HEAT-TIMER® CORPORATION

CASE NO. 18

BUILDING TYPE: _____

REQUIREMENT: _____

LOCATION: _____

Bellagio In Bloom:

How Heat-Timer Helps Hotel Greenhouse Deliver Lush Flora Year Round

PROBLEM: While floorshows may be big in Las Vegas, it's the "flora" that steals the show at Bellagio hotel and resort. Under the same ownership as the famous Golden Nugget, The Mirage, and Treasure Island, Bellagio, completed in 1999, is the epitome of luxury and elegance. But what really makes Bellagio stand out from its glitzy counterparts is it's natural beauty.

The centerpiece of this 30 story, 3000 room hotel is its Conservatory, a lush, indoor display garden of hundreds of exotic and seasonal plants and flowers. Sean Moody, the Conservatory Manager, describes it as a formal Italian garden. It's purpose—to put on a flower show that will truly knock your socks off.

Such high aspirations provided the conservatory manager with quite a challenge. Playing casting director to several thousand plants and flowers, all due to "peak" at different times, can be a juggling act. Controlling the growth of the plants was an absolute necessity—not an option if you are relying solely on outside vendors to supply the plants the day they are to be displayed. An on-site greenhouse was the only means of achieving the kind of perfection that Bellagio was after. The next challenge was designing a greenhouse environment that could be finely tuned to grow and store flowers until their big debut.

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SOLUTION: The solution was a 30,000 square foot greenhouse with a built-in hydronic heating, cooling, and humidity system. The system would give the conservatory manager fingertip control of daytime temperature, night-time temperature, and humidity. Boilers, forced air, etc. would all be linked to a high tech building management system that allowed Mr. Moody to enter in his daily parameters and then sit back and watch "nature" take its course.

Displays such as these require perfect growing and storing conditions. Heat-Timer controls allow Bellagio Conservatory Manager, Sean Moody, to carefully fine tune greenhouse conditions.

Giving Mother Nature a Helping Hand

The great advantage of all this control was being able to plan a display schedule in advance and then "nudge" the plants and flowers into submission. Mr. Moody could speed up or slow down growth of plants as needed. Although it may seem extreme, without this type of control, supplying the conservatory with fresh plantings would be a scheduling nightmare. It could also be quite a bit more expensive, since the hotel would be relying completely on vendors.

Matt Wellman, Heat-Timer Representative supplied the boilers and controls for the radiant heat system that provides heat for the greenhouse. Three copper-fin tube boilers were selected for the installation, providing a total of 6 million btu's.

With literally tens of thousands of dollars worth of plants on the line each day, precise temperature control was an absolute necessity. A Heat-Timer HWR-Q Sequencing Control was selected to sequence and rotate boiler operation as needed to maintain appropriate space temperatures. The HWR-Q determines what the temperature of the boiler water should be based on inputs from an outdoor temperature sensor. The HWR-Q then brings on the boilers one stage at a time, as needed, to maintain the set points. It also rotates boilers on a regular basis to reduce wear and tear.

A Heat-Timer System Control Panel (SCP) was also selected to act as an interface between the sequencing control, boilers, and boiler pump. In this application, the SCP's most important function is to run the boiler pump during boiler operation and then shut it off 5 minutes after the boiler, allowing the circulating water to cool so that the boiler doesn't overheat.

An Effortless Performance

The boiler system is in operation to one degree or another from late November until March, and so far has provided trouble free service.

"It's very nice, actually," remarks Chris McGee, part of Bellagio's engineering team. "We just basically monitor the system."

The boiler controls, along with a multitude of other building controls, are tied into a Building Management System that gives the hotel state-of-the-art automation. It's a real luxury, giving Sean Moody the opportunity to focus on his ultimate goal—providing a running flower show that gets rave reviews from season to season.