LEUKOS VOL 3 NO 3 JANUARY 2007 PAGES 179-180

Editorial

Waiting for Godot or, The Promise of LEDs

David L. DiLaura, FIES, LC

Like Estragon and Vladimir in Samuel Beckett's famous play, we are waiting; they for Godot, we for LEDs. Material science has created the promise of a light source that could effect a revolution like that of the fluorescent lamp. The promise, but not yet the thing itself. Any clearheaded assessment of LEDs recognizes the great hurdles that still bar the way to their being used successfully in general architectural lighting. To be sure, there are already important applications were LEDs have had a significant impact. The application most apparent to the public is probably the use of LEDs in traffic signals. Long life and low energy have made LED traffic signals a clear step forward, even for small municipalities. But the broader applications are still distant.

What is disconcerting is not the waiting – any technology must be worked on and pass through initial and difficult problem-solving phases – but rather the untoward hype, promotion, and public policy influence that the *promise* of LEDs has generated. It is well to recall the great promise of fiber optics, never fulfilled. Compact, efficacious light sources, delivering light remotely, was the promise. Many must remember the huge presence at LightFair that fiber optics once had. But the difficulties, technical and economic, presented too great an array of obstacles – obstacles that were never overcome. Price, performance, life, and convenience were requirements that were never met by fiber optics and prevented use in general architectural lighting.

The notion that LEDs will sweep away other lamp technologies is beginning to find purchase in the mind of the public. Yet there is no evidence that such a sweep is ever going to take place. The last time such a thing happened was the final overthrow of gas lighting by electric lighting in the first decade of the 20th century, and even then it had taken more than 20 years. A more realistic look at the future seems to reveal that along with the continued development of LEDs, we will see the development of HID (and eventually fluorescent) lamps that operate without any mercury, steadily increasing efficacies in both types of lamps, and (more distantly, perhaps) the development of nano-structure incandescent lamp filaments that bring the efficacy of those sources into the range now provided by fluorescent sources. LEDs are likely to become part of the palette of sources available to the specifier and the light-using public, but they to not appear to have the potential to displace other sources in general architectural lighting.

Unhappily, the unrelenting pressure to reduce the amount of energy devoted to lighting, coupled with an overblown assessment of what LEDs can and will be able to do, produce an impatience that leads to unrealistic building

owner expectations, or worse, unwise public policy. Mandating the use of sources that require heatsinks that have simple downlights weighing in at 75 pounds, is a bad idea. A bad economic idea, and a bad idea for our quality of life. In advance of public policy we must have public standards – standards of measurement, assessment, and performance. Nothing concerning the use of LEDs should be put in front of a legislator until we have an unambiguous way to measure and report their performance. We do not yet have this.

One might argue that the original fluorescent lamps required ballasts that had luminaires weighing considerably more than the simple socket and shield required of an incandescent lamp. It can also be argued that the original fluorescent equipment required considerably greater investment than the then-conventional incandescent lighting system. But the market did its simple arithmetic based on the significantly greater efficacy (even back then) of the fluorescent lamp, and began to use it rather than the incandescent lamp. Even with that, predictions made at the time of the disappearance of the incandescent lamp proved to be yet another chimera, seen only by clamorous “futurists.” We currently do not have LEDs that can successfully challenge the use of other light source in general architectural lighting on the basis of price and performance. Until such LEDs are in hand, we must work to keep building owner expectations and legislative eagerness in check. Though we risk the appearance of being luminous luddites, it is our professional responsibility.