SHERATON PHOENIX DOWNTOWN HOTEL I CASE STUDY

BACnet-compatible Alerton EMS the key to guest comfort and energy savings in Arizona's largest hotel

The Sheraton Phoenix Downtown Hotel, a Starwood Hotel and Resorts Worldwide, Inc. property, is a new hotel designed and built from the ground up to be a model of water and energy conservation, while still providing maximum guest comfort. With 1,000 guest rooms and suites, and 80,000 square feet of meeting space that includes a 29,000-square-foot ballroom and 17 meeting rooms, the Sheraton Phoenix Downtown Hotel is the largest hotel in Arizona. The hotel is a critical factor in the rebirth of downtown Phoenix and the city's revival remains its focus.

The property's conservation efforts extend to energy—including heating, ventilating and air conditioning (HVAC)—water, and lighting. To effectively monitor the building's systems for optimal energy savings, the Sheraton Phoenix Downtown Hotel chose a BACnet®-based Alerton solution installed by Climatec Building Technologies Group.

The Alerton EMS conditions meeting spaces as needed to conserve energy while still providing maximum guest and attendee comfort.

The biggest challenge for Dan Abel, director of engineering for the Sheraton Phoenix Downtown Hotel, was getting to know a new energy management system (EMS) for the hotel and how to best use and maximize its capabilities.

"To really maximize the system's capabilities, we worked with Climatec to strategically customize a refrigeration-monitoring system for approximately 80 refrigeration units within the hotel," Abel said.

Although Abel had worked on energy management systems in other facilities, he was new to Alerton and looking forward to exploring the flexibility and freedom provided by the BACnet-compatible solution.

Climatec installed Alerton Building Suite front-end software to manage all the HVAC in the hotel, and to integrate a number of other building systems and devices as well. The Alerton EMS provides energy efficient operation including occupancy-based HVAC control and the use of schedules and notifications. The Sheraton Phoenix Downtown Hotel project also includes chill and hot water systems, air handling units (AHUs), refrigeration units, variable air volume (VAV) units, and an emergency generator.

The Alerton system also monitors the electrical demand for four APS meters located in the hotel's electrical room at ground level. Abel and his staff are already working on integrating auto-demand load-shedding programming in the Alerton

Instead of having an engineer check an air handling unit during each shift to be sure it's working correctly and efficiently, we have now created notification systems that inform us if something is out of an acceptable parameter.

Dan Abel, Director of Engineering, Sheraton Phoenix Downtown Hotel

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Sensors on approximately 80 custom-built refrigeration systems tie back to a centralized location that monitors the temperatures.

EMS that will enable even more effective energy conservation for the property.

The Sheraton Phoenix Downtown Hotel features approximately 80 refrigeration units that are monitored by the Alerton EMS through VisualLogic® unitary controllers. The custom-built walk-in units store all the food and beverages for the hotel, including dining, room service and event banquets. Sensors on the units provide Abel and his staff with temperatures every five minutes. Programmed Alerton notifications let the staff know if a refrigeration unit is running temperatures that are too high or too low; the staff then adjusts the unit's operation for maximum energy efficiency.

"We create log files on all our Alerton monitored equipment—even our refrigeration units," Abel said.

Abel and his staff use schedules each night to program the hotel's cooling for the following day. They also use schedules to request fan cooling or heating in the meeting spaces. The flexible scheduling in the Alerton system enables the staff to temporarily modify settings before the system returns to pre-set parameters.

For example, if a ballroom is scheduled to turn on its heating or cooling at 8:00 a.m., but a potential customer would like to take a tour at 7:00 a.m., the hotel staff can override the schedule and energize the ballroom for a set period of time—say, 30 minutes. After the default run time, the ballroom then shuts down until its regularly scheduled start-up time at 8:00 a.m. One of Abel's next projects will be to integrate the lighting into the Alerton EMS as well, and time it with the heating and cooling.

Currently, Abel's staff uses Motorola ADMIRAL™ cell phones to communicate with the Alerton system. Climatec created a number of custom graphics for the phones that enable the staff to view and respond to the most common critical issues. Building technicians use the phones to view and adjust setpoints, receive and respond to notifications, and even allow one engineer to help another without both of them having to be at the problem site or back at the console.

With the Alerton system in place at the new Sheraton Phoenix Downtown Hotel, Abel doesn't yet have a baseline to compare year-to-year energy savings, but he looks forward to the possibilities. One work already in progress is the auto-demand load-shedding interface, which will enable the building staff to shed electrical loads when the demand reaches a pre-determined level.

"I can tell you that once we put the load-shedding in, I can review the past year and find out, for example, how many days and the exact times I went over our demand," Abel said. "I can show quantifiable savings."

Other upcoming projects for the hotel include integrating the lighting controls. For Dan Abel, the possibilities of his Alerton system—and the energy savings it helps generate—are endless.

"If you can think it, you really can create it," Abel said. "The scalability—the 'buildability'—is endless. That's what I like about Alerton."

For Abel, the key to the success of the energy conservation efforts made by the Sheraton Phoenix Downtown Hotel is BACnet compatibility, and the flexibility and openness that communication protocol provides.

"I've worked with other systems that are proprietary and you are simply restricted in expansion capabilities," Abel said. "When I work with other vendors, the first question I ask is, 'Is your system BACnet compatible?'"

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