



Case Study

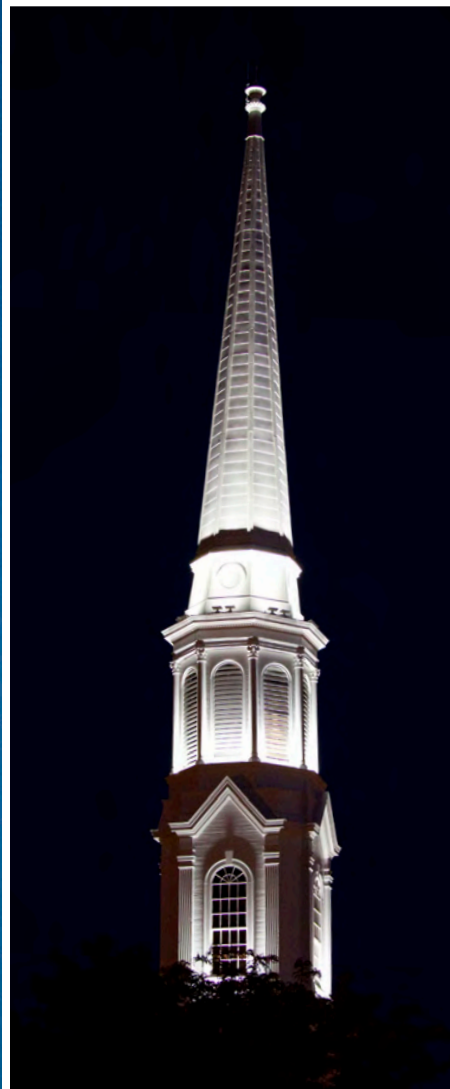
First Baptist Church

Location | Beverly, Massachusetts, USA
Philips Lighting | Philips Color Kinetics LED Lighting

PHILIPS



By avoiding lamp replacements, eliminating steeplejack fees, and reducing the energy required to illuminate the spire year-round, the new LED lighting system yields a 70% total reduction in cost.



The newly renovated steeple is illuminated from dusk until 1 a.m. every day, giving the city of Beverly a stunning focal point.



Fast Facts

Industry Sector
Architectural

Fixtures
eW Blast Powercore, eW Graze Powercore

Installation Integration and Support
Boston Light Source

Photo Credit
Robert Sansone, Sansone Photography

Visible from both land and sea, the two-hundred-year-old steeple atop the First Baptist Church serves as a landmark for parishioners, visitors, and residents alike in the Massachusetts coastal community of Beverly.

In the fall of 2008, parishioners unanimously voted to renovate the church's historic but aging steeple. The restoration plan included renovations to the steeple's exterior lighting system. The new lighting design called for fully illuminating the steeple's upper half while minimizing maintenance requirements and energy consumption.

The church staff worked with renowned church renovating specialists American Steeple & Tower Co., Inc., to update the historic spire. For their lighting needs, they turned to local resident Scott Ferriero of Boston Light Source.

Before the renovation, the steeple used eight 150-watt incandescent floodlights to illuminate the top of the spire only. Four sets of lights, each using two lamps, were installed on metal arms that extended approximately 3 ft (914 mm) from the seven-sided structure. The lighting ran from dusk until dawn, but because so few fixtures were used, energy consumption was not a large concern.

Maintenance, however, was problematic. Due to the fixtures' hard-to-access location, the lamps could be replaced only when a steeplejack was hired to paint the steeple. The incandescent light sources had a rated lifetime of around 4,000 hours — a little over two years at approximately eight hours of use per day. But since the church could

afford to hire a steeplejack only every seven or eight years, the fixtures would always burn out long before they could be replaced, leaving the steeple in the dark.

When choosing a new system to illuminate the refurbished spire, the design team required fixtures that could fully illuminate the upper half of the steeple. They also required light sources that would closely match the cool color temperature of the former incandescent sources. Most importantly, they wanted fixtures that required no maintenance and would last until the next painting of the steeple — or even longer.

Philips white-light LED fixtures in a cool color temperature of 4000 K proved to be the ideal option. A total of 14 eW® Blast Powercore fixtures were installed along the spire's bottom ledge, two per side of the heptagon. On each side, one fixture uses a clear lens to project light to the very top of the spire, while the other uses a frosted lens to illuminate the spire's lower level.

Not only do the new fixtures consume 58% less energy than the former fixtures, but they also require little to no maintenance. Not only that, they offer reliable, useful light for 50,000 hours of operation or more — over 17 years at eight hours of use per day. By avoiding lamp replacements, eliminating steeplejack fees, and reducing the energy required to illuminate the spire year-round, the new LED lighting system yields a 70% total reduction in cost.



Ferriero and the design team specified additional lighting to illuminate the formerly dark lower sections of the steeple. Directly below the spire, eight 4 ft eW Graze Powercore wall-washing fixtures bathe the steeple's eight wood shutters with uniform white light. Further down, four eW Graze Powercore fixtures illuminate the four large windows. Like the other fixtures that use Philips proprietary Powercore® technology, eW Graze Powercore fixtures directly accept line voltage for simplified installation. Together, these 12 fixtures consume only an additional 720 watts — less energy than a typical microwave oven.

The newly renovated steeple is now illuminated from dusk until 1 a.m. every day. Reliable, energy-efficient, and virtually maintenance-free LED lighting benefits both the church, which realizes significant cost savings, and the city of Beverly, for which the church's steeple serves as a stunning focal point.



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