

# A Specifying Engineer's Viewpoint on LED Flat Panels

Catherine Hollenshead, P.E., Lighting Assistant Dept. Leader with Estes, McClure & Associates, talks about LED flat panel lighting.



*One of the most common luminaires is the flat panel. Nearly every manufacturer has one to offer. Flat panels have their value and place in the lighting world, but they are not all created equal. As a specifier, here are some things that you need to keep in mind when evaluating LED flat panel luminaires.*

*Where would you use them?*

*Shallow plenum spaces. As one of the thinnest luminaires available for recessed applications, flat panels are ideal here. As electrical engineers, we're generally working our designs around HVAC air handlers, ducts, piping and structure, and sometimes we just have to make do with the space that is left. (Hint: The surface mount kit can help you out in low-ceiling areas, like under stairs or other similar applications.)*

*Renovations or additions where you must match existing lensed troffers. In my opinion, the flat panel luminaires look much better than the LED lensed troffers. I simply haven't seen a lensed LED troffer that looks good installed. The LEDs make dark striations or streaks on the lens. The lensed troffer was made for an omnidirectional lamp and does not lend itself to the directional source of LEDs.*

*Kitchens and other moisture-sensitive areas where we've previously specified triple-gasket lensed troffers. Flat panels can be wiped down and cleaned easily.*

*Value engineering. In our business, flat panels are mostly proposed as a VE item by the contractor. Over and over again, we see them offered up to replace the architectural*

*troffers that we specify. When you find yourself in this position, it is very important to compare the proposed flat panel against the specification. In my experience, the proposed flat panel substitutions do not offer the lumen package and options that I've needed for my projects.*

### *Quality/Durability*

*What is the quality of material used in the construction of the flat panels you're considering? You want to make sure that they are as sturdy as possible - no flimsy housings. I have handled several samples where I could physically twist the luminaire. That does not bode well for a good installation. I've seen quite a few installations where the corners of the luminaire curl up, or the luminaire doesn't lay flat in the ceiling. This is not the quality that we want for our clients.*

*How do the seams and mitered corners look? This quick check can tell you a lot about the overall quality of the construction.*

*What's the housing material? What's the thickness of the metal? You want to specify durable luminaires that will last the owner for years to come, not a throw-away luminaire that will need to be replaced in a few years.*

*Can you get a flat panel with the lighting characteristics that you need to meet the project requirements?*

*Do the flat panels you are considering have the CCT you need to match the other lighting in your building?*

*Are there lumen packages that will provide adequate light levels in your spaces? Avoid using luminaires with higher lumen output – and greater energy consumption - because the flat panel you're considering doesn't offer the lower lumen package you need. Energy codes are requiring lower and lower LPDs, so we need to be careful not to waste the allowed wattage that we have to work with.*

*Are integral battery packs available? This is important if you are specifying integral battery packs in the rest of the luminaires within the building. The emergency lighting needs to be consistent. We don't want to have a separate emergency lighting system just for the flat panel luminaires.*

*Do the available driver options meet your controls needs? Most cut sheets that I have seen for flat panel luminaires only have generic drivers available.*

*Are there IES files? This is an important question. Without proper IES files, it is not possible to adequately calculate the light levels in your spaces. The IES file is also where you can see the delivered lumen output of the luminaire. Most luminaire cut sheets provide the nominal lumen output but not the delivered lumen output, which is really false advertisement.*

## *Buyer beware*

*How long has the manufacturer been in business? Many new lighting manufacturers have popped up in the last several years. Specifiers don't have any experience with these manufacturers and how well they support their products. It's important to specify products by manufacturers that we trust since our own reputations are at stake.*

*Is there a warranty? How long is the warranty? What does it include? Have you seen warranty terms that are longer than the manufacturer has been in business? I have.*

*As you can see, there are lots of things about which you need to be aware - and thinking about - as you are evaluating flat panel luminaires, or any other luminaires for your projects. Ask for samples, do your own testing and evaluating. Your clients will thank you for keeping their best interests in mind. You are being paid for your expertise and they are depending on you to make the best decisions that you can in meeting their lighting needs.*

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.

