



Hilton San Diego Bayfront Optimizes Guest Comfort



Rising 30-stories above San Diego Bay, the Hilton San Diego Bayfront hotel opened in 2008 as California's newest waterfront skyscraper hotel. The property, with its spectacular terrace over the Bay and its sun-drenched interiors, exemplifies the best of post-modern architecture and state-of-the-art engineering technologies.

Just minutes from the airport, adjacent to the San Diego Convention centre, the hotel has 1190 guest rooms, 30 luxury suites and 165,000 square feet of meeting space. It is unquestionably one of the most comfortable hotel environments on the West Coast, due in part to its innovative Heating, Ventilation, and Air Conditioning (HVAC) and Building Automation System (BAS).

Right from the planning stage, the developer placed top priority on energy efficiency coupled with guest comfort. Moreover, the hotel had to be built for long-term sustainability with technologies that could be easily and cost effectively be upgraded as needed.

High on the List of Priorities

Since the Hilton San Diego Bayfront project was green field construction, the building automation system had to meet very stringent and specific criteria. Distech Controls' Systems Integrator, Dynalectric San Diego, supplied a complete spectrum of BAS services, including Distech Controls products based on the developer's priorities. Distech Controls was selected on the basis of:

- An Open System: Best-in-class industry standards based on LONWORKS® technology;
- Continuous source of system components: Original hardware and software from the manufacturer had to be consistently available, and later versions had to be compatible;
- Easy Integration and Future Enhancements: BAS had to allow for the seamless integration of additional components. Furthermore, the system had to provide the ability to easily leverage future technology improvements.

The Challenge

The hotel's central mechanical system is ultra modern and highly efficient. There is a chilled water system (CHW) consisting of three 850 ton chillers, three CHW850 ton chillers, three CHW pumps and three secondary CHW pumps. Distech Controls' EC-Net solution uses BTU metering to ensure that the chillers are staged in order to meet building cooling load demand. This maintains energy consumption at the lowest level possible.

The condenser water (CW) system has three cooling towers on a constant volume loop with three CW pumps. Two steam boilers are dedicated to laundry operations. The primary and secondary hot water systems (HWS) consist of two boilers, two primary HWS pumps, two secondary HWS pumps and two heat exchangers. Distech Controls' EC-Net solution uses BTU metering for the HWS system.

For optimal guest comfort, the heat exchangers guest room floors. As well, the temperature in the pool/spa area is regulated by two heat exchangers and control valves in the primary and secondary loops. The hotel's airside mechanical system includes a number of components including 264 variable air volume boxes plus 54 fan coil units and 2 constant volume AHU, and 4 package AC units. There are 24 variable air volume air handling units providing mixed air with CHW cooling and HWS heating. To reduce the amount of energy consumed by the building, the AHUs are set for static pressure supply fan control with economizer, demand control ventilation and discharge temperature reset based on average zone temperature.

The meeting spaces and ballrooms are optimized for energy consumption and occupant comfort with demand controlled ventilation utilizing CO2 monitoring and control. In each of the 52 electrical equipment rooms, there is a dedicated fan coil unit providing temperature control via constant volume fan and chilled water coil. The main telephone and data room has four heat pump AC units for critical load application to meet the stringent temperature regulation demands.

The Solution

Distech Controls supplied a range of products for the hotel project starting with 322 LONWORKS® configurable terminal unit controllers and 35 programmable controllers, allowing for custom programming of the large AHU and central plant control as well as demand control ventilation and energy efficiency sequences.

Distech Controls' EC-Light, LONWORKS lighting solution, was used for exterior lighting control. Mechanical and electrical equipment connected to the LONWORKS controllers was integrated via EC-Net, Distech Controls' Web-based network management and graphical user interface.

The Result

Thanks to Dynalectric's engineering expertise and the time saving features of Distech Controls' products, the developer saved 20 per cent in installation and commissioning costs.

The building operators can quickly access all aspects of the system from a Web browser allowing for prompt response to all facility needs. The user-friendly interface of the EC-Net system significantly improves the performance of day-today operation.

Today, the Hilton San Diego Bayfront operates at the highest level of energy efficiency. Down the road, the hotel has the ability to easily expand or enhance any part of its Building Automation System as needs arise. By clearly establishing system performance standards, the customer was able to obtain a truly sustainable Building Automation System that serves its needs now and into the future.

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