

# A Specifying Engineer's Viewpoint on Embedded Controls

Catherine Hollenshead, P.E., Lighting Assistant Dept. Leader with Estes, McClure & Associates, talks about the way embedded controls can add value when specifying projects.



Are you intimidated by lighting controls?

Are you confused about what parts and pieces are needed to specify a complete system?

Do you find that energy codes are difficult to understand and make it tough to know what products you need to design a code compliant system?

How many times has a client wanted a different control scheme after the lighting controls have been installed?

Lighting controls that are embedded into the luminaires can help you with all of these challenges and provide lasting end-result benefits on your projects.

If you struggle with specifying lighting control systems, then embedded lighting controls are your saving grace. Maybe the owner hasn't decided on the sequence of operations for each space. Maybe you have partitions and you need to have variable controls based on whether the partitions are opened or closed. Maybe you don't know exactly how a space is going to be utilized. You don't have to know your precise controls strategy when you choose to work with embedded controls. You can rest assured that you will have the infrastructure in place to do anything the job requires when you build embedded controls into the job. It's easier for you and also often translates into a pleasantly surprised client down the road.

Embedded controls allow scene and zone control like you have never experienced before. (Seriously!) We are no longer limited to a group of luminaires controlled by a power pack, which are permanently installed devices and do not provide control flexibility. With embedded controls, each luminaire basically has its own power pack on board which allows you to easily change control zones and scenes through the lighting control system's software. Since all of this is done with programming, it can be adjusted at any time without calling in the electrician to make wiring changes. This a huge advantage for your clients because, as a space changes function, they can adjust the controls (all by themselves!) to better suit their new needs.

Embedded controls can be the contractor's best friend, too. They won't need to install a whole host of "stuff" - power packs for each lighting zone, 0-10V dimming wiring, motion sensors or photocells. Once the luminaires and switch are installed, all that's left is the control system wiring between each luminaire and the switch. After all my years of experience, I'd have to say that the biggest challenge we face in the construction process has been the installation of lighting controls - especially with recent energy code changes. Using a system that is completely "plug and play" can deliver huge savings in both time and labor and it takes all the guess work out of the equation for the contractor.

So many manufacturers are building embedded controls into their products that it makes specifying an entire project with this system so simple. As embedded controls are embraced by the design community, manufacturers will be offering more luminaires with this option.

After the contractor has packed up and left the construction site, embedded controls give the owner the ability to make changes themselves through the lighting control system software. This can be extremely valuable when a space changes function, furniture is moved around, a projector or TV is moved to a different wall, etc. We are no longer confined to the way the room is wired with embedded controls. What a liberating concept!

Embedded controls also provide additional benefits to the client outside of lighting. When installed in each luminaire, embedded controls offer a way to track traffic patterns throughout a building. This can assist an owner in solving a multitude of issues quickly. For example, it can show the higher traffic areas where the carpet will need to be replaced first, or if a group of restrooms have been used more than others and require cleaning. Embedded controls also allow for asset tracking in a building, which can be extremely valuable for expensive items that are mobile or used regularly throughout a facility. These are just a few of the many ways embedded controls can add significant – and maybe unexpected - value to a project beyond just the lighting control.

Embedded controls benefit everyone involved in the design and construction process: you, the engineer, as you develop the design, the contractor during the installation of the system, and the owner after the project is "done." So, if you've been leery of specifying embedded controls, stop that! I think you may find your new best

friend!

Ms. Hollenshead obtained her B.S. in Electrical Engineering from the University of Texas at Tyler in 2004. She began her engineering career with EMA in 2004. Ms. Hollenshead is highly proficient in the use of AutoCAD, Revit, AGI32 and Microsoft Office. Some of her daily responsibilities include preparing complete electrical specifications, electrical power and lighting drawings, coordinating with architects, other engineering disciplines and utility providers, and educating the firm on innovative lighting trends. Ms. Hollenshead's unwavering passion for lighting, along with her extensive knowledge in electrical design has recently earned her the title of Lighting Specialist at EMA.

