

Cincinnati Soul

At last, the details of City Hall's 127-year-old stonework are visible after dark

BY SAMANTHA SCHWIRCK

Architect Samuel Hannaford passed away in 1911, but his legacy remains alive and well in Cincinnati. Over the course of his career, Hannaford designed more than 300 local buildings, many of which stand as textbook examples of Richardsonian Romanesque architecture. Inspired by architect Henry Hobson Richardson, the distinctive stone structures incorporate medieval design and traditional Romanesque features such as arches and columns.

One such building is City Hall, which is located on Plum Street in downtown Cincinnati and houses local government entities including the offices of the mayor, city council and city manager. The stately four-and-a-half story structure and its adjoining nine-story clock tower were built in 1888, and added to the National Register of Historic Places in 1972. Despite City Hall's local cache, its exterior lighting system had—not surprisingly—become outdated over time. The existing high-pressure sodium lights were costly to maintain, and illumination did not properly



Prior to the relighting, the façade's different stonework blended together as one.



Photos: Josh Beeman

showcase distinctive features of the façade.

In 2014, the City of Cincinnati looked to local design firm Eco Engineering to upgrade the exterior lighting in order to save energy and refresh the building's nighttime aesthetic. According to Matt Minard, lead engineer and designer at Eco Engineering, the façade “had been lit in a way that threw light into the windows and gave the building a cold, bland appearance.” Additionally,

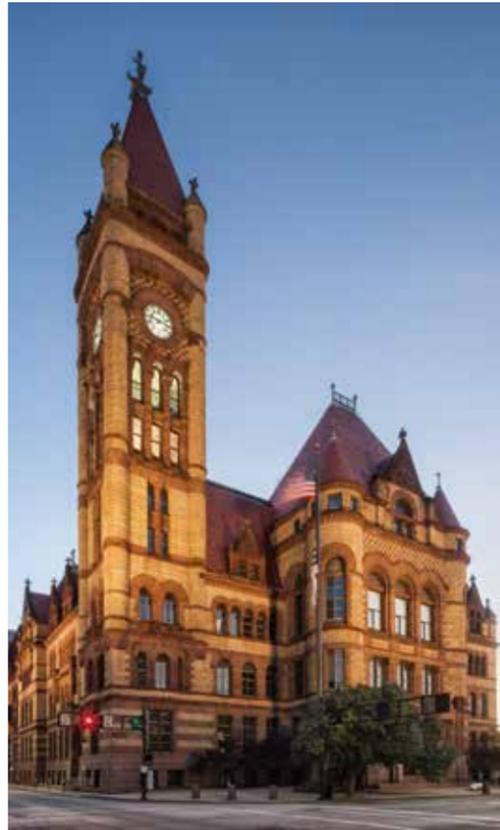
the façade's various stone finishes appeared to blend together as one. With the new design, Minard says, “It was important to make sure that the terra-cotta and red stone were properly rendered at night as they are during the day.”

OLD WAYS

The existing system used 38 assembly poles, each of which held two to six 400-1,000-W flood-

The existing high-pressure sodium fixtures were replaced on a one-for-one basis with low-profile, LED floodlights.

Floodlights with higher candela arrays and tighter beam patterns illuminate the 285-ft tall clock tower.



lights, for a total of 62 fixtures. For the redesign, Eco Engineering relied on the original poles, but replaced the HPS fixtures with low-profile LED floodlights from Lumenpulse.

As the design took shape, the structure's historic nature became a feature to contend with. Ac-

84% Reduction in energy consumption following the redesign

ording to Minard, working with the old electrical system that controls the lighting circuits posed the biggest challenge. "The system dates back to 1940," Minard explains. "The old disconnects are still controlled by antique mercury knife switches, and they didn't cooperate well when we were locking out the circuits to work on them. At times, the

fixtures would intermittently go on and off." To resolve the issue, designers teamed up with the building's contractor to learn how to manage the existing system's lock-out and tag-out procedures. "The system had a mind of its own and we had to make the best of the situation," Minard says.

The design was completed in January and, after months of proposals, mock-ups and installation, final aiming of the luminaires was done in May.

DOWNTOWN REVIVAL

City Hall's HPS lights were replaced on a one-for-one basis, but the 62 new LED fixtures reduce energy use by 84 percent and cut carbon dioxide emissions by 265,000 pounds annually. Swapping in LEDs provided a straightforward solution for saving energy, but achieving the desired nighttime aesthetic involved some trial and error.

Designers considered installing a grazing system, but ultimately opted for floodlighting to avoid running cables around the building and ensure uniform illumination. "First we mocked up a few samples with different beam patterns," Minard explains. "After we compared that to the modeling, relative lumens and loss factors, we selected what provided even distribution." The LEDs are slim enough to be hidden from sight, in

contrast to the HPS fixtures, which were much larger and had "sports-like silver reflectors," Minard says. A color temperature of 3000K provides a warm wash of light that emphasizes the façade's contrasts and shadows, which were previously not visible at night. "3000K provided the best CRI and spectral power distribution for the



Light from the new LED fixtures adds definition to the façade after dark.

existing stone," Minard says. "The colors of the different stone finishes were brought back to life, and definition was added to the building at night."

The fixtures were aimed at 40 deg to avoid hot spots and glare inside the building. "Controlling the light into the windows was very important, but not critical," Minard says. "We couldn't avoid light into the windows because of the spacing, but we eliminated the disability glare from the previous system."

Four larger floodlights with custom optics—the only other fixture type used for the project—illuminate the 285-ft tall tower. "The floods project half the lumen output compared to the old HPS system," Minard says. "We used fixtures with tighter beam patterns and higher candela arrays to throw light at that height."

Illumination across the façade averages 25 footcandles. "At first I thought this would be too harsh and create pools of light, but after a lot of

models and calculations, I found that it was the right amount of light," Minard says. "When the project wrapped up, everyone involved realized that it was about much more than saving energy—it was about giving life back to the oldest building in greater Cincinnati. The building sits in an area of town where there isn't any activity, but now it's being shown on local news and advertisements. It's brought new attention and local interest." □

THE DESIGNER



Matt Minard, Member IES (2009), is the lead engineer and designer for Eco Engineering, Cincinnati, and serves as vice president for the IES Cincinnati/Louisville Section.

FAST FACTS

- Two types of LED floodlights were used to light the building, replacing HPS.
- Illumination across the façade averages 25 footcandles.
- A color temperature of 3000K showcases details in the different stonework.