BELDEN

SENDING ALL THE RIGHT SIGNALS

Dubuque County West Campus

Dubuque County invested in PoE LED lighting – a system supported by Belden cable and connectivity – for customized control and simplified installation in two new facilities.

Our End-to-End Expertise
Your End-to-End Solution

Customer

Located in northeast Iowa along the Mississippi River, Dubuque County is known as the point where Iowa, Illinois and Wisconsin meet. It's also one of Iowa's two original counties, with a growing population of 97,000. It's a showcase of well-preserved buildings and homes, as well as a revitalized Main Street.

To update a small, outdated office building and secondary roads shop that both served Dubuque County, the Dubuque County West Campus was created. It's home to two new replacement facilities: a 67,000-square-foot Secondary Roads Facility and a 10,000-square-foot Dubuque County Office Building, which houses the Dubuque County Assessor, Health Department, Road Department and Planning and Zoning.

Challenge

During the construction of Dubuque County West Campus, the county wanted to create a network infrastructure that would support Power over Ethernet (PoE) LED lighting. After successfully deploying PoE LED lighting in the Dubuque County Courthouse and experiencing impressive savings as a result (between 15% and 20% on energy bills), Dubuque County wanted to continue this trend by installing the same PoE LED lighting system in its new Office Building and Secondary Roads Facility.

Due to the size of the Secondary Roads Facility, IT Director Nathan Gilmore knew that distance would be a challenge in terms of cable performance. “You very quickly get to 280 feet even doing right-angle runs because the building is 570 feet long by 120 feet wide by 40 feet tall,” says Gilmore. They needed a reliable cable that could perform across the entire channel.

Because it was a new build, Dubuque County had the opportunity to design the facilities based on current and future network infrastructure needs – and they wanted to get it right the first time.

Discovery

After partnering with Belden on previous cabling and connectivity projects – including the Dubuque County Courthouse – the county wanted to mimic this success, using Belden cable and connectivity to support new lighting technology.

“This project was an extension of the success we had at the courthouse,” says Gilmore, “only significantly scaled up. There are a lot of lighting fixtures in these two buildings that are all PoE.”

Solution

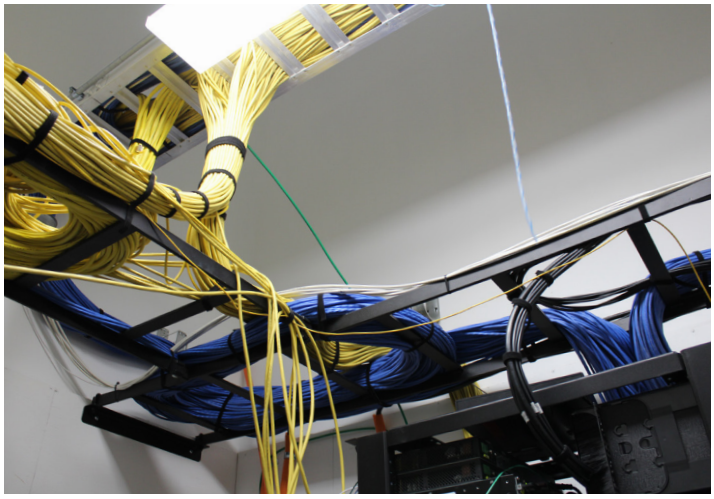
All of the lighting in the Dubuque County Office Building is PoE LED fixtures; five rooms in the Secondary Roads Facility also rely on PoE LED lighting. GENISYS Leaf Series 2x2 composite fixtures were selected for installation and are fully recyclable at the end of their lifecycles. They offer white light color tuning and light-level control so office occupants can customize lighting levels and desired color temperature for personal comfort and productivity. Selecting "daylight rhythm" allows every day to be sunny indoors by following the natural changes in sunlight – from sunrise to sunset – based on precise coordinates of the building. In open-space areas, LaMar Lighting, a GENISYS Ready Partner, provided direct/indirect linear lighting.

"I see PoE lighting as a major up-and-coming technology that provides the next level of controlled LED lighting while simplifying installation and implementation as compared to standard line-voltage lighting and external controls," says Jeffrey Goldstein, CEO at LaMar Lighting.

The GENISYS lighting system utilizes a node-centric design and an encrypted IntelliDrive (node). Power for the PoE LED system comes from a switch; from that switch, category cables are run to the IntelliDrive, which can support up to nine devices. All fixtures, control components and third-party devices connect to the IntelliDrive as well.

GENISYS™ POE LIGHTING SYSTEMS

Combining solutions from Innovative Lighting and Belden simplified the lighting installation at Dubuque County West Campus. A traditional lighting system would have required conduit, junction boxes and 12-gauge wire. As a low-voltage solution, only the IntelliDrive, new fixtures and multifunction sensors and switches needed to be installed and connected to Belden cable.



Belden's Small-Diameter 10GXS Category 6A Cables were used to ensure robust performance and support PoE LED lighting technology. The cable's size provides up to 25% space and weight savings, as well as easier installation. It also kept project timelines on track with easy-to-separate pairs and easy-to-remove barrier tape.

Belden's REVConnect® Connectivity line was used to streamline termination. Through a universal termination core, REVConnect supports a single, easy-to-learn termination method for all Category 5e, Category 6 and Category 6A RJ45 connections. The result is time savings of between 30% and 60% for each termination.

Results

"In my lighting career, I have never seen a building lighting system consistently using as little energy as this one."

– Wendell Strong, GENISYS PoE Lighting Manager at *Innovative Lighting*

The Dubuque County West Campus project was led by a general contractor, electrical contractor and low-voltage subcontractor. "This was probably their third or fourth REVConnect project," says Gilmore. "By this point, they're pretty happy with REVConnect. It definitely goes faster and makes repairs and moves, adds and changes go a lot faster for us later."

In terms of savings, Facilities Superintendent Chris Soeder says he's seeing a significant improvement. "The amount of energy that we *aren't* using is impressive. We planned everything based on 15-amp loads on 20-amp circuits and we've got the lighting maxed, running it at 95%, which allows us to extend beyond the rated life of the fixtures. The most I've drawn at any time is less than 10 amps."

Despite the short amount of time the lights have been utilized in the newly completed Dubuque County Office Building and Secondary Roads Facility, the energy savings are already impressive. Across a 12.5-hour workday, the system consumes an average of 1792 watts per hour (less than 18 100W incandescent bulbs) to light nearly 10,000 square feet of space.

"In my lighting career, I have never seen a building lighting system consistently using as little energy as this one," says Wendell Strong, GENISYS PoE lighting manager at Innovative Lighting.