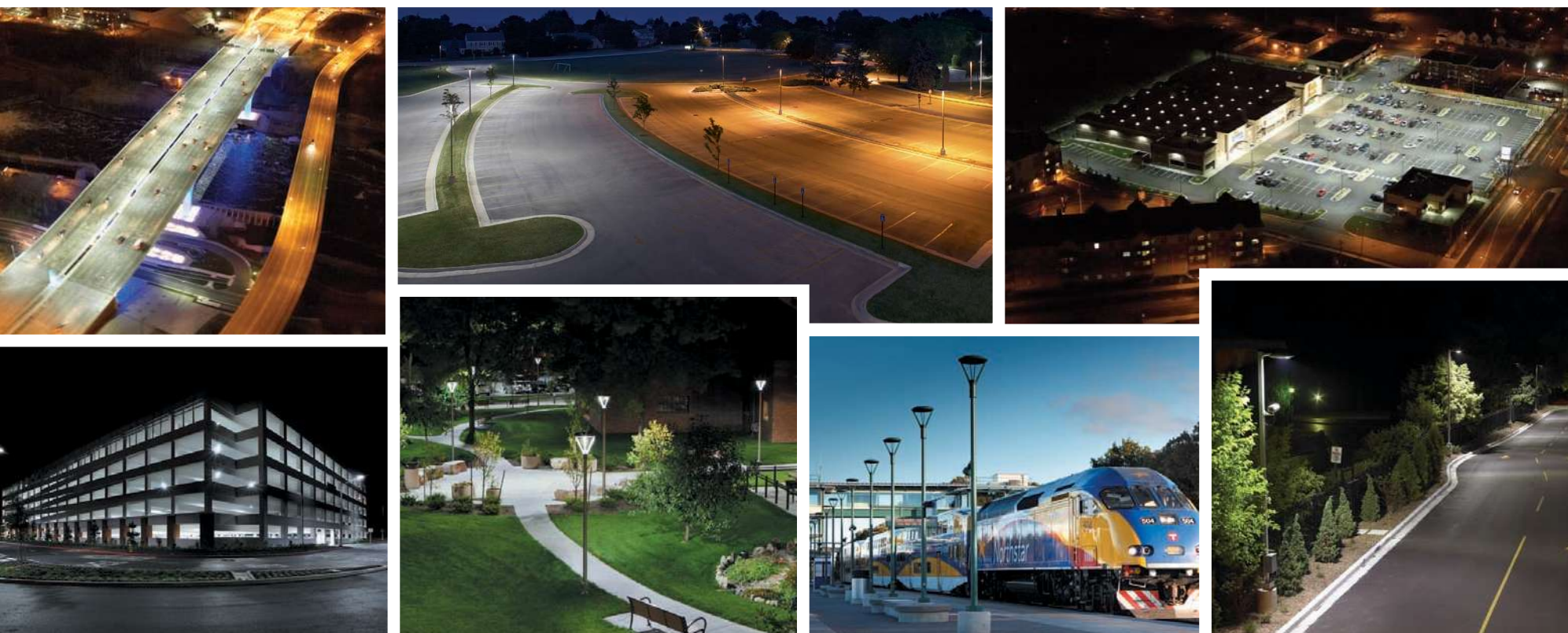


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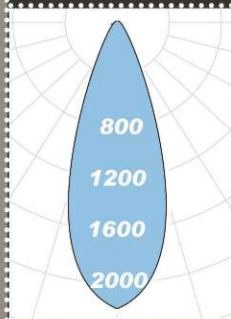
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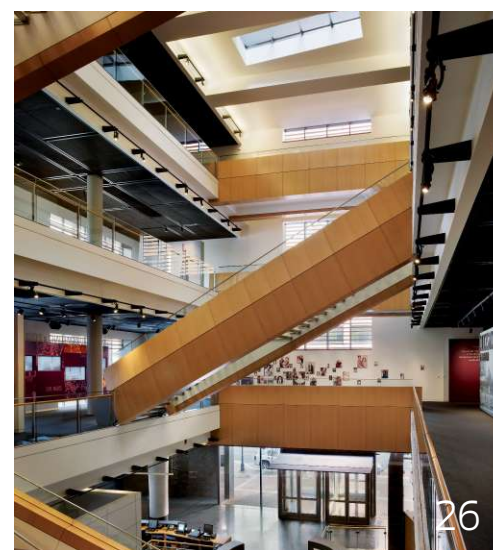


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“I attend both the American Institute of Architects National Convention and Lightfair, which reminds me how similar and yet how different the disciplines of architecture and lighting are.”

THE SPRING SEASON

Although trade-show season is one of the busiest times of year, it is also one of my favorites. The chance to celebrate the professions, see the latest products and technology introductions (many of which are included in the pages of this, our annual product issue), listen to presentations given by industry experts and thought leaders in related fields, and most importantly, the opportunity to network with members of the architectural and lighting design communities, is something I look forward to each year. I particularly love connecting with practitioners, manufacturers, educators, students, and young professionals, and hearing what they are thinking; what they are looking forward to; and what keeps them awake at night.

I attend both the American Institute of Architects (AIA) National Convention and Lightfair, which reminds me how similar and yet how different the disciplines of architecture and lighting are. On the one hand, these two worlds come together in a particularly immediate way. Each faces similar challenges posed by the economy, the need to adapt to new technologies, and the changing nature of design practice itself. And yet, the lighting discussions at these two venues couldn't be more different. At the AIA Convention, it's about looking at lighting from the outside in; at Lightfair, it's about looking at lighting from the inside out. What I mean by this is that each venue serves different communities, and with that comes the opportunity to discuss lighting in a way that makes the most sense for their respective knowledge bases and familiarity levels.

At the AIA Convention, I witness architects' thirst for lighting information; it is a great venue for lighting designers and manufacturers to present new products and designs, whether in the official lineup of seminars or at booths on the trade-show floor. The AIA Convention is a fantastic occasion to promote lighting awareness and to provide valuable information about lighting-related issues to architecture colleagues. It is also an important way to remind architects that while architecture and lighting are two different disciplines, they are also two parts of a greater whole—design.

The discussion at Lightfair, by contrast, is a movable feast for lighting—workshops and seminars provide a range of design and technical information for all experience levels. The singular challenge, particularly for an editor, is figuring out a way to fit it all in.

I'm especially excited about Lightfair this year. A new venue—Philadelphia—if only for a year, shakes things up a bit and gets the entire lighting community out of its regular patterns. The team members that put Lightfair together, particularly the show's organizers AMC, should be applauded for their continued push to move the show forward and make it an indispensable part of the lighting-community's offerings, as they introduce

new events and make information accessible via new platforms. Lightfair isn't just for lighting designers, it's for any designer interested in light.

There's no way to list everything for either show, but below is a list of a few things that caught my eye as I looked at the respective conference programs.

My agenda at AIA will include the keynote talks given by *The New York Times* columnist Thomas Friedman and strategist Jeb Brugmann. Lighting designers Keith Yancey of Lam Partners and Jack Bailey of One Lux Studio will present “Daylighting: It's the Law.” David Pfund of lighting manufacturer the Lighting Quotient is part of the group that will deliver a talk called “Designing for Regional Growth: the First Office of the Future.” And throughout the duration of the convention Eric Lind of Lutron will present “Light Control and LEED” at the Lutron booth on the show floor. All three presentations are sure to offer informative lighting discussions. And, of course, the International Association of Lighting Designers will have its booth, as it does every year, with its great presentations by lighting designers.

My Lightfair lineup includes (in no particular order): the keynote talk by architect Jeanne Gang of Chicago-based Studio Gang Architects; the keynote talk by lighting designers Jonathan Speirs, Mark Major, and Keith Bradshaw of U.K.-based Speirs + Major Associates; and the GE Edison Awards. Then there's the Lightfair Innovation Awards, Lightfair's new evening program LightFEST, the IALD Education Trust Dinner, the show-floor keynote talk with Ingo Maurer, Lightfair's new media panel discussion (of which I am a participant), connecting with the show via Lightfair's new app (called LFI mobile app), the vast array of design workshops and seminars, and the various pavilions and manufacturer displays on the show floor. There are also a lot of exciting opportunities for students, from portfolio reviews to a new student competition.

Whether you are a veteran attendee or a first-time visitor, my advice is to spend some time with the show directories and plan ahead. Of course, all of your carefully laid plans will change when you arrive on site, but at least the semblance of an organized approach will help you to navigate the vast offerings at each venue. Check the respective conference websites (convention.aia.org and lightfair.com) for the latest information and scheduling details. I'm looking forward to reporting back about the pertinent issues I've unearthed during the spring conference season.

Elizabeth Donoff
Editor



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"Styling a Second Empire: A Light and Sound Experience" illuminates downtown Philadelphia during Lightfair.

text by Elizabeth Donoff

Philadelphia-based lighting firm the Lighting Practice—working with students from the University of the Arts and sound-system designers from Metropolitan Acoustics, and in partnership with the Center City District and the Philadelphia International Festival of the Arts (PIFA)—has designed a temporary lighting display that is being projected onto the façade of Philadelphia City Hall. The installation debuted on April 15, to coincide with PIFA, and it will run each evening through May 19, from dusk to 1 a.m., so that it's on display as the city hosts Lightfair. The lighting installation continues the Lighting Practice's illumination projects for the city's Avenue of the Arts, which showcases 14 illuminated façades along Philadelphia's downtown culture and art corridor from Market to Pine Streets. (ARCHITECTURAL LIGHTING covered Philadelphia's urban lighting plans and the Avenue of the Arts in the Jan/Feb 2008 issue, and the Lighting Practice's work received a 2009 AL Light & Architecture Design Award Special Citation for Public/Private Partnership.)

This installation, titled "Styling a Second Empire: A Light and Sound Experience," features animated graphics along with moving lights and color-changing

effects that reinterpret the French Second Empire-style architectural details of Philadelphia's City Hall building. The University of the Arts students were included in the workshop sessions and were asked to assist in the development of the lighting and music concept, as well as the system design and program content. According to Al Borden, principal of the Lighting Practice, the students have composed an hour of original music that accompanies the imagery. "We are especially excited to be working with the students from the University of the Arts who are bringing their talent and education to the project," Borden says.

The focus of this latest lighting display is City Hall's south façade and tower. It also provided an opportunity for the lighting designers to revisit their 2008 illumination sequences for the 14 façades along the avenue and design something that would connect to the City Hall display. "It's about creating an environment for the block," Borden says. "It's very cinematic." •

• **Photo and video links** For a behind-the-scenes look at the development and installation of "Styling a Second Empire: A Light and Sound Experience," go to facebook.com/thelightingpractice.

ECONOMIC INDEXES

Numbers continue to reflect cautious optimism.

ABI ↓

The AIA's billings index for March 2011 basically held steady at 50.5. However, the new projects inquiry index was at 58.7, up significantly from its February mark of 56.4.

EBCI ↓

The Electroindustry Business Confidence Index for current North American business conditions at the end of March 2011 measured 60.9, down from 69.6 in February. The change reflects concerns over the disruptions in the Middle East, and in Japan, in the aftermath of the earthquake and tsunami there.

LSI ↓

Although it saw modest gains in each of the previous five quarters, the Lighting System Index closed 2010 with 4Q results at 75 points (on a scale of 110). The index receded 2.1 percent on a quarter-to-quarter basis, indicating that demand for lighting equipment has not fully recovered yet.

• **IALD CALL FOR NOMINATIONS, DEADLINE: JUNE 10, 2011** The IALD Nominations & Elections Committee has put out a call for nominations to its 2012 Board of Directors and Membership Committee. Two positions are open on the committee. The position of chair is also open. There are three Directors at Large positions open on the Board of Directors. (All positions are for a two-year term.) Voting members of the IALD may nominate candidates using the IALD nomination form, which can be mailed to IALD headquarters in Chicago or sent via email to elections@iald.org.

• **IALD CREDENTIALING WEBINAR** The IALD Credentialing Task Force held a webinar on April 6 to provide IALD members with an update regarding the association's credentialing feasibility study that is currently under way. The webinar is available for view at bit.ly/gDXySM. Questions and comments regarding this credentialing initiative should be directed to IALD membership manager Armando Ramirez at armando@iald.org.

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NEMA PUBLISHES NEW LED DOCUMENTS

Reference standards provide further clarification for solid-state lighting.

text by Elizabeth Donoff

With the growth of solid-state lighting and the need for baseline reference standards regarding the use of LEDs in the lighting industry, the National Electrical Manufacturers Association (NEMA) continues to aid in the preparation of such guidelines. Two new documents from NEMA and an update to an existing metric provide further clarity for designers and manufacturers alike.

"SSL 1-2010 Electronic Drivers for LED Devices, Arrays, or Systems," written by NEMA's Solid-State Lighting Section, discusses electronic drivers for LED products and specifically covers ratings, performance, and marking. The document also offers specification assistance for electromagnetic immunity, audible noise, and efficiency calculations. According to SSL 1 Working Group Leader Tom Stimac of GE Lighting Solutions, this is the first NEMA SSL standard with quality and performance of LED systems and drivers in mind.

NEMA's second document, "SSL 6-2010 Solid-State Lighting for Incandescent Replacement—Dimming," provides an overview of LED replacement lamps for retrofit applications that use an incandescent screw base. The standard discusses the coordination between the dimmer (control) and the lamp, and outlines measures to aid in good dimming performance that will prevent damage to either component.

The third publication, "SSL 3-2011 High-Power White LED Binning for General Illumination," is an update to the standard first released in 2010. It categorizes areas (bins) for chromaticity (color), forward voltage measurements, and light output (luminous flux) for LEDs used for general-illumination applications. The standard seeks to set expectation levels for a reasonable number of bins so that manufacturers can adequately meet stocking needs. "Standardization of evolving technology is essential to ensuring harmonization across brands, exceptional performance, and customer satisfaction," says Robert Hick of Leviton, a member of the SSL 1 and SSL 6 working groups, and chair of the Solid-State Lighting Section.

Each of the documents is available for purchase (\$50, \$50, and \$35, respectively) and can be downloaded from the following NEMA website links: nema.org/stds/ssl1.cfm, nema.org/stds/ssl6.cfm, and nema.org/stds/ssl3.cfm.

Courtesy Lighting Africa

LIGHTING THE DEVELOPING WORLD

Parsons' Symposium addresses this global issue June 10 in New York City.

text by Elizabeth Donoff

Light is taken for granted in the developing world, and it is easy to forget that, according to the World Bank, 1.6 billion people live without electricity. Students in the MFA lighting design program at the School of Constructed Environments at Parsons the New School for Design in New York have spent the past two years exploring the issues that surround bringing light to the rest of the world, all under the guidance of Craig A. Bernecker, associate professor of lighting design in a seminar class titled "Lighting Technology in the Developing World." Their efforts are ongoing, and on June 10, the school will hold a public symposium titled "Lighting the Developing World."

The daylong program (starting at 8:30 a.m., and followed by a reception from 6 to 8 p.m.) will be held at the New School's Tishman Auditorium (2 West 13th Street). It will look to address different aspects of lighting in the developing world, from off-grid solutions to solar options, and to quality of light issues. "It's about raising awareness of the need for light in the developing world and creating a dialogue," Bernecker explains.

Bernecker has tapped professionals from across the lighting industry, as well as from the New School's diverse faculty, to provide as broad a range of discussion as possible. Invited speakers to date include: Michael Cohen, director and professor of international affairs at Milano, the New School for Management and Urban Policy; Dave Irvine Halliday, founder of the Light Up the World Foundation; Toby Cumberbatch, Cooper Union and Solar Lantern; and Chad Groshart, Atelier Ten.

The symposium is also intended to serve as a fundraiser for a group of 10 Parsons' lighting students who are planning a social mission trip this July to the Apurimac Region of Peru. There, they will deliver and install solar-powered lighting systems to villages in the Andes mountains. This continues the students' work in studying and evaluating different lighting systems and strategies that can be incorporated into remote locations and communities with little or no economic resources. For complete details contact Craig Bernecker at berneckc@newschool.edu.

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• FROM THE ARCHIVE

ARCHITECTS' PERCEPTION OF DAYLIGHTING IN COMMERCIAL BUILDING DESIGN

From the Archive presents articles from the past 25 years, with new commentary from members of the lighting community.

original text by Mark P. Hattrup and Richard O. Weijo
edited and excerpted from the 1991 original
commentary by Keith Yancey
illustration by James White

Daylighting is a difficult term to define, which may be the primary reason why the survey results in this article tend to contradict each other from one question to another. In the March 2008 issue of ARCHITECTURAL LIGHTING, Kevin Van Den Wymlenberg's (continued on next page)

During the past 15 or 20 years, significant resources have been expended by the U.S. Department of Energy to develop new daylighting technologies, yet many of them are not sufficiently used. Factors that might affect the likely market acceptance and adoption of these technologies have largely been ignored.

In response to this lack of knowledge, an effort has been made to systematically identify, catalog, and understand architects' and engineers' perceptions of daylighting products and systems. B.F. Roberson and S.A. Harkreader at Pacific Northwest Laboratory (see References) conducted focus group discussions with these professionals to elucidate the reasons why they do or do not use daylighting systems. Insight gained from these sessions was used to develop a national survey of daylighting practices.

This survey focused on developing an accurate profile of architects' knowledge, perceptions, and use of daylighting in commercial building designs. The survey findings aimed to identify some of the barriers that exist in the commercialization or use of daylighting technologies.

In this survey, daylighting was defined as the intentional use of natural light as a partial substitute for artificially generated light.

A phone survey of commercial design architects throughout the United States, whose names were drawn from the 1987–1988 membership directory of the American Institute of Architects (AIA), was conducted from January 11–February 8, 1989. The actual usable sample consisted of 593 architects, of which 308 responded to the survey.

Issues addressed in this survey included architects' understanding of daylighting, the major influences in

the daylighting decision process, the appropriateness of specific building types for daylighting, the sources relied on by architects for technical and product information, and the design aids they prefer for the future.

Thirteen categories of daylighting benefits (Table 1) [see page 18] were created from the architects' responses. Ninety-four percent of the architects were able to provide at least one benefit associated with daylighting. On average, architects cited two benefits of daylighting. The most frequently mentioned advantages relate to energy conservation or efficiency, improved aesthetics or atmosphere, and reduced operation costs or monetary savings.

DAYLIGHTING PROBLEMS

When asked about the major problems associated with daylighting designs, 91 percent of architects provided at least one with an average of 1.7 problems per architect. The most frequently cited problems relate to lighting control and heat gains (Table 2) [see page 18].

Segmenting the problems by an architect's familiarity with daylighting showed that architects who are very familiar with daylighting cited more problems (1.78 on average) than did architects who were somewhat familiar and not very familiar with the subject (1.60 and 1.47, respectively). This finding would seem to suggest that architects who are very familiar with daylighting view it more negatively.

To avoid drawing the wrong conclusion, it is important to note that these architects cited more benefits than problems with daylighting and, therefore, appear to view daylighting positively. Indeed as one daylighting expert pointed out, daylighting's best or strongest proponents (i.e., those who have used it extensively) are more



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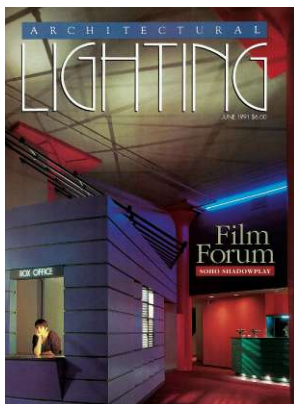
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article “Terminology” (bit.ly/ia68Bd) talks about a group of daylighting experts convening to discuss a particular research project, and having a lively debate on what it means for a space to be “daylit.” This discussion produced little consensus. If even a group of focused experts could not agree on the terminology in 2008, imagine a group of architects in the late 1980s. Van Den Wymlenberg’s article also mentions another survey conducted in 2005 by the National Research Council of Canada that posed alternate definitions of daylighting to architects and engineers. It was no surprise that architects focused more on user benefits, while engineers cited economic and energy benefits. Today we have LEED, CHPS, Title 24, ASRAE 189.1, and soon the IGCC, all of which try to define daylighting in architecture through quantitative metrics: daylight autonomy, useful daylight illuminance, daylight saturation percentage, or even simply illuminance at a point in time. If this survey were given today, we might find that it is these metrics, for better or worse, that define “daylit architecture” for most architects and building professionals.

Payback periods have been shortened in more recent years probably due to the availability of less expensive dimming ballasts, photocells, and controls, along with increased energy costs.

A contradiction at the time, most likely due to the lack of readily available energy-modeling and daylight-prediction software. Another interesting result is that occupant productivity is ranked third, when in fact several studies such as those by the Lighting Research Center and Heschong Mahone Group show a connection between user satisfaction and productivity or performance. It’s difficult to separate the statements (energy savings vs. visual effects), which also lead to the “good value” statement. A story in *The Wall Street Journal*, “See the Light About Daylight,” from Oct. 19, 2004, cited studies showing the positive attributes of daylighting and views, from reduced absenteeism to improved worker productivity. I think it would be difficult, if the survey were given today, for architects to ignore these connections. With all of the available data from these human-environment studies, my guess is that architects would rank energy savings first and good value second, since there is such pressure to defend sustainable design beyond simple building aesthetics.

This article originally appeared as the Technology column in the June 1991 issue.



knowledgeable about this technology, and therefore, can probably cite more potential problems than the typical architect.

PAYBACK PERIODS

The payback period is the number of years required for the savings from a new product to pay back its higher initial cost. Architects generally felt that the longest payback period a client would accept is seven years. The architects were then asked what they thought the payback period for daylighting was; again, their average response was seven years.

Familiarity with daylighting appears to influence architects’ estimates of payback periods. The results indicate that architects who are very familiar with daylighting estimate a shorter payback than do those who are less familiar with daylighting. The average estimate from those who are very familiar was six years; those who are somewhat familiar estimated seven years; and those who are not very familiar estimated eight years.

The surveyed architects were asked whether they agreed or disagreed with 10 different statements about daylighting. Six of the statements are positive; four are negative. The six positive statements listed in order of agreement (strongest agreement first) are that daylighting systems:

1. Improve the satisfaction of building occupants
2. Make a building more attractive
3. Improve the productivity of building occupants
4. Are a good value
5. Are reliable
6. Save energy

These results clearly illustrate that architects do not consider energy savings to be the primary or major benefit of daylighting. Rather, visual appeal, which improves aesthetics and worker satisfaction, is the primary benefit of daylighting. This finding has implications for those who are trying to increase the use of daylighting systems. The impact of daylighting systems on aesthetics or their visual appeal should be emphasized more than energy consumption if they are to appeal to architects. Though this might appear to contradict the results in Table 1 [see next page], closer examination of that table reveals that most responses relate to visual effects rather than to energy efficiency.

The four negative statements listed in order of disagreement (strongest disagreement first) are that daylighting systems:

1. Introduce more problems than they solve
2. Are difficult to integrate with other systems
3. Increase building maintenance costs
4. Are expensive to purchase and install

Over 80 percent of the architectural industry disagreed with the statement that daylighting systems introduce more problems than they solve, and nearly 60 percent disagreed with the statement that they are difficult to integrate with other systems.

The industry seemed uncertain about the costs associated with daylighting systems. Statements that daylighting systems are expensive to purchase and install, and that they increase building maintenance

costs met with agreement from 57 percent and 53 percent of the industry, respectively. These concerns need to be addressed in educational programs about daylighting offered to architects.

Fifty-five percent of the architects thought that architects have the most influence on the decision to use daylighting; 36 percent said that clients have the most influence; and only 9 percent said that lighting engineers have the most influence. As to who is the second-most influential, 39 percent thought clients were; 37 percent chose architects; and 24 percent picked lighting engineers. Just over two-thirds of the architects surveyed thought that lighting engineers have the least amount of influence on the decision. More than 25 percent thought clients, and only 8 percent thought that architects have the least amount of influence on the daylighting decision.

DECISION FACTORS

The architects were also asked to rate six situational factors that can influence the decision to use daylighting in a commercial building design as very important, somewhat important, somewhat unimportant, or very unimportant.

Even though building codes had the lowest mean score, 40 percent of the architects still said this factor was very important. A possible explanation for this is that the impact (positive or negative) of building codes on the use of daylighting varies from area to area in the United States. Roberson and Harkreader found that focus group participants in Los Angeles encountered problems meeting building codes when using daylighting design features, while architects in Chicago encountered no problems with building codes. Although assessing the impact of building codes is beyond the scope of this study, future research to explore this area would be beneficial.

Architects felt that schools were the most appropriate place to use daylighting designs (80 percent). Low-rise office buildings and libraries ranked next (just over 50 percent). Roberson and Harkreader found that the focus group participants also thought that daylighting was appropriate for low-rise office buildings and libraries.

The focus group participants felt that warehouses, hospitals, and museums were among the more appropriate building types for daylighting; and high-rise office buildings the least appropriate. These findings are not supported by the results from this survey, which are shown in Table 3 [not shown here].

High-rise office buildings were the fourth-most appropriate building type. This is an intriguing result, as previous research found that high-rises were viewed as inappropriate. Apartment complexes rank fifth, followed by hospitals, hotels/motels, restaurants, museums, warehouses, and retail stores.

The view that retail stores are the least appropriate for daylighting should also be evaluated in future research. It would be useful to know what features associated with retail stores, warehouses, museums, etc., make them less appropriate for daylighting.

The architects’ responses were segmented by familiarity with daylighting. Architects considered very familiar with daylighting are thought to have the most accurate knowledge of its use. In general, the architects

“Twenty years ago, architects cited aesthetics as the most important consideration for introducing daylighting into architecture. Today, architects are mostly identifying sustainability and energy savings as the number-one reason for daylighting. What’s changed? Are we that much better at it? Are we able to save more energy today than 20 years ago? Or are we simply a product of the times?”

— Keith Yancey

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Since this article was written, there has been a reversal of architects' perceptions of daylighting. Twenty years ago, architects cited aesthetics as the most important consideration for introducing daylighting into architecture. Today, architects are mostly identifying sustainability and energy savings as the number-one reason for daylighting. What's changed? Are we that much better at it? Are we able to save more energy today than 20 years ago? Or are we simply a product of the times? This energy claim can be good and bad. Good, in that we apparently have more information and tools available for predicting energy savings, but bad in that we may be starting with energy as the primary reason for daylighting, instead of simply creating great spaces for humans. Are we abandoning our principles or merely using energy and sustainability as a crutch to bolster what we always knew as truth: Daylight is good for people and they like it, therefore we should keep it in our architecture. Resting simply on energy savings is shaky ground, especially as electric light sources get more and more efficient. We're seeing power densities of less than 0.5W per square foot in some ambient lighting situations. It's hard to tout daylighting as more efficient in some climates and programs where cooling loads are prominent. It's a good idea to try and understand the reasons why architects were not embracing current daylighting technologies at the time. Daylighting, as design itself, continues to be an elusive entity to define. You know it when you see it. It works well. It's poetic, harmonious, inspiring, beautiful—and, oh yeah, it's sustainable.

in this group have stronger positive opinions than the other groups on the appropriateness of daylighting for each of the building types except libraries, museums, and warehouses.

The most interesting observation resulting from the segmentation was that libraries, ranked third by the entire sample, dropped to seventh among the architects who are very familiar with daylighting. This result is especially interesting because libraries were viewed by the architects in the focus groups, and most of the architects in this survey, as being appropriate buildings for daylighting.

Architects very familiar with daylighting ranked apartment complexes and hotels/motels higher (relative to other building types) than did other architects. Sixty percent of the architects who are very familiar with daylighting felt that apartment complexes were very appropriate, while less than 40 percent of the architects who were less familiar felt this way. More than 50 percent of those very familiar with daylighting also thought hotels/motels very appropriate; only 34 percent of those somewhat familiar and 14 percent of those not familiar with daylighting felt this way.

CONCLUSIONS

Survey results suggest that a major barrier to the use of daylight is simply that most architects do not have a basic understanding of daylighting. Programs aimed at educating practicing architects about the correct application of daylighting should be developed.

Roberson and Harkreader found that none of the architects in the focus groups had tried to convince their clients to use daylighting features to reduce energy costs. Rather, the primary advantage that they presented to clients was the aesthetic effect. The survey results indicate this is common throughout the industry. Although positive energy effects were mentioned a number of times as benefits, the underlying theme of the benefits mentioned had to do with different aspects of daylighting's aesthetic effects.

The results suggest that any education campaign should emphasize the positive impacts that daylighting can have on a structure's total energy use. To change architects' perceptions of daylighting's performance, there appears to be a need for additional and clearer evidence regarding daylighting's operational effectiveness.

Until precise, credible performance information is available and architects know about it, most will continue to be apprehensive about promoting the use of daylighting. Information on the payback period, the costs and energy savings, and the most appropriate building types for daylighting should also be included in any educational program.

WHERE TO CHANNEL INFORMATION

Based on the survey results, it is apparent that educational information should be written up in professional journals and publications, which were cited as the most important source of information for architects. The second most used channel of communication, or source of information, is informal discussion among architects. This suggests that another possible way to communicate daylighting information is identifying key experts in each state or in major communities. It might also be feasible to recruit architects to become daylighting design experts for their home community, and as such, serve as information sources for fellow architects in the community. These community or regional daylighting experts could also receive training in the use of the latest computer-based design aids being developed

by government and private industry. It might even be possible to fund their time when they help other architects with daylighting design.

In some regions of the United States, utility programs are available to provide technical design assistance to encourage the construction of energy-efficient commercial and industrial buildings. One example is the Energy Smart Design Assistance program sponsored by Bonneville Power Administration. Daylighting design could be incorporated into these utility programs to encourage its use.

The survey results show that while architects want future design aids to be computer-based, they do not want to devote much time to generating computer simulations of illumination levels or energy usage. Access to a recognized local expert or a toll-free technical-support line for help in the application of the software (much like the support lines offered by makers of word processing software) might encourage architects to use the software more extensively. If the software is used more often, it follows that daylighting systems would like be included in building designs more often.

The survey results suggest that 49 percent of the buildings designed by survey respondents in the past two years included a daylighting component. Several daylighting experts who reviewed the survey results felt that this number was very high and had to do with how daylighting was defined. They felt that the usage of the more complex "active" daylighting systems, which employed the newer daylighting technologies and controls, was much lower. Experts tend to define an "active" daylighting design as any aperture that has fenestration controls designed in conjunction with a photoelectric system, which will control electric lights to reduce energy consumption. The experts were certain that the 49 percent of the buildings designed by survey respondents in the past two years had to include "passive" systems, which simply allow natural light in, but do not use the more complex daylighting technologies and controls. •

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Keith Yancey, a principal at Lam Partners in Cambridge, Mass., is a registered architect and professional engineer with 25 years experience in the architectural, lighting, and engineering fields. His experience includes daylighting and electric lighting design for a multitude of projects throughout the world. He also teaches and lectures extensively and has served on several design juries.

Given the change in architects' perception of daylighting, ARCHITECTURAL LIGHTING thought it would be interesting to conduct a new survey. With the help of Keith Yancey, AL has prepared new questions and the survey can be found at archlighting.com.

Table 1: The Major Benefits of Using Daylighting

Category	Frequency
Energy Conservation/Energy Efficiency	155
Aesthetics/Pleasant Psychological Feelings	142
Economy/Operating Costs/Money Savings	78
Quality of Light	60
Natural/Connection to Outdoors/Nature Beauty	52
Color of Light/Color Balance/Color Rendition	33
Worker Morale/Occupant Productivity	20
Makes Room Look Bigger/Perception of Space	11
Design Quality/Beauty of Facility / Appeal	11
Comfort	8
Easy on Eyes/Visual Comfort	6
Reduced Project Costs/Development Costs	4
Other	23
Total	603

Table 2: The Major Problems With Using Daylighting

Category	Frequency
Limited control/Lack of control	83
Heat Gain	81
Glare/Light Intensity	55
Weather/Cloudy Days/Night/Light Availability	49
Heat Loss	43
Difficulty of Design/Meeting Codes	41
Installation Cost/Initial System Cost	40
Reliability/Leakiness of Skylights	23
Maintenance	10
Client Reluctance/Hesitancy	9
Photo Degradation/Fading/Discoloration	6
Occupant Behavior	2
Other	43
Total	485

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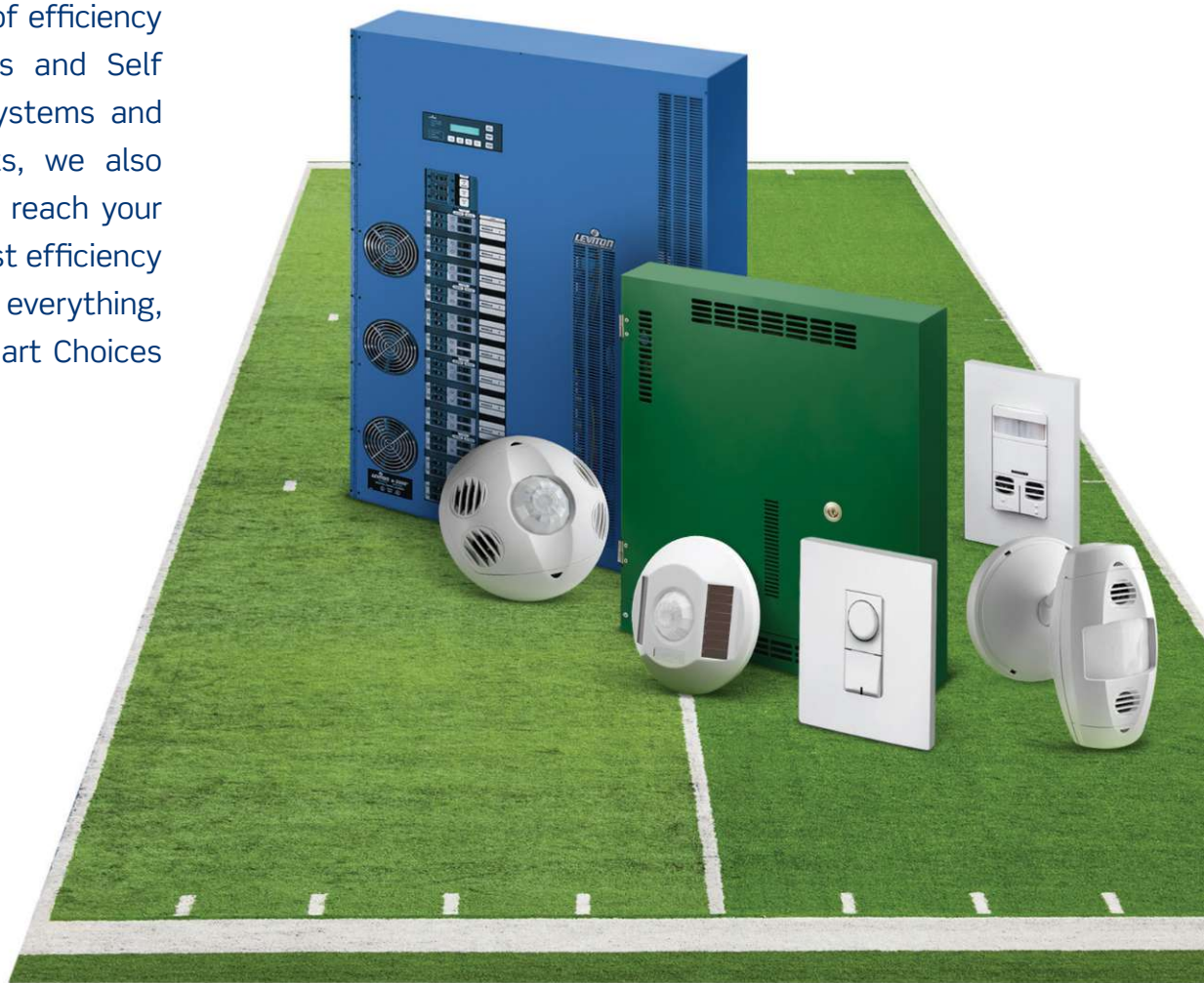
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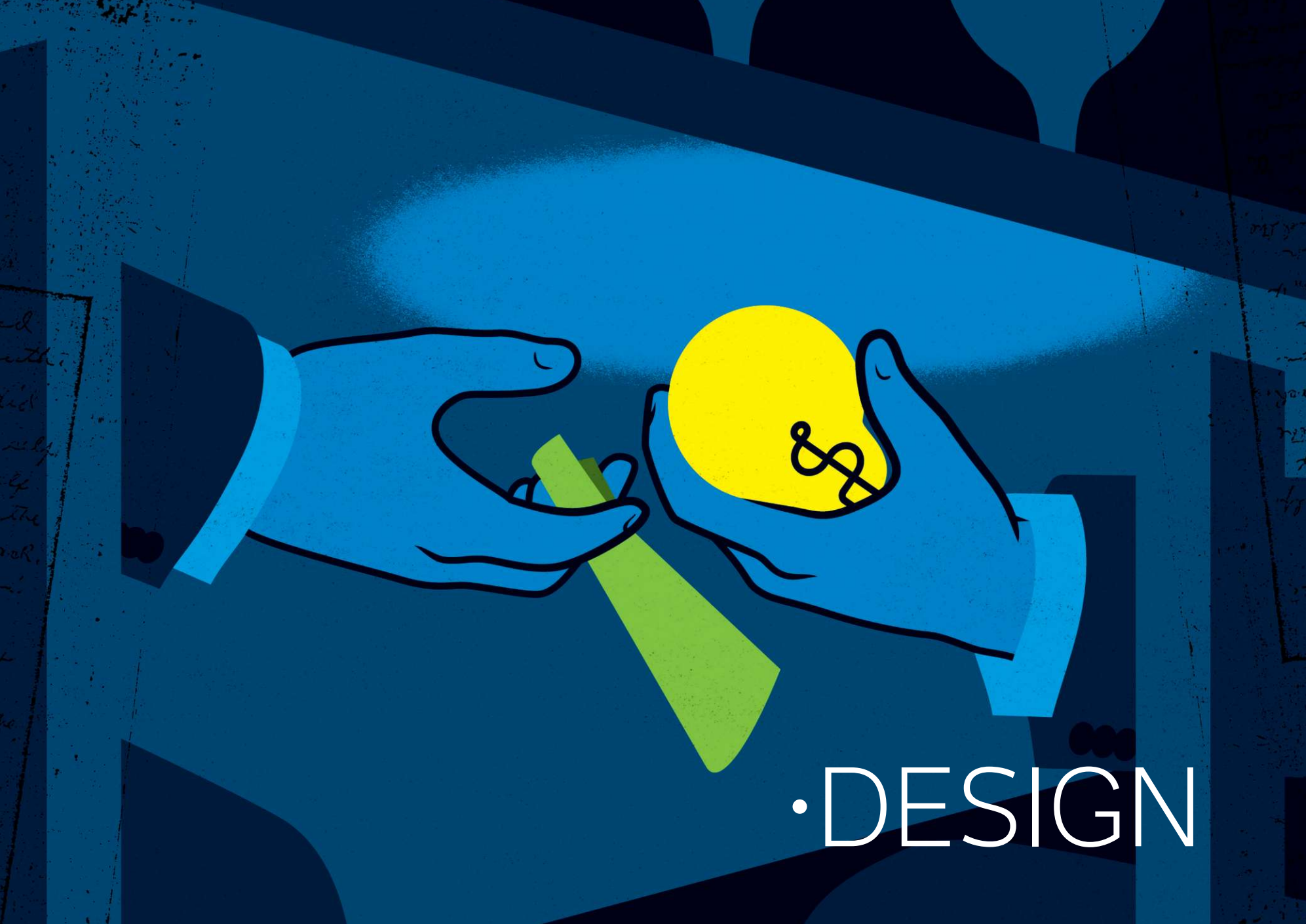
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text by Jim Fowler

illustration by James Provost

The specification process of materials and fixtures, including luminaires, and their purchase and installation on a project is a multilayered process; it always has been. Flash back to the year 1866 in New York, when the first schedule of charges was adopted by the American Institute of Architects (AIA). It stipulated 5 percent of the project cost for full professional services, which included preliminary studies, general drawings details and specifications (construction documents), and superintendence (construction management).

In 1888, the AIA's constitution and bylaws included the same 5 percent as published in 1866, despite the increasing scope of the architects work. Nine years later, in 1897, Illinois became the first state to enact a licensing law. Other states followed, and in 1908 the AIA, after 42 years, raised its fee schedule to 6 percent. The new fee schedule included about the same scope of responsibilities as did the 5-percent fee schedule.

The resulting dilemma—how to secure new projects while keeping scope of work and fee in balance—often produced with it an enthusiasm for obtaining new business by undercutting competitors based on fees. To combat the effect of fee-based competitive bidding and to regulate its members, the AIA issued a "Circular of Advice Relative to the Principles of Professional Practice and Canons of Ethics" in 1909, stipulating that members could not advertise, engage in the building trades, offer free services, or compete for work on the

basis of fees charged. There was a conflict between the AIA's (advisory, not mandatory) fee schedule and its Code of Ethics (which deemed fee-based competition unprofessional). Architects were expected to accept the same fees regardless of differences in their respective levels of competency.

The AIA's 1928 Handbook of Architectural Practice schedule of proper charges remained at 6 percent, but it included recommendations for special fees to compensate for expanding scope of responsibility. By 1951, local AIA chapters had assumed responsibility for developing appropriate fee schedules for their respective markets. The AIA Handbook strongly advised members to strictly adhere to these fee schedules so as not to acknowledge that their work was worth less than others. When fees were cut too far, the only way to avoid a loss was to resort to cutting the quality of service or to resort to dishonest practices. This was expressed in the 1928 *AIA Handbook* text: "Either of these is distasteful and reprehensible. ... Rather than resort to the latter, it would be more admirable to engage in a bolder, outright criminal career."

A 1966 study, commissioned by the AIA, found that in the 16 years from 1950 to 1966, combined direct costs, indirect expenses, and outside consulting services had risen from 77.4 percent of total revenue to 91.7 percent, and pre-tax income had declined from 22.6 percent of total revenue to 8.3 percent.

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Basing fees on a percentage of project cost was not a panacea. Despite diminishing profit margins, the AIA held fast to the belief that architects should compete with each other based on professional qualifications, not based on fees. This notion was reinforced in 1970, when the AIA adopted new ethical standards.

About the same time, the federal government's attitudes toward antitrust laws was shifting. Professions had previously been exempt from the 1890 Sherman Antitrust Act, but by 1970 the Justice Department began examining the ethical practices of many professionals, including architects. In late 1971, the Justice Department notified the AIA's attorneys of its plans to file suit based on violations that amounted to restraint of trade. In a 1972 consent decree, the AIA agreed to cease imposition of any practice or policy prohibiting the discussion of price (fees) in quotes for architectural services.

By the recession of 1984, many in the profession were struggling for survival. One AIA chapter issued a compensation and fee policy statement. In 1986 the

For many years, architects had searched for and found ways to differentiate their firms from others based on the services they provided. At the same time, they were being pressured not to discuss fees or deviate from the basic published fee schedule. Now, suddenly, the game changed.

Justice Department proceeded against the AIA, including threats of criminal prosecution. Negotiations with the Justice Department continued until agreement on a new consent decree reached a civil rather than criminal resolution. Finally, after 124 years, the recommended fee schedule era was officially over.

Born to replace it was the new era we'll call the era of discounted professional fees. For many years, architects had searched for and found ways to differentiate their firms from others based on the services they provided. At the same time, they were being pressured not to discuss fees or deviate from the basic published fee schedule. Now, suddenly, the game changed.

As a way to address this issue, architecture firms began to redefine the scope of their responsibilities in an effort to reflect actual costs. But by doing so, they created openings for work to be done by others. For example, when superintendence was removed from the fee schedule, an opening for the construction manager was created. The same is true of many of the other positions that are represented in the various layers of the supply chain, including the lighting designer.

GETTING CONTROL

Projects generally include a design phase, a bidding phase, and a construction phase. Players at various stages of any project may include the owner, architect, construction manager, general contractor, lighting designer, electrical contractor, distributor, product representative, and fixture manufacturer. The size and scope of the project determines which players are needed for each phase of the project, and the players in each layer of this chain have one objective in common: Obtain sufficient control of the project to maximize profit.

Professionals such as architects and engineers who are licensed by the state in which they practice are legally held to certain standards of performance than professionals who are not licensed. They are bound by a fiduciary responsibility to the client, meaning they must always act in the client's best interest from start to finish. A breach of fiduciary responsibility could lead to license revocation. If an architect were to skim money from the project by taking kickbacks in return for specification of a product, there would be a clear breach of fiduciary responsibility, which could result in serious legal problems or criminal charges.

But all of the players in the supply chain are not usually held to a uniform code of ethical conduct. Each may simply attempt to take as much money as possible from the project. There are many creative ways to do so that are in common use today.

THE "OVERAGE" GAME

The difference between the fixture manufacturer's book price and the price a sales rep can get for it is called "overage." This appeals to and serves a basic human flaw: greed. In its beginning, a manufacturer who simply copied another's design and avoided some normal costs of doing business, such as UL testing, offered the overage deal as an extra incentive for the sales rep. Initially it was a 50/50 deal. As more manufacturers entered the overage game, competition between them increased. In the 1970s, the stakes went up as manufacturers became more

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At present, control rests mainly with the various contractors and the sales reps, but that will likely change over the next few years. Fixture manufacturers don't particularly like the fact that sales reps have such a high degree of control over their market share and profitability.

aggressive by offering larger overage shares such as 60/40. These deals have progressively increased: 70/30, 75/25, 80/20, 85/15, 90/10, and even higher. And the manufacturers are willing participants. Keep in mind that overage is money extracted from the project without the client's consent or knowledge. Yet from the manufacturer's perspective, it's a method of getting (buying) the sales rep's discretionary business with money that is not his or her own.

Sales reps conceal the fixtures' actual prices within a "lump sum" package bid. Manufacturers collect the fee, paying the lion's share back to the rep as a commission on the sale.

Often, the reps consolidate overage from several manufacturers and then shop for the best overage split, putting it all where the payback split is the highest. It would be foolish for them to put overage with a manufacturer paying 50/50 if there is another manufacturer paying 75/25.

In the late 1990s, the vice president of sales for a manufacturer related this story: Competition had driven him to offer a 75/25 percent overage split to his reps. The factory issued a quote for the complete bill of materials at a price of \$14,000. A month later, the order came in from a rep at a "lot-net" price of \$94,000. The overage of \$80,000 had to be split, and a 75-percent check for \$60,000 was then sent to the sales rep. Events similar to this happen more frequently than one might think. If this isn't a form of money laundering, then what is?

None of the players in the various supply-chain layers are exempt from the temptation to find creative ways to build overage into a project. Some are willing

participants, as in our previous example; others are unaware of the risks that they are taking. The latter group includes the architects, engineers, and lighting designers who write the specifications, who might be unwittingly putting their clients—and even their own firms—at risk.

A common practice to save time and hold costs down involves preparation of a primary (one-name) fixture schedule with a copy given to competing sales reps, requesting that each rep prepare a list of the manufacturers they represent that meet the specification. Not only is this an open invitation to product substitution, it also creates a biased specification. In turn, the client or owner is at risk of receiving inferior products, and it is the specifier, not the sales rep, who will be held responsible for the fixture selection if something goes wrong.

Not bound to any standards or a common code of ethics, this is like swimming in a sea of sharks. But there are no sanctions or penalties, so there is minimal risk. If in the course of business, specifications are broken, so be it. Is it any wonder that design professionals express frustration with the complexity of the lighting supply chain?

CONTROLLING THE FUTURE

At present, control rests mainly with the various contractors and the sales reps, but that will likely change over the next few years. Fixture manufacturers don't particularly like the fact that sales reps have such a high degree of control over their market share and profitability. Fixture manufacturers most likely will aggressively move to control their own destiny. And that's a good thing.

We already see a good majority of projects in the U.S. being done by design/build contractors, some of which are very large firms. In the future, fixture manufacturers will likely favor selling to this class of customer directly, limiting or bypassing the traditional layered supply chain. The same holds true for large national accounts. Most large manufacturers already pursue national accounts through direct sales rather than through reps.

Two benefits result from either of the examples mentioned above. First is a reduction in cost of sales. Second, and most important, is that the manufacturer gets back in control of the relationship with its larger customers.

At some point, fixture manufacturers will need to aggressively address cost reduction. There's not much more that can be taken from the material or labor, so expect sales costs (sales representation costs and distribution costs) to come under closer scrutiny.

Also, LED lighting is a whole new technology, with complexities of its own that manufacturers, specifiers, and owners will have to address. Lacking expertise in this new technology, many of the players currently in the layers of the supply chain are ill-equipped to handle the products. An additional layer, through which this knowledge and information is filtered, may emerge.

Looking forward, we see little reason to expect the layering of the supply chain to become less complex any time soon. There are too many players pulling in too much money for any rapid change. But the lighting supply chain will likely get a lot cleaner. •

Jim Fowler is a lighting industry veteran of 40 years. Most recently he was vice president and general manager of Philips Genlyte's Vista and Morelite divisions. In 1997 he authored the book Spex: A Lighting Specifier's Guide to Increasing Productivity and Preserving Design Integrity, a frank examination of the players involved in the lighting supply chain.

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ANSI/NEMA SDCM: 7 Bruck/CHROMA SDCM: 2 Competitors SDCM: 4

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Lighting Designers: Brandston Partnership, Inc.
Photography: Dana Hoff

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Jeff Goldberg/Esto, courtesy NMAJH

IN FOCUS

LET FREEDOM SHINE

At the National Museum of American Jewish History in Philadelphia, a subtly glowing electric lighting scheme beckons visitors on Independence Mall.

text by Aaron Seward

Since opening in 1976, the National Museum of American Jewish History in Philadelphia, a Smithsonian Affiliate, has told the story of American Jews since their arrival in North America more than 350 years ago. To further this mission, the Museum recently commissioned a new 100,000-square-foot, five-story building on a corner lot at 5th and Market streets, directly across from the Liberty Bell and Independence Mall. Designed by James Polshek, design counsel to Ennead Architects (formerly Polshek Partnership), the structure seeks to embody the freedom that this country has offered the Jewish people—and all immigrant groups—while at the same time remaining discreet and respectful to the many landmarks of American liberty on the mall. “Neither I, nor my client, wanted to make a major architectural statement,” explains James Polshek, “but since this is a corner site we couldn’t entirely avoid that. Our goal was to convey the impression not of a fortress but of a place that is approachable. The lighting was fundamental in accomplishing that.”

Polshek’s design consists of two principal architectural elements that relate to one another. The first is a narrow glass prism that faces 5th Street. Intended to represent the idea of openness and of

American freedom, it affords the museum views of the mall and creates an 85-foot-high atrium within—a breathing space for visitors before entering the exhibition areas. Those spaces are connected to a terra-cotta-clad box that is principally opaque with the exception of a few windows. Its solidity serves as a metaphor for the strength of Jewish survival as well as the protection of the freedoms that are fundamental to American Jewish history. It also provides a sheltered environment for the light-sensitive artifacts on display.

The glass prism and the terra-cotta box interlock as one pushes into the other and create the museum’s main circulation space in the form of dramatic glass staircases that crisscross the atrium. During the day, the building’s glass elevation presents a transparent, welcoming face to the mall, while the terra-cotta surface speaks to the Philadelphia Bourse building along 5th Street and establishes a sympathetic connection to the city’s primarily brick architecture. When the sun goes down, the terra-cotta box recedes into darkness, while the glass prism begins to glow from within, growing brighter until achieving a soft, warm radiance that reveals the interior of the atrium. That gentle palette of light is punctuated in the upper lefthand corner of the elevation

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Jeff Goldberg/Esto, courtesy NMAJH (left);
Ben Rubin (bottom left and right)

The National Museum of American Jewish History's architectural design features two interlocking volumes, one of glass and one of terra-cotta (previous page). The statue *Religious Liberty* stands in front of the museum's glass façade along Market Street (left). At the top corner of the building, a light sculpture by media artist Ben Rubin titled *Beacon* is inspired by the idea of words as sources of light (bottom right). Rubin designed the programmable LED sculpture as a series of seven planes, each measuring 100 inches tall by 60 inches wide. From afar, the sculpture appears as a flickering light (bottom left).

by a light sculpture by media artist Ben Rubin.

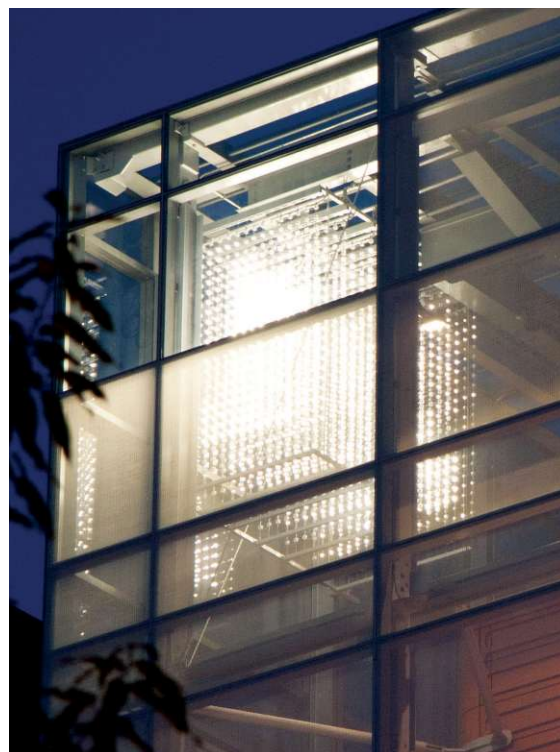
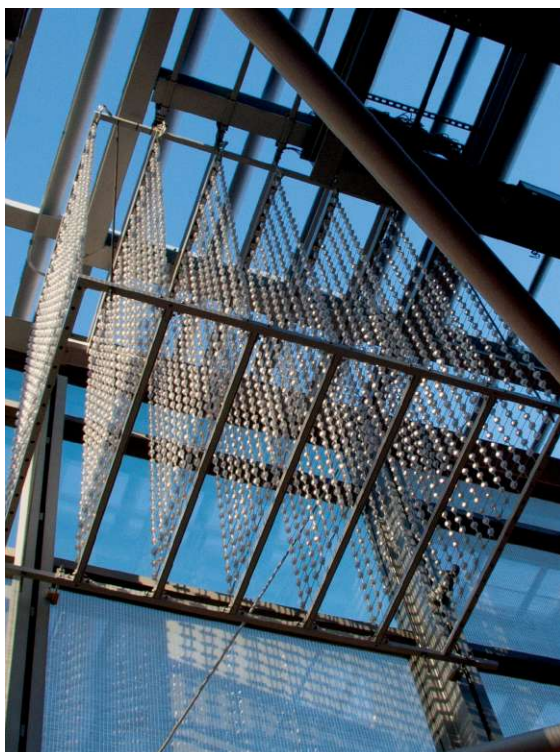
Achieving an understated quality to the light required carefully controlling light levels within the glass atrium. "The lighting is intended to make the building a friendly neighbor to Independence Hall," says Scott Matthews, a partner at Brandston Partnership, which designed the electric lighting scheme for the project. "It subtly announces the existence of the museum and brings the eye inside so people want to go in."

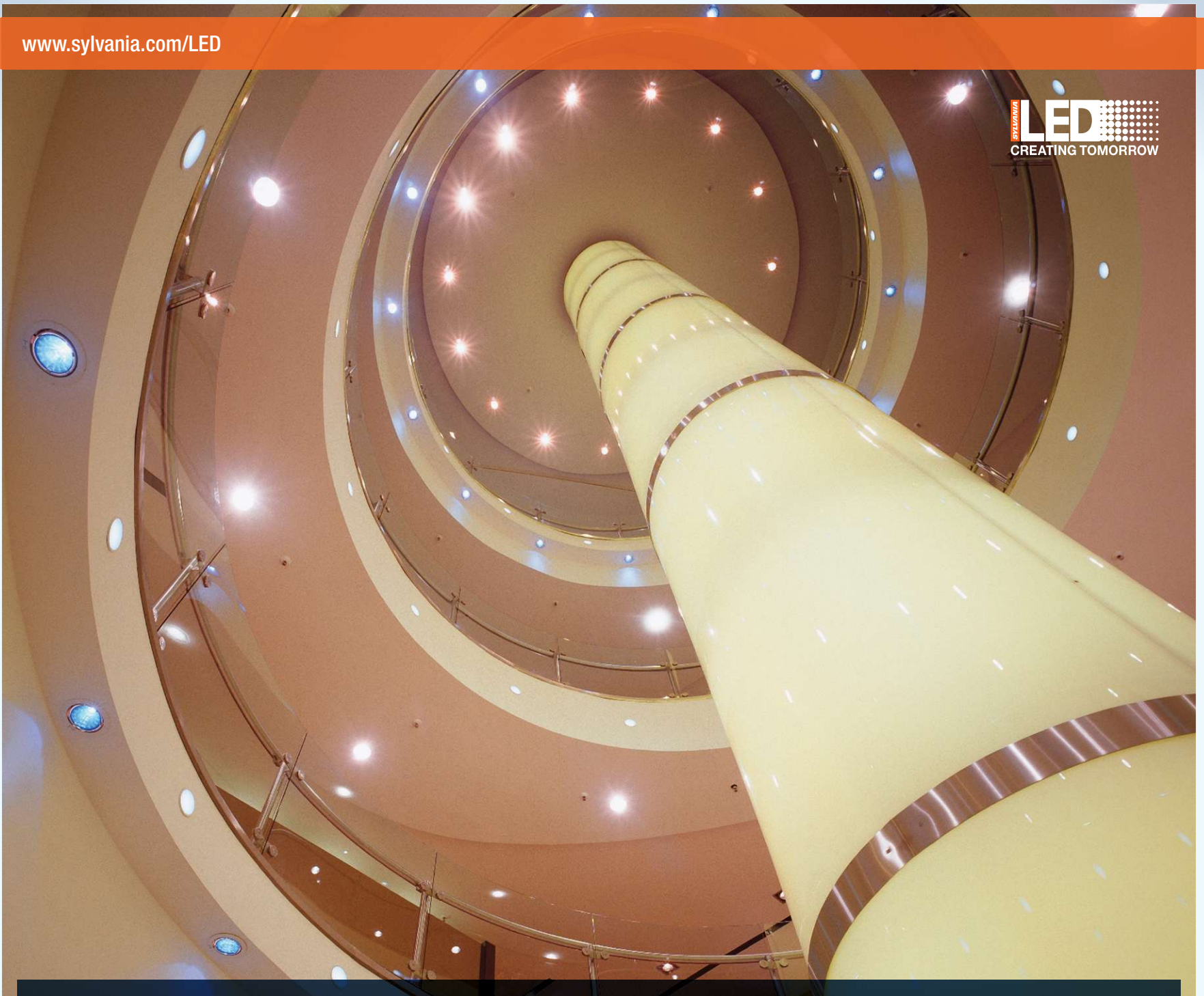
In addition to playing an important role for the museum's exterior nighttime appearance, the electric lighting scheme has important daytime functions. Because the atrium features a skylight, the design team used asymmetric T5 fluorescent reflector fixtures mounted on the walls to uplight the ceiling, to prevent the area around this aperture from appearing too dark. The skylight continues to have a luminous effect after nightfall by transmitting light down into the atrium below. While this provides some general illumination, the bulk of the atrium's ambient lighting is provided by 20W ceramic metal halide tracklights mounted on theatrical pipe. These fixtures ring the space and are aimed down into the void of the atrium.

The stairs that cross the atrium have frosted glass treads and risers. This allows the light pouring down from above to continue its journey to the bottom of the atrium. The team also installed white LED linear strips into recesses in the edges of the stairs, to add further definition to the treads.

All of these lighting systems integrate into the architecture, illuminating the building's surfaces rather than calling attention to the fixtures themselves. The only other major architectural lighting feature is a cove system, outfitted with T5 and T8 fluorescent fixtures, that separates the floor planes of the circulation spaces from the edge of the terra-cotta box. Compact fluorescent downlights round out the illumination needs of the circulation, while the exhibition spaces are lit with standard halogen PAR fixtures and LEDs in the display cases.

In Polshek's initial design for the museum, the light sculpture at the top corner of the atrium was to be a gas-fed flame. This presented certain technical difficulties—the fire would smudge the glass, for one—as well as the environmental concern of consuming fossil fuels. A new idea emerged from a note sent by David Thurm, a former executive of the New York Times Co., to Polshek, who in turn relayed it to artist Ben Rubin. It recounted the story of Rabbi Hanina ben Teradion, read as part of the martyrology service during Yom Kippur. During Roman rule over Jerusalem, teaching of Torah was forbidden. Rabbi Hanina ben Teradion continued teaching the Torah despite the Roman decree, and was burned at the stake because of it. As he was dying, his students asked for his last vision. The Rabbi said that as the parchment was burning, the words of the Torah were leaping to heaven.



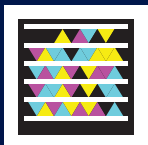


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Details

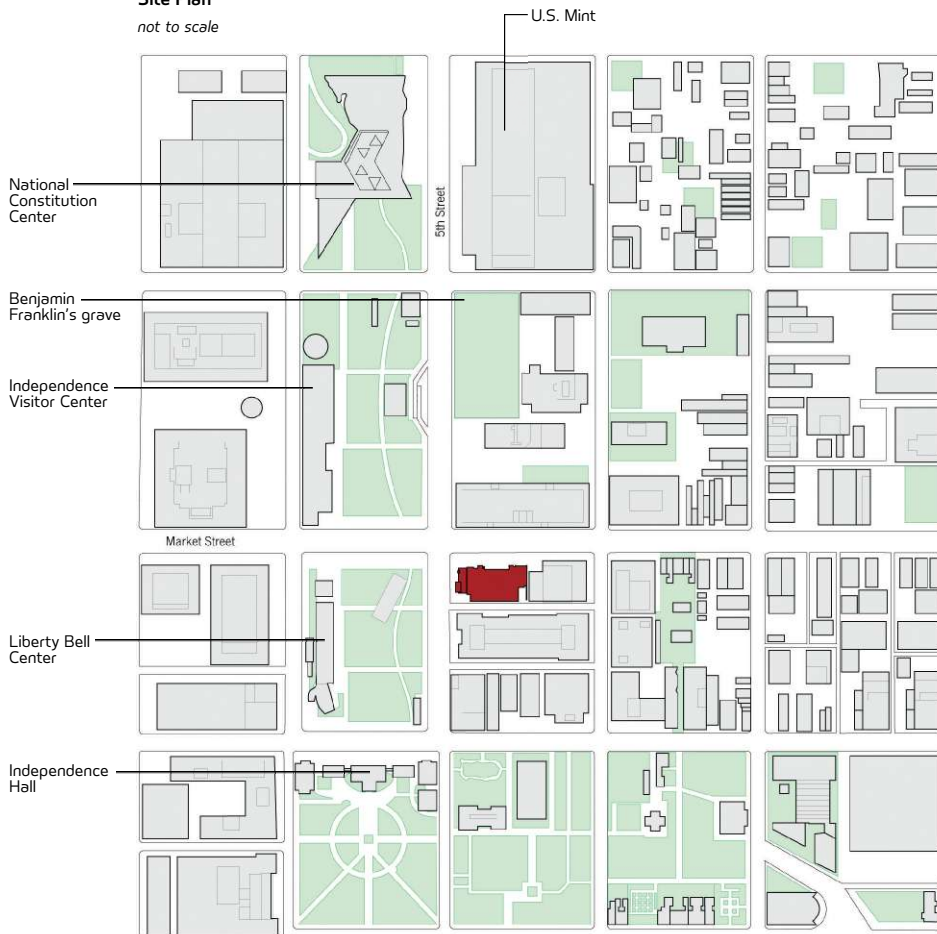
Project: The National Museum of American Jewish History, Philadelphia
Client: National Museum of American Jewish History (Owner's Representative—Becker & Frondorf)
Architect: Ennead Architects, New York
Lighting Designer: Brandston Partnership, New York
Media Artist: Ben Rubin, Ear Studio, New York
Structural Engineer: Leslie E. Robertson Associates, New York
MEP Engineer: AKF Engineers, Philadelphia
Exterior Wall Consultant: R.A. Heintges & Associates, New York
Graphics/Signage: Poulin + Morris, New York
Landscape: Lager Raabe Skäfte Landscape Architects, Philadelphia
Acoustics, A/V, Telecomm: JaffeHolden, New York
Exhibit Design: Gallagher & Associates, Silver Spring, Md.
Project Cost: \$65 million (total construction cost, excluding exhibits)
Lighting Cost: \$25 per square foot for base building fixture and installation cost
Project Size: 100,000 gross square feet
Watts Per Square Foot: 0.89W per square foot (does not include exhibit lighting)
Energy-Code Compliance: IBC 2003 and IECC 2003 (International Energy Conservation Code)

Manufacturers / Applications:

Amerlux: 20W ceramic metal halide downlights at the terra-cotta soffits in the primary circulation areas
Cooper io Lighting: LED symmetric and asymmetric distributions for in-case lighting at exhibits, LED cove for stair illumination in the atrium, and LED wall grazer at auditorium
Edison Price Lighting: Tracklighting with a mixture of halogen PAR and MR lamps at exhibits, halogen PAR accent/downlights at auditorium, and compact fluorescent downlights at primary circulation areas
Engineered Lighting Products: Asymmetric TSHO in-wall uplight in atrium
Erco: Ceramic metal halide T6 downlights at building exterior
Focal Point: T5 direct/indirect pendants at administrative and curatorial offices
Litecontrol: T5 wall slot at elevator lobbies and T8 and T5 asymmetric reflector wall slots for primary circulation areas
Lighting Services Inc.: Pipe-mounted 20W MR ceramic metal halide lamps in atrium
Philips Lightolier: Rectangular MR16 halogen accent lights at museum store
We-e: Ceramic metal halide floodlights at building exterior

Site Plan

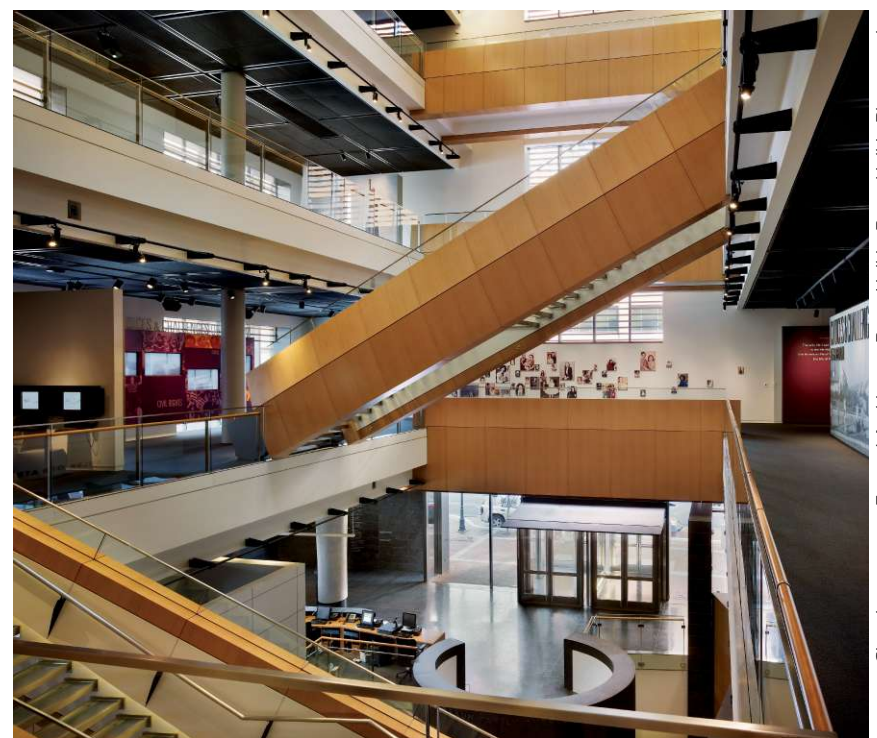
not to scale



That image inspired Rubin. "It gave me the idea of words, which are central to Judaism, as being a source of light," Rubin says. "That led to the notion of using the Talmud to drive the shape and animation of the sculpture." The Talmud is a record of rabbinic discussions that pertains to Jewish law, ethics, philosophy, custom, and history. "It has a very interesting shape on the page," Rubin continues. "A central text, surrounded by layers of commentary. This project was about abstracting those layouts."

The sculpture consists of seven wire-grid panels, each containing 384 programmable white LEDs—2,688 nodes in all. The panels are 100 inches high by 60 inches wide. They are held together by an open flexible cable-mesh system that spaces the nodes 4 inches on center, forming a rectangular volume. Seen from outside at night, the sculpture flickers and undulates in a manner reminiscent of fire, representing both the Statue of Liberty's torch, as well as the eternal flame (the Ner Tamid) that hangs over the Torah Ark in every synagogue—a fitting symbol for the story of one of America's most enduring cultures. •

The site plan (left) shows the museum's prominent position in red and its proximity to other major landmarks on Independence Mall. The Only in America gallery celebrates the lives and achievements of 18 prominent Jewish Americans (bottom left). In the 85-foot-tall atrium, a dramatic glass staircase crisscrosses the space, bringing museumgoers to the different gallery levels and provides them with views across the space (bottom right).



Site plan courtesy, Ennead Architects; Barry Halkin, Barry Halkin Photography, courtesy NMAJH (bottom left); Barry Halkin, Barry Halkin Photography (bottom right)

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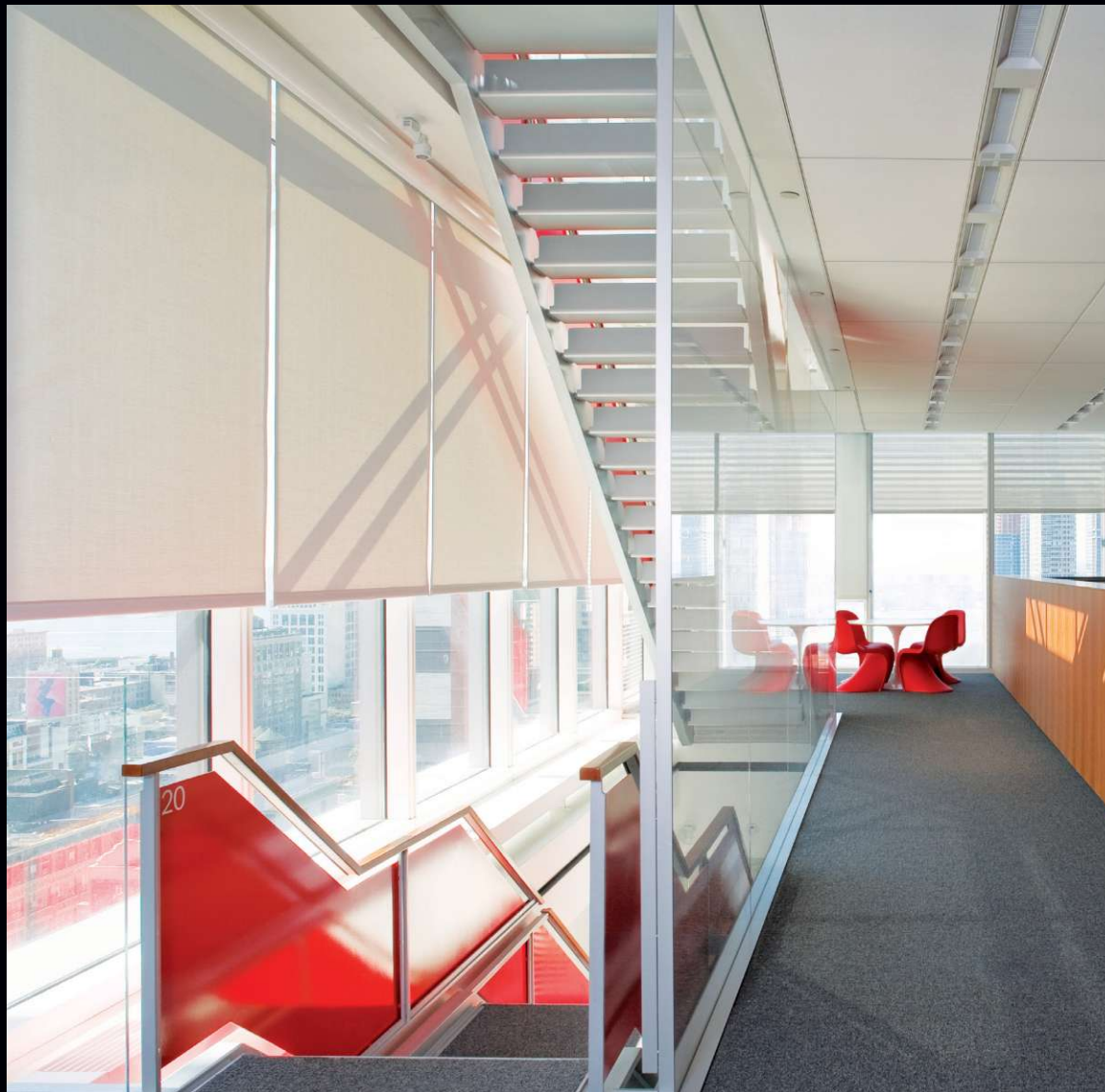
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76



88



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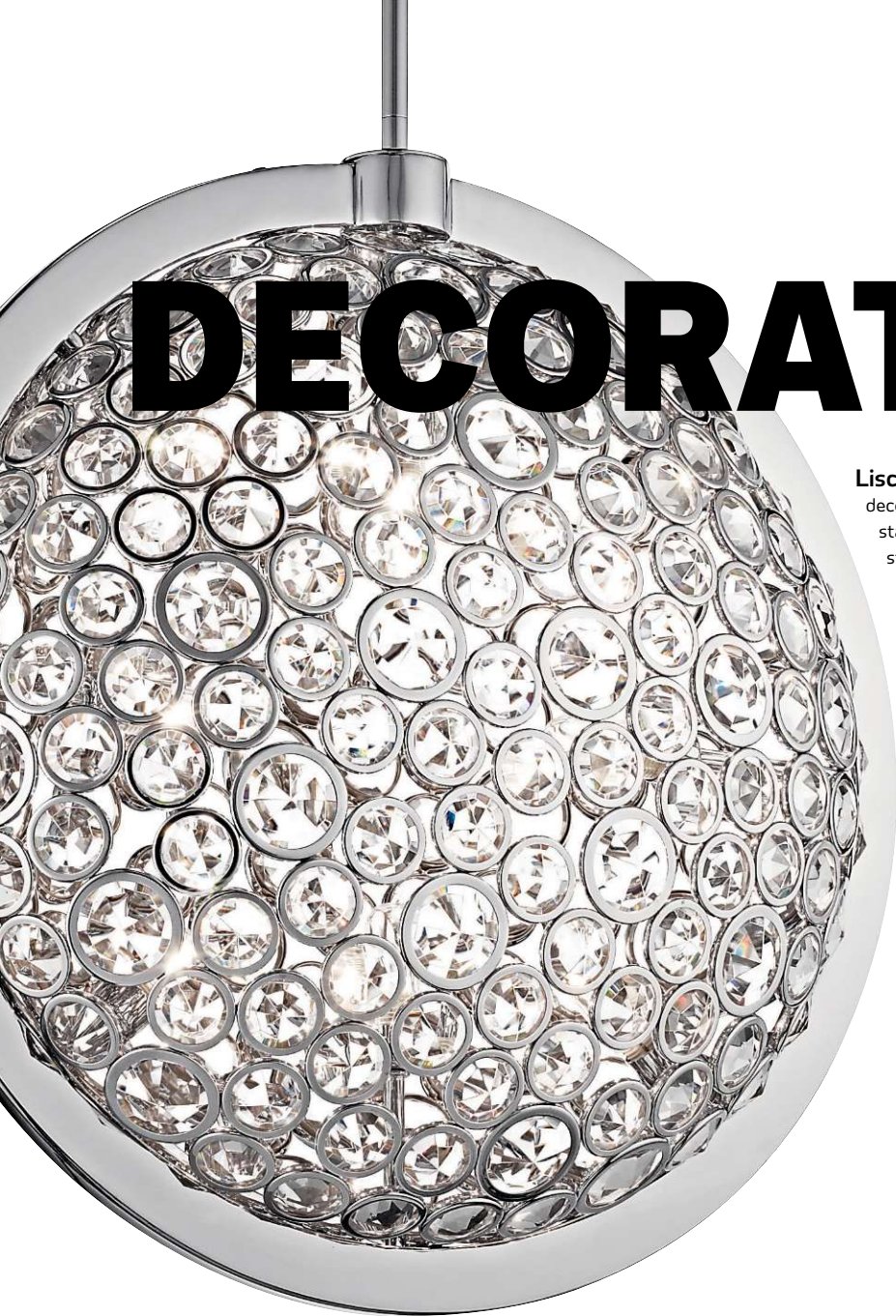
PRODUCTS

edited by Elizabeth Donoff

text by Elizabeth Donoff, Rebecca Ebstein, Laurie Grant, and Meghan Smith

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DECORATIVE



Liscomb Chandelier, Kichler Lighting • The Liscomb family of luminaires offers four distinct options for decorative, interior lighting. The Liscomb fixtures are made from cut and polished crystals that are held within stainless steel rings, and come in round (shown), oval, or quarter sphere shapes. The convertible semi-flush stem-mounted pendant has a base height of 24.5 inches and uses 10 50W incandescent lamps. The convertible oval chandelier semi-flush fixture has a base height of 9 inches and uses three 50W incandescent lamps. This design is also available as a half-oval wall sconce, which uses two 50W incandescent lamps and is 6 inches high. The ball-shaped chandelier option has an overall height of 59 inches and uses eight 50W incandescent lamps. All luminaires in this family come with the option of additional wire lengths, and have chrome housing. kichler.com • Circle 100



A330S, Artek • Alvar Aalto's 1954 design—the A330S pendant, or the "Golden Bell"—is now available in an all-black and an all-white version, joining the existing brass, chrome, and painted steel versions. The A330S uses either a 9W E27 compact fluorescent or a 40W E27 incandescent and has a white or black plastic cable drop. The fixture measures approximately 7³/₄ inches tall by approximately 6³/₄ inches wide. artek.fi • Circle 101

Shuffle, Visà Lighting • Part of the Mystique Collection, the Shuffle luminaire allows for sculptural configurations. Available in six different shapes—Ellipse, Teardrop (shown), Straight, Switch, Picture Frame, and Vision to Visà—the fixtures can be recessed-mounted vertically, horizontally, or at a custom angle. Lamped with static-color LEDs in warm-white, cool-white, amber, blue, green, red, or color-changing RGB. visalighting.com • Circle 102



Kaiser Idell Lamp Collection, Fritz Hansen • This luminaire family, originally designed by German silversmith Christian Dell in the 1930s, features table, floor (shown partially), wall, and pendant versions. In Fall 2010, it became part of Fritz Hansen's luminaire offerings. The Kaiser Idell fixtures feature an asymmetrically designed shade made of high-quality steel and the finish is hand-painted. All models are available in three standard colors: black, ivory, and white. The large table lamp and pendant versions are also available in red or dark green. fritzhanzen.com • Circle 103



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CRI: >80
Operation Temp: -20° to +45°
Voltage: 110-220V AC / 220-240V AC



LED DOWNLIGHTS

Colors: Warm, Natural, Cool
Color Temp (k): 2,800-5,600
Beam Spread: 140°
Watts: 5W/10W
Lamp Base: AC Terminals
CRI: >80
Operation Temp: -20° to +45°
Voltage: 110-220V AC /
220-240V AC

T8 LED LAMPS

Colors: Warm, Natural, Cool
Color Temp (k): 2,800-5,600
Beam Spread: 140°
Watts: 20W/15W/10W
Lamp Base: GU13
CRI: >80
Operation Temp: -20° to +45°
Voltage: 110-220V AC / 220-240V AC
Sizes: 4ft.(1.2m), 3ft.(0.9m), 2ft.(0.6m)



LED SPOTLIGHTS

Colors: Warm, Natural, Cool
Color Temp (k): 2,800-5,600
Beam Spread: 140°
Watts: 4.5W
CRI: >80
Operation Temp: -20° to +45°
Voltage: 110-220V AC, 220-240V AC, 12V AC/DC
Lamp Base: MR16(GU5.3), GU10, E26/E27, B22

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Nara Bamboo, Derek Marshall Lighting •

The Nara art glass pendant was inspired by the curve and texture of bamboo. It flares slightly at the top and bottom and is composed of three kiln-formed pieces of glass. The overlapping pieces are held in place with small stainless steel screws. The fixture measures 6½ inches wide by 12 inches tall. It is available with either a black or white hanging cord, or drop stems in chrome, satin brass, or dark bronze with matching canopies. derekmarshall.com • Circle 104



Mr. Ray, &Costa • The Mr. Ray Collection includes chandelier, table, wall, floor, and suspension versions of the luminaire. The chandelier (shown) is an articulating 12-arm fixture. Each arm measures 27.6 inches long and each arm can rotate 360 degrees and pivot 180 degrees to provide both indirect and direct light. When the chandelier is fully opened, it measures 64.2 inches wide and 18.5 inches tall from the ceiling to the center ring. The luminaire uses 12 7W LEDs. Standard finishes are black or white aluminum; custom finishes, sizes, and configurations are available upon request. sparklights.com • Circle 105



Glow Sconce, Boyd Lighting •

Made from a block of solid, clear crystal, bored in its center to conceal the light source, the Glow sconce makes a bold design statement. The fixture uses six 2.64W 3100K nondimmable LEDs and measures 7¼ inches tall by 4⅞ inches wide and stands off the wall 6 inches. The solid brass metal base is available in two finishes: satin nickel or blackened brass. boydlighting.com • Circle 106





Fizz, Troy Lighting • The Fizz Collection of pendants features a polished chrome stem with frosted acrylic glassware as the decorative element and a hardback shade (or shades, depending on the style). Available in multiple configurations, the four-head pendant (shown), measures 28½ inches wide by 24 inches tall and uses five 60W medium base lamps. troy-lighting.com • Circle 107



Digital Dreams, Brand van Egmond • A fusion of photography and light, Brand van Egmond presents a new addition to its sculptural luminaire collection—Digital Dreams. This “avantgardistic” chandelier, made of iron and black glass, features digital photo frames as part of its design. Available in either an 11.8-inch or 49-inch diameter, the chandelier integrates black glass panels and either six or 24 1GB digital photo frames into an alternating pattern. With a height of approximately 19.6 inches, the Digital Dreams chandelier holds either three or eight E14 lamps, depending on the size, and is well-suited for retail or hospitality settings. brandvanegmond.com • Circle 109

Ethos Chandelier, Eleek • This new LED chandelier features a retro-industrial look and is lamped with three 9.5W LEDs. The fixture housings, measuring 10 inches tall by 2 7/8 inches in diameter are made from 100 percent recycled cast aluminum, recycled extruded aluminum, and etched borosilicate. Drop from ceiling is specifiable. Finish options include: natural aluminium with smooth River Rock, artist patinas, or colored powder coats (Desert Nite shown). eleekinc.com • Circle 108



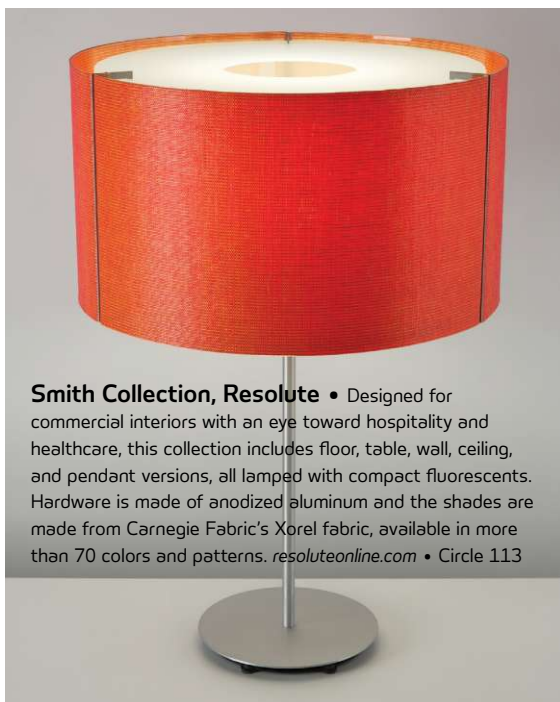
TZ 4, Schmitz • The TZ 4 gypsum system enables linear and geometric shapes for full architectural integration of luminaires into ceiling and wall surfaces. Available with round or square edges and slotted for wallwashing, the linear systems use staggered T5 lamps. LED sources are also available. inter-lux.com • Circle 110



Tjao, Steng • This family of luminaires features shades made of porcelain at the Hering factory in Berlin. The hardware is made of stainless steel. The chandelier (shown) features 29 individual shades and measures 46 inches in diameter. High-voltage halogen G9 lamps are recommended. In the U.S., you can specify canopy finish in white, black, glossy-nickel, or satin-nickel. inter-lux.com • Circle 111



Coco, Brand van Egmond • Designed as haute-couture lighting pieces, Coco by Brand van Egmond mixes sophistication and current technology to produce a luminaire line with a classic elegance that resembles 19th-century antique jewelry. The Coco design, featuring an iron structure with nickel finish, and a choice of jet black, white, or clear crystals, comes in chandelier (round [shown] or oval), wall lamp, or ceiling lamp options. These sculptural luminaires use anywhere from one to 12 E14 lamps and range from approximately 12 inches to 49 inches in height, 23 inches to 39 inches in diameter, and 23 inches to 63 inches in chain length. brandvanegmond.com • Circle 112



Smith Collection, Resolute • Designed for commercial interiors with an eye toward hospitality and healthcare, this collection includes floor, table, wall, ceiling, and pendant versions, all lamped with compact fluorescents. Hardware is made of anodized aluminum and the shades are made from Carnegie Fabric's Xorel fabric, available in more than 70 colors and patterns. resoluteonline.com • Circle 113



Optic Armature Chandelier, jGoodDesign • Designed by Jeff Goodman, this handblown glass chandelier can be lamped with incandescent, halogen, fluorescent, or LED sources. Hot glass is added to the pieces when they are blown, creating lenses in the glass that shine when lit. The metal armature is available in either hand-brushed aluminum or brass. Standard glass finishes are available in 14 colors from clear to dark purple. Custom colors and chandelier sizes are available. jgooddesign.com • Circle 114

A331, Artek • The iconic A331 Beehive pendant, originally designed by architect Alvar Aalto in 1953 with white aluminum rings, is now available with chrome rings. The luminaire can be lamped with 15W E27 compact fluorescents or 75W E27 incandescents and has a white plastic cable drop. The pendant measures approximately 12 inches tall and 13 inches wide. artek.fi • Circle 115



Amber Series Pendant, Nora Lighting • These glass pendants are designed for hospitality, commercial, and residential applications. They can be lamped with GU24 self-ballasting compact fluorescents (13W to 26W), low-voltage bi-pin (50W), line voltage halogen G9 (40W), and E12 candelabra base (60W). Mounting options include: Nora Rail, mini-rail, track, mini-track, mono-point canopy, multi Quickjack, and Quickjack system. Wire length is field-adjustable. noralighting.com • Circle 116





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Apollo LED Sconce, Ilex • The Apollo wall sconce measures 18³/₄ tall by 6¹/₄ inches wide and projects 7³/₄ inches off the wall. It uses a 75W (max.) incandescent lamp and a 1W LED located at the base of its stem that functions as a downlight and switches on via an integral light sensor. Available in polished or brushed nickel, the shade is white shantung. ilxlight.com • Circle 117



Halfpipe Sconce, Boyd Lighting • Inspired by French Art Deco, Halfpipe is a cylinder design with radius cutting to create its scallop shape. Multiple finishes are available including white-on-white, and black or white with either 12-karat white-gold leaf or 22-karat yellow-gold leaf. ADA-compliant, the sconce measures 22 inches tall and uses six 1.2W 3100K LEDs. Custom dimming options are available. boydlighting.com • Circle 118

Velle Chandelier, jGoodDesign • Velle is a new handblown glass chandelier design from Jeff Goodman. Each luminaire is designed for its specific setting and can be lamped with incandescent, halogen, fluorescent, or LED sources. Standard glass finishes are available in 14 colors and range from clear to blue to amber to grayish green and dark purple. Ceiling-plate finish and overall dimensions are completely customizable. Custom glass options are also available. jgooddesign.com • Circle 119

1300 High Performance Series, Cooper Lighting Shaper • This new line of decorative high-bay luminaires is available in two sizes (14- and 18-inch diameter); five optical choices; single or multiple configurations including two-, three-, or four-arm pendants; and can be ceiling-, wall-, or pendant-mounted. Fixture lenses are available in clear and frosted glass. cooperlighting.com • Circle 120



B1774 Vision, Blauet • This contemporary designed pendant uses nine 2W 3500K warm-white LED modules. Available in a satin-nickel finish, the luminaire is suspended by four aircraft cables and measures 15¹/₂ inches in diameter, 3 inches tall, and 70³/₄ inches from the ceiling mount. blauet.com • Circle 121

T2935 Shadow, Estiluz •

This pendant with a metallic matte white or sand color finish has polycarbonate diffusers on its bottom. When the luminaire is lit, the fixture becomes geometrically alive as some of its surfaces are illuminated and some are in shadow. The fixture uses 55W compact fluorescent lamps and measures 102³/₈ inches tall by 30³/₈ inches wide. estiluz.com • Circle 122



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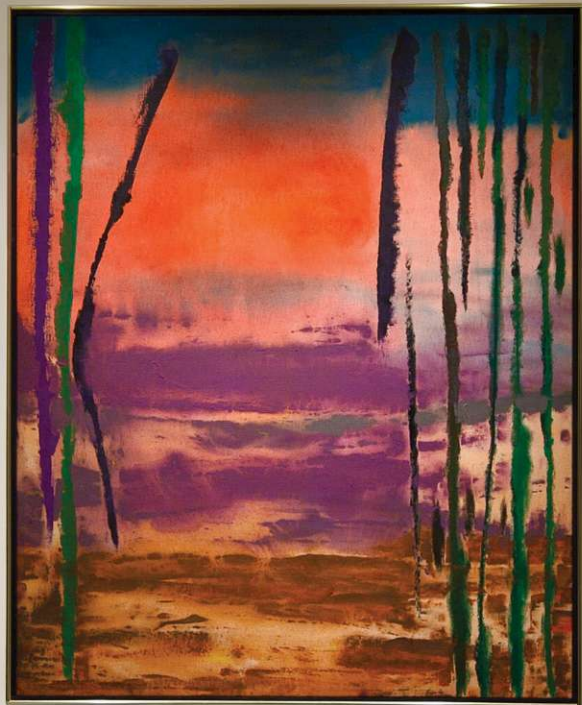


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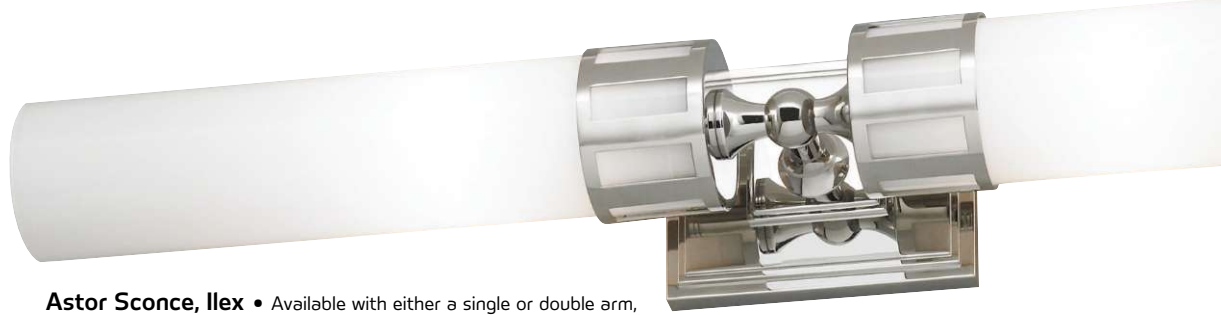
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Astor Sconce, Ilex • Available with either a single or double arm, the ADA-compliant Astor wall sconce uses a 60W (max.) incandescent lamp or a 18W compact fluorescent. The double version (shown) measures 24¹/₂ inches wide and projects off the wall by 4 inches. Available in chrome, polished nickel, or brushed nickel, the glass diffusers are in shiny opal. ilexlight.com • Circle 123



Olsay Chandelier, Kichler Lighting • This three-piece decorative luminaire collection features large intersecting circles of steel rectangular tubing that surround disc-shaped satin-etched opal glass shades. The series offers three- and four-light (shown) chandelier options, as well as a wall sconce, all of which are finished in Olde Bronze, and use three, four, and one 50W incandescent lamp respectively. The four-light chandelier has an overall height of 67 inches, the three-light has an overall height of 61 inches, and the wall sconce is 10 inches high. kichler.com • Circle 124



Tumbadora, Eleek • Shaped like a hand drum, the Tumbadora pendant is composed of 100 percent recycled cast aluminum and 90 percent recycled cast bronze. It has an etched glass diffuser, and is lamped with a 14W LED. Drop length, finish, and style can be specified. eleekinc.com • Circle 125

Smithfield, Flos • This suspension-cable pendant, designed by Jasper Morrison, has an aluminum housing and an injection-molded opalescent polycarbonate diffuser. It measures approximately 24 inches in diameter and 8¹/₂ inches tall. Ceiling attachment is by way of steel suspension cables measuring close to 10 inches long. Finishes include black, white, or mud. The luminaire takes three 24W (max.) G11 lamps. flos.com • Circle 126



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A110, Artek • Finnish manufacturer Artek has released Alvar Aalto's 1952 design, the A110, or "Hand Grenade," in two new colors: all-black and all-white. Existing finishes include steel, and polished brass or painted steel rings. The A110 pendant uses either an 11W E27 compact fluorescent or a 60W E27 incandescent and has a white or black plastic cable drop. The fixture measures approximately 17 inches tall by approximately 6 inches wide. artek.fi • Circle 127



Discoh, Manning Lighting • This family of pendants, sconces, and surface ceiling-mount fixtures feature textured aluminum or stainless steel metal trims. Different finishes and stem options provide additional design options. The fixture is lamped with compact fluorescents and has a flat opal acrylic disk or shallow bowl diffuser. manningltg.com • Circle 128



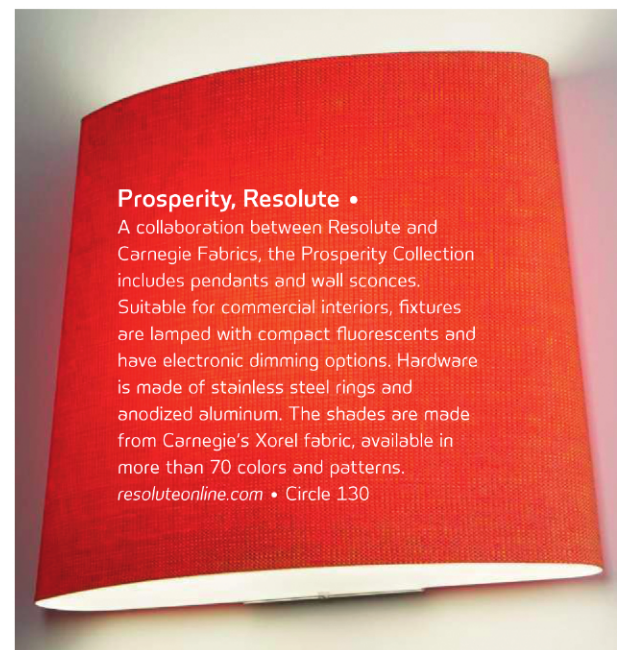
B1610 Flux, Blauet • The Flux family of ADA-compliant wall sconces can be installed vertically or horizontally with either a single or a double arm. The double-arm version measures 31¹/₈ inches long by 1¹/₂ wide and the housing box that conceals the sources sits 3 inches off the wall. The luminaire uses 9.2W 3500K LED modules and is available with a black or a white finish. blauet.com • Circle 129



Alpine, Hudson Valley Lighting • A present-day take on a Hurricane lamp, this contemporary fixture plays with materials and geometry. Available in either a ceiling flush-mount or pendant version, which measures 18 inches square by 27¹/₂ inches tall (shown), the polished-nickel frame is encased in clear cubes. The two versions of the luminaire use four and six carbon filament lamps respectively. hudsonvalleylighting.com • Circle 131

Prosperity, Resolute •

A collaboration between Resolute and Carnegie Fabrics, the Prosperity Collection includes pendants and wall sconces. Suitable for commercial interiors, fixtures are lamped with compact fluorescents and have electronic dimming options. Hardware is made of stainless steel rings and anodized aluminum. The shades are made from Carnegie's Xorel fabric, available in more than 70 colors and patterns. resoluteonline.com • Circle 130



DECORATIVE

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DOWNLIGHTS



Fahrenheit, DMF Lighting • Fahrenheit is the first fire-rated, recessed LED downlight. Available in a 6-inch round aperture, the downlight is ideal for applications where fire-rated ceilings are a necessity, such as healthcare facilities and apartment complexes. Offered in four color temperatures—2700K, 3000K, 3500K, and 4000K—the Fahrenheit series uses a mere 12W with an efficacy of 61 lumens per watt. The die-formed 20-gauge galvanized-steel construction housing measures 7.8 inches high by 10.25 inches wide. Both one- and two-hour fire and sound-rated models are available. dmflighting.com • Circle 132

Aeron, ALM • This decorative downlight measures 14 inches tall and 7 inches in diameter. For use with triple-tube fluorescent lamps (26W, 32W, or 42W), ceramic metal halide (50W, 70W, or 100W), or halogen (150W) the fixture can be ceiling-surface-mounted or pendant-stem- or pendant-cable-suspended. There are two standard finish options: brushed nickel with satin-glass center disk and lower shade, and white with white metal disk and satin-glass lower shade. Custom options are also available for the body, center disk, and upper and lower shades. almighting.com • Circle 133



G8443, Kurt Versen • Kurt Versen has released its family of 4-inch-square aperture downlights, directionals, and wallwashers to fit Armstrong's TechZone ceiling 6-inch technical zone. For use with different light sources, such as compact fluorescent, MR16 ceramic metal halide, and MR16 low-voltage sources, the fixtures provide high lumen output and low brightness lighting solutions. Housings are painted matte black to suppress light leaks and trims are anodized Softglow clear. kurtversen.com • Circle 134



2" Mini-Arc, Lito Lighting • Lito Lighting's new 2" Mini-Arc recessed LED downlight for new construction applications uses Cree's X-lamp and is designed as a replacement for 50W MR16 low-voltage and 18W to 26W compact fluorescent fixtures. The flange opening measures 2 1/2 inches, and the overall housing is 4 1/2 inches high by 12 inches wide. Available in 4W, 8W, or 9W dimmable, the die-cast construction trim rings are available with a reflector or a baffle. The luminaire uses an electronic direct-current driver integrally mounted in the junction box. lito.com • Circle 135



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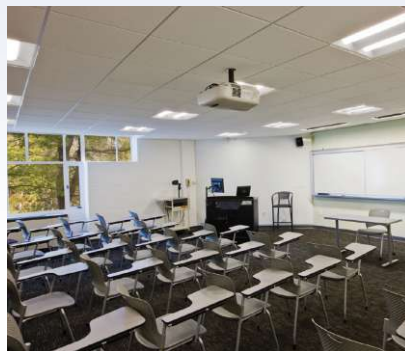
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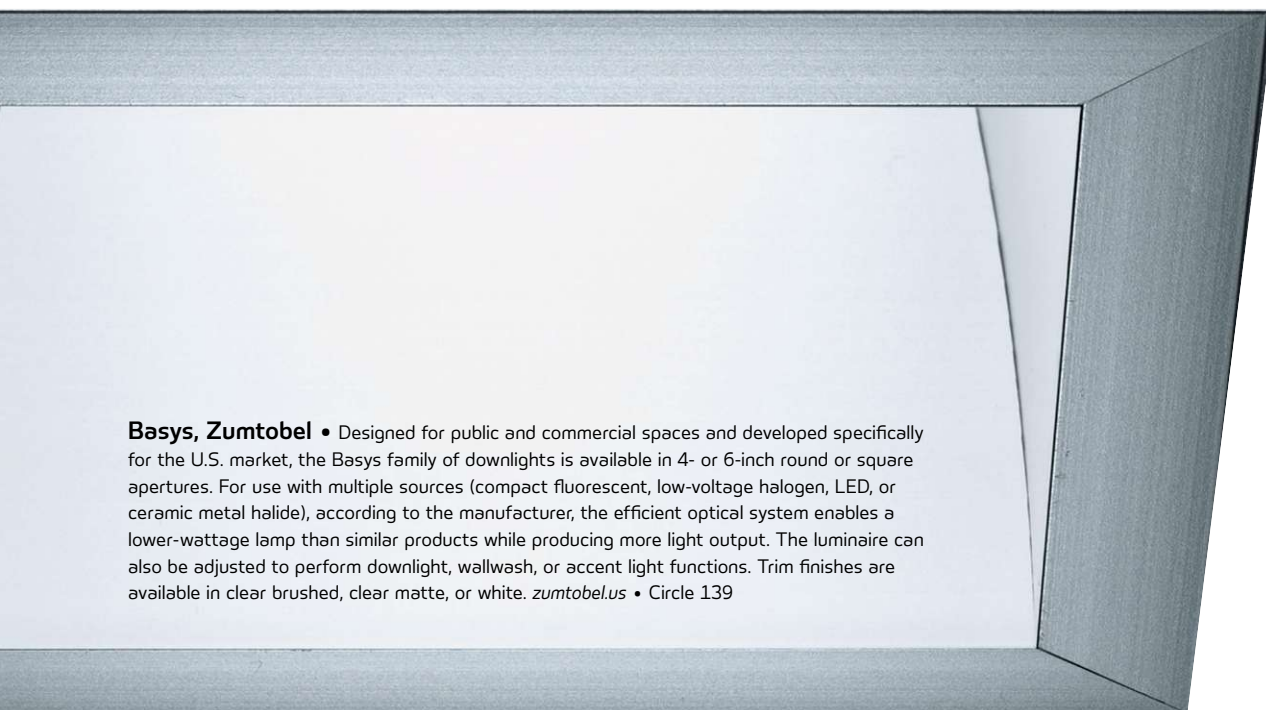
801 and 802 K-LED, No. 8 Lighting •

No. 8 Lighting has added Xicato's 3000K halogen white remote phosphor LED lamp module to its lamping options available in the U.S., Mexico, and Canada. The LED option can be found with the company's Series 801 for Non-IC-rated housings and the Series 802 for IC-rated housings, both of which are meant for new construction. These downlights have field-interchangeable optical reflectors with either a 40- or 60-degree distribution and are available in two aperture sizes—1 3/4 inches and 2 3/4 inches. Depending on the series and model, wattages range from 15W to 22W with color-rendering indexes between 80 to 95. Several models are Title 24 compliant. The LED lamp modules are interchangeable and can be retrofit with all existing No. 8 light fixtures. 8lighting.com • Circle 136



Evoke LED, Amerlux • Amerlux's latest downlight—Evoke LED—is well-suited for commercial and hospitality ambient and tasklighting solutions. Offered in two aperture sizes, 2.9 inches (the smallest in the Amerlux family of downlight offerings) and 4.75 inches, the fixture housing is composed of galvanized-steel construction and the heat sink is extruded aluminum. Using an electronic constant-current driver, the series offers 2700K and 3000K color temperatures, flood and wide-flood distributions, and wattages of 12W and 18W respectively for the aperture sizes. amerlux.com • Circle 137

ALED, Gotham Lighting • The ALED series of solid-state downlights now includes 4-, 6-, and 8-inch apertures in lumen packages of 600 to 2900. The luminaire uses Gotham Lighting's proprietary light engine and patented Bounding Ray optics, which reduces unwanted glare. Available in color temperatures of 3000K, 3500K, and 4100K, zero-to-10V dimming is standard. A 4-inch and 6-inch solid-state lensed wallwash fixture, the DWLED, is also available. gothamlighting.com • Circle 138



Basys, Zumtobel • Designed for public and commercial spaces and developed specifically for the U.S. market, the Basys family of downlights is available in 4- or 6-inch round or square apertures. For use with multiple sources (compact fluorescent, low-voltage halogen, LED, or ceramic metal halide), according to the manufacturer, the efficient optical system enables a lower-wattage lamp than similar products while producing more light output. The luminaire can also be adjusted to perform downlight, wallwash, or accent light functions. Trim finishes are available in clear brushed, clear matte, or white. zumbel.us • Circle 139



NanoLED, USAI • Featuring a 2 1/2 inch aperture opening, the NanoLED high-performance luminaire is available in 10W and 14W modules. Available in four color temperatures—2700K, 3050K, 3450K, and 4000K—the fixture is able to transition between a downlight, an adjustable, and a wallwash luminaire to meet a project's multiple lighting needs. For ease of use and maintenance, the NanoLED has field-replaceable light engines with an integral driver sliding tray that allows for user-friendly replacement of the driver. Trim finishes include white, black, metalized gray, or custom color, and three reflector options can be specified—25, 35, or 55 degrees. usailighting.com • Circle 140

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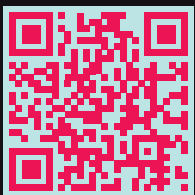
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Reo LED



Rodi
Reo LED



Link LED



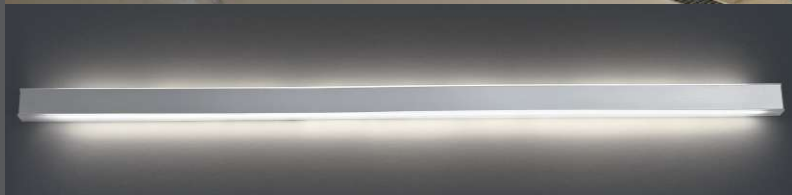
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LEDX, Lucifer Lighting • LEDX, created by Lucifer Lighting, offers a range of LED downlights (using Xicato's LED modules) with comparable light outputs to the company's halogen-based series but with reduced system wattages. Available in fixed, adjustable, and wallwash options with square and round apertures, the LEDX series has interior and IP64-wet-location ratings. System wattages for those standard downlights with an 80-plus color-rendering index include 13W, 18W, and 27W; while the Xicato Artist Series module offers a color-rendering index of 95-plus and includes 13W, 18W, and 22W options. luciferlighting.com • Circle 141



4-inch Architectural LED, Liton Lighting • Liton Lighting's new 13W 4-inch Architectural LED downlight is best suited for new construction applications for low-to-medium-height ceilings and commercial applications. It has a lumen package of 600 and a variety of trims and finishes. The flange opening is 5 5/8 inches and the housing measures 5 1/2 inches tall by 13 1/2 inches wide. The luminaire has been qualified for Lutron Hi-Lume 1 percent dimming. liton.com • Circle 142



Downlites, C.W. Cole & Co. • The Downlites Series is suitable for applications where durability may be a concern, such as canopies, corridors, and loading areas. Available in square and round apertures, the models are available for either dry ceiling or embedded in concrete construction. The fixture can be outfitted with multiple lamp options including fluorescent, metal halide, and incandescent. The housing is composed of 16-gauge steel with a white polyester coating and is available in two sizes—small (5 1/2 inches deep by 16 13/16 inches overall) and large (5 1/2 inches deep by 20 3/8 inches overall). A flat fresnel glass lens is standard for incandescent and metal halide models, and a flat Pattern 73 prismatic glass lens is available for the fluorescent version. colelighting.com • Circle 143

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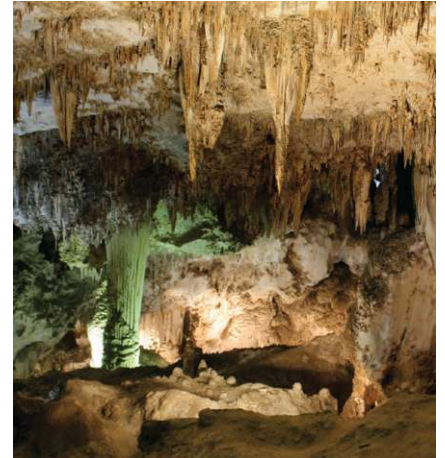
Randy Burkett
Jefferson Nat'l Expansion Memorial



Barbara Horton
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Crystals at City Center



Ray Grenald
Carlsbad Caverns



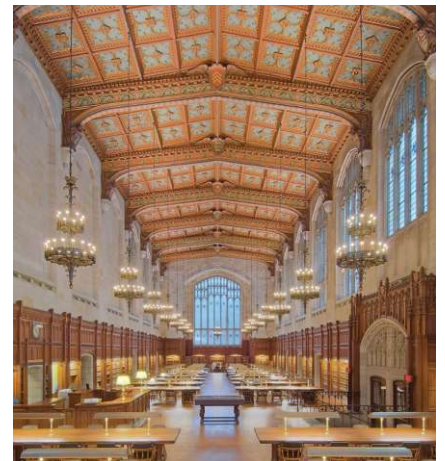
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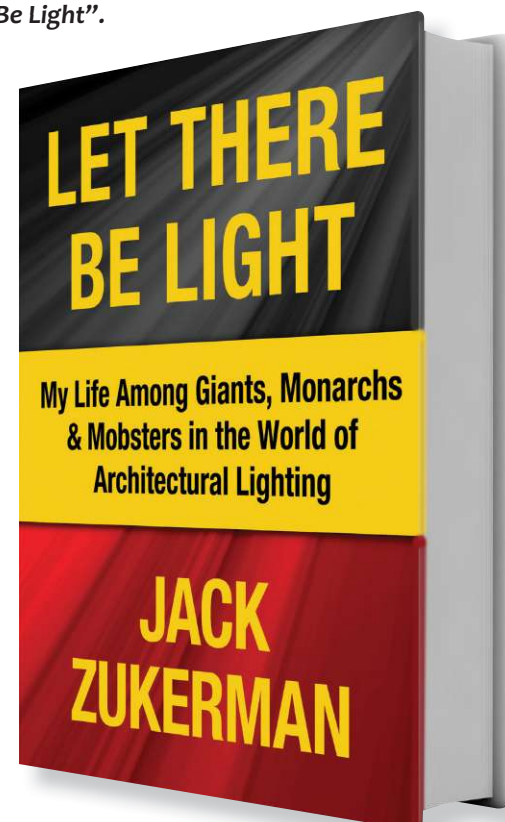
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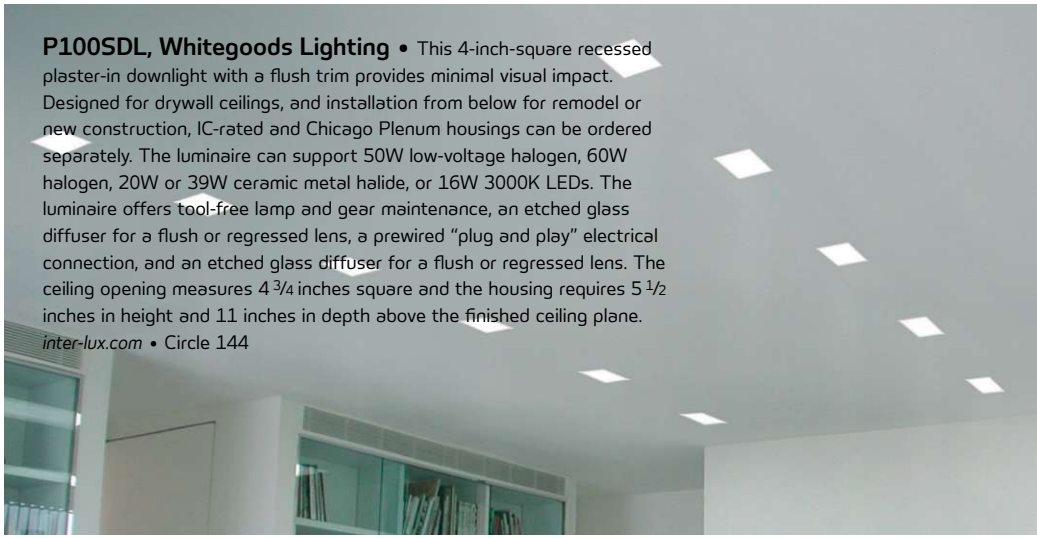
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Diamond Series LED Retrofit Downlights, Nora Lighting •

The Diamond Series of LED Retrofit Downlights are Energy Star-rated and Title 24-compliant. Available in 4 1/2- and 5 1/2-inch aperture openings, the 12W luminaire has a diffused lens, a dimmable integral driver, a unitized thermal-management system, and quick connectors. Available in 3000K or 4000K with a color-rendering index of 86, the fixture is UL-listed and cUL-listed for damp locations. noralighting.com • Circle 145



P100SDL, Whitegoods Lighting • This 4-inch-square recessed plaster-in downlight with a flush trim provides minimal visual impact. Designed for drywall ceilings, and installation from below for remodel or new construction, IC-rated and Chicago Plenum housings can be ordered separately. The luminaire can support 50W low-voltage halogen, 60W halogen, 20W or 39W ceramic metal halide, or 16W 3000K LEDs. The luminaire offers tool-free lamp and gear maintenance, an etched glass diffuser for a flush or regressed lens, a prewired "plug and play" electrical connection, and an etched glass diffuser for a flush or regressed lens. The ceiling opening measures 4 3/4 inches square and the housing requires 5 1/2 inches in height and 11 inches in depth above the finished ceiling plane. inter-lux.com • Circle 144



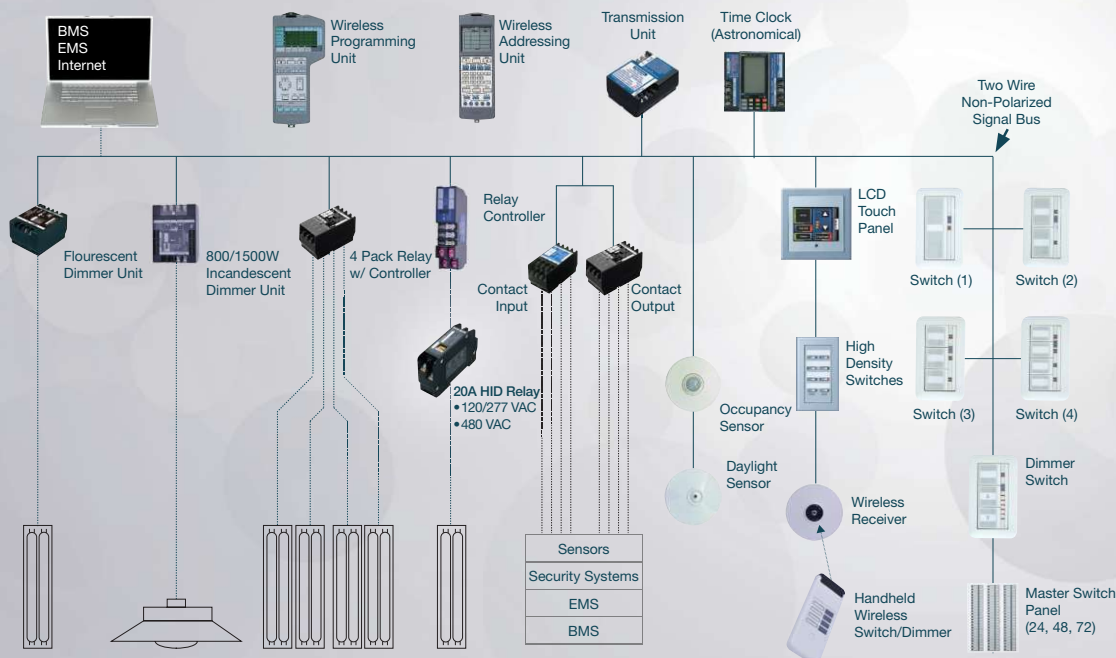
D2LED, Prescolite • This new downlight from Prescolite utilizes Xicato's XSM LED module and offers an alternative to 50W MR16 lamps. The D2LED provides 25-, 35-, and 45-degree cutoff options, delivers 900 lumens, has zero-to-10V dimming capabilities, color temperature options of 3000K or 4000K, and operates on either 120V or 277V. Well-suited for wet locations, the module can be installed or replaced from below the ceiling. prescolite.com • Circle 146

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Grand Diro Trimless, DeltaLight • A new addition to the Diro family of downlights, this new fixture provides great flexibility and can be tilted up to 50 degrees without losing the aesthetic quality of the fixture. For use with LED, AR111, PAR16 metal halide, or T4.5 metal halide lamps, the luminaire measures 5.59 inches in diameter and is available in white, black, or a black-white combination. deltalight.us • Circle 147



Limburg LED, Bega • Bega introduces a trio of 3000K LED downlights to its Limburg Collection. Offered in two mounting styles—pendant (L4927) and ceiling surface-mounted—and with two different glass diffuser shapes—symmetrical (L8871) or asymmetrical (L6694)—all three versions feature a painted silver RAL 9006 finish. The diffusers are handblown, three-ply opal glass with a satin matte finish and a screw neck. The glass is open on the bottom. The pendant version features a 6W LED module and a 120V-only electronic LED driver. The two ceiling versions have 13W LED modules and are also available with a 277V driver. bega-us.com • Circle 148



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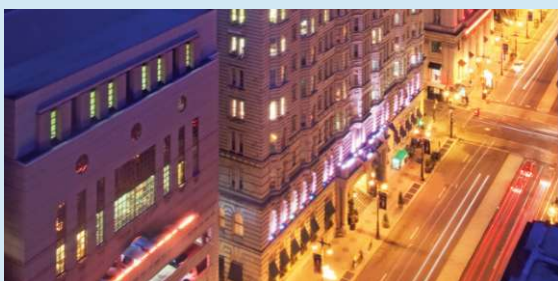


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LED Pattern Projector

Essentia, BetaLED • Featuring 4-, 6-, and 8-inch round and square apertures, BetaLED's Essentia LED downlight series is designed for commercial interiors and high-end residential applications. Available in four color temperatures (2700K, 3000K, 3500K, and 4250K), lumen packages of 1,200 to 5,000 lumens delivered, and narrow-, medium-, and wide-distribution patterns, a soft satin-glow finish is standard. betaled.com • Circle 149

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P8071-STR Series, Progress Lighting •

This Energy Star-qualified recessed downlight has a 6-inch open aperture and is designed for new construction and retrofit applications. Available in a variety of finishes—including antique bronze, chestnut, matte black, and metallic silver—the 15W downlight provides both 2700K and 3500K color temperatures and a color-rendering index of more than 80. Title 24-compliant when used with the P87-LED housing. The P8071-STR Series is also wet-location-rated. progresslighting.com • Circle 150





Link, DeltaLight • Offering design flexibility with modern style, link is available as a single-, double-, or triple-unit luminaire—Link1, Link2, and Link3. Measuring 5.51 inches in diameter and 5.24 inches tall, the standard housing finish is RAL white 9003. Light-source options include six 1W 3000K LEDs; AR111s up to 50W; 26W quad compact fluorescents; and 39W and 70W metal halide. The lamp head can be rotated vertically 30 degrees and horizontally by 350 degrees. deltalight.us • Circle 151



Pluris Series, Intense Lighting • The Pluris series, an LED multilight, features lamp holders that are adjustable 365-degree horizontal and 45-degree vertical for a range of narrow-flood, flood, and wide-flood beam spreads. Three color temperatures are available (3000K, 3500K, and 4100K), as are two lumen packages (650 lumens with an input power of 15W, and 900 lumens for 17.8W). For ease of use and maintenance, all components are accessible from below the ceiling. One-, two-, three-, and four-lamp configurations are available. Dimming to 10 percent output is also possible. intenseighting.com • Circle 152



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EXIT/EMERGENCY

CMF/TMF/ZMF Series, Chloride Systems • Designed for commercial and industrial applications, this family of emergency lighting options is available in 6V, 12V, or 24V, and in 25W to 450W units with high-performance MR16 lamp-head-assembly options. Lamp heads can be mounted on the top, sides, or bottom of the enclosure and the entire assembly can be wall-, column-, pole-, or I-beam-mounted. A 120V/277V dual-voltage input with surge protection and Intelli-Charge for self-diagnostics enables the series of products to serve as an emergency lighting unit. It continuously monitors all critical functions and also has an optional self-testing feature. The series includes a sealed lead-calcium or nickel-cadmium battery that surpasses 90 minutes of emergency power. chloridesys.com • Circle 153



Max-Lite Series, Chloride Systems • For use where oil-, water-, and dust-resistance is required, Max-Lite is certified to NSF Standard 2 Splash Zone, UL-listed for use locations from zero to 40 C, has an onboard IR receiver standard, and is preprogrammed for an optional handheld device that allows for remote testing. Self-diagnosing equipment monitors critical functions, and it is available in 6V or 12V, and 25W to 150W units with tungsten or halogen lamp heads. Sealed lead-calcium or nickel-cadmium batteries supply 90 minutes of emergency power. chloridesys.com • Circle 154



Edge-lit LED Exit Signs, Nora Lighting •

Intended for use in public buildings and multifamily dwellings, these new edge-lit LED exit signs from Nora Lighting are available in four models: AC only; second and emergency circuit; 90-minute nickel-cadmium battery backup; and battery backup and New York approved. The two-piece housings are constructed of extruded aluminum and can be wall-, ceiling-, or side-mounted. Clear, mirrored acrylic faces are field-adjustable from zero to 90 degrees. Red or green letters can be selected in either 6- or 8-inch heights with single or double facings. The sign's slim profile measures 12 inches wide by 10⁵/₈ inches tall by 1⁵/₈ inches deep. The signs are available in three finish options: natural aluminum, black, or white. noralighting.com • Circle 155

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Volumetric Recessed Luminaires, Lithonia Lighting • This family of volumetric recessed luminaires—RTLED, ACLED, and TLED—are factory-enabled with Acuity Brands' nLight intelligent controls interface (occupancy sensors, photocells, and manual wall controls) to provide ambient white light for general lighting applications. The RTLED is available in three sizes (2x2, 2x4, and 1x4), has a color temperature of 3500K, and a color-rendering index (CRI) of 82. The ACLED and TLED also have a CRI of 82 but are only available in the 2x2 format. Both deliver 3300 lumens at 41W. lithonia.com • Circle 261

DIRECT/INDIRECT

22 Series, Straight & Narrow LED Luminaire, Cooper Lighting Neo-Ray • Neo-Ray's 22 Series, Straight & Narrow luminaire has been expanded to include an LED option. This direct linear lighting solution can be installed as a recessed, suspended, or surface- or wall-mounted fixture for individual or continuous run installations. The extruded aluminum housing, available in lengths of 3, 4, 6, and 8 feet, and the frosted acrylic lay-in lens create a sleek, clean appearance. The LED version offers two light levels: 2800 lumens or 44W, and 1800 lumens or 28W. The LED version is also available in three color temperatures—3000K, 3500K, and 4000K—and has an integral driver. cooperlighting.com • Circle 262



Veer, Focal Point • Veer is a direct/indirect luminaire designed for offices, educational environments, labs, libraries, and conference rooms. The linear fluorescent fixture has two acrylic diffuser shapes: flat and radial. The extruded aluminum housing measures 7.95 inches wide by 1.87 inches deep and is available in 4-, 8-, 12-, 16-, 20-, and 24-foot lengths. Multiple fixtures can be connected with an integral joining system that locks using two screws. Available in one- and two-lamp T5, T5HO, and T8 configurations, optional daylight and occupancy sensors (from Lutron, Philips, and Wattstopper) can be positioned on specially designed plates to maintain the diffuser profile. It is available in matte satin white or titanium silver. focalpointlights.com • Circle 263



Slotlight LED, Zumtobel • A flexible lighting solution that works across applications, the Slotlight LED measures 4^{1/4} inches tall by 2^{13/16} inches deep and is available in 2-, 4-, 6-, 8-, 10-, or 12-foot lengths. The fixture can be suspended or surface-mounted. Available in three color temperatures (3000K, 3500K, or 4100K) and two lumen packages (450 or 750), the company's Active Thermal management monitors the LED junction temperature to ensure LED stability for consistent light output and color temperature. zumtobel.us • Circle 264

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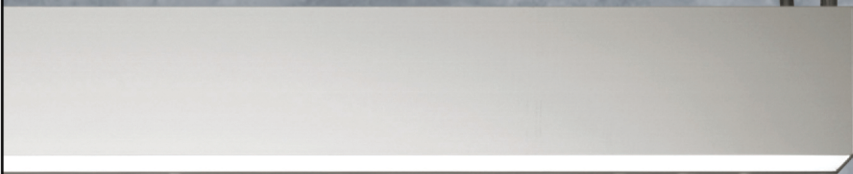
Read more about the entire family of Tycoon table-mount,
free-standing, pendant, and wall-mount luminaires at
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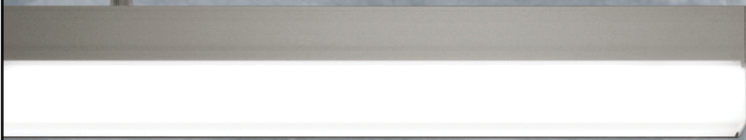
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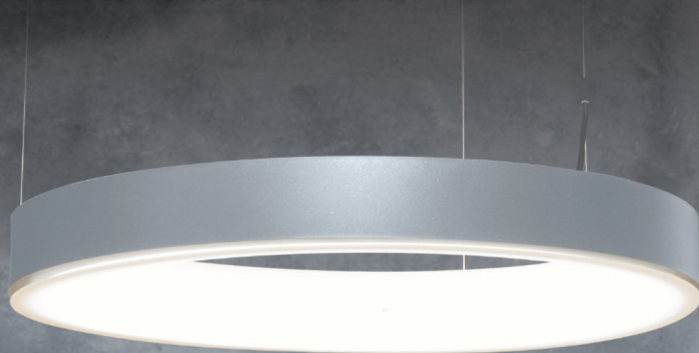


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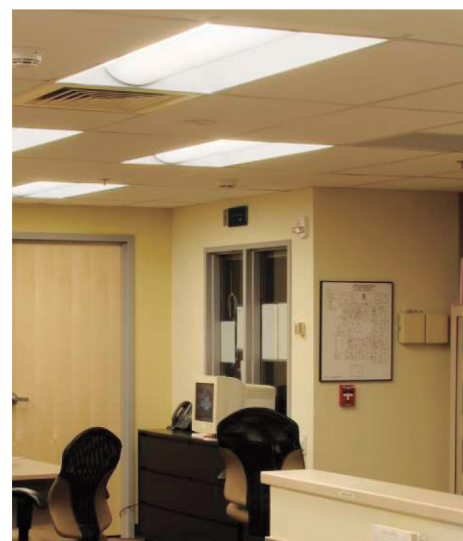
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Icos, Zumtobel • Designed with classrooms, libraries, offices, hospitals, and other commercial spaces in mind, this cable-mounted direct/indirect luminaire measures 4 3/4 inches wide by 3 1/8 inches to the suspension bracket and is available in either 4- or 5-foot lengths. It can be lamped with either T5 (28W or 35W) or T5HO (54W or 80W) fluorescents. The extruded clear acrylic lens has internal optics. The electronic ballasts are mounted in the center channel above the lenses. The luminaire also works with a full array of Lutron dimming ballasts. zumtobel.us • Circle 265



Litewave HE, Litecontrol • The Litewave HE is a recessed, enclosed luminaire with efficiencies of more than 80 percent, according to the manufacturer. The one-piece extruded acrylic lens and high-reflectance white reflector provides diffuse lighting. The luminaire is available in 2x2, 2x4, and 1x4 versions for one-, two-, and three-lamp options with T5, T5HO, and T8 fluorescents. Litewave HE is Cradle-to-Cradle Silver Certified. litecontrol.com • Circle 266



Transition, Columbia Lighting • Columbia Lighting's recessed Transition High Efficiency Architectural Lensed series provides soft, uniform light via clear acrylic diffusers and linear prism optical overlays. Best suited for environments where dust may be an issue, such as medical facilities and schools, the luminaire can be used with one-, two-, or three-lamp T5 (28W), T5HO (51W or 54W), or T8 (25W, 28W, 30W, or 32W) fluorescent lamps and is available in three sizes: 2x2, 2x4, and 1x4. Depending on the fixture configuration, ballast options include electronic, electronic dimming, or electronic programmed start. UL and cUL damp location listing is standard. columbialighting.com • Circle 267

DIRECT/INDIRECT

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> S14 DecorLED™ Lamps
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> Round, Flexible RopeLED
Tortilla Jo's, Anaheim, CA



> Custom-Built LED Lamps
Vincent Thomas Bridge, San Pedro, CA



> S14-Styled DecorLED Lamps
Bardavon Theater, Poughkeepsie, NY



> 4-LED, 9mm Miniature Wedge-Based Lamps
Hillsboro Arch, Hillsboro, OR



> 7-LED, S6 Candelabra-Based Lamps
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Lumenatrix Backlighting System, Duo-Gard Industries • The Lumenatrix Backlighting System combines LED technology with translucent panels as an alternative to wall-mounted fluorescent luminaires. Each panel is made of a structural power-rail grid system that provides low-voltage power to LEDs. Using as little as 1W to 3W per square foot and a heat sink design that keeps the LEDs at 81 degrees, Lumenatrix offers low power and heat consumption. Available as panels or tiles that can be either recessed or surface-mounted, Lumenatrix can also be fabricated for custom solutions. duo-gard.com • Circle 268

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Purelight, Selux • Designed for interior lighting applications, Purelight is a high-efficiency luminaire with a round satine lens with diffusing optics that provide a volumetric lighting solution. The housing is constructed of extruded aluminum and the lens is made of impact-resistant satine polycarbonate. Available in three mounting options (suspended, ceiling, or wall), Purelight is available in 2-, 3-, 4-, 6-, and 8-foot lengths and can be lamped with a single T5, T5HO, or T8 linear fluorescent. The luminaire is also UL- and cUL-listed for damp locations. selux.com/usa • Circle 269



Impulse, Intense Lighting • Ideal for display cases, undercabinet, coves, and alcoves, Intense Lighting introduces its Impulse low-profile linear LED luminaire. Offered in 12-, 22-, 32-, and 42-inch lengths and in three color temperatures (3000K, 3500K, and 4000K), the fixture has a high-impact diffused acrylic lens. Impulse also provides a color-rendering index of 85 and two output ranges (high and superhigh), as well as multiple connection cables, including lengths of 2, 4, and 8 inches. For use with a 24V DC Class II LED power supply, the fixture is ETL-listed for dry locations. intenselighting.com • Circle 270



Learn more about Columbia Lighting's Transition™ High Efficiency Architectural Lensed Luminaire in AIA booth #1061.

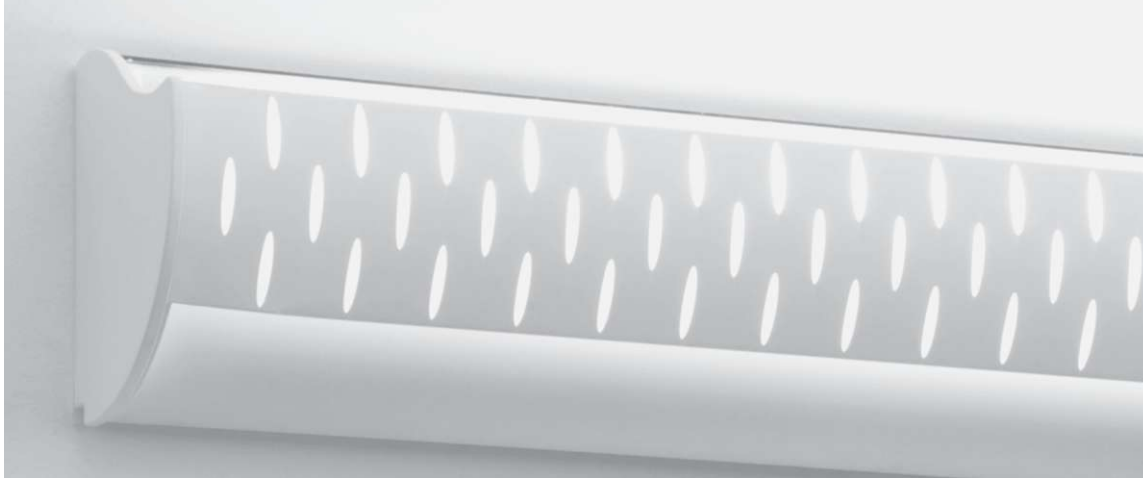
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DIRECT/INDIRECT



F147, The Lighting Quotient, Elliptipar • This ADA-compliant uplight is well-suited for hospital and school corridors. Optical control is provided by an internal aluminum reflector that emits maximum light across a horizontal plane with great uniformity. Measuring 5 inches high by 4 inches deep, there are four decorative patterns for the front shield. A clear UV-resistant acrylic lens covers the top of the fixture for safety and easy maintenance. The luminaire is available in 2-, 3-, and 4-foot lengths and can be used with T5 (14W, 21W, or 28W) and T5HO (24W, 39W, or 55W) fluorescent lamps. The fixture has an integral electronic dimming ballast and an optional dimming feature. thelightingquotient.com • Circle 271

Hole in the Wall and LS LED Series, Engineered Lighting Products • Expanding its Hole in the Wall (HITW) and LS Series lines to include LED, these glass-fiber-reinforced gypsum luminaires still offer the look of a custom-formed drywall "light niche." HITW is available in three aperture sizes—4 by 9 inches, 8 inches square, and 6 by 13 inches. All three sizes use 3000K LEDs (Osram Sylvania's HF2 Narrow Sticks and Optronic Class 2 driver) with a total input power of 10.48W. The 4W LS Series offers small—1 3/4 inch by 5-inch—3000K LED steplights with trimless installation. elighting.com • Circle 272



Seem 4, Focal Point • Another new offering from Focal Point, Seem 4 is designed with grid ceiling, trimless drywall ceiling, or wall installations as well as trim flange hard ceilings in mind. The extruded aluminum housing conceals one- and two-lamp T5, T5HO, or T8 lamp configurations. Two extruded acrylic snap-in lens options—flush satin and "XP" high performance—offer diffuse light and 77 percent efficiency, respectively. Available in 2-, 3-, 4-, and 5-foot lengths, the lamps can be positioned in continuous rows or staggered. The wall and grid ceiling versions come in a matte white finish. focalpointlights.com • Circle 273

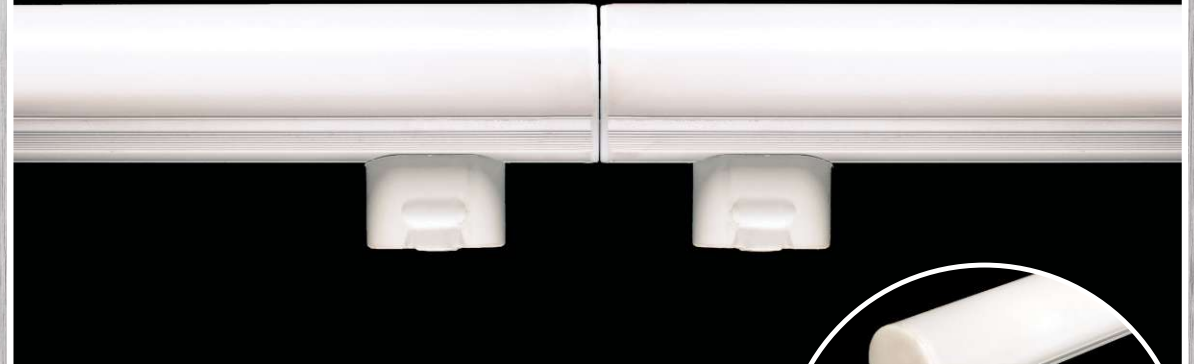


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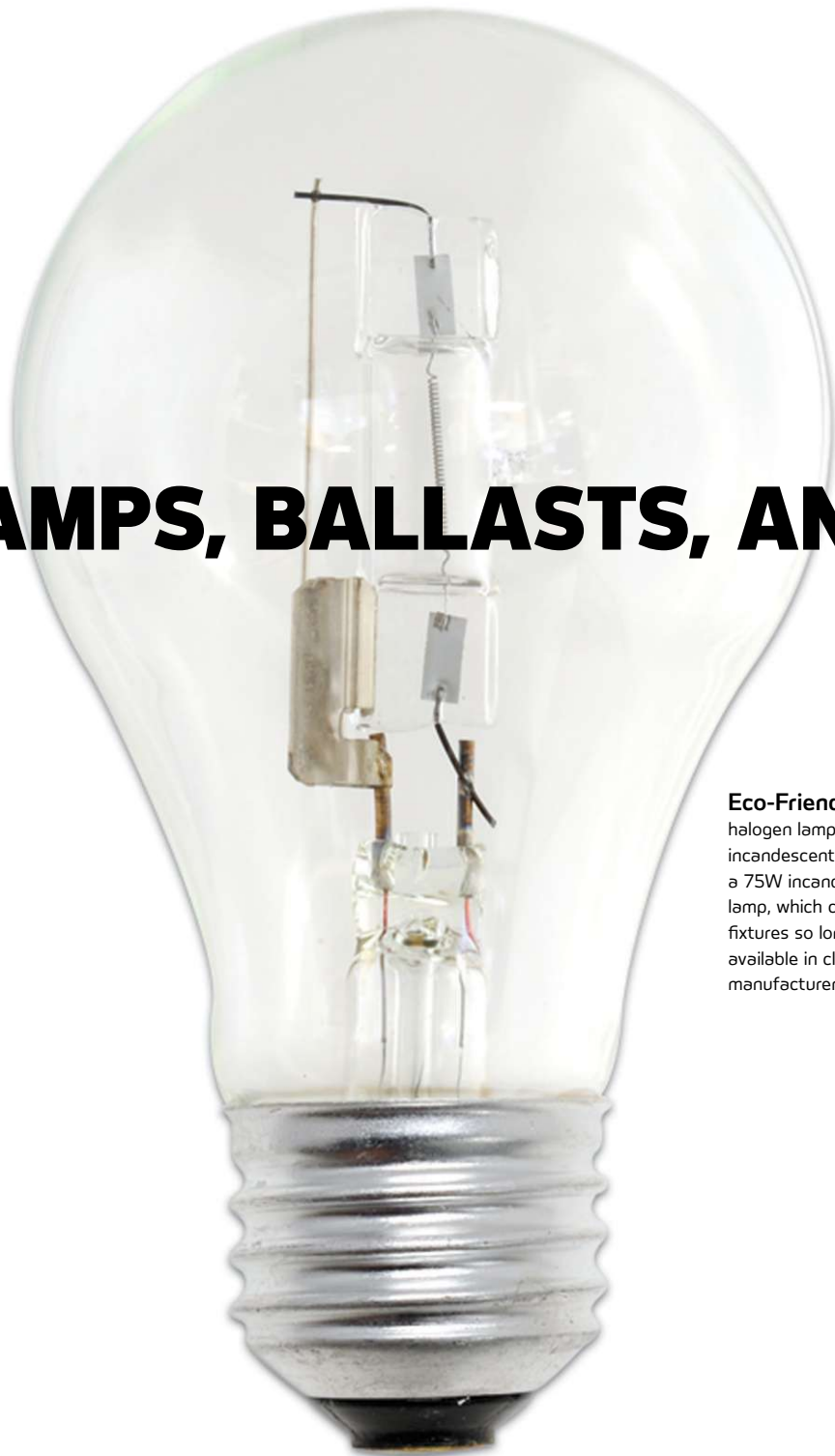


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*25,000 hour estimated average life, NOT A GUARANTEE. Many factors can affect LED lamp life.

LAMPS, BALLASTS, AND CONTROLS



Eco-Friendly Halogen A19 Lamp, Bulbrite • This fully dimmable halogen lamp is available in four wattages: 29W (equivalent to a 40W incandescent), 43W (equivalent to a 60W incandescent), 53W (equivalent to a 75W incandescent), and 72W (equivalent to a 100W incandescent). The lamp, which comes in packs of two or six, can be used with a full range of light fixtures so long as the fixture runs on a 120V lighting system. The lamp is available in clear or soft white and has a 1,000-hour lamp life, according to the manufacturer. bulbrite.com • Circle 274



Stairwell Retrofit Solution, Lutron

• The Stairwell Retrofit Solution Kit adjusts light output based on stairwell occupancy. The kit includes a retrofit luminaire (2-, 3-, and 4-foot lengths) with one- or two-lamp configurations for T8, T5HE, or T5HO lamps and a Lutron digital dimming ballast. It can be ceiling- or wall-mounted and runs on 120 to 277 universal input voltage. The fixture is connected to a Lutron Radio Powr Savr occupancy sensor with the company's Clear Connect RF technology. One sensor can connect up to 10 luminaires. The separate fixture and sensor components allow for installation flexibility. lutron.com • Circle 275



TPMC V-Panel Touchscreen, Crestron Electronics • According to the manufacturer, the TPMC V-Panel is the thinnest fully integrated touchscreen available that combines with a powerful digital graphics engine. Applications include control of home theater, lighting, thermostats, A/V networks, security cameras, pool and spa areas, as well as any other connected automation systems. Available in 12- and 15-inch sizes, both versions are 2 inches thick and have an edge-to-edge glass design that provides a large viewing field. Finishes are black or white. Model styles are tabletop tilt, in-wall mount, or VESA mount. The panels use the company's Core 3 operating system, which supports Flash, HTML5, H.264 high-definition video, and Internet Explorer. crestron.com • Circle 276

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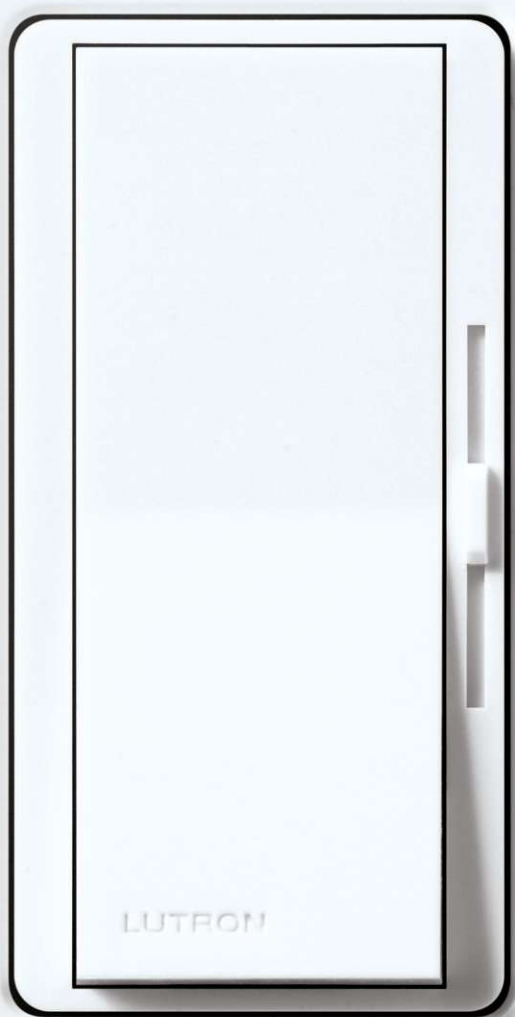
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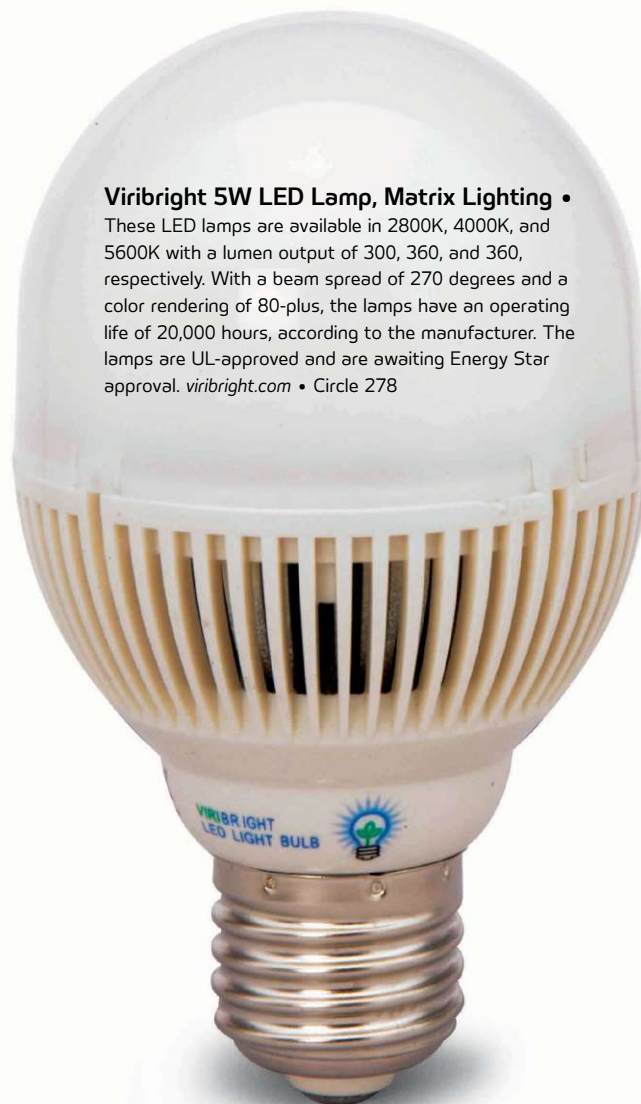
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Divā C•L Dimmer, Lutron • These dimmers, which aid in more reliable performance, according to the company, for compact fluorescents and LEDs over standard dimmers, also provide full-range dimming for incandescent and halogen lamps. The advanced dimming circuitry is designed to be compatible with most high-efficacy lamps. Multiple types of lamps can be mixed on a single dimmer and an adjustment dial aids in setting the bottom of the dimming range for particular lamps. lutron.com • Circle 277



Viribright 5W LED Lamp, Matrix Lighting • These LED lamps are available in 2800K, 4000K, and 5600K with a lumen output of 300, 360, and 360, respectively. With a beam spread of 270 degrees and a color rendering of 80-plus, the lamps have an operating life of 20,000 hours, according to the manufacturer. The lamps are UL-approved and are awaiting Energy Star approval. viribright.com • Circle 278



Lighting Control Engine (LCE), E:cue • This high-performance lighting-control server is designed to oversee large and complex projects. Equipped with the E:cue Lighting Application Suite 5.2, the LCE can output to DMX/RDM, e:net, and other protocols such as Art-Net and KiNET. A touchscreen monitor on the front of the aluminum-housing unit, which measures 19.86 inches wide by 19.17 inches tall by 5 inches deep, allows for an easy user interface. The LCE can be mounted in a 19-inch rack. ecue.com • Circle 279



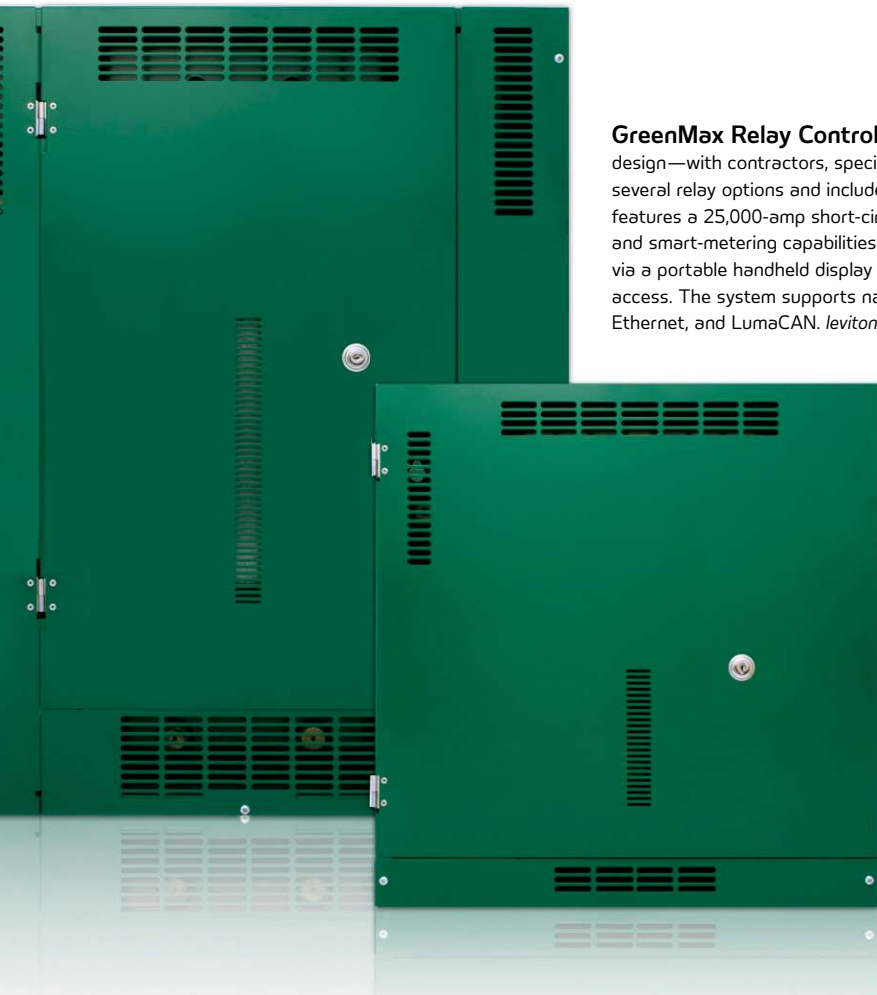
Occupancy Sensor Fluorescent Ceiling Lampholder, Leviton • A new addition to Leviton's line of fluorescent ceiling lampholders for closets and closed spaces, this lampholder features an occupancy sensor that turns lights on or off. No wall switch is required and a green LED indicator light blinks when motion is detected. Designed to provide maximum coverage, four knockout holes on the box along with a self-contained sensor provide a 284-degree field of view. The device automatically turns off after three minutes of inactivity. leviton.com • Circle 280

LED PAR Dimmables, Bulbrite • This third generation of dimmable LED PAR lamps has an integrated circuit-dimming technology for extra-smooth dimming down to 5 percent light output without any flickering or noise. The lamps have a color-rendering index of 80-plus and a correlated color temperature of 3000K warm-white. For use with 120V electrical systems, the PAR30 uses 9W and the PAR38 uses 11W. Beam spreads are available in 25 and 40 degrees and the lamps meet Energy Star requirements. bulbrite.com • Circle 281



Hybrid Halogen-CFL, GE • This new lamp offering from GE marries the shape of an incandescent with the instant brightness of a halogen and the energy efficiency and longer-rated life of a compact fluorescent (CFL). The halogen capsule inside the lamp turns on instantly and then shuts off once the CFL reaches full brightness. GE's science and research team has engineered the lamp to operate with just 1 milligram of mercury, and 15W and 20W hybrid lamps will be the first of this series introduced. ge.com • Circle 282





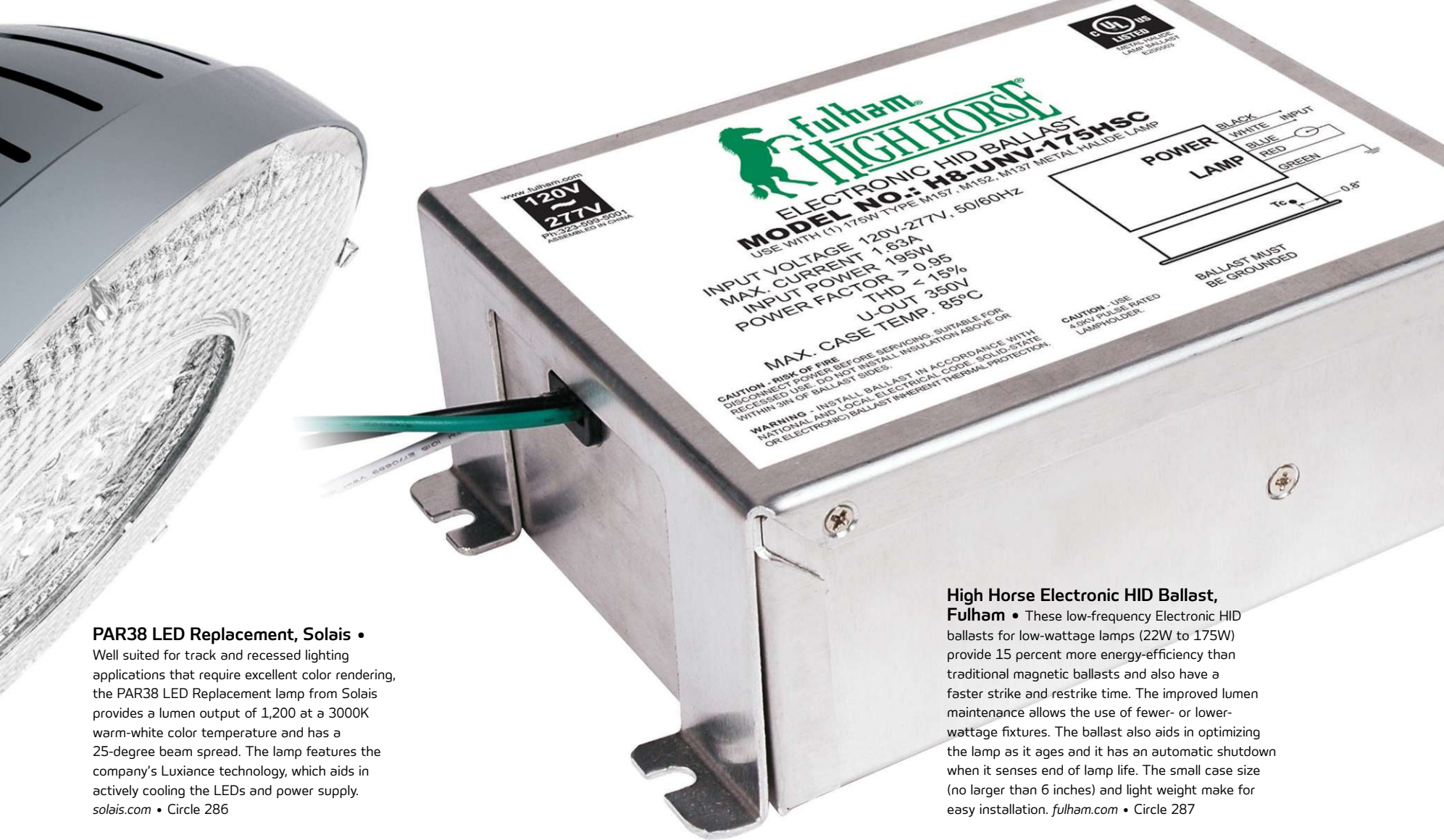
GreenMax Relay Control System, Leviton • This modular design—with contractors, specifiers, and end users in mind—offers several relay options and includes integrated dimming. The system features a 25,000-amp short-circuit-current rating, daylight harvesting, and smart-metering capabilities. Programming and monitoring is done via a portable handheld display unit, which enables onsite or remote access. The system supports native network protocols of BACnet/IP, Ethernet, and LumaCAN. leviton.com • Circle 283



Dimmable LED Lamps, Toshiba • Toshiba's offering of dimmable LED lamps includes MR16, PAR20, PAR30 (short and long neck), and a 7.8W A19 (incandescent) replacement lamp. The MR16s are available with GU5.3 and GU10 bases. The GU5.3 comes with a spot, narrow-flood and flood-beam spread and the GU10 is available with a narrow-flood-beam spread. The PAR20 is available with a spot and narrow-flood-beam spread and the PAR30s and PAR38 have spot, narrow-flood, and flood distributions. Color rendering is 80-plus for all lamps. toshiba.com/lighting • Circle 284



LCD Touch Screen, Panasonic Electrical Works Corp. of America • Panasonic has added the new LCD Touch Screen switch to its line of two-way lighting-control components. The new WRT9261 provides control for 24 individual, zones, or scenes and up to six dimming switches or any combination. Three selectable screen tabs provide easy navigation. It has a timed backlight and also fits a two-gang electrical box. pewa.panasonic.com/lighting • Circle 285



PAR38 LED Replacement, Solais •

Well suited for track and recessed lighting applications that require excellent color rendering, the PAR38 LED Replacement lamp from Solais provides a lumen output of 1,200 at a 3000K warm-white color temperature and has a 25-degree beam spread. The lamp features the company's Luxiance technology, which aids in actively cooling the LEDs and power supply. solais.com • Circle 286

High Horse Electronic HID Ballast, Fulham •

These low-frequency Electronic HID ballasts for low-wattage lamps (22W to 175W) provide 15 percent more energy-efficiency than traditional magnetic ballasts and also have a faster strike and restrike time. The improved lumen maintenance allows the use of fewer- or lower-wattage fixtures. The ballast also aids in optimizing the lamp as it ages and it has an automatic shutdown when it senses end of lamp life. The small case size (no larger than 6 inches) and light weight make for easy installation. fulham.com • Circle 287

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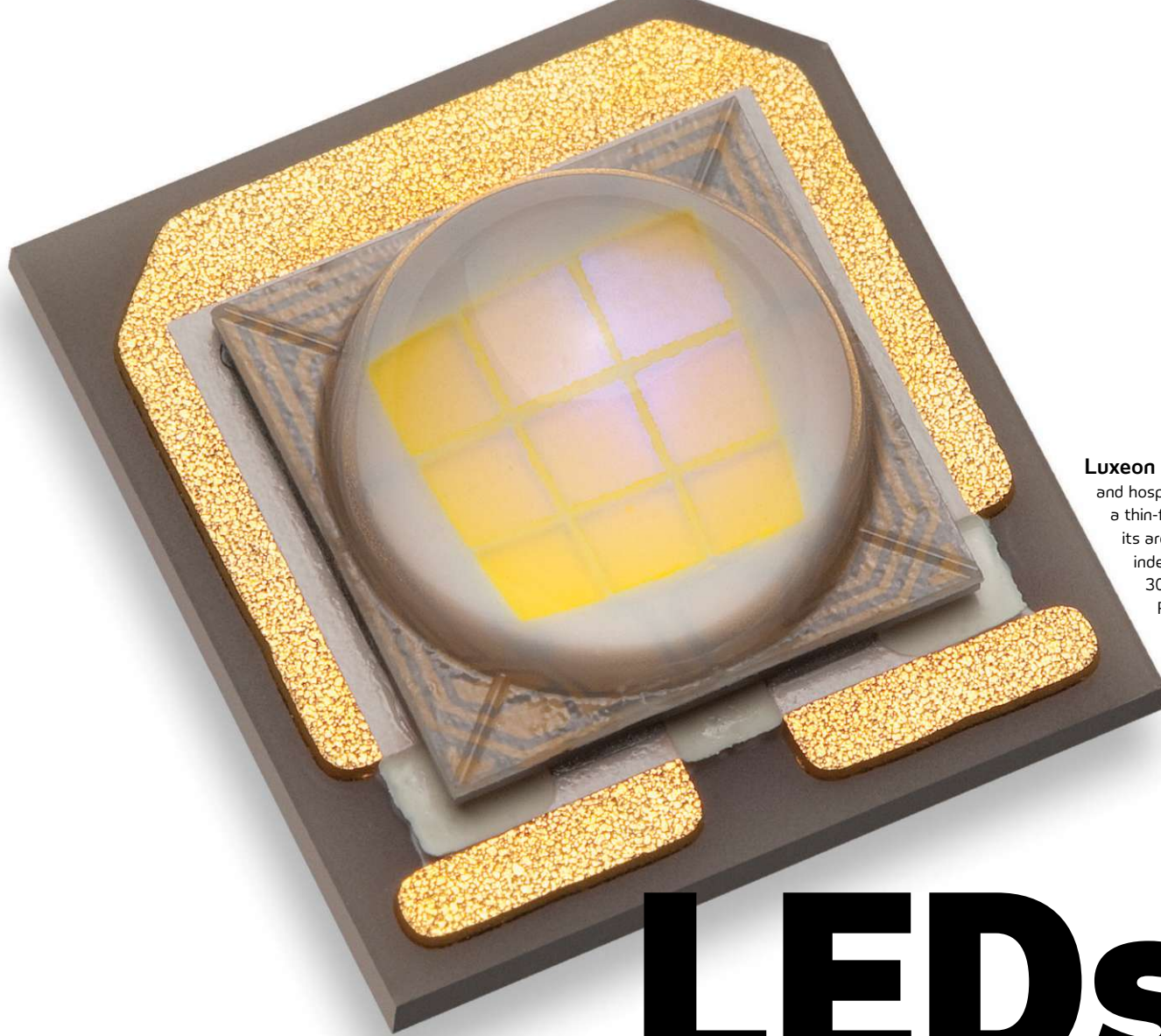


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Luxeon S, Philips Lumileds • Designed with the retail and hospitality sectors in mind, the Luxeon S LED incorporates a thin-film flip chip, a Lumiramic phosphor, and nine LEDs in its architecture. Hot-tested at 85 C with a color rendering index of 80-plus and a correlated color temperature of 3000K, the Luxeon S delivers 1300 lumens and meets Philips' "Freedom from Binning," which according to the company means that there are no color bin selections to be made. philipslumileds.com • Circle 288

LEDs



Architectural Linear Module, Cooper Lighting •

The Architectural Linear Module Version 1.0 (ALM 1.0) is proprietary technology designed specifically with the company's linear lighting offerings in mind. The technology features a dense array of low-powered (0.25W) LEDs, so the light source remains cool, eliminating the need for cumbersome heat sinks. The technology provides a color rendering index of 85 at three color temperatures (3000K, 3500K, and 4000K), delivers 90 lumens per watt, and is dimmable from 15 to 100 percent. cooperlighting.com • Circle 289



LED Puck Light, Nora Lighting • Designed for lighting applications where space is an issue, these slim LED puck lights measure 2 3/4 inches in diameter and 1/2-inch thick. The 3W fixtures produce 70 lumens per watt and are available in two color temperatures: 3000K and 4200K. Working on a 12V system, the fixtures are dimmable, as is the power supply. Available in single units or a three-puck kit, 10 luminaires can also be daisy-chained together on a single run. ETL- and cETL-listed for dry locations, the fixture is also Title 24-compliant. norlighting.com • Circle 291



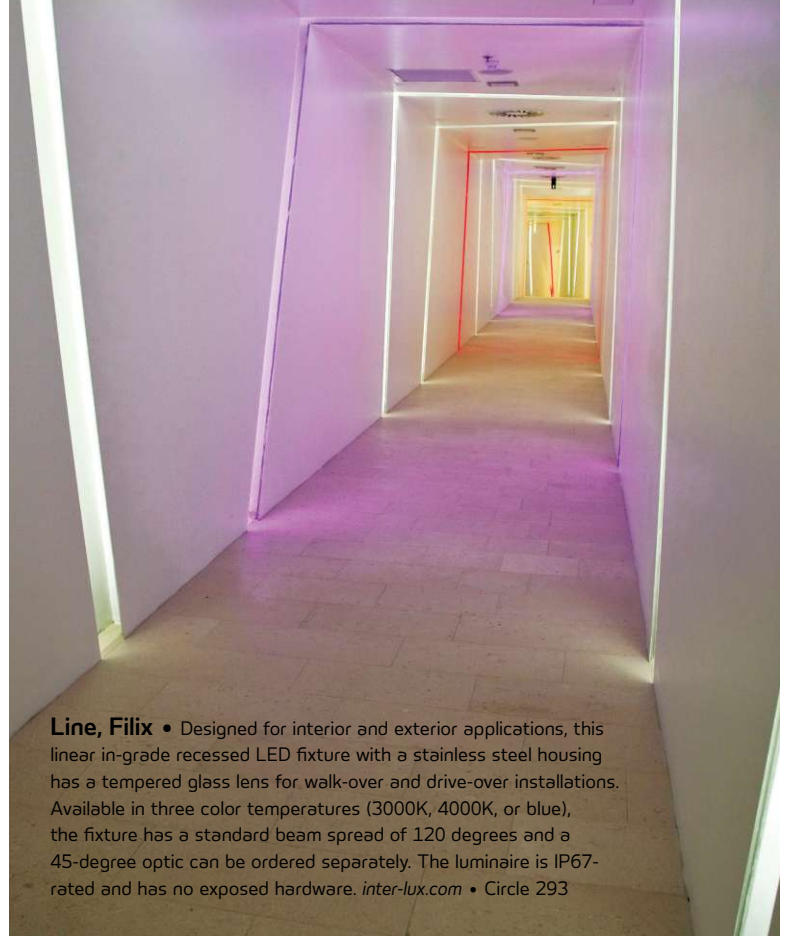
Galileo LEDme Track Luminaires, WAC Lighting •

Designed with the dome shape of observatories in mind, this luminaire incorporates Cree's multichip LED technology. The 12W fixture, offered in 3000K warm-white and 4000K cool-white, is dimmable with an electronic low-voltage dimmer, and can be ordered as a spot or flood luminaire for use with WAC's 120V tracklighting systems. The fixture head can rotate 360 degrees and additional interchangeable optics are available. The luminaire measures 7 inches tall by 3 9/16 inches in diameter with a finish selection of black, brushed nickel, or white. waclighting.com • Circle 290



Array MR16-HO, Nexxus Lighting •

The Array MR16-HO is a new LED direct-replacement lamp for halogen MR16 downlight and tracklight applications that uses the company's patent-pending thermal-management system called Selective Heat Sink. This enables the lamp to operate at 12V AC and only use 6.5W to deliver more than 325 lumens. According to the manufacturer, the lamp has a life of 50,000 hours and has a color-rendering index of at least 83 at both 2700K and 3000K. The lamp is available in three beam spreads: an 18-degree spot, a 22-degree narrow-flood, and a 100-degree flood. It also can be used in either open or enclosed luminaires. LM-79 and LM-80 test reports are available online. nexxuslighting.com • Circle 292

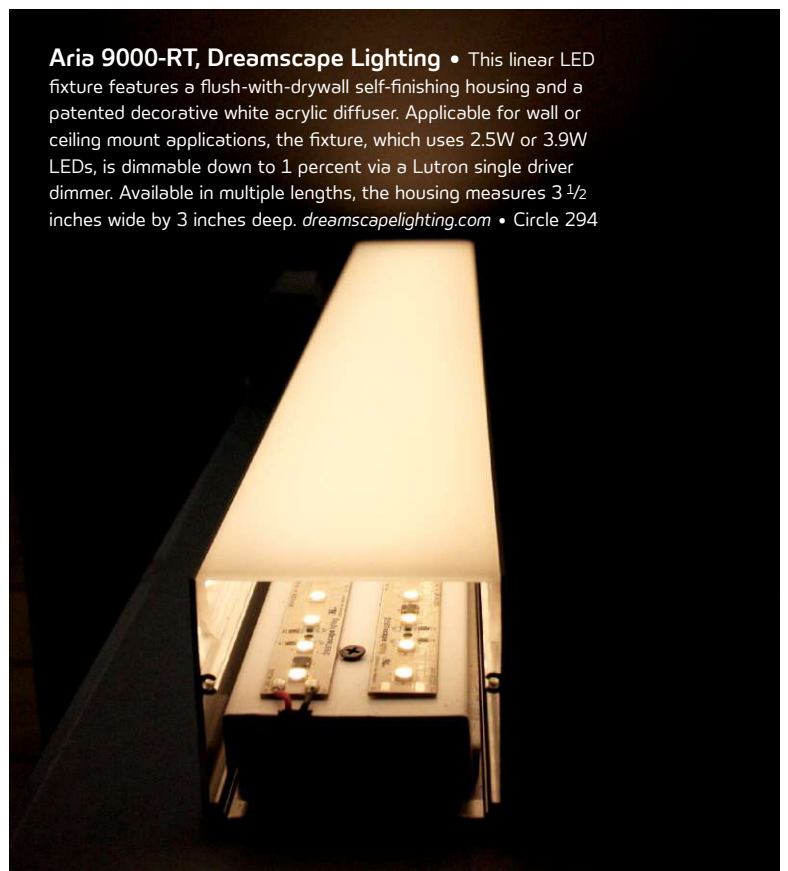


Line, Filix • Designed for interior and exterior applications, this linear in-grade recessed LED fixture with a stainless steel housing has a tempered glass lens for walk-over and drive-over installations. Available in three color temperatures (3000K, 4000K, or blue), the fixture has a standard beam spread of 120 degrees and a 45-degree optic can be ordered separately. The luminaire is IP67-rated and has no exposed hardware. inter-lux.com • Circle 293



Switch-Mode LED Drivers, Thomas Research Products •

This 96W Switch-Mode LED driver converts a wide range of AC voltage inputs to DC outputs. It is designed to deliver constant DC current without power fluctuations for any 96W LED fixture, fixed or dimmable. It meets UL and cUL Class 2 requirements. The prewired, compact rectangular box design fits most LED fixture enclosures. The active power factor correction is between 88 percent and 92 percent of maximum electrical load. The unit provides output over-voltage, over-current, and short-circuit protection, with automatic recovery and over-temperature protection. thomasresearchproducts.com • Circle 295



Aria 9000-RT, Dreamscape Lighting • This linear LED fixture features a flush-with-drywall self-finishing housing and a patented decorative white acrylic diffuser. Applicable for wall or ceiling mount applications, the fixture, which uses 2.5W or 3.9W LEDs, is dimmable down to 1 percent via a Lutron single driver dimmer. Available in multiple lengths, the housing measures 3 1/2 inches wide by 3 inches deep. dreamscapelighting.com • Circle 294

LumenPower Plus Narrow Beam, LightWild •

This narrow-beam LED fixture is available with 18 cool-white, warm-white, or RGB LEDs. The housing measures 47 3/8 inches long by 4 inches wide by 3 3/16 inches tall and comes in two models—one for dry locations with a clear anodized aluminum finish and one for wet locations with a black anodized finish. The fixture features a colorless soft-focused glass lens and a beam angle of 30 degrees. lightwild.com • Circle 296





Ascent LED Light Module, American Fluorescent • This LED light module is designed to fit into 6-inch IC and non-IC new construction, remodel, and retrofit recessed downlights. The LED driver is mounted to the top of the die-cast heat sink. The entire unit measures 5.04 inches tall by 7.28 inches wide and has a white trim. The Ascent LED light module delivers 600 lumens at 3000K with a color-rendering index of 84. It meets Energy Star SSL standards and is cUL-listed for damp locations. americanfluorescent.com • Circle 298

Bi-Pin Light Plugz, American Illumination •

This light-engine series is designed for the Cree XP family of LEDs. Available in four models—LP1, LP3, LP5, and LP7—the light engines incorporate intelligent thermal-sensing technology, advanced custom optics from 10 to 80 degrees, and an improved heat tolerance with a selection of interchangeable heat sinks. Light Plugs are available with different standard connectors and lead-wire types and can be used for indoor and outdoor installations. american-illumination.com • Circle 297



LED Upgrade Kits, Kim Lighting • These LED upgrade kits are designed for the company's fixtures that use high-intensity discharge lamps—the Archtype, Structural, Wall Director, and WARP9 product lines. The kits keep the original luminaire construction and product-listing attributes while reducing energy consumption by half. Easily installed, the kits create a dual thermal-management system—conduction and convection—which helps absorb and dissipate heat for longer LED life and better lumen performance. kimlighting.com • Circle 299



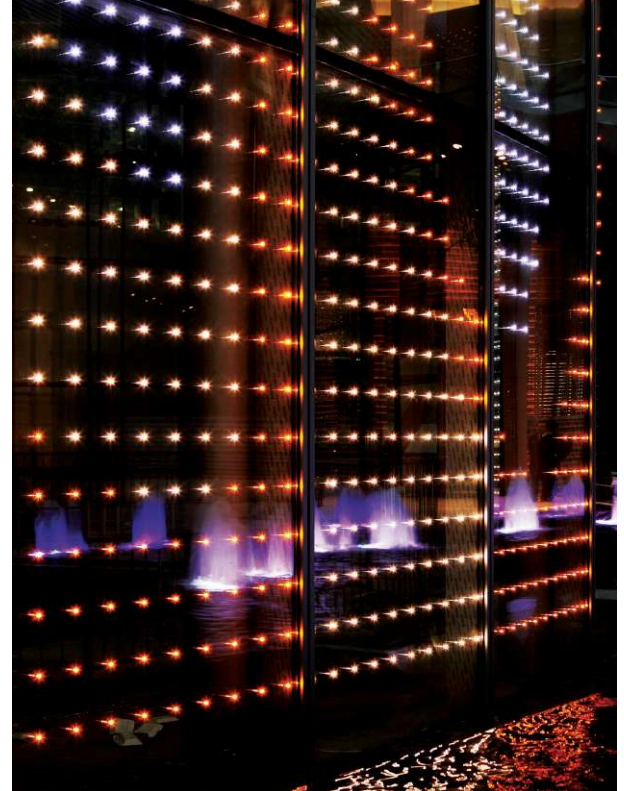
DimWheel Series, EldoLED • This is a one-button DMX controller that sets dim level, color, and show for LED drivers and DMX compatible luminaires. It works with most dimmer face plates and meets U.S., U.K., and European Union wall-box size requirements. The one-channel mode dims the light and turns it off and on for general white LED lighting applications. A two-channel mode allows for mixing of warm- and cool-white light. For static and dynamic full-color applications (RGB and RGB/A) there are three- and four-channel modes. The U.S. model measures 2 inches wide by 4.12 inches tall. eldoled.com • Circle 300

Covelum Designer Series LED Color, Tivoli • This modular, bendable low-voltage cove and linear lighting system can be surface, recess, or semirecess mounted for direct or indirect ambient or accent indoor lighting. The integral two-wire design allows the fixture to form 90-degree angles as well as curved radii of all dimensions. Each individual module measures 0.75 inches wide by 1.15 inches high and uses 0.75W. Module chains are available in a minimum of 12-inch length, and custom lengths can also be requested. LEDs can be specified in four standard colors or 45 Colormix Pantone or CIE X/Y non-white coordinating colors. Lens channels are available in clear, frosted, or opaque. tivoliighting.com • Circle 301



Glassiled, Traxon Technologies •

Suspended in glass without any visible connection, individual LEDs take on an ephemeral quality in these LED illuminated glass panels for partitions, balustrades, wall cladding, mirrors, shelves, and façades. Powered with a high-performance, invisible, conductive coating, the LEDs are available in 6500K cold-white, 3500K warm-white, and monochrome red, green, blue, and RGB. They also have power supplies and controls for static, dimmable, and color-changing applications. Available in three versions—Standard, Select, and Exclusive—offering different levels of customization, Glassiled is also offered in both monolithic and double-glazed units. traxontechnologies.com • Circle 302



High-Bay, Lusio • This high-bay fixture is available in two models, a 1x4 and 2x2. The 1x4 measures 45 3/8 inches long by 8 1/8 inches wide. The 2x2 model measures 22 9/16 inches square. Both are 6 1/4 inches tall, can be cable- or surface-mounted, and are available in standard or high output at 4000K neutral-white or 5700K cool-white with a color-rendering index of 70. The LED light modules are field-replaceable. The housing is made of 80 percent recycled aluminum and is finished in a white powder-coat. lusiolighting.com • Circle 303

SS2P Soft Strip, Edge Lighting • This small, flexible lighting system is designed for areas where space is a premium. The Soft Strip is a 1/2 inch wide bendable copper strip with a thin layer of an optically clear protective coating. It has a light output of 2.3W per foot, a color-rendering index of 80-plus for warm-white LEDs, and a flexible aluminum heat sink. Soft Strip can be secured with the self-adhering industrial tape on the back of the strip. It is available in 2-inch lengths up to 40 feet and has easy plug-in connectors at each end. edgelighting.com • Circle 304



Light Channel Millwork LED, Edge Lighting •

Light Channel Millwork is a dimmable LED lighting system that creates uniform illumination for under- or above-cabinet, step, library, and retail installations. Available in 2-inch increments up to 96 inches, the system can be continuously linked end-to-end with plug-in or flexible connectors. With a light output of 2.3W per foot, each 12-inch length houses 36 warm-white LEDs with a color-rendering index of 80 plus. edgelighting.com • Circle 305

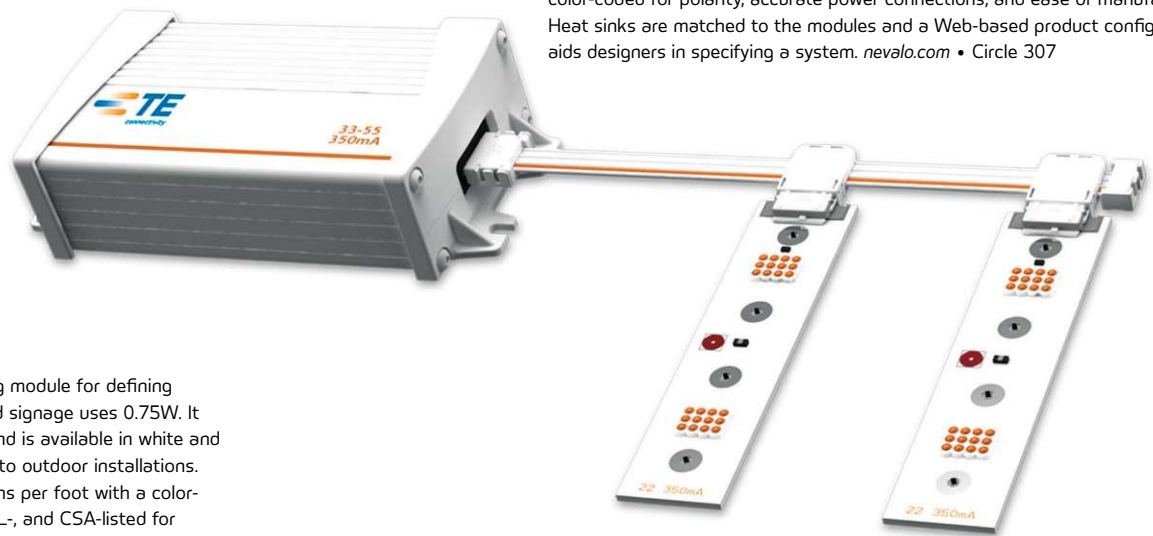




Series 6000, Tempo

Industries • This linear, modular LED fixture provides a minimum of 450 lumens per foot. It can be greater depending on the emitter configuration. Color temperature ranges from 2200K CandleLED up to 4500K. The fixture can be mounted either horizontally or vertically and features a unique articulated linking mechanism and mechanical pivot that provides shadowless light on illuminated surfaces. Each 12-inch module contains its own circuit board and finned heat sink made of a special zinc alloy to optimize thermal management. Lengths are available up to 6 feet and bends of 90 degree as well as arcs and ellipses can be formed. tempoindustries.com • Circle 306

Nevalo, TE Connectivity • This solid-state lighting system from TE Connectivity (formerly Tyco Electronics Corp.) features more than 60 LED light module options in lumen packages ranging from 300 to 3,400 lumens. The system also has optics with either internal reflection or reflectors, drivers with constant-current output, and dimming-control capabilities and temperature monitoring. Nevalo also has a ribbon-based, four-wire system that is physically keyed and color-coded for polarity, accurate power connections, and ease of manufacturing. Heat sinks are matched to the modules and a Web-based product configurator aids designers in specifying a system. nevalo.com • Circle 307



Covelum LED Outdoor, Tivoli • This indirect lighting module for defining building perimeters, entryways, pathways, parking areas, and signage uses 0.75W. It functions in both low and high ambient lighting conditions and is available in white and warm-white light outputs. The aluminum housings stand up to outdoor installations. At 2 1/2 inches on center, the fixture provides up to 90 lumens per foot with a color-rendering index of up to 78 per module. UL-, cUL-, ETL, cETL-, and CSA-listed for outdoor use above 3 feet. tivollighting.com • Circle 308



eDriver LED Power Supplies, ERG Lighting • The eDriver family of LED power supplies, intended for use in cove, architectural, refrigeration, parking, street, commercial, and bay lighting, is available in both constant voltage and constant-current drivers. The driver modules are 90 percent efficient and fully isolated with universal input (120V, 220V, and 277V) as well as a power-factor correction of greater than 90 percent and zero-to-10V dimming options. According to the manufacturer, this 100W LED power supply is one of the slimmest on the market—up to 30 percent slimmer than other drivers in similar power ranges. erglighting.com • Circle 309



Lumendome, Lumenpulse • These individual LED nodes are encased in a low-copper-content machined-aluminum housing and measure 5 1/8 inches wide by 7 1/4 inches tall. They have a light output of 2.5W and work with zero-to-10V, DMX, or DALI dimming options. A non-dimming version is also available. Each node can be connected by power cables to form a string for large-scale pixel-style applications. Available in three color temperatures (2700K, 3000K, and 4000K) and three colors (red, green, and blue), the housing is available in four finishes: silver-, black-, white-sandtext, and custom. lumenpulse.com • Circle 310



HF2 Power Stick, Osram Sylvania •

This high brightness, dimmable light engine module offers an alternative to fluorescent lamps and can be specified for general, cove, and tasklighting applications. It is available in two lengths: 18 1/2 inches and 5 1/2 inches. The longer option is outfitted with 42 LEDs and provides 1750 lumens, while the shorter length incorporates 14 LEDs and has an output of 580 lumens. Both lengths are available in 9W and 27W at both 3500K and 4000K. osramsylvania.com • Circle 312

Lumenfacade, Lumenpulse •

This linear cove light is available in white and static color LEDs as well as RGB. It measures 2 inches wide and is available in four lengths (12, 24, 36, and 48 inches). The low-copper-content extruded aluminum housing is available in a polyester powdercoated finish, has aluminum endcaps, and stainless steel hardware. With a light output of 8W per foot (and 15W per foot for high-output LEDs), the fixture is available in beam spreads of 10, 30, and 60 degrees; in three color temperatures (2700K, 3000K, and 4000K); and three colors (red, green, and blue). The housing is available in four finishes: silver-, black-, white-sandtext, and custom. lumenpulse.com • Circle 311



Wall Washer Shield, Traxon Technologies •

This IP66 (outdoor) rated, AC line input luminaire is outfitted with high-brightness 6500K cold-white LEDs that provide a rich wall-washing effect. Applicable for both interior and exterior applications, the fixture has a clear tempered glass lens; an aluminum die-cast housing; and multiple beam spreads, including 10, 20, 30, and 40 degrees, as well as open beam. Available in two lengths, 8.74 inches and 14 inches, both fixtures measure 10 inches high by 5 inches deep. traxontechnologies.com • Circle 313

Solodrive AC Series, EldoLED • This integrated AC constant-current, single-control channel driver, is designed for high-power, general white LED lighting applications. It is available in a DALI or a zero-to-10V-compatible version. It also offers a 20-bit resolution and gamma-corrected dimming curve. It is suitable for all LEDs and comes in three sizes: 15.27 by 1.65 by 1.18 inches, 14.57 by 1.61 by 1.18 inches, and 9.06 by 3.15 by 1.18 inches. Power output is 100W. eldoled.com • Circle 314



OUTDOOR



20/20 LED Luminaire, Sol •

The 20/20 LED luminaire is appropriate for outdoor applications such as parking lots, perimeter security, roadways, paths, and walkways where tight light control is needed. The fixture head measures approximately 37.3 inches long by 21 inches wide, and has a maximum thickness of 5.01 inches. It is available in 35W, 40W, 48W, 50W, or custom wattages depending on the configuration, with a color temperature of 5000K, an IP65 rating for the LED enclosure, and a luminous efficacy of 72.3 lumens per watt. Type II, III, and IV optics are available. Finish colors are: bronze, black, green, white, gray, or custom. solarlighting.com • Circle 315



Exterior 400, Martin Professional • The Exterior 400 Range can cover long or short throws, and dynamic or static color. It is best suited for uniform color washes over great distances and provides extremely bright light—5300 lumens—at narrow beam angles. A broad range of color is achievable via red, green, blue, and white LEDs. The 410 option is meant for when no color separation is needed. Color mixing occurs at the fixture. The 410 also provides extremely bright light (5600 lumens); the 420 model supplies the full range of white light, from warm to cool; and the 430 is the choice for when a single color is needed. All models are IP65-rated and have a color calibration to ensure uniformity. martin.com • Circle 317



Discera 4 LED, Selux • Discera 4 LED, the pedestrian-scaled street and area lighting series from Selux, offers a low-glare, low-backlight, 86W using 30 high-flux LEDs. The fixture has a 17⁵/₆-inch-long by 15³/₄-inch-diameter die-cast copper aluminum alloy housing with a polyester powdercoated finish, a sealed optic chamber, and Type III distribution. The series has two color temperature options of 3500K or 5000K, six mounting arm options, and finish choices of white, black, bronze, silver, or custom. selux.com • Circle 316



Decorative Outdoor Luminaires, Illuminati Group

• These decorative outdoor luminaires come in a variety of shapes (Tower, Egg, Cube, Flat Ball, Ball, and Vessel, shown). Splashproof or waterproof, depending on the model, a cordless and rechargeable lamp module allows six to eight hours of illumination. With the LED sources, the fixtures can be set to myriad colors. spacelight.com • Circle 318

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Underwater Stainless Steel, Troy Landscape Lighting • These underwater pond lights are available in two models—UW34 with a 2.5W LED, and UW51 with an MR16 lamp. Cast in stainless steel and prewired with 25 feet of 18 AWG cord, which includes gel connectors, the fixtures can be submerged up to 3 feet deep. The UW34 has a clear tempered glass lens, and the UW51 has a clear glass lens with a silicone gasket. A separate low-voltage power supply must be ordered separately. troylandscapelighting.com • Circle 319

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Solid-State Arcade Series, Tekā Illumination • The Arcade Series of wall-mounted sconces is available in three styles: Arcade Louver, Full Shield, and Half Shield. The fixtures are available in three sizes—11 inches, 14 inches, and 20 inches—with five diffuser options, and are UL- and ETL-listed, RoHs-compliant, and suitable for wet locations. The series also offers a 12-inch-round sundial surface-mount wall sconce. Equipped with Tekā's AC-LED system, each sconce operates without a driver and is available in 3000K or 4100K at 4W or 8W, depending on the model. tekaillumination.com • Circle 320



LED Parking Garage Luminaire, Philips Sportlite

• Sportlite's LED Parking Garage Luminaire features the GR-52 model with optics to maximize output and a high lumen-per-watt ratio of 87. Available in two wattages, 60W and 63W at full power, with a color rendering index of 74, this model maintains more than 70 percent of its lumens for up to 82,000 hours. sportlite.com • Circle 321



Promenade and Flex, Architectural Area Lighting • AAL has expanded its LED Designer SSL Series with the addition of the Promenade (third from left) and Flex (first at left) family of luminaires. The traditional style Promenade fixture heads are available in three styles (two pole-top variations and a suspended armature), and the contemporary Flex fixtures are available with single-, double-, triple-, or quad-mounting configurations. The Designer Series has also added higher-lumen, large-scale fixtures to the Providence and Universe Collections. All fixtures in the Designer SSL Series have been upgraded with AAL's LifeShield protection system, which preserves the diode life in extreme temperature conditions, and are available with zero-to-10V dimmable drivers, standard onboard surge monitors, and MicroEmitter LED technology, which provides uniform, low-glare illumination. aal.net • Circle 323

WARP9 Induction, Kim Lighting

• The WARP9's new induction option reduces energy use and maintenance costs while maintaining the fixture's full cut-off luminaire classification, and has up to four times the lamp life compared to traditional high-intensity discharge sources, according to the manufacturer. Available in 100W or 150W, the system has a 100,000-hour-rated induction system life, and has a color-rendering index of 80-plus with no color temperature shifts. WARP9 also has a 20 percent minimal lumen depreciation and an instant on/restrike of less than 0.1 seconds. kimlighting.com • Circle 322



City Elements, HessAmerica • The City Elements modular light column offers a custom lighting solution for outdoor site, area, and street applications. Fixtures are available in 7-, 8-, or 9-inch diameters, with heights varying from low-level path bollards to 30-foot-tall pole luminaires. City Elements features a cast-aluminum housing, stainless steel hardware, and clear acrylic or UV-resistant polycarbonate lenses depending on the model. All modules are fully rotatable and can be adjusted internally for highlighting and aiming. The manufacturer offers both a ceramic metal halide source with electronic ballasts and LEDs in white or static colors. Special 9-inch-diameter models accept security cameras, come with convenience outlets and in-use covers, and offer combinations of up, down, and lateral light distribution. The finely textured matte finish comes in either silver gray metallic, dark gray, or graphite gray, with custom colors available upon request. hessamerica.com • Circle 324

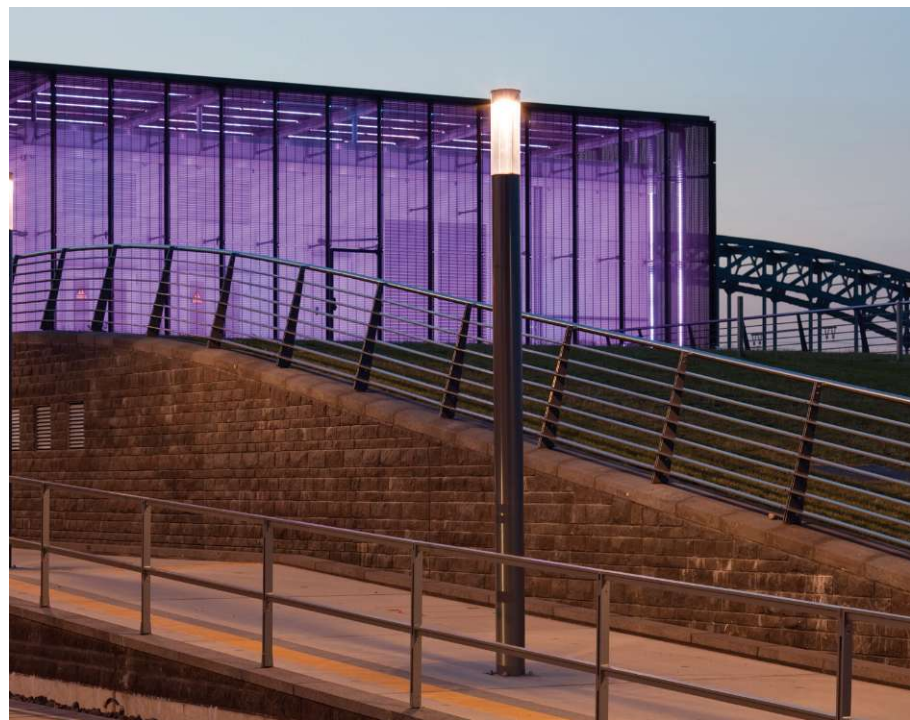


Lightvault, Kim Lighting • Kim's Lightvault LED LTV series, available in 3500K and 5100K, has evolved to include multiple designs to fit a variety of exterior applications. The in-grade upright LTV71 series offers three distributions: spot, narrow flood, and wallwash. Where illumination is needed on low walls or signs, the LTV72 allows light to be focused at a lower distribution angle. The LTV73, which has both 180- and 360-degree light distributions, is ideal for pathways and perimeter lighting. All models are cool to the touch and feature a sealed optical chamber and are IP68-rated. kimlighting.com • Circle 325



Ravenna, HessAmerica • HessAmerica's new specification grade in-ground luminaire, Ravenna, is designed for the highlighting and path marking of outdoor architectural features and landscape settings. Ravenna features an anti-corrosional aluminum housing, a contemporary design, concealed hardware, and the option of either LED or ceramic metal halide light sources. White LED sources are available in warm-, neutral-, or cool-white color temperatures with a color rendering index of 80; symmetric spot, medium and flood distribution for accenting; and wallwashing as well as an asymmetric distribution pattern. The ceramic metal halide is available in 70W, 39W, and 20W single-ended sources, with regressed optics and an internal infrared lens to minimize the external lens temperature. hessamerica.com • Circle 326

Exelia, Selux • The Exelia exterior light column is made from cast marine-grade aluminum, and can be used with either 39W, 70W, or 150W T6 (G12-base) ceramic metal halide lamps or a 60W Philips' CosmoPolis lamp. The column heights are available in 10-, 12-, 14-, or 16-foot lengths. The fixture has three color temperature options—3000K, 4200K, and 2800K (for CosmoPolis lamp only)—and a 99.8 percent pure aluminum reflector system with Type II or Type V Dark Sky-friendly full-cutoff distributions. The luminaire also has a high-efficiency, pulse-start, core and coil ballast that is factory wired to the socket. The luminaire is available in black, white, bronze, silver, or custom color finishes. selux.com • Circle 327



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Mac LED Bollard, Structura • This decorative glulam, solid-wood bollard is equipped with a high-power, 15W 3500K Halogen White LED light source, and is suitable for low-level outdoor lighting applications. The bollard comes in two heights, 32 inches or 42 inches, and measures 10 inches wide by 5 inches deep. The Mac LED bollard meets ASTM D-2559 specifications for extreme exposed weather conditions, and is both waterproof and rated for wet and dry exposure. The hot-dipped galvanized anchor bolts are concealed in the base of the bollard, and all mounting hardware is stainless steel. The metal finish comes in white, black, dark bronze, matte aluminum, and light gray. Custom colors available upon request. structura.com • Circle 328



Design Pro LED Accent Lights, Kichler Lighting • Designed for all types of landscape lighting, from retaining walls, columns, decks, and steps to benches, boat docks, and planters, Kichler's Design Pro LED accent lights can be installed in almost any surface, including wood. Their 2/3-inch profile and low heat output make for versatile application options, with easy hard-mounting with two screws, and two types of accessory brackets for flat ledges and vertical surfaces. All fixtures use 2950K white light. The Design Pro LED series comes in three finishes (aluminum, copper, and brass), three sizes (6.9 inches, 12.9 inches, and 18.9 inches), and three configurations (three, six, or nine individual LEDs). kichler.com • Circle 329



DLED-45 Aria LED Post, Dreamscape Lighting Mfg. • This square bollard can be used for residential and hospitality interiors, as well as exterior pathway lighting installations. It measures 3 1/2 inches wide by 3 15/16 inches deep and is available in four heights: 15-, 27-, 39-, or 48-inches. It incorporates a 5W-per-foot LED, and is available in 2700K, 3000K, and 6500K color temperatures. The housing, available in satin aluminum clear coat, bronze anodized, and black powdercoated finish options, can accommodate a single (front) lens or a double (front and back) lens. dreamscapelighting.com • Circle 330



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Wall/Step/Deck/Paver R-P155, Troy Landscape Lighting • This 2W 3000K LED steplight can be used for wall, step, deck, or paver applications. Measuring 5½ inches wide by 1 inch deep by 1¼ inches tall, the fixture has an onboard driver. A 10W Xenon festoon lamp model is also available. Stocked in four quick-ship finishes—natural antique bronze, unfinished stainless steel, unfinished brass, and unfinished copper, the luminaire has a frosted glass lens and a 25-foot AWG cable. troylandscapelighting.com • Circle 331



LED Square spotlights, SGI Lighting • This square LED spotlight is available in either a 6W or a 9W version and has three beam spread distributions—25, 45, or 60 degrees. The housing is available in an aluminum alloy in black or gray and measures 4 inches square. (The 6W version measures 3 inches by 4 inches.) IP65 wet-location rated, the luminaire can be outfitted with cool or warm-white, amber, red, blue, or green LEDs. sgilighting.com • Circle 332

Invue Vision Small LED Flood, Cooper Lighting Invue • The Invue Vision Flood luminaire is now available with LED technology and can be configured with either 20 or 40 LEDs depending on the driver current (350mA, 525mA, or 700mA) and the beam-spread distribution (tight spot, tight spot baffle, wide symmetric rectangular, medium symmetric rectangular, vertical asymmetric rectangular, narrow symmetric round, or medium symmetric round). The fixture has four mounting options—stanchion, wall-arm, twin-arm, or surface-mount—is available in seven finishes, and measures 14 inches wide by 10 inches high by 7½ inches deep. cooperindustries.com • Circle 333



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Intellistreets, Everbrite Lighting •

Designed specifically for parking garages, the new PSL125 luminaire features patented "in-Direct View" technology, available in either a 50W or 93W downlight or a 107W downlight-uplight model. According to the manufacturer, the PSL125 uses less energy while providing a brighter light, and is available with dimming capabilities for reduced daytime energy usage. The modular LED light source, accessible from below, allows for easy maintenance, and comes with either an acrylic or optional high-impact resistant, solar-grade polycarbonate lens. everbritelighting.com • Circle 334



Pla, Visa Lighting • This outdoor wall sconce features optical flexibility for multiple lighting solutions. The fixture's luminous option is made possible via a clear acrylic diffuser with an inner shroud of flashed white opal glass. The luminaire can also function with independent, up, or down illumination in four optical distributions—pencil, narrow, medium, or wide. The fixture measures 16 inches tall by 7 inches in diameter and can accommodate metal halide or LED sources. The housing finish is a powdercoated paint or metal and there are several decorative band accents as well. The fixture is IP65-rated for dust and water resistance. visalighting.com • Circle 335



Structural LED, Kim Lighting • This luminaire combines LEDs and ergonomics to create a low-glare, low-maintenance solution. Constructed from over 90 percent post- and pre-consumed recyclable materials, it contains no lead. All electronics are RoHS-compliant, and are available in IES Types II, III, IV, and V, with one-way left and one-way right distributions for small and medium sizes. Its LED driver has a zero-to-10V dimmable interface, three standard color temperatures (3500K, 5100K, and 1700K), and an IP66-rated optical chamber. Four structural supports and six support arm designs allow for customization. kimlighting.com • Circle 336



Design Pro LED 2-in-1 Accent Light, Kichler Lighting • Kichler's new Design Pro LED 2-in-1 Accent Light is designed for both underwater and above-ground applications. Made with a noncorrosive stainless steel housing and filled with two types of premium encapsulates to ensure a watertight fixture, the Design Pro LED low-voltage landscape fixture is submersible for pool, fountain, or other underwater illumination. The Design Pro LED can also be used to light above-ground small-scale spaces, with available accessories to train the lights for both uplighting and downlighting. The luminaire has a color temperature of 3000K, an integrated driver, and provides 38.4 lumens per watt. kichler.com • Circle 337

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20/20 Series, Sol • The 20/20 Series by SOL offers LED luminaires, solar panels, and pole mountings for outdoor lighting application. The panel mount for the Polycrystalline photovoltaic solar panel module, available in single or double modules, has a grade A corrosion-resistant aluminum frame, and a 100 percent recyclable, 100Ah-rated sealed valve regulated lead-acid NRGLife battery that will provide a minimum of five nights of battery backup. The solar array comes in a wattage range of 80W to 250W, with a 20-foot-tall, 8-inch-diameter high-strength aluminum alloy pole. solarlighting.com • Circle 338



Gullwing LED 13, Philips Gardco • The Gullwing family of luminaires now has an LED model—the GL13. It contains an LED platform that is assembled to a modular heat sink. The LED version has dual circuiting so that each LED array can be switched separately. Along with zero-to-10V dimming capabilities, the luminaire is available in four IES cut-off types—II, III, IV, and V—all of which can be field-adjusted, with the exception of Type V, which has a unitized lens. The one-piece die-cast aluminum housing mounts directly to a pole or wall surface. sitelighting.com • Circle 339



KiarioLED, Eye Lighting • Eye Lighting's new KiarioLED is an architectural-grade LED luminaire for use in area lighting, campuses, walkways, and recreational spaces. KiarioLED's optical design delivers backlight, uplight, and glare control, while the color connecting optics improve uniformity and reduce color shift. The fixture is equipped with self-adjusting current controls, thermal-protection-control monitors, and printed circuit boards that transfer heat from the LED packages to the die-cast aluminum housing. The optical and electrical chambers have an IP66 rating, and the series offers a variety of color temperatures, distribution types, and illumination levels. eyelighting.com • Circle 340

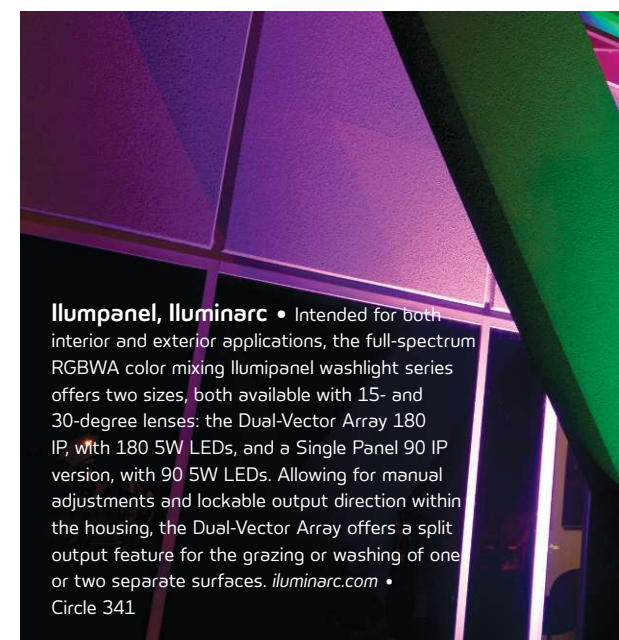


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Illumpanel, Illuminarc • Intended for both interior and exterior applications, the full-spectrum RGBWA color mixing Illumpanel washlight series offers two sizes, both available with 15- and 30-degree lenses: the Dual-Vector Array 180 IP, with 180 5W LEDs, and a Single Panel 90 IP version, with 90 5W LEDs. Allowing for manual adjustments and lockable output direction within the housing, the Dual-Vector Array offers a split output feature for the grazing or washing of one or two separate surfaces. illumarc.com • Circle 341

OUTDOOR



eW Burst Powercore, Philips Color Kinetics • A Best in Class 2010 Next Generation Luminaires Design Competition winner, the eW Burst Powercore luminaire is a high-output, IP66-exterior-rated LED fixture that features a die-cast aluminum housing, honeycomb louvers for limited light spread, and an optional glare shield to block additional light spills. The white light output is offered in warm 2700K or neutral 4000K, with optional solid color choices of red, green, blue, or amber. Fixtures are available with 14-, 23-, or 41-degree beam spreads, and asymmetrical 10-degree by 41-degree spread lenses. A native 8-degree beam angle is available for extended light projection. The landscape fixtures tilt a full 180 degrees, and the architectural fixtures rotate a full 360 degrees for precise aiming. The LED array and driver are integral and are not field-replaceable. colorkinetics.com • Circle 343



Tandem, Structura • The Tandem series is an outdoor lamp design that responds to both the site and surrounding architecture. Available in three different profiles—Ortho (straight), Evo (with a slight bend), or Tilt—the bottom side panels can be finished in either standard wood or painted aluminum, or custom finishes such as concrete, Roano zinc, or Corten weathering steel. Pole heights range from 12 to 25 feet, with the option of white, black, dark bronze, aluminum, light gray, or custom finishes. The series also offers a bolt-plate-mounting option and a mast-arm-mounting option, with fixture mounting heights of 12, 16, 20, and 24 feet. structura.com • Circle 342



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Marine-Grade LED Floodlights, Marine Lighting Systems •

Marine Lighting Systems new high-powered LED floodlights—available in 10W, 30W, 50W, and 80W models—are designed for marine and industrial outdoor use. Made with a copper-free aluminum housing and pressure-compensating cable glands that prevent exterior and interior fogging on the lens, according to the manufacturer, this fixture offers a 50,000-hour lamp-life. All of the luminaire's fasteners, rings, brackets, and nuts are made from marine-grade stainless steel, and it incorporates ceramic base and chip LED technology for an 80 percent to 90 percent power reduction. The fixture offers 50-, 80-, and 100-degree beam angles, is rated IP67-waterproof, and has a color temperature of 3900K. www.marinelightingsystems.com • Circle 344



Alura, Schröder Lighting • The Alura LED luminaire is a high-performance, low-energy solution to outdoor lighting needs. The fixture has a molded acrylic optical design, and uses 40 1W LEDs (Osram's Golden Dragon Plus LEDs). Each luminaire has a color temperature of 6000K with neutral and warm-white light options. The luminaire also uses Type 5 distribution, and the optical compartment has a IP66-rated tightness level. schreder.us • Circle 345

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26W LED Luminaires, Rab Lighting •

RAB Lighting's 26W LED family of luminaires includes a wallpack, area light, ceiling light, and pendant. All are suitable for commercial and residential exterior applications. The LPack 26 wallpack has a mounting height of 25 feet and, along with the cLED2x26 ceiling lamp and pLED2x26 pendants, is equivalent to a 175W metal halide. Two aLED26 area lights are equivalent to 100W metal halide. All fixtures have a die-cast aluminum housing available in bronze or white, a 50,000-hour-rated life, 6,000V surge protection, and are UL-listed for wet locations as both downlights and uplights. The 26W LED family also has a newly configured reflector, classified as IES full-cutoff, fully shielded, and IDA Dark-Sky approved. rabweb.com • Circle 346

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Skye, Bulbrite • This LED tasklight features a linear head design and control at the fixture's stem. Using only 6W of power, the equivalent of a 40W incandescent lamp, the fixture provides 5000K and a lumen output of 270. It measures 18.5 inches tall by 17.25 inches wide and, in addition to Skye's on/off control, it also has a three-step dimmer—low, medium, and high. bulbrite.com • Circle 347



Kelvin LED, Flos • Designed by Antonio Citterio with Toan Nguyen, the Kelvin LED adjustable tasklight provides a sleek design with advanced technology. The square polycarbonate fixture head houses 30 2700K LEDs, provides 270 lumens, measures 3.9 inches square, and offers 355-degree rotation. The on/off switch is a touch sensor on top of the fixture head. The armature is a pantograph arm that incorporates a stainless steel load-compensation spring and an injection-molded acetal resin sliding block for full 360-degree rotation. Available in three finishes—shiny back, shiny white, and anthracite—in a 90-degree position the luminaire measure 25.5 inches wide by 21.8 inches tall. Total power consumption is only 8W. flos.com • Circle 348

TASKLIGHTING



Equo LED, Konzept Technologies • A Best in Class 2010 Next Generation Luminaires Design Competition winner, the Equo desk lamp features a counterweight design for easy adjustability. The floating arm is simple to adjust and the tilting head stays at the desired angle when the arm is raised or lowered. The touch-sensitive control strip is on the fixture stem for easy access; the strip allows for dimming. It consumes 7.5W of power and can be equipped with an occupancy sensor. The driver is field-serviceable, but the LED module requires factory replacement. The luminaire is available in three finishes: black, silver, and orange. koncepttech.com • Circle 349



Horizon LED, Humanscale • The Horizon LED tasklight is the first utilization of the company's Thin Wave Technology in a task luminaire. The technology incorporates a series of high-intensity LEDs surrounded by multiple layers of polycarbonates and optical films. The result is an even plane of glare-free 3000K warm-white illumination. A built-in dimmer provides energy savings and seven adjustable levels of light. The fixture is made of 95 percent recycled aluminum content and consumes 11W of power. humanscale.com • Circle 350



Swytsch, Bulbrite • One of three new LED tasklights introduced by Bulbrite, Swytch's flat head folds into the luminaire's armature for a sleek design and minimal footprint—15 inches tall with a 7 1/4-inch-diameter base. The 42 LEDs provide 5000K bright white light at only 10W of power (the equivalent of a 75W incandescent), and it has three points of adjustability (flipping open 110 degrees, swivelling 45 degrees horizontally, and rotating 90 degrees at its base). Two color options are available—wine and black. bulbrite.com • Circle 351

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TASK

Top Four, Luxit • This miniature table light, which measures 2.56 inches wide by 4.61 inches tall by 3.27 inches deep, integrates LED technology with the light output equivalent to that of a 60W incandescent lamp. Playing off the form of a Lego, the luminaire features four 0.5W LEDs equipped with optical lenses to distribute the light. A companion to the Top Ten fixture (see Tracklighting), Top Four is made of a painted extruded aluminum structure and finished in a thermoplastic material. It is available in six colors: white, black, red, green, blue, and yellow. leucosusa.com • Circle 352



Rhombus, Mondoluz • The Rhombus luminaire utilizes Cree's XPG LEDs which are available at 3000K, and have a color-rendering index of 85 and a lumen output of 525. The fixture head will be available in four different designs (square is the current offering) and can be changed easily thanks to the fixture's quick-connect system that allows for 360-degree rotation. The luminaire's armature also provides fluid movement and positioning. In a 90-degree position, the luminaire measures 16.1 inches tall by 14.9 inches wide. The base measures 7 inches square, and the fixture head measures 5 inches square. mondoluz.com • Circle 353



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TRACKLIGHTING



Top Ten, Luxit • Designed by Alberto Basaglia and Natalia Rota Nodari, Top Ten recalls the shape of Lego and transforms it into a track luminaire. Measuring 7.4 inches tall by 2.96 inches in its closed position, Top Ten incorporates 10 3W LEDs equipped with optical lenses that distribute light to wall or ceiling surfaces. The cast-aluminum housing is available in either a white or black glossy finish. A spot and flood-beam distribution are available as well as two color temperatures: 2700K and 3200K. leucousa.com • Circle 354



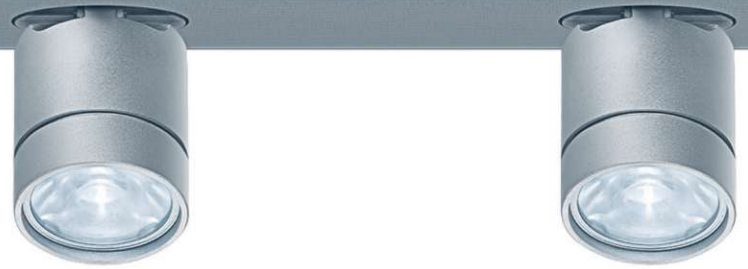
Zinnia, Journée Lighting • The Zinnia LED luminaire features a standard line-voltage H-track adaptor with an integrated toroidal transformer making it well-suited for both new construction and retrofit applications alike. The luminaire is built around the GE Infusion LED module, which can be replaced as solid-state lighting technology advances. Zinnia measures 4.9 inches from the track rail, and the housing, available in a black or white finish, is 4.3 inches long. The heat sink surface area exceeds 100 square inches to promote low LED junction temperatures. An onboard wattage adjustment function allows switching between 6W, 8W, and 10W. journeelighting.com • Circle 355



Ledra Chroma Z15, Bruck Lighting Systems • Chroma Z15 is a 1,000-lumen, 15W fully adjustable, dimmable spot luminaire designed for the company's Zonyx line-voltage track and mono-point canopy. A single-source LED module with cold remote-phosphor technology provides consistent color quality at 2700K, 3000K, and 4000K. The housing accommodates a 20-, 40-, or 60-degree beam-spread reflector, and the clear glass lens can accept up to two lens accessories. The luminaire drops 5 1/4 inches from the track rail and the luminaire head measures 5 1/8 inches long by 3 1/8 inches in diameter. brucklighting.com • Circle 356



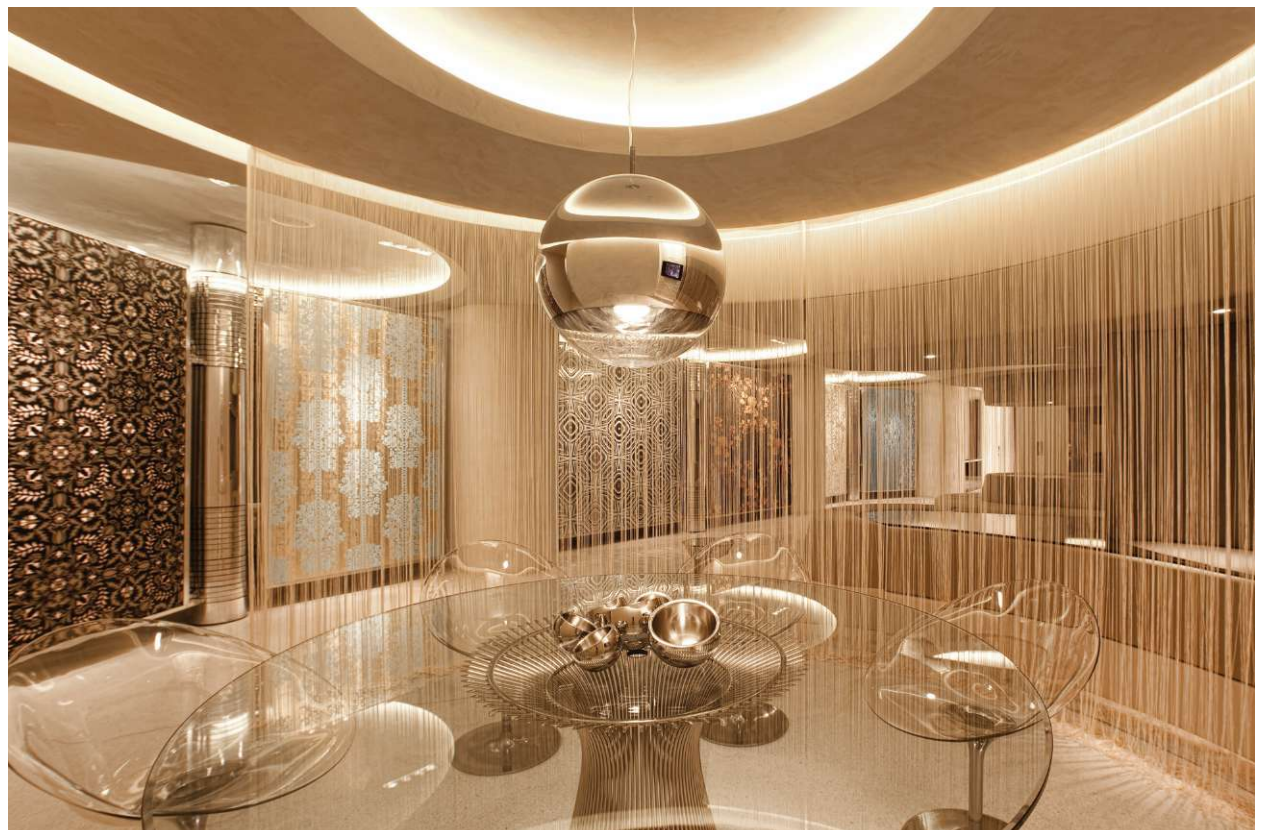
Supersystem, Zumtobel • This versatile LED lighting system is designed to be installed on track as single, double, or triple modules, including the control gear. Available in 2.5W and 4.5W modules in four color temperatures—2700K, 3000K, 3500K, and 4100K—and with a color-rendering index of 82, the fixture head can be rotated 360 degrees and pivoted up to 90 degrees vertically. Spot, wide-flood, and oval-beam distributions allow flexibility and an optional snoot accessory provides increased glare control. Track (channel) modules are made from extruded aluminum with an anodized finish (as are the fixture heads) and are available in 4-, 6-, 8-, and 12-foot lengths. zumbel.us • Circle 357



MB900 Solid-state Track Luminaire, Intense Lighting • A 2010 Next Generation Luminaires Design Competition Recognized winner, the MB900 series LED accent fixture features an 18W single-point, recessed LED source with a small profile (7 1/8 inches from the track rail and 5 3/4 inches wide, overall). Applicable for retail, hospitality, residential, and commercial installations, the fixture has three beam spreads (24, 32, and 50 degrees); three color temperatures (3000K, 3500K, and 4100K); and three lumen packages (650 lumens, 900 lumens, and 1200 lumens). The housing is composed of an extruded and die-cast aluminum construction in white semigloss, black, silver satin, brushed satin nickel, or custom finishes. ETL-listed to U.S. and Canadian standards for dry locations, the luminaire is dimmable with electronic low-voltage dimmers. intenseighting.com • Circle 358

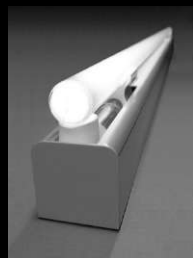
Stasis LED High Lumen and Wallwash Luminaires, Cooper Lighting Halo •

Halo is part of the Stasis family of luminaires and includes a discreet locking tab that locks the luminaire on the track and allows for easy removal and repositioning. The aluminum die-cast design provides thermal management that yields 70 percent lumen maintenance after 50,000 hours of operation. The arm allows the housing to adjust 90 degrees, and also to pivot 90 degrees around the driver housing. Halo is equipped with 16 3W white LEDs and has a color-rendering index of 85. cooperlighting.com • Circle 359



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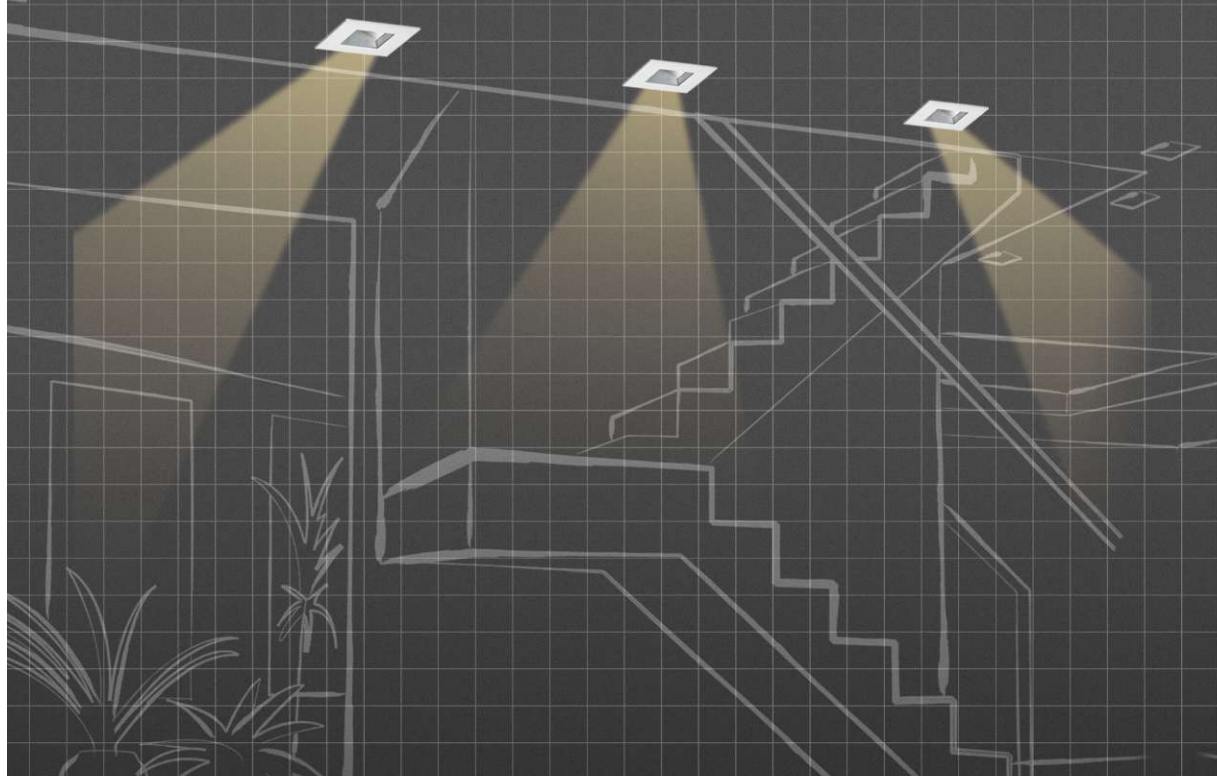
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Cylindrix3 LED, Amerlux • Expanding on its Cylindrix line of tracklighting options for retail and hospitality applications, Amerlux has introduced the Cylindrix3 LED. Designed to replace low-voltage MR16 halogen sources, the 10W LED fixture features a regressed single light source for enhanced visual comfort, an integrated heat sink, and an electronic constant-current LED driver. The luminaire is available in either 2700K or 3000K, has a color-rendering index of 82, is fully dimmable, and has interchangeable reflector optics for 17-, 28-, 34-, and 48-degree beam spreads. Cylindrix3 LED is UL-listed and available in three finish options: white, black, or silver-texture. amerlux.com • Circle 360



LumeLex 2040, Lighting Services Inc. • Selected as a Recognized winner at the 2010 Next Generation Luminaires Design Competition, the LumeLex 2040 features Xicato's LED module (up to 26W) with remote-corrected cold-phosphor LED technology, which has a color-rendering index of 98. Designed specifically for museum and retail accent lighting, the fixture is available in 2700K, 3000K, and 4000K, has field-changeable beam control (20-, 40-, and 60-degree distributions), and a full range of accessories for optical control. The luminaire has an aluminum housing in LSI black, white, silver, or graphite. Dimmable with low-voltage dimmers, the overall luminaire measures 7 5/8 inches wide by 7 1/16 inches tall. lightingservicesinc.com • Circle 361

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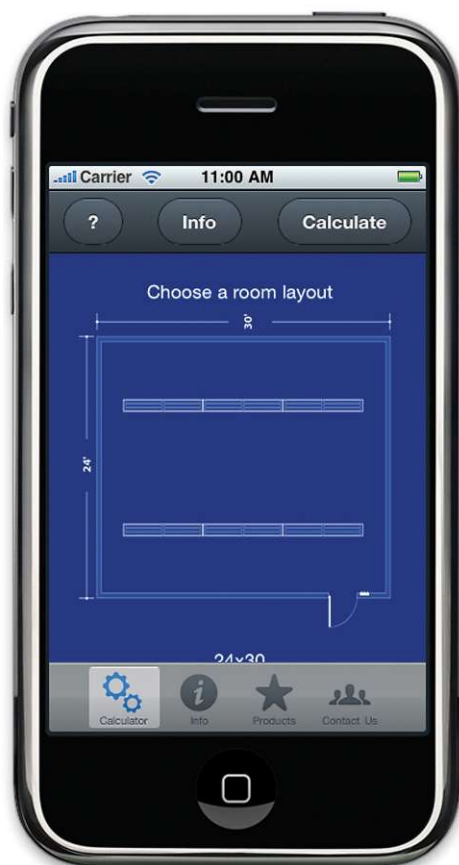


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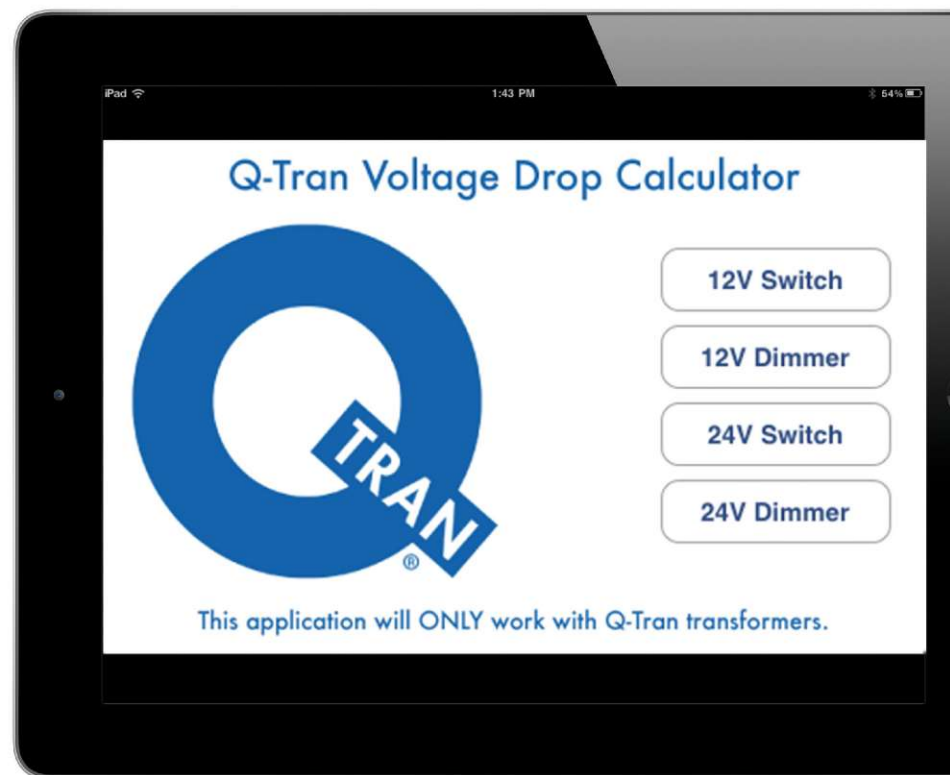
Apps • Luminair for iPad, SyntheFX • Synthe FX has released an iPad version for Luminair, its desktop-class, multitouch DMX lighting control app. Building on the original iPhone version, the new iPad version has additional functionality and new features such as instantly editable quick-touch cues and project-based draggable color swatches. Luminair for iPad uses the Art-Net protocol to transmit DMX data over Wi-Fi, enabling users to wirelessly control color-mixable LED fixtures, dimmers, studio lighting, moving lights, media servers, and any other type of DMX-enabled equipment. The program is also built for future expansion and users have access to feature updates via the iTunes store. synthe-fx.com • Circle 362

SPECIALTY



Apps • Classroom Lighting Calculation, Litecontrol

Litecontrol's Lighting Calculation app aids lighting designers and specifiers in calculating lighting costs and energy savings for standard classroom settings. Users can choose a room layout, the number of lamps and fixtures, as well as the kilowatt-per-hour cost and operating hours. The calculator will then tally the average footcandles, total watts, watts per square foot, and energy cost per year. App versions are available for iPhone and iPad, as well as smartphones that run Android. litecontrol.com • Circle 363



Apps • Voltage Drop Calculator, Q-Tran • The Q-Tran Voltage Drop Calculator calculates voltage drop for low-voltage lighting runs and applications using wire gauge from 14AWG (American wire gauge) to 8AWG. A column calculating loss over a dimmer is added to give users true voltage drop losses depending on the lighting load. Versions are available for iPhone and iPad, as well as smartphones that run Android. q-tran.com • Circle 364



Apps • Catalog-viewer, Lamps Plus • This new catalog-viewer app provides easy access to Lamps Plus' selection of designer lighting, furniture, and home décor for the iPhone and iPad platforms. An Android version is being developed. Users can browse the main Traditional and Modern Style catalogs, view the latest sale brochures, and place orders directly from their mobile devices. lampsplus.com • Circle 365

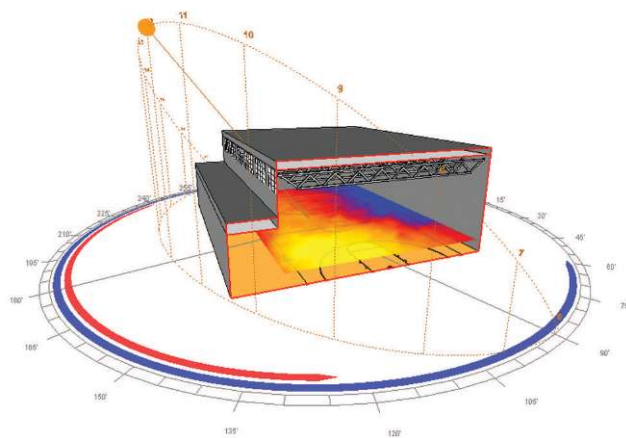


Materials • Anti-Reflective (AR) Glass for Lighting, Guardian Industries • This new glass offering from Guardian Industries is designed to provide a single solution to increase light transmission, reduce reflection, and increase the efficiency and efficacy of luminaires. AR Glass for Lighting features a durable, multilayer, sputtered antireflective coating that is applied to Guardian's own glass. The glass is heat-treatable, available in different thicknesses, and is offered in both single-sided and double-sided configurations for myriad glass options including standard clear, EcoGuard low-iron, Pattern Glass, and SatinDeco (acid-etched) Glass. guardian.com • Circle 366

Materials • Lumina, Sensitile • When combined with a lighting element, these acrylic resin panels—available in thicknesses from $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches—create an innovative way to diffuse a single source of light into thousands of points of light. While the panel core is made of acrylic resin, the panel cladding can be acrylic resin, tempered glass, polycarbonate, or PETG. Surface finishes are clear, frosted, matte, nonglare, glass, and mirror. For cladding, there are 19 standard transparent colors and 19 colored mirrors. The Lumina panels are specifically edge-lit with LEDs, but they can also be designed for other types of illumination options. Clear cladded panels are available in three sheet sizes: 4 feet by 8 feet, 4 feet by 10 feet, and 5 feet by 10 feet. Color-cladded panels come in 4-foot-by-8-foot sheets. Custom configurations are available as a special option and require longer lead times. sensitile.com • Circle 368



Daylighting and Solar Control • Daylight Modeling Service, Kallwall Corp. • Kallwall Corp.'s Daylight Modeling Service is geared toward design/build professionals. The objectives of the service are to verify effective daylighting plans when using Kallwall translucent building systems, assist in qualifying for LEED or other sustainable rating agenda, promote passive daylighting strategies as a way to meet Carbon Zero objectives, and to educate designers, builders, specifiers, and owners about the benefits of Kallwall. Dynamic Daylight Simulation (DAYSIM) and Ecotect are the software programs used for the daylighting analysis. daylightmodeling.com • Circle 367



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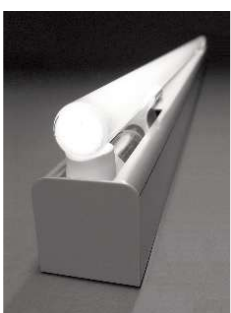
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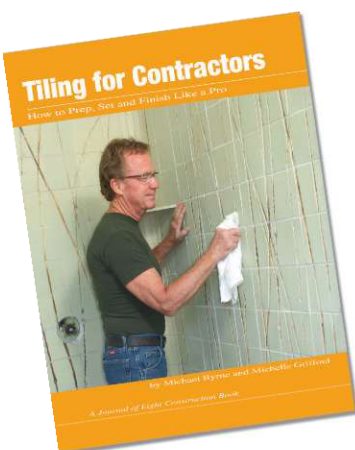
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Daniel Gelman

interview by Elizabeth Donoff

photo by Noah Kalina

“There has never been a more important time to hire a lighting designer. The overwhelming pressures concerning economy and energy conservation, along with the introduction of new light sources, make it very complicated to achieve ‘quality lighting’ for anyone but a lighting professional. For that reason, we as a company must work together with the lighting designer to provide the precise fixtures that will allow them to succeed with project demands and yet still be creative.”

Daniel Gelman grew up with lighting. His father, Marvin Gelman, was the lighting director of *The Tonight Show* starring Steve Allen during the heyday of early, live television. In 1958, the senior Gelman founded Lighting Services Inc. Daniel Gelman spent summers working in the company factory, and while he initially had no plans to enter the lighting industry after graduation, it was the “people factor” that drew him in. He started with the company in 1983 as a sales manager and then became director of marketing followed by executive vice president. In 2000, he became president and CEO. No matter the executive position, he continues to lead the company and its 110 employees into the lighting industry’s next evolution of products and technology, all while remaining true to his family’s lighting roots.

With so many years in the industry, what do you still find fascinating about lighting?

I am continually fascinated by the people in our industry, and in terms of light, I’m amazed by its power to change our visual perceptions.

Is there a piece of advice your father gave you when you entered the lighting industry?

It wasn’t so much advice as it was for me to create my own footprint that could work alongside him. Those are enormous shoes to fill, and I could never fill them.

What makes a great piece of lighting equipment?

It’s knowing that you’ve collaborated, you’ve listened, and you’ve come up with a product that becomes a tool for the design community you serve.

What is the biggest misunderstanding about lighting technology and luminaire design?

That it’s easy to produce well.

What do you consider innovative in lighting?

Innovation in lighting really comes from the creativity and application.

What are the traditions and foundations that are imperative to maintain at Lighting Services Inc.?

We love what we do here. It’s about quality, reliability, integrity, service, caring, good people. Those are the words that we hope people will associate with when they place their trust and confidence in our company.

What are some of the most significant changes you’ve seen in the industry?

Light sources are one of the things that comes to mind. Our company was predominantly an incandescent sealed-beam fixture manufacturer. The next big thing was the MR16 lamp. That was followed by ceramic metal halide. And now of course, there is LED.

Your thoughts on LEDs?

For us to take an LED source and build a product around it, we really had to be confident in the fact that it was ready and it was appropriate for our customers. I am convinced that the remote phosphor technology has made LEDs market-ready.

Are there untapped resources people are overlooking because so much focus is on LEDs?

Low-wattage metal halide is still growing. I don’t think that area has been saturated yet, at all.

How does a company “innovate” while dealing with the everyday aspects of running a business?

Staying true to your ideals while being flexible enough to adapt. Bottom line ... it’s difficult. You need to focus on the priorities that are important to your customer base. •



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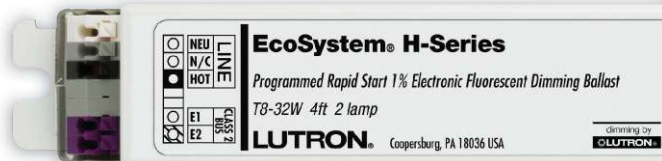
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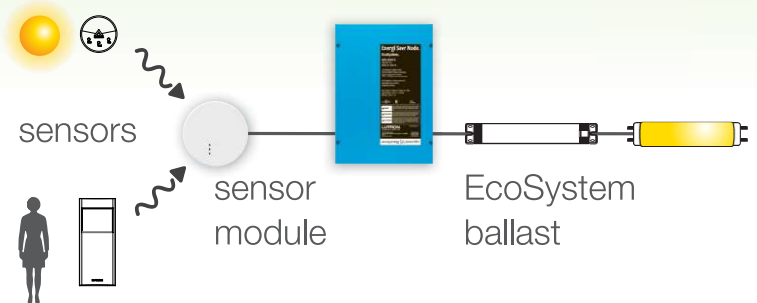
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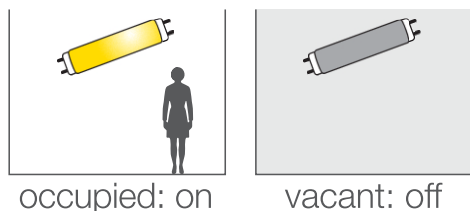
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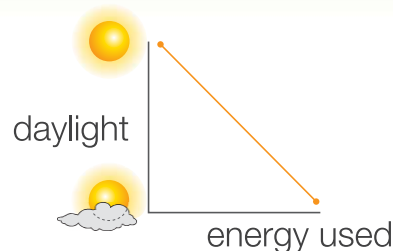
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