimately, Sandia Resort and Casino's management team chose United Air Specialists' Smog-Hog ESP technology, which is also used by Caesar's Palace and Planet Hollywood (formerly Aladdin) in Las Vegas, and Mohegan Sun in Uncasville, CT. "We considered the investment in the UAS equipment and decided it was well worth it, considering the long-term savings," Collins added.

United Air Specialists custom engineered the system, devel-

oping the requirements with Sandia's facilities department and kitchen management to ensure optimum placement of the units for proper roof loading and accessibility for routine service, as well as correct paint scheme and installation/start-up planning. Sandia opted for a programmable self-cleaning system for the Smog-Hogs, which UAS tailored to run for one hour each day, based on downtime scheduling for the multiple kitchens. Wash manifolds spray cleaning solution from the top and into the face of each collection pass, using special detergent and hot water tapped from the building's own supply.

The Smog-Hogs proved successful upon startup, neutralizing guest complaints along with the odors. "The Smog-Hogs are much more effective than our prior systems," noted Facilities Manager Mark Cuzzola. "They allow our HVAC team to concentrate on more important things, because the wash cycles and operation are all computerized. We only need to do routine maintenance and replenish cleaning solution once a month. The units have proven low maintenance, reducing costs in that area, and we've also eliminated the cost for monthly filter changes." ♣

For more information about Sandia Resort & Casino, visit www.sandiacasino.com. For more information about United Air Specialists, Inc., visit www.uasinc.com.

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