



CASE STUDY:

Dubuque Greyhound Park & Casino

ProMark's patented Total Spectrum® air purification system reduces energy costs while removing virtually all 4000+ pollutants and chemical components in environmental tobacco smoke (ETS).

Challenge

To design and install a state-of-the-art air filtration system that will remove cigarette smoke and its chemical components in a new 30,000 square foot casino facility with 20 foot ceilings.

Solution

- Integration of Total Spectrum® air purification, with its patented photo-catalytic and dynamic chemistry generation, into the air handling system.
- Three 30,000 cfm Total Spectrum air purification units filtering 100% recirculated air.
- Specially designed air distribution system carrying air straight up from floor to ceiling, then bringing filtered air (70%) plus outside air (30%) under the casino floor and vents into the casino.

Test Results

- Reduction of Total Volatile Organic Compounds (TVOC) to 200 nongrams per liter of air or ng/L at casino head-height levels—300 nongrams per liter of air or ng/L below government "green building" guidelines.
- Barely detectible levels of pollutants in the casino match fresh air levels.

Testing devices were placed at the air intake & outlet of the Total Spectrum system, on top of slot machines, and outside of the casino. Air samples were analyzed by an outside firm, Prism Analytical Technologies, Inc.

Ancillary Benefits

- Significant energy savings by recirculating air and reducing amount of outside air required.
- 30% increase in customer traffic.
- 40% revenue increase.
- Lowered HVAC equipment capital expense and maintenance costs.
- Improved employee morale.
- Interior walls and all surfaces stay clean.

Description

From the first day the Dubuque Greyhound Park & Casino (DGPC) opened in the summer of 1985, there were complaints about cigarette smoke.

With 4,000 to 6,000 people in the building at any one time—the majority of them smokers—the air handling system was pushed beyond its limits. Sufficient outside air could not be introduced to keep the building both cool and smoke free, especially when the humidity was high.

In 2004, DGPC approved an expansion plan that included a separate casino building. They promised their employees and customers that "everything possible" would be done to reduce the amount of smoke in this new facility, and it appeared that the only option was to design a large non-smoking section.

The construction management team from The Durrant Group investigated alternatives and chose ProMark based on its success in improving indoor air quality for other clients.

By incorporating Total Spectrum air purification into the new HVAC system, Dubuque Greyhound Park & Casino became the first casino facility in the nation to successfully combine gas filtration and displacement ventilation to virtually eliminate cigarette smoke and its associated chemicals from the air.

According to Brian Southwood, DGPC Assistant General Manager, "The results have exceeded our expectations. Comments from both employees and customers range from 'I don't smell of smoke when I leave at the end of the day' to 'even if a person is sitting next to me smoking, I don't notice it, because the smoke goes up instead of blowing on me'."

Award-Winning Application

AHR Expo 2006 Innovation Award for Indoor Air Quality

ASHRAE 2006 Illinois Chapter Excellence in Engineering Award

American Gaming Association Vision Award for Outstanding Achievement in Environmental Design

2005-2006 ASHRAE Region VI Technology Honorable Mention for New Commercial Buildings

2006 Chicago Innovation Awards Nominee



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