



Photo courtesy of the National Park Service

## PRODUCTS IN PRACTICE

### STARS, STRIPES AND SOLAR POWER

**N**early 200 years ago the sight of the tattered American flag flying over Fort McHenry in Baltimore, MD, inspired Francis Scott Key to pen the poem that would become our national anthem. Today, a flag still flies over the fort as a symbol of the U.S. victory over the British during the War of 1812. Only now, it's illuminated by solar-powered LEDs.

A reproduction of the oversized 15-star, 15-stripe original—now on display at the National Museum of American History—the Fort McHenry flag is required by law to be lighted at night. However, the two ground-mounted, 22-in.-diameter, 400-W metal halide floodlights used to illuminate the flag posed a two-fold problem for the National Park Service: the bulky lights compromised the historic aesthetic of the site and consumed unnecessary energy.

NPS project manager John Holtzinger looked to solar electric lighting and power systems manufacturer SEPCO and outdoor lighting manufacturer Beacon Products to find a replacement solution that would eliminate both issues. To maintain the historic aesthetic of the site, the NPS wouldn't allow the lighting and solar systems to be mounted within visitors' line of sight, a mandate

which posed a challenge for the manufacturers. "Normally, solar panels sit upright. But we had to create a custom panel assembly that lies flat on the roof (above, left)," says Beacon's former vice president of sales, Chris Bailey, who helped design the custom, non-line-voltage solution along with solar lighting specialist Joe O'Grady from SEPCO. (Bailey now works for Beacon's parent company, Hubbell Lighting.)

Mounted on a stepped rooftop that is 60 ft from the flagpole, two solar assemblies each power one 24-W and one 17-W small-scale LED floodlight (Beacon Products). On cloudy winter days, "the system disconnects the 17-W luminaires so that it can operate off of partial power," says Bailey. "Even in the dead of winter, there is enough sun energy to power the lights all night long."

What's more, the flag appears brighter than before. "The old ground-mounted system illuminated the whole fort area, while the new system just lights the flag," explains Holtzinger. "I would compare it to looking at the flag in a lighted room versus looking at the flag with a flashlight. The solar lights are focused right on the flag so visually it's a whiter light that makes it stand out."

**Elizabeth Hall**

**The Challenge:** Illuminate the "Star Spangled Banner" without compromising the historic integrity of the site.

**The Solution:** Custom roof-mounted solar assemblies and LED floodlights.