

Luminaire Level Lighting Controls: The Future of Intelligent Lighting



ASK THE EXPERTS

Q&A with Chris Meek, Associate Professor of Architecture at the University of Washington

As the commercial lighting industry continues its steady move towards more advanced controls and lighting solutions, for many experts, all signs point to networked lighting controls. And when it comes to truly intelligent, flexible lighting with non-energy benefits, the future could be Luminaire Level Lighting Controls (LLLCs).

Can you give us a short summary of your experience in the lighting industry?

I'm a faculty member in the Department of Architecture at the University of Washington, and I've been in the lighting industry for almost 20 years with a focus on energy efficiency, daylighting and controls. My background is in architecture, but I also do research on building performance, energy and lighting and human experience.

Where do you see the lighting industry headed?

That's a big question. I think a lot of progress has been made in energy efficiency just through the transformation of LED. From an energy efficiency standpoint, a lot of future savings will come from the improvement of existing buildings: there's a lot of poor quality, inefficient lighting out there in the wild. Buildings that were built more than five or six years ago are ripe for LED retrofits and controls retrofits, and therefore for new energy efficiency savings.

I think there's also a lot of interest in the relationship between light and health, and in the ways that lighting impacts human wellness. We're starting to

look at how daylighting can help support the effective entrainment of the circadian rhythm, or your body's natural sleep-wake cycle. I think that trend will continue for the next decade or more.

In the near term, we're going to see continued innovation in the form and capability of fixtures. When LEDs first came out, the goal was to emulate existing lighting technology. I think the next step is rethinking the look, feel, application and size capabilities of LED fixtures. And we're already starting to see more low-profile and elegant fixtures being developed.

What do you want people to know about LLLCs?

They're really flexible and adaptable. They're plug-and-play: you can just hang them up, energize them, and immediately they'll meet code and be super energy-efficient. Plus, they can be installed in parts and the pieces—ideal for an owner who wants to retrofit their building but maybe doesn't have the budget to do it all at once. And because LLLCs are a unique, self-contained luminaire control system you don't have to go in and do a comprehensive controls upgrade to install them.



What are your favorite use cases right now for LLCs and why?

Offices are a great example: productivity and flexibility are key, and therefore providing advanced controls is too. LLCs can be regrouped on the fly with just some programming controls. They will also be durable, but easy to take down and reprogram if you need to adjust.

I've also heard some compelling cost cases in schools. Schools have complicated lighting controls to meet requirements for things like fire alarms and notification systems, especially in main corridors. That means running a lot of low-voltage cable and other hardware and wiring. Using LLCs in classrooms allows a school to consolidate and simplify its central control system to common areas. It's a straightforward but impactful simplification.

When it comes to the biggest reasons LLC systems are installed, we hear a lot about non-energy benefits and the growing cost savings potential with utility incentives. What do you see as the top reasons for specifying and installing these systems?

Cost and flexibility. You can reconfigure and reprogram the way that you control an LLC system locally, with wall switches and other controls. But I think the real benefit is that you don't have to rely on a built-up control system from a lighting control panel. You just install the fixtures and, right out of the box, they're already commissioned for

daylight sensing and for vacancy or occupancy sensing. Having the ability to hang the fixture that immediately meets code without touching anything else in the building can mean a huge cost reduction.

You'll also benefit installing LLCs in spaces where you're not certain about configuration, or in spaces that you expect to change frequently. Whenever you simplify something, reduce labor for set-up and installation and make future upgrades easier for yourself or for an owner, you save.

What advice would you give to architects who are still hesitant about considering an LLC system in their next project?

Lighting controls aren't necessarily something that architects would have on their radar, so my advice would be that architects work to better understand lighting technology and how it can serve them. What I think they will find is that LLCs end up serving their purposes best. That goes for retrofit spaces in particular, but also for new construction where downstream flexibility is critical.

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