

# *Postings: from the desk of Jim Brodrick*

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One of the most common ways to light offices is with recessed troffer fixtures using 4' fluorescent T8 lamps. In this country alone, there are tens of millions of such fixtures in use in commercial and institutional settings. That gives you an idea of the magnitude of the market for LED T8 replacement lamps, which explains why so many manufacturers are coming out with them. These products are generally touted as being equivalent to their fluorescent counterparts in terms of the quality and quantity of the light emitted, while being more energy-efficient and having longer lifetimes. This can make them seem attractive to building managers, specifiers, and other lighting decision makers. But even though their overall performance has been steadily improving, such claims don't yet completely match the reality, quite apart from the question of cost – all of which can lead to disappointment.

That's why on June 20, the U.S. Department of Energy (DOE) will host a free 90-minute [live webcast](#) providing an up-to-date assessment of LED replacements for linear fluorescent lamps. Featuring two experts from Pacific Northwest National Laboratory, the webcast will begin at 1:00 pm Eastern Time and include a 60-minute presentation followed by 30 minutes of Q&A. Jason Tuenge will discuss the LED T8 replacement products that are registered with the [Lighting Facts](#) program, as well as those evaluated in the latest [CALiPER](#) reports. Eric Richman will report on a recently completed [GATEWAY evaluation project](#) in which LED and fluorescent lamps were installed in a variety of recessed troffer luminaires for comparison in an office environment. The presentation will conclude with a discussion of specifications listed

in a newly updated SSL Technology Fact Sheet.

A [second Technology Fact Sheet](#), which focuses on LED T8 replacement lamp application rather than specification, was updated last month and cautions that most currently available products do not match the measured light output of benchmark 4' linear fluorescent lamps – which perform quite well across most parameters, in addition to being inexpensive. The fact sheet explains that part of the problem can be the fixtures themselves, which are designed to harness the omnidirectional output of fluorescent lamps using reflectors, louvers, and lenses. LED replacement products are directional, so troffers using them instead of fluorescent lamps often have higher efficiencies, but deficiencies in output and intensity distribution are such that workplane light levels and uniformity may still be inadequate.

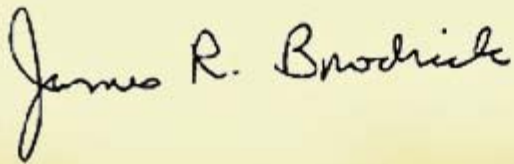
Initial outputs among the 100-plus LED replacement products registered with Lighting Facts range from 581 to 2,474 lumens, with an average of 1,366 – considerably less than the currently recommended 2,700 lumens. Color, too, may fall short. The CRIs range from 56 to 89, with an average of 75 – which is below the CRI of 80 recommended by the current DOE specification.

That's not likely to please end users, which is also reflected in the GATEWAY findings. The three LED replacement T8s evaluated in the GATEWAY demonstration had been identified by CALiPER testing as among the "best in class" at the time of the study. While all three drew less power than their fluorescent counterparts, they also provided fewer lumens. What's more, their prices were such that none would have paid for themselves within their 50,000-hour rated useful lifetimes. Although it's clear that such products are now rivaling fluorescents in terms of raw efficacy, "in situ" (installed) performance is another story – with the bottom line being lower total light output, which limits their ability to effectively replace incumbent fluorescent lamps.

What about applications that are over-lighted to begin with? While it's true that LED replacement T8s can provide the appropriate lower light levels at lower power levels in these cases, the same light level can also be produced using lower-wattage fluorescent lamps – currently at considerably less cost, not to mention higher maintained light levels over the product's lifetime.

It should be pointed out, though, that SSL is a moving target, with the technology getting better all the time – and with it, the performance and cost-competitiveness of LED T8 replacement products. That makes a webcast like the one on June 20 especially useful, because it will provide the latest scoop on LED replacements for linear fluorescent lamps, with two experts to guide you through the data, reports, and critical issues and help you make sense of it all. I strongly urge those of you who are interested to [register](#) and attend.

As always, if you have questions or comments, you can reach me at [postings@lightingfacts.com](mailto:postings@lightingfacts.com).



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