

Assisting with Sustainability at the Las Vegas Springs Preserve

The Springs Preserve is an extraordinary 180 acre historical and cultural attraction located three miles from the popular Las Vegas Strip. Nearly 5,000 years old, the Springs Preserve has been recognized as a significant resource worthy of preservation by The National Register of Historic Places. In May 2005, this landmark underwent an extensive two-year, \$250 million sustainable construction project to create a multi-building educational facility. Some of the building's sustainable construction features included solar generated electrical power and hot water, greywater used to irrigate plants, cool towers, radiant floor heating and an energy efficient HVAC system that uses indirect, direct and evaporative cooled DX.

On the design hunt

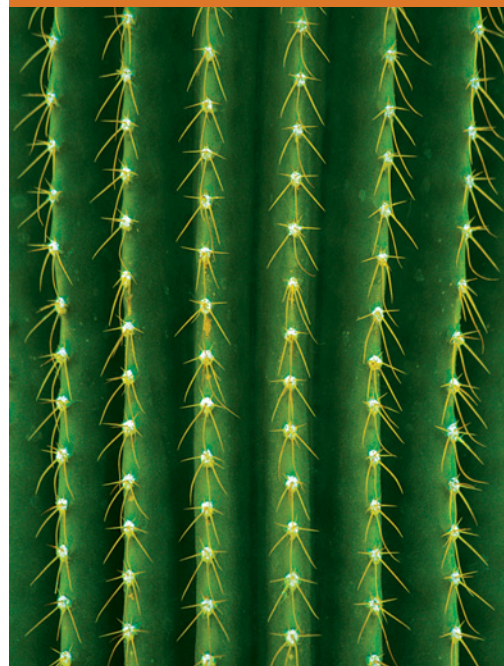
In selecting the HVAC system design, the Springs Preserve's architects contacted Harris Consulting Engineers (HCE) of Las Vegas. The aim was to select very energy efficient systems to heat, ventilate and cool the buildings. HCE selected Munters' OASIS air handling systems as part of the overall HVAC solution, since they are ideally suited for the hot and dry Las Vegas climate. These systems provide cooling during the hottest periods, using a quarter of the energy consumed by conventional cooling systems.



The Springs Preserve in Las Vegas, Nevada has selected the OASIS indirect/direct evaporative A/C system as part of their sustainable building efforts.

CASE STUDY:

Las Vegas Springs Preserve



BENEFITS

- Air conditions using 100% outdoor air, compared to conventional AC units that use minimum outdoor air with mostly recirculation air
- Provides superior IAQ
- Uses significantly less energy to air condition than conventional systems
- Reduces peak electrical demand
- Provides winter heat recovery
- Qualifies for utility rebates and/or LEED credits



Discovering the OASIS

OASIS systems utilizing both indirect and direct evaporative cooling, were installed on multiple buildings at the Springs Preserve. DX is included as the third stage of cooling, but is only required during the more humid periods. It is more efficient than conventional air-cooled systems because the condenser coils are positioned in the relatively cool, moist exhaust air discharged from the IEC heat exchanger. During the hottest time of the day, all of the cooling by the OASIS is achieved using the indirect and direct evaporative systems to provide a significant reduction in peak electrical demand.

How it works



At the core of the OASIS is a proprietary indirect evaporative cooling and winter heat recovery heat exchanger, the Munters EPX. The heat exchanger is constructed of corrosion and scale resistant polymer tubes that run horizontally within the casing. Cool and dry building exhaust air flows up along the outside of the tube bundle, while water flows down from the top, bathing the tubes with evaporatively cooled water. Hot outdoor air enters the inside of the tubes at one end and is cooled as it flows through these tubes, approaching the wet-bulb temperature of the exhaust air. The EPX performance (wet-bulb depression effectiveness) is 70% and higher, depending on various design and operating parameters. The process is referred to as “indirect” evaporative, since no moisture is added to the supply air.

The EPX can operate with scavenger ambient-air or exhaust air from the space flowing along the wet, outside tube surfaces to create the indirect cooling effect. When exhaust air is routed through the OASIS, the system can be more efficient since the exhaust air often has a lower wet bulb temperature than outdoor air. In the winter, the EPX heat exchanger operates dry, recovering heat from the warm exhaust air. A direct evaporative cooler is installed downstream of the EPX, to provide additional cooling.

In many cases, the OASIS IDEC systems alone can deliver air at 55°F even when the outside air temperature is as high as 100°F, all without refrigeration. In the winter months OASIS can recover 50% of the heat exhausted from the space.

With energy savings obtained by the OASIS and the site’s other sustainable efforts, the Springs Preserve has been LEED Platinum Certified — the highest certification a building can receive from the U.S. Green Buildings Council.



The OASIS systems allow for part (or all) of the cooling requirements of the building to be met without refrigeration.

Munters Corporation
 Tel: (800) 229-8557
 E-mail: drycoolinfo@munters.com
www.munters.us

