

Church interior bought to “New Life” while saving energy

Holy Cross Church
201 Adeline Street
Trenton, New Jersey

Annual Energy Savings
\$4,182.00

kWh Reduction
335,580

Relighting for energy efficiency

Energy Solutions was called upon by Monsignor Edward Arnister, Pastor of Holy Cross, to improve the lighting in the church, while maximizing on energy savings. Energy efficient light sources were carefully chosen to enhance this beautiful baroque interior with special attention given to color rendition and long life.



The Coffered Mural Ceiling

Definitely a strong focal point in this church is the coffered ceiling hand painted with murals depicting the life of Christ. The existing lighting consisted of 8-foot linear fluorescent lamps that have a rated life of 12,000 hours and color rendering index of 65CRI. These fixtures were upgraded by utilizing F32T8 Osram/Sylvania Extended Life lamps with a color-rendering index of 85CRI, 30,000 hour rated life, electronic ballast and a 95% reflective aluminum MIRO4 reflector kit. The retrofit improved light levels, while washing the ceiling in light, thus enhancing the colors of the murals and overall aesthetics.

The Altar

The main focal point of any church is the Sanctuary. Here a combination of compact fluorescent retrofits and ceramic metal halide fixtures was utilized to improve and raise the light levels to 3-times greater than the Naïve. Existing incandescent flood lamps were replaced one for one with 3000k (incandescent looking) compact fluorescent flood lamps. This took care of the “energy efficient” part. The second stage, and most important, was light and color rendition. New halogen track lighting systems were strategically positioned to overall illuminate the Sanctuary and also give emphasis to different elements in this area such as statues, paintings and the altar table itself. The third portion was to retrofit the existing lighting in back of the altar with Osram/Sylvania F17T8 Extended Life linear fluorescent lamps and electronic ballast. This added another light level to the Sanctuary area and gave a “glow” in the rear of the altar. Overall, light levels were improved and the quality of light was comfortable.

Church of the Holy Cross is a Roman Catholic Church located in Trenton, New Jersey in an area known as “Chambersburg”. The Church is a gothic style building with a baroque interior reminiscent of Roman Catholic churches built in the same time period of Holy Cross.

Main Chandelier

In the cross-section in the Naïve of the church, there is a large single ornate chandelier. The light sources utilized to illuminate the chandelier were incandescent lamps ranging in wattages from 100 to 150 watts.

These lamps were replaced one for one with 3000k compact fluorescent screw-in retrofits, reducing energy consumption 75%. Light levels improved while the color and quality of the light remained the same or slightly improved. The new compact fluorescent lamps have a rated life of 10,000 hours versus that of the incandescent lamps, which are rated from 750 hours to a high of 1500 hours. An existing Metal Halide down light in the center of this chandelier received a new color corrected 3000K lamp.



Accent Chandeliers

There are six other chandeliers in the main church area, which utilized 175 watt and 70 watt Mercury Vapor lamps with remote ballasts mounted in a crawlspace beneath the church. Fixtures were upgraded to new 3000K Metal Halide lamps with dimmable electronic ballasts. Wiring was updated, with ballasts relocated into the fixtures.

Incandescent Fixtures

Wall sconces, ceiling fixtures and spotlights that illuminate the Stations of the Cross were all updated with 3000K compact fluorescent lamps.

The Bottom Line

Prior to the retrofit, lamps of various colors, including 2700K, 3000K and 4000K were utilized, for an inconsistent look. All new lamps offer the same 3000K-color temperature and provide high color rendering. New lamps in most cases last 13 times longer than the original lamps, and consume 75% less electricity.

The church now has a consistent overall warm glow that provides proper light levels for reading as well as giving the interior a more pleasing aesthetic and comfortable environment.

