



Tower of Hope

at Christ Cathedral

Renovation, Engineering and Construction by California Waters
Landscape Architecture by LPA, Inc.

Above

Christ Cathedral, located in Garden Grove, Calif., was until recently known as the Crystal Cathedral. The site was renamed after the Diocese of Orange purchased it in 2012. The 15-story Tower of Hope was built in 1968 to accommodate offices and classrooms for the church. The tower is set off by a 1,500-pound cast bronze sculpture of Jesus walking on water ("Peace Be Still," Dallas Anderson, 2000), with a flanking "chorus" of fountains behind. California Waters of Yorba Linda, Calif., designed, engineered and constructed the water feature; LPA, Inc., of Irvine was the landscape architectural firm.

A world-famous landmark for people of many faiths, the former Crystal Cathedral was synonymous with Rev. Robert Schuller and his "Hour of Power" televangelism. When the Diocese of Orange purchased the church and its 34-acre complex in 2012, Catholic leaders committed to respect the site's legacy while transforming the unique building and grounds into the vibrant new heart of worship for the 1.2-million Catholics living in Orange County, Calif. The Diocese changed the name to Christ Cathedral.

The 15-story Tower of Hope, which has recently undergone a \$6 million renovation and seismic upgrade, is set off by the awe-inspiring 1,500

pound, cast bronze sculpture of Jesus walking on water ("Peace Be Still" by Dallas Anderson, 2000). To accommodate the sculpture, California Waters incorporated a new anchoring system into the basin pour. This representation is enhanced by 32 foam jet nozzles shooting 10 feet high, interspersed and lit by 19 LED lights flanking the tower itself. The nozzles are divided by a walkway that runs between the walls of water as a tribute to Moses' miracle parting of the Red Sea.

The project included the complete redesign and renovation of the water feature including the large, reflecting pools encircling the statue. The two 5,800 square foot pools hold 65,000 gallons of



water. California Waters' biggest challenge was to bring the fountain back into service and into the 21st century without disturbing the architectural significance of its rich history, all with minimal disruption to ongoing church needs and services. In addition to achieving an impactful impression, the upgrade was charged with addressing water treatment and filtration issues, leaks, and retrofitting numerous repairs made since 1968.

The makeover started by adding over 6,500 square feet of black waterproofing to the floor of the reflecting pool to eliminate leakage and give the appearance of a turbulent sea. Extensive new concrete was formulated to maintain the aged look

of existing sidewalks and surrounding concrete. All water feature systems and controls are now fully automated, including the water level system. The spacing of the nozzles had to match the original layout, in which the fountains splashed over the walkway. A ball valve was incorporated to allow the nozzles closest to the walkway to be cranked down to minimize splashing. The nozzles are also tied to a wind sensor – as the wind picks up, the height of the nozzles lower in real time. Nineteen LED lights were selected to match the warmth of the existing surrounding night lighting. A highlight of the renovation is the production of a memorable shadow effect on the tower as day turns to dusk and the lights come on.

Above

The main goal of the renovation was to bring the outdated fountain, which encompasses two 5,800 square foot reflecting pools that hold 65,000 gallons of water, back into service and into this century. The process involved addressing water treatment and filtration issues, leaks, and patchwork repairs made over the last forty-five years. Over 6,500 square feet of a waterproofing membrane was applied to the structure to eliminate leakage and give the look of a rough ocean.

Top, Right

Inspired by Moses parting the Red Sea, a total of 32 fountain nozzles are divided by a concrete walkway. Post-renovation, the footprint of the nozzles was kept the same, but upgrades were made to minimize splashing onto the path. Ball valves were incorporated in the nozzles closest to the concrete so the jets of water can be cranked down. Additionally, all the nozzles were equipped with wind sensors, so as the wind picks up, the height of the fountains lowers proportionately to diminish splashing. The maximum height for any jet is 10'.



Above

Nineteen LED lights flank the tower, the fountains, and the sculpture. They were specifically chosen to coordinate with the existing surrounding landscape and architectural lighting. The shadow effect created by the LEDs is one of the highlights of the renovation.

Bottom, Right

The new owners requested that the water appear to be directly against the buildings, without actually touching them or needing a concrete barrier between the water feature and building. The solution incorporated thin stainless steel built into the pour along the perimeter where the feature meets the tower. Though it was difficult to design and install, the desired effect was achieved.

One major design challenge involved the clients desire for the water to appear as though it is directly adjacent to the existing tower without pouring a concrete barrier along that side of the feature or tying into the building. California Waters' solution incorporated a large, thin, stainless steel angle, built into the pour along the perimeter feature where it meets up with the tower. This approach was complicated to design and tricky to install, but the finished result was flawless.

The surrounding environment created significant challenges as well. The tower itself was also under renovation, requiring the fountain project to work around the huge structural beams that were holding up the tower. Site conditions also presented a challenge. Underground utility tunnels run throughout the property,

which eliminated the possibility of offloading a precast utility vault due to the excessive weight resting on the subterranean structure. A poured-in-place vault was constructed to house all equipment.

This project was the third water feature renovation project performed by California Waters at Christ Cathedral, the other two being the Arboretum and Memorial Fountain renovations, both in the last 5 years. California Waters, based in Yorba Linda, Calif., provides estimating, design and engineering, construction renovation, and post-construction maintenance and repair services. LPA, which provided the landscape architecture for the project, provides architectural, planning, landscape architecture, interior design, engineering and graphic/signage services. 