

Case Study

Myriad Botanical Gardens and Crystal Bridge Tropical Conservatory

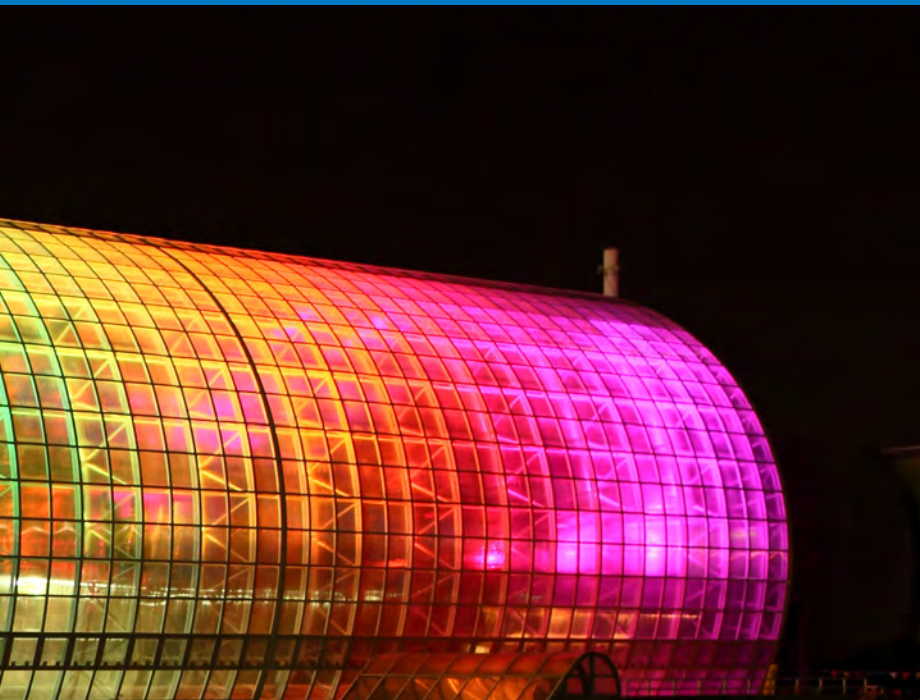
Location | Oklahoma City, Oklahoma, USA
Philips Lighting | LED Lighting

PHILIPS

Replacing the previous metal halide fixtures with a Philips Color Kinetics LED lighting system results in an operational energy saving of approximately 37% and lowers maintenance costs.



The new color-changing LED lighting system is energy-efficient, easy to control, and capable of displaying spectacular visual effects.



Fast Facts

Industry Sector

Exterior

Fixtures

ColorReach Powercore

Lighting Design

Alvine Engineering

Architect

GSB Inc Architects and Planners

General Contractor

Downey Contracting LLC

Electrical Contractor

Shawver & Son Inc

Photo Credit

Courtesy of Downey Contracting LLC

Oklahoma City recently completed the second phase of a two-phase renovation of the Crystal Bridge Tropical Conservatory, the centerpiece of the city's renowned Myriad Botanical Gardens. A breathtaking paradise nestled in the heart of downtown, the Myriad Botanical Gardens cover 17 colorfully landscaped acres. In the center of the Gardens is located the Crystal Bridge Tropical Conservatory, home to over 1,000 species of exotic tropical plants. The Gardens have recently undergone a complete exterior renovation, including extensive improvements to the landscape and hardscape as well as the addition of a new main entrance to the Conservatory. Both the Gardens and Crystal Bridge are popular tourist destinations and the site of numerous social events.

The renovation of Crystal Bridge, designed by GSB Inc Architects and Planners, included recoating the structural steel framework, replacing the exterior structure, and introducing special lighting to enhance the nighttime appearance of the facility and increase functionality for evening activities. The lighting system for the original Crystal Bridge consisted of a series of 400 W metal halide floodlights that grazed the building's acrylic skin, making the Crystal Bridge glow. To create color lighting for special events and holidays, staff had to add gels with makeshift gel holders to each fixture. Since the metal halide floodlights were not intended for use with color filters, the staff had considerable problems with heat from the floodlights melting the gels. Alvine Engineering developed the lighting design concept for the renovation, which included the replacement of the original metal halide lighting system with a color-changing LED lighting system that was energy-efficient, easy to control, and capable of displaying spectacular visual effects.

The bridge structure, which resembles a cylinder turned on its side, is 70 ft (21.3 m) in diameter and 220 ft (68 m) long. The renovation included the replacement of the exterior acrylic skin with new ribbed acrylic panels. Alvine Engineering swapped the existing 32 metal halide floodlights with the same number of ColorReach Powercore LED floodlights from Philips Color Kinetics. The ColorReach Powercore fixtures were mounted on the interior of the structure, spaced 14 ft (4.3 m) on center, and positioned approximately 14 ft (4.3 m) above the finished floor.

The new LED lighting system proved to be a prudent choice. The Gardens staff now enjoys a color-changing system that does not require cumbersome gels or filters. The new system also uses much less energy. The previous metal halide fixtures consumed 400 W each, while the replacement LED fixtures consume only 290 W each, for an operational energy savings of approximately 37%. The useful life of the LED light sources in the new fixtures is dramatically longer than the lamp life of the metal halide sources, saving both replacement and labor costs in the future.

To control the fixtures, the designers chose a control system from Electronic Theatre Controls (ETC) that provides a significant amount of flexibility for projecting color-changing light shows. Although there are pre-programmed effects, the staff can also program the lights to create light shows for special occasions.



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