Project Spotlight: Salt River Fields at Talking Stick

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Salt River Fields at Talking Stick | LEED Gold | Photo by Blake Marvin

The first LEED Gold spring training facility is setting records! Salt River Fields at Talking Stick, spring training home to the Arizona Diamondbacks and the Colorado Rockies, set single-game attendance records this past spring. Now in its third season, the combined attendance climbed to 300,000 D-backs and Rockies fans, the third-highest ever for a two-team complex.

Not only have fans been rolling in, so have the accolades. Named 2011 Ballpark of the Year, the Scottsdale, Ariz. facility was built on Native American tribal land and fully funded by the Salt River Pima-Maricopa Indian Community. The stadium seats 7,000 spectators, and houses an additional 4,000 in its outfield berm. The complex also includes stadium suites, specialty concessions, team retail outlets, and clubhouses/training facilities for both teams.

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What cutting-edge strategies or processes were implemented?

James Gronek MEP Design Engineer, WSP Flack + Kurtz

Associated credits: EAc1, IEQc2, IEQc6.2

The project incorporated a significant number of energy efficient design strategies including dual-pane glazing systems with low solar heat gain properties, variable air volume water-cooled air conditioning systems with variable speed pumping and cooling tower systems to provide the most efficient system demand response, and evaporative cooling strategies to select areas to eliminate the need for mechanical refrigeration. The most cutting-edge of these many strategies, however, is the use of displacement ventilation air distribution throughout the two clubhouse buildings and most notably in the major and minor league locker rooms.

Interior photograph of the Arizona Diamondbacks clubouse. Design strategies featured including maximizing the amount of daylight in the perimeter spaces as well as underfloor air vents.

Displacement ventilation is a departure from the traditional overhead air distribution air conditioning systems we often see. Rather than providing conditioned air at the ceiling level which requires mixing the entire air volume of the space to achieve an acceptable level of occupant comfort, displacement ventilation supplies relatively neutral temperature air at low level and low velocity to take advantage of the natural stratification within the space. The primary benefits are:

1. Reduced energy consumption by the central HVAC systems as air is cooled only to 65 degrees F rather than 55 degrees F with a traditional overhead system. The increased air temperature also allows an increase in the number of economizer hours available to the HVAC systems.
2. Reduced fan energy as the system conditions only the occupied space and not the entire room volume as a traditional overhead system does.
3. Increased occupant comfort with less draft risk coupled with improvements in the indoor environment. Contaminants within the occupied space rise with the stratified return air and are removed from the space in contrast to a traditional overhead system where contaminants are continually mixed in with the supply air as the whole volume of the space is conditioned. In a locker room environment, where air quality is of particular importance, this strategy provides a significant environmental quality improvement.

The project required a very collaborative effort among all parties on the design and construction teams and the integration of displacement ventilation into

the locker rooms is a prime example of this effort. The air supply is integrated into the 6" base of the player lockers, creating a very clean, and well hidden, final product. Supply ductwork from above the ceiling runs down to the locker bases, hidden within column furring and in corners between lockers, where it pressurizes the architectural plenum created by the locker base assembly. In order to ensure the system's performance in the small physical space available within the locker bases, the design team modeled the proposed installation and the contracting team performed smoke tests after installation which confirmed the design team's airflow modeling results and the air-tight integrity of the field fabricated locker bases.

Listen to HKS project manager Andy Henning describe the decision to use an underfloor air distribution system on the Salt River Fields project.

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