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25TH ANNIVERSARY ISSUE:
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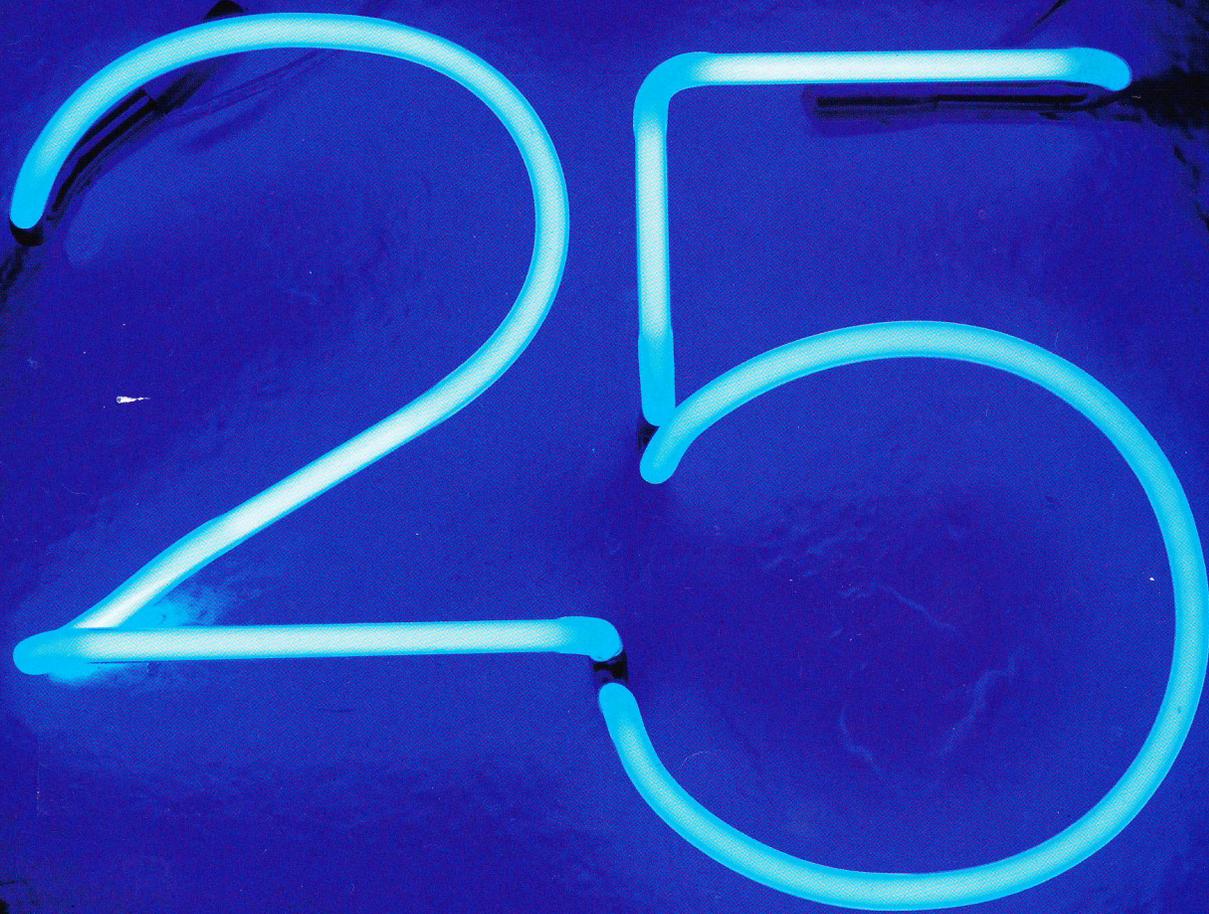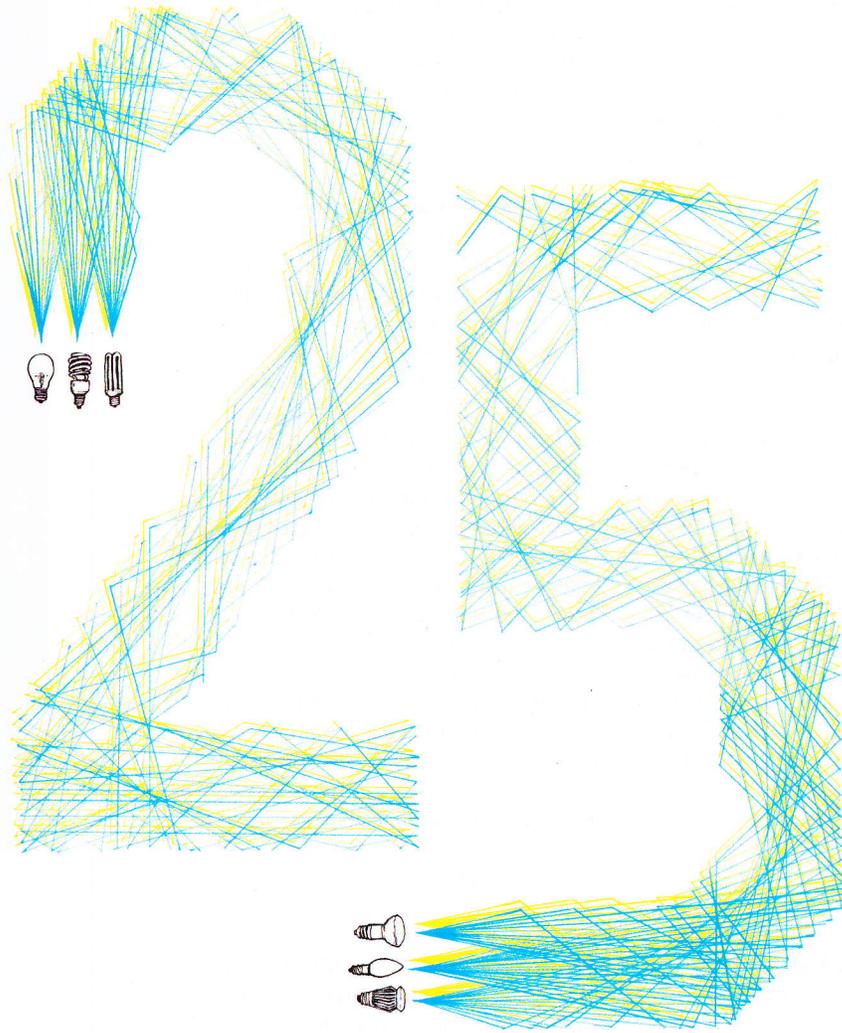
BUSINESS MINDED

Lighting industry business leaders reflect on market evolutions and product innovation.

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Symphony orchestra programs often note the "performing forces," which are instruments that dominate the piece being played. Over the past 25 years, the performing forces—or change drivers—in the lighting industry have been the instruments of energy efficiency, technological advances, and speed of information. Industry leaders who have championed change (everything from product development to acquisitions) look back with us and reflect on how the lighting specifier has changed, how products have changed, and how the customer has changed.

Project Design and Product Specification

In 1986, lighting designers and specifiers working on a job reached over their drawing boards and pulled a manufacturer's 4-inch binder off the shelf, filled with a thousand cut sheets of product details. If the date on a page was more than a year old, the designer would have to call their local rep to verify the technical data. The rep would then call the factory to check the information. It could be days before the lighting designer received the information that they were looking for, a process that could be repeated multiple times until the job was complete.

One of many unproductive byproducts of this laborious process was that there was often little time available to explore different design options and alternative product selections. Today, the situation is somewhat reversed and while the design/build process is faster and more integrated, which provides more access to product information, there is still a lot of pressure to make timely product selections that maintain the project's design integrity. "Lighting designers have so much more to learn now," says Charlie Jerabek, CEO and vice chairman of Osram Sylvania from 2001 to 2010. "The rapid change in technology has led to increasingly sophisticated products and an overwhelming amount of easily available online design information. It was a lot simpler in 1986."

But as design practice has evolved in the past 25 years, so too has the business of lighting and the manufacturing process. Changes in technology have impacted not only light sources and lighting technologies, but how the industry does business, communicates, and shares information. "Lighting design professionals used to be highly focused on how light was delivered to a task in an office or factory," says Bill Astary, senior vice president of Acuity Brands Lighting from 1999 to 2011. "Now, they are broadening their field of vision to understand the total illuminated environment, made possible by the control and integration of all the energy-management systems in a building."

But lighting designers and architects have always been integrators, and they're even more so now with today's smart buildings and smart grid. This integrated approach to comprehensive building systems requires not only smart lighting products, but smart design—and that starts with understanding how lighting can be embedded in all of the parts of a building, from the floors to the walls to the windows, in order to create a quality lit environment.

"There [has] also been a major shift in the lighting designer's type of work," says Ken Honeycutt, senior vice president of Toshiba International Corp. and chief venture executive of the Toshiba LED Lighting Systems Division. "The acceleration of renovation and retrofit projects, versus new construction, has had a major impact. And I am struck by the fact that many younger lighting designers have never laid a hand on a pencil or a piece of paper in their design work. Their world is one of electronic design and calculation tools."

No matter how the modern tools of design have changed the designer's relationship to his or her work (for the better or the worse), most people would agree that, in general, the quality of design has improved with the help of these contemporary aides. "Today's lighting technology has resulted in the lighting designer's ability to deliver greater aesthetic appeal and functionality than ever before," says Tom Salpietra, president and COO of Eye Lighting.

New Products: Long-Distance Run to Dash

Any new technology, including lighting, that is incubated in research laboratories eventually migrates to the commercial sector. Here, more time is needed to find the proper application. But that time frame has changed as well. "It used to take lighting manufacturers three to four years to develop new products," says Osram's Jerabek. "It wasn't that urgent to speed to market because products were around for 20 to 30 years. Today, if you took the same amount of time, you would miss the entire product life cycle."

And it's not just the pace of light-source technology that has accelerated. Fixtures, ballasts, and controls are on the same pace too. In the case of lighting controls, the time frame may even be faster than that.

And yet, for all of these other product developments, solid-state lighting design is changing the world of luminaire development unlike anything that has come before it. Over the years, each wave of new lighting technology has found its application in specific areas that

made the most economic sense and offered the best performance. But solid-state lighting may be the first lighting option to challenge incumbent technologies in every area.

The industry's trade shows, such as Lightfair and Light + Building, are often good ways to observe the industry's shifts in technology. The buzz at Lightfair this past year was the suggestion that by 2015, solid-state luminaires will account for half of the market-available lighting products. "The interest in solid-state technology and performance, including LEDs, is the same as when pulse start, compact fluorescent (CFL), and metal halide were emerging," says Keith T.S. Ward, president and CEO of Luminus Devices. "The ability to control LED light sources [in terms of] dimming, instant-on, instant-off, and color, is getting the most attention across the globe." Everywhere, sophisticated control of lighting systems is now de rigueur for any new construction where a lighting design professional is involved.

"The difference now is knowledge," says Brian Dundon, CEO and president of the Advance Transformer division of Philips from 2002 to 2007. "Historically, all lighting players [acquired] their knowledge slowly and incrementally. The result was that our industry was staid and insular. Use of the Internet and the shift to electronic products occurred at about the same time, and information flow and product life cycles were changed forever. Up until 1993 there were three manufacturers of electronic ballasts. We showed up at Lightfair that year [1993] and there were 63." Today, even though most of those companies are no longer in business, they were a driving force in transforming how the market operates today.

The Supply Chain: Adapt or Die
New lighting technologies and fast information flow have also had an impact on how new products get to market. Those involved in the lighting supply chain can no longer be just a conduit between the manufacturer and the end user. Sales people, agents, and distributors must adapt to constant change in order to survive as the business of selling and providing service to the customer evolves.

Those in the supply chain must have expert knowledge of lighting as a system, not just discrete components, and know how all building systems operate together in commercial, institutional, and industrial structures. Also, since light sources can now last upwards of 50,000 to 60,000 hours (as is the case for LEDs), there is an extreme amount of pressure on winning bids because it could very well be four times as long until a building owner considers lighting renovations.

"Twenty-five years ago there were many sophisticated customers, and because of the comparatively simple technology, these users dictated what lighting they wanted in a space," Ward says. "Now, decision making about lighting products and systems has been pushed back up the channel to energy-service companies, distributors, manufacturers, and lighting designers." Large electrical distributor chains, in particular, are reinvesting in lighting design and application departments, geared to capture renovation and retrofit as well as new construction markets. The result is that customers, regardless of their knowledge of lighting technology, now have multiple options to obtain the optimum lighting systems for their applications.

Sustainability as a Business Strategy
In 2002, *Businessweek* ran a cover story on why sustainability is good for business. Up until that point, most major companies viewed sustainability as an encumbrance to its profits and growth. But as the issue of sustainability shifted to become a business opportunity, companies soon began adopting strategies that included sustainable measures in their value streams.

In the lighting industry, energy efficiency has always been a force, especially when it comes to lamp design. Fluorescent was more efficient than incandescent, and it continued to improve over decades. High-intensity discharge lamps found space in the market. LEDs gained traction. Today, lighting controls are adding even more value to the energy-efficiency equation.

In 2007, Congress passed the Energy Independence and Security Act (EISA), which dealt with energy standards for lighting products, building efficiency, and smart-grid issues. Although there have been previous energy bills, EISA spelled out targets that called for a serious move to action on energy efficiency unlike any other previous legislative measure. "I still find it remarkable that the importance of lighting in a national energy strategy became clear enough that EISA was passed," says Evan Gaddis, president and CEO of the National Electrical Manufacturers Association (NEMA).

NEMA was a proponent of EISA, and advocated that energy policy should rely on affordable, proven technology; that market-driven incentives will provide faster results; and that government support of research and development and simultaneous promotion of energy efficiency is necessary. EISA's impact lighting-wise has been most evident in the debate surrounding incandescent lamps.
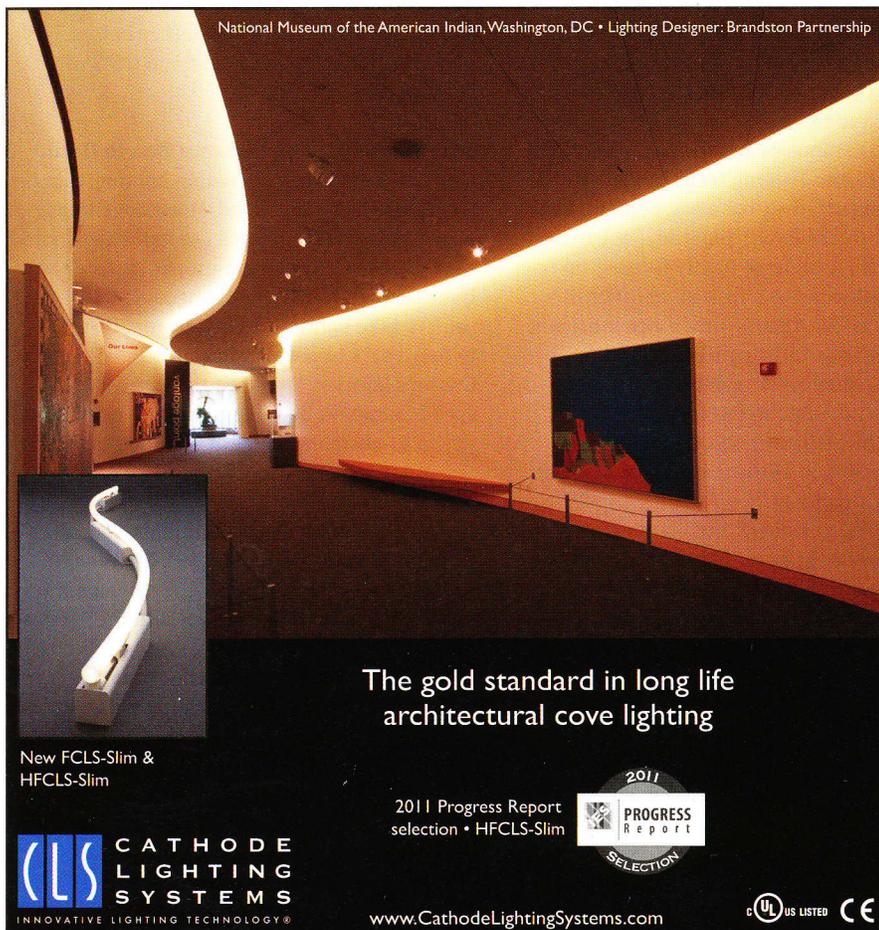
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Global Brands, Global Markets

Even the most casual observer of the lighting industry is aware that few borders remain. Solid-state technology is the primary force behind a new cycle of global industry consolidation, and this is opening up world markets to small and large companies alike. Voltage differences, country to country, are no longer an issue.

New lighting companies are being formed, and grown, often with the intent of being primed for acquisition to a larger conglomerate. A few companies—probably those with the most powerful intellectual property, who will take the risk, and who will remain independent— have the potential to become the giants of the midcentury. "The global lighting market will drive manufacturers to an even higher level of quality," says Acuity's Astary, a point echoed by NEMA's Gaddis. "As companies consolidate around the world, it will actually result in innovation and new lighting technologies reaching [the] market even faster," Gaddis says.

"Historically, Europe had the largest influential role in the advancement of lighting design and technology," adds Luminus's Ward. "The U.S. would then elevate performance and drive cost competitiveness. Now Asia is doing the same thing, and taking it to another level."

But the opportunity here isn't just for the largest of lighting companies. "Even small manufacturers are now fully involved with global technology and global markets to help them grow," says Crawford Lipsey, president and CEO of Relume. "You must have an international perspective on product development and the supply chain to be competitive."

What's Next?

The consensus from lighting-industry leaders is that the cost and availability of energy will become even more critical as consumer demand outpaces supply. This puts the lighting industry right in the center of the conversation, since lighting accounts for more than 30 percent of a building's electricity use according to data gathered for NEMA's Enlighten America initiative.

"The role of high-knowledge lighting professionals will increase as customers demand new technology, products, and systems that deliver maximum energy savings," says Philips's Dundon. "All lighting projects, just like politics, are local. And lighting professionals are the ones at the scene."

Over the past 25 years, the technological advances in lighting have been startling—and there is no let up in sight. "For decades the world was at 40 to 60 lumens per watt," Ward says. "New technology can deliver 120 to 140 lumens per watt and more. And improved lighting products and systems will cost less to design, own, and operate."

As products become even more reliable, manufacturers will offer longer warranties on both products and systems. A product that has the potential for 50,000 hours of service changes the game completely. In the meantime, customers' knowledge will expand to include greater understanding of standards, color, and equipment options.

"Lighting design professionals will continue to be at the core of lighting creativity, bringing together form and function in unique and standard applications," says John K. Morgan, vice chairman of Acuity Brands until 2007. "They were influential throughout the 20th century in the evolution of light sources and fixture designs, and they will continue to combine art and science as they apply new technologies in the 21st century." •

2005 • TIR Systems introduced its solid-state lighting Lexel technology: white-light LEDs with good color-rendering. It makes LEDs viable for architectural lighting applications.