TAC Meets Unique Environmental Challenges at the Henry Doorly Zoo

A world-class facility in every sense of the word, Omaha, Nebraska’s Henry Doorly Zoo attracts more than a million visitors each year. Along with polar bears, giraffes, elephants, lions and tigers, the zoo hosts the world’s second largest indoor tropical rain forest and a 72,000 square-foot (6,700 m²) aquarium.

Lied Jungle “Thrives” on TAC System
Inside the Lied Jungle building, zoo visitors can experience the sights, sounds, and smells of a tropical rain forest as they walk along the ground level path or take a suspended walkway at treetop level for a bird’s eye view of the tropical foliage, misty waterfalls, and jungle inhabitants. In 1992, TAC Partner, Control Services, Inc. of Omaha, Nebraska, designed and installed an energy management system for this indoor rain forest. The Andover system provides all temperature and humidity control in the jungle, including operation of a misting-fogging system and full control of the two large central air-handling units.

The 200-point Lied Jungle project was a “lush” success as the Andover system met an unusual environmental challenge with its unique programming flexibility. According to Chuck Kopocis, vice president at Control Services, “The design engineer felt the complexity of the sequences could only be handled by a control system capable of flexible decision-making. We wanted to simulate...
actual rain forest conditions by producing extreme humidity during the day followed by cool building temperatures at night – the opposite of what systems usually do. This project could only be done with a product like TAC’s.” Dr. Lee Simmons, the Zoo’s Director agrees: “Andover Continuum’s flexibility allows us to maintain constant zoological conditions inside regardless of varying extremes in Nebraska weather outside. We are very pleased with the Andover Continuum system.”

Scott Aquarium – Andover Continuum™ Comfort and Control in the Kingdom of the Seas

Two years later, Controls Services and TAC were back at the zoo ready to take on another control challenge. They installed an Andover Continuum system in the zoo’s new adjoining aquarium building, the Walter Scott Kingdom of the Seas Aquarium.

One of the world’s largest aquariums, its visitors can walk through a glass tunnel in a 900,000 gallon (3.4 million liters) coral reef tank and view marine life, including sharks swimming all around them.

An Andover Continuum CyberStation™ workstation, which uses TAC’s built-in backward compatibility option, integrates the new Andover Continuum system in the aquarium with the previously installed Andover system in the jungle building. Along with controlling the building’s HVAC system, Andover Continuum is responsible for the life support system for 15 freshwater and saltwater exhibits, totaling more than 1 million gallons (3.8 million liters) of water, and a refrigerated penguin habitat.

The Andover Continuum system not only monitors and controls the tank water temperatures throughout the aquarium, but also controls an elaborate 80-pump automatic backwash filtering system and a state-of-the-art ozone generation system, which injects ozone into the water to disinfect it.

The penguin habitat looks like a scene straight out of the Antarctica. Visitors can watch the penguins as they frolic in the snow and ice and swim in saltwater ponds with underwater viewing. Andover Continuum controls the daily production of 14 tons of snow and ice and maintains the exhibit’s air and water temperature in the 25-45°F (-4.0-7.2°C) temperature range necessary for penguin reproduction.

Throughout all the exhibits, the Andover system performs valve control to prevent salt and freshwater from intermingling and level control to compensate for tank water evaporation.

The animal life in the aquarium underwent a 6-month acclimation period in their new home before the aquarium opened in the Spring of 1995. During this period, Control Services was able to modify their control strategies to fit the aquarium’s special needs.

According to Kopocis of Control Services, “Ninety percent of the time, making control modifications with the Andover system means just looking at programming it differently. We don’t have to make a lot of expensive hardware changes. I think that’s a big part of why we got the second job ... we were willing to work with Zoo Director, Dr. Lee Simmons, and the product allows us to do that.”
IMAX® 3D – Andover Continuum’s Movie Debut

In the Henry Doorly Zoo 350-seat IMAX 3D theater, Andover Continuum is again “in control” – providing not only the VAV system control inside the theater, but also the actual cooling of the gigantic heat-generating IMAX projector itself.

And Andover Continuum continues to make other debuts – by 2005, the system had been installed in four more buildings/exhibits:

**The Desert Dome:** Opened in 2002, the world’s largest indoor desert, located under the world’s largest glazed geodesic dome has become a landmark of Omaha. The Desert Dome features plant and animal life from three deserts of the world: the Namib Desert of southern Africa, the Red Center of Australia, and the Sonoran Desert of the southwest United States.

**Hubbard Gorilla Valley:** Opened in 2004, gorillas roam freely in this three acre site. This world-class state-of-the-art breeding and exhibit facility allows Omaha to be a major player in gorilla conservation.

**Hubbard Orangutan Forest:** Completed in 2005, this new outdoor orangutan habitat features two 65-foot tall, solid concrete Banyan trees, each weighing over 222,750 pounds with over 15 branches each and entangled with thousands of feet of man-made vine, to create a one-of-a-kind habitat designed especially for these intelligent animals.

**Kingdoms of the Night:** Opened in 2003, the Eugene T. Mahoney Kingdoms of the Night is the world’s largest nocturnal exhibit. There are over 75 animal species in Kingdoms of the Night, including eight species of bats. The day-night cycles are reversed, so visitors can see nocturnal creatures in their natural habitats.

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On October 1st, 2009, TAC became the Buildings Business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remains references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes. All brand names, trademarks and registered marks are the property of their respective owners.