



University of Oregon Solves Tough Lighting Challenge

By Jack Sine

Photo courtesy of Little Mountain 5

The facilities management team responsible for the University of Oregon's athletics facilities had a lighting problem. Considering the size of the facilities (the largest in the state) and the huge diversity of usage and scheduling, that shouldn't be a surprise. But this wasn't an isolated problem. It affected the entire complex. The whole lighting control system was on it's last legs and needed to be replaced.

"It was really an antique," said Alec (Bull) York, director of facilities systems for the university's athletic complex. "It was an old MicroLite system and was 15 years old and run by a computer that operated on Windows 95. On top of that, the hard drive was showing signs it was ready to go. It was clearly time for an upgrade."

The Challenges

The old system had 17 panels with each panel capable of holding up to 48 relays. It was a stand-alone system and worked independently of the building automation system (BAS).

"Our facility is unique in the way it functions, unlike most ordinary lighting control applications," said Rick Gasser, equipment systems specialist for the athletic complex. "We have so many different venues - the stadium and large club rooms that are used for a variety of special events. One is more than 70,000 square feet and is used for a great many university functions. There is so much more to this complex than just Ducks football. Unlike your typical commercial building, we have hundreds of lighting schemes. Everything is event driven. There are events going on every day of the year. So we have a lot of lighting schemes that we need to be able to create that cross over and use different sets of lights for different situations. And there are so many lights to control - field lights, locker rooms, weight rooms, corridors, signage lights, and so on. There are so many schemes we can and do use, so we need fast and easy control over them. The old system worked pretty well, but it was a stand alone and required separate programming. This time we wanted one that tied into our BAS. So we went first to the company that had bought MicroLite and we found they didn't

do much to support it anymore, but they offered an upgrade that didn't do everything we wanted and cost more than we were prepared to pay. So, we went next to our BAS supplier, Siemens, because we've had great success with them. Not only does their Apogee system control our HVAC systems very well, when there are problems they have always worked with us to find solutions that work for us. That's why we've stayed with them this long."

"When the facility team from the University came to us we weren't surprised," said David Lange, automation specialist for Siemens. "We were aware of the age and inconvenience of the old lighting control system. And we were ready with a solution. We got them together with Blue Ridge Technologies, a lighting control firm we had been partnering with for many years. They have customized their system so it can be programmed and controlled by our BAS systems. It makes it much simpler to control the lighting that way."

A Native Solution

"It's all about native communication," said Dennis Swoboda, district manager for Blue Ridge. "We embraced native communications and designed our lighting controls around them. When you install one of our panels, it is native to the building automation system, so you can place it on the same network without a gateway and without the need to add front-end software. The BAS front end integrates the HVAC and lighting control scheduling, so whether a customer is using BACnet, Johnson Controls' N2, or Siemens' P1 protocol, they do not need a Blue Ridge front end to go with it. Everything works together smoothly, saving the end user both time and money."

"Even today most lighting control systems are stand-alone with their own servers and protocols and that makes it more difficult on the end user. Those lighting manufacturers that do claim BACnet compatibility often need a lot of infrastructure to go along with it. Sometimes it could mean adding a gateway, or a second front end computer, but many times it also results in a completely separate network. None of that is required with our products, making it less expensive to install and much easier for the end user to control."

The Installation

There was a tight two-week window for the installation while the Oregon Ducks football team had an away game.

"Installation went smooth," said Lange. "Blue Ridge makes a retrofit for the panels we were replacing. So it was easy for the electricians to just pull out the old controller board and fit the new controller fit right into the existing panel. Then all they had to do was splice the wires to the relays. It was kind of a brain transplant. We were able to use the existing line voltage wire, conduit, and enclosures."

"Grouping the relays was a challenge. There are about 250 relays, out of that they get several hundred different zones, or what they call 'schemes'. It's not like in an office building. There you have zones that are either on or off. In the stadium you have different combinations of the lights for different effects, for different activities. For example the zone for football practice might require most of the same lights for cheerleader practice, but maybe there are a few differences. Our software would allow them to schedule the lighting for the different events. The Blue Ridge controllers are fully compatible with the Apogee system. The way we set it up, in the Blue Ridge panels you can group relays and have super groups of relays. In an office building you might have four relays for a floor, so you would just make them one group. What we did is make each relay its own group so we could add or subtract that group from any of the zones."

Final Thoughts

The initial installation was accomplished within the two-week window with a few minor problems getting the system up and running. "Some of the existing relays" said Lange, "had to be replaced but now the University's complex lighting demands are now programmable through their BAS. It's going to save them a lot of time and headaches, not to mention the energy savings from better control over their lighting."

"This is why we keep working with Siemens," said Gasser. "They don't try to make excuses or quick fixes, they attack problems head on. We've only just got the system up and running, but we can see where by combining it with the Apogee system, it's going to greatly simplify our job and save us some money in the mean time."

About the Author

Jack Sine is a freelance writer specializing in energy and HVAC marketplaces.