

LD+A

LIGHTING DESIGN and APPLICATION

50TH

ANNIVERSARY

Commemorative Issue

50 BIG IDEAS

What will *LD+A* be writing about over the coming years? We asked a diverse group of 50 lighting professionals to offer one proposal for moving the industry forward. Here's what they had to say



1 LEDs have made the addition of light easy. Perhaps too easy. Without care, the built environment could flood with over-lighting. **How well, and how broad, we educate the next generation will be our greatest contribution** to the stewardship of sustainable lighting design.

Rick Utting
Landscape Forms

2 Lighting design is an invisible career. **Our industry needs exposure.** Neither the IES nor IALD make it their mission to have lighting design made a required component of the design/construction process. When I retire, these organizations should send me out to speak at career fairs!

Susannah Gilbard
Lightcraft

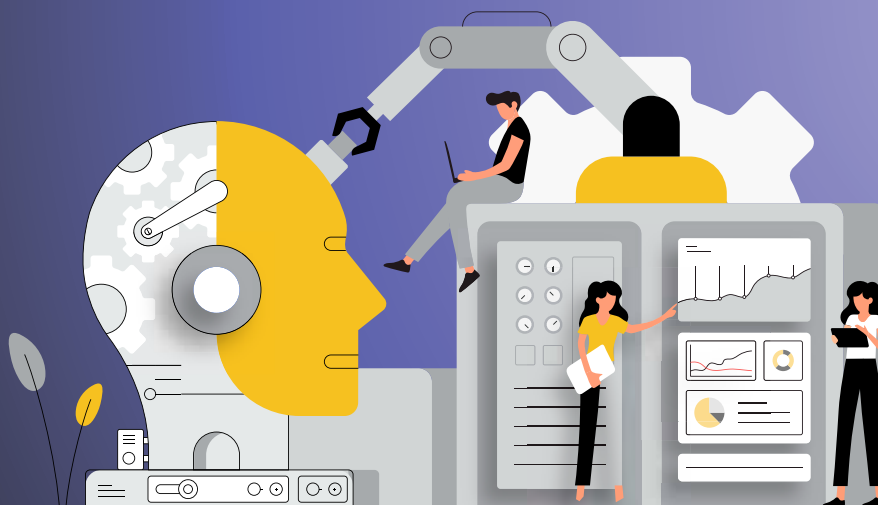
3 Light is more than ambiance—it is **an amenity to drive business and revenue goals.** Savvy business owners are leveraging flexible lighting to differentiate their properties, attract visitors and create 24/7 revenue opportunities with only lighting changes. Helping clients understand this value of light will help them to build a stronger future.

Olivier Perriguer Lutron



5 Additive manufacturing will lead to mobile 3D printing farms on/near job sites, which modernizes supply chains. Plastics, however, will be de-emphasized in favor of recycled content. **Low-cost, sustainably manufactured luminaires** will become the industry standard in five to seven years.

Don Peifer Consultant



4 When mankind inevitably begins to integrate advanced AI into our neural networks, I anticipate the development of optical implants or artificial lenses that will allow us to see light well outside our current visual spectrum. **Imagine the ability to toggle, day or night, between our current visible spectrum and UV, IR, gamma ray or X-ray light.** How will that ability change our lifestyles? The impact on building design, the idea of what is a “safe environment,” and so many other aspects of our daily lives will change based on a new perception of the world around us and our human interaction within it.

Paul Mitchell Visionaire Lighting

49

The future of design will be photocentric and we will compose light like music. Fusing science, technology and critique, a new dawn of earthly cultures will emerge to give agency to photology.

Creative photal practices will attune photons with optronics for the welfare of all beings and ecosystems.

Nathalie Rozot PhoScope



6 | **Fixed pricing and next-day delivery** are the way of the future for lighting procurement. Lighting reps will continue to provide amazing product support for their respective manufacturers, and distributors will provide storage/delivery and web-based pricing, similar to Amazon.

Jon Brooks AE Design

7 | The one key to success has continued to ring true on both sides of LEDs in the luminaire business: **treat others as you would like to be treated.** If you can remember to use this as your guide, you will find success and satisfaction in this industry.

Rick Meyer SPI Lighting

8 | For many, the office will be a secondary workspace. Workers will return for the benefits of face-to-face collaboration but expect the comfort and personalization of working from home. **Lighting, like furniture, will accommodate individual preferences** and become less fixed, changing with the space's function.

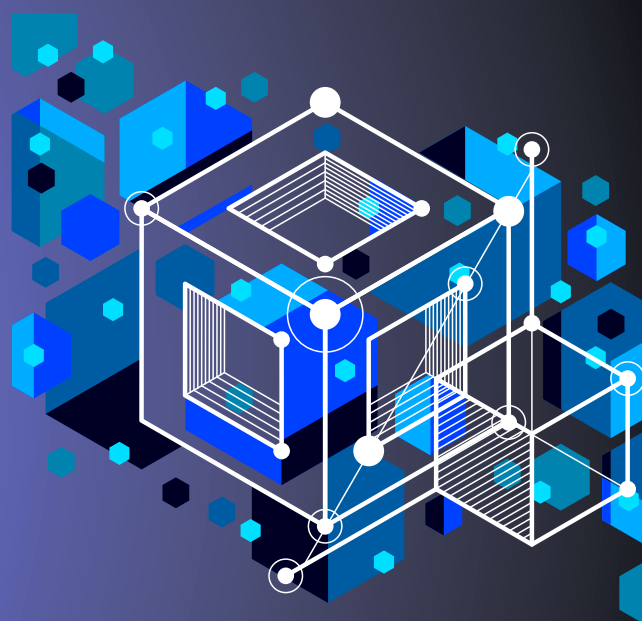
Dan Kohnen H.E. Williams

9 | Autonomous driving vehicles, if eventually commonplace, *won't* mean the end of street and roadway lighting. With the reemphasis of pedestrians in today's urbanized world, street/roadway lighting will still be vital for safety in the future. Further, **watch for a newly developing market of interactive lighting between vehicles and environment.**

Michael Maltezos Kenall

10 | We can and should expect **more than just lighting service from our lighting systems** over the next 50 years. Tomorrow's lighting systems will improve our communities with integrated renewable energy resources, grid connectivity and flexibility, on-board internet, added safety services, and the delivery of circadian-friendly spaces.

Nicole Hathaway California Lighting Technology Center



11 | Lighting manufacturing will make a resurgence and **we will see significant manufacturing of lighting move back to North America.** 3D printing will be a big part of this movement.

Randy Reid National Lighting Bureau

12 | Long term, **3D printing may alter the supply chain** by introducing, as the LRC's Dr. Narendran put it, "mass customization rather than mass production." Fully realized, it offers potential for design liberty and customization, production efficiency and supply reliability, and significant carbon savings, making it an important tech to watch.

Craig DiLouie ZING Communications



16 | Open-source lighting design—everyone needs good lighting, not just those who can afford independent, fee-driven design firms. **Virtual collectives will form “free clinics” to provide no-cost, shareable professional lighting design consulting** supported by contributions, subscriptions and grants. Accessible, inclusive and scalable lighting design guidance especially for underserved communities.

Mark Loeffler Mark Loeffler Design Consulting

13 | Like autonomous cars which employ complex sensors and AI-models with mathematical algorithms to replicate complex human decisions, I'd like to see lighting fixtures employ similar technology to modify the various properties of light according to time of the day and specific application, **making the fixture more autonomous, smarter and human centric.**

Giulio Pedota Schuler Shook



18 | Perhaps the big idea is a simple idea—light impacts life. An understanding beginning in childhood, reinforced with education and demonstrated by responsible, aesthetically appropriate lighting design at every turn, everywhere. A sustainable idea **linking accountability to the environment with living our best life.** Simple, sustainable, progressive.

Andrea Hartranft
Hartranft Lighting Design

17 | What if the profit in the lighting industry was all in making **sustainable, long-lasting solutions** rather than in selling more luminaires? This might happen with light as a service and quality as a service. Long-lasting light solutions that you can rent.

Thea Collett
Light Bureau Norway

14 | This isn't revolutionary news—lighting is about people. As the industry and post-pandemic world continually evolve, that fact persists. Lighting isn't just about advanced technologies, control innovations, form factors or energy codes...it's about **using the medium of light to create experiences and support the holistic needs of people.**

Rachel Fitzgerald Stantec



15 | I think **the non-visual benefits of light** will be increasingly important, such as light for the circadian system, for plant growth and health, and ultraviolet disinfection. With so many innovative ways to tuck lighting products into our world comes an increasing need for controls to orchestrate the show, energy-efficiently!

Jennifer Brons
Mount Sinai Health System

19 | Everyone deserves good lighting and beneficial darkness. Quality lighting must be for more than just the wealthy and privileged—it must be equitable and accessible, inspiring beauty and vitality for all communities. **Increased diversity in our industry will bring unique perspectives and empathy,** generating lighting designs that illuminate environmental justice.

Edward Bartholomew Bartholomew Lighting



20 | **Lighting system optimization that occurs continuously after installation for occupant benefit** using actual occupant response to the built environment and its systems, captured as occupants work and play. Response data gathered from lighting systems alongside other systems, sensors and wearables, can provide feedback that strengthens lighting recommendations and best practices.

Andrea Wilkerson PNNL



24 | My dream is to have the technology we use to design lighting become seamless instead of burdensome. Put on the goggle suit, grab the magic wand and **walk into the virtual model to physically position lights and render the environment in real time.**

Scott Hatton

Oculus Light Studio

21 | The “Big Idea” in lighting will be technology driven. As we gain understanding of physiological and psychological preferences with respect to light, I imagine a day when interior lighting conditions will be analyzed by AI and machine learning. **Like step counts, lighting health will be monitored via wristwatch.**

Nelson Jenkins LumenArch



22 | I think we will see a trend in outdoor lighting products for which the **spectrum, dimming and controls can be specifically tuned for the wildlife of a particular region or environment**, to limit the adverse effects on migration, etc. that we’re currently observing.

Elizabeth Williams

Illuminart, a Division of Peter Basso Associates

23 | Integration—it’s time to move past “good enough” lighting that mostly makes details visible. Let’s get serious about developing **recommendations that integrate across lighting system and design considerations to support the full range of human needs** including vision, communication, circadian regulation, mood, aesthetics, safety, comfort and health.

Jennifer Veitch National Research Council of Canada



25 | Innovation. Clear the path for innovation in lighting. The lighting community is adept at evaluating, specifying and regulating lighting performance like efficacy, color quality and spectral distribution. With the vast improvements in these areas over the last several years, **it is time to aggressively incentivize lighting product and technology innovation.**

Tanya Hernandez Acuity Brands Lighting



26

One of the most exciting aspects is that fixture

designers are really leaning into the unique qualities of LEDs instead of placing them in the old fluorescent, HID and incandescent forms. The industry is constantly coming out with **fixtures with new shapes, looks and abilities** that we haven't seen before.

Lance Gandy gandy²
lighting design

27

Five-thousand watts in a black room is still

black. Throwing more light at it does not solve the problem. **We need to recover contrast strategies in the face of excessive uniformity**, understand the use of space in a humanized and flexible way, and, above all, reassess lighting standards—from quantitative to qualitative.

Maria del Pilar Toro-Ortiz
LDLuz Lighting Design

28

Picture a world without MacAdam Ellipses, TM-30

and flicker wheels. One where **every luminaire we design with can be easily, affordably and consistently tuned to the perfect color of light**. Imagine the creative freedom we'd have! As a lighting designer, that's the world I want to be living and designing in.

Brett Andersen
Focus Lighting

29

Kinetic light is the lacework of shadows under a tree in the breeze. It can be subtle, like the changing spectrum of daylight. It can be active, like a dancing fire or the shimmering reflection off a pool. **Kinetic light is a powerful and necessary tool** for lighting designers.

Lisa Reed
Envision Lighting Design

30

Expect **more resimercial lifestyle lighting utilizing simple and smart technologies** like dynamic lamps and app-based controls that enable single spaces to adapt to many needs. Existing commercial space, with rigid defined edges, will also be converted to resimercial via sophisticated controls that must be intuitive and accessible for all users.

Megan Carroll Illuminations



31

Making the connection of light to quality-of-life common understanding.

Light is foundational to thriving life. The greater understanding of light's benefits, the greater our desire for quality lighting in our personal sphere. Neither light nor life are static. It's time to share the joy of light with all.

Leslie North Aurora Lighting Design

32

These days of LEDs and increasingly sophisticated controls should require we train our new practitioners in the basics of electronics and communications as much as we want them familiar with basic electrical wiring. **Mastery of lighting will be as much over electrons as photons.**

Gary Dulanski
The Dulanski Group

33

Smart distribution tuning for outdoor lighting can adaptively illuminate only areas that need to be lighted. **Intelligent distribution tuning along with spectral tuning and dimming** is the ultimate trifecta that will address pressing environmental and ecological issues with light trespass and light pollution.

Rajaram Bhagavathula
Virginia Tech Transportation Institute



34 | My hope for the future of lighting is **a greater marriage of lighting research and lighting design practice.** Academic and industry research marketed to practitioners in approachable and accessible means will allow lighting designers to innovate using evidence-based support.

Chrysanthi Stockwell HGA

35 | To reduce our carbon footprint, the next frontier in lighting should **push daylight to the forefront as the primary source of illumination for interior spaces.** Investing in new materials and technologies, including more widespread use of solar lighting, will create interesting opportunities for lighting designers and architects.

Tina Aghassian
HLB Lighting Design

36 | Life, human and otherwise, will benefit from **renewed appreciation of the rhythm of day and night.** In an imagined future, the timing, intensity and integration of light in the built environment would be reconsidered, leading to habitats inspired by the sun and sky. Bright days and dark nights.

Kevin Houser Oregon State University



37 | Efficacy is not the only metric by which lighting should be judged. Fixating on LPW limits choices about spectrum, CRI and CCT; however, designs which incorporate these properties enhance our quality of life and protect the planet. **Regulators, take note: there's more to good lighting than efficacy.**

Susan Callahan OSRAM

38 | The big change that should be coming in the lighting industry is **being able to associate a person's feelings with color temperature color changes.** Being able to change the color temperature in a tunable lighting fixtures just by a sense of a mood change in the person in a given range.

Turquoise L. Shaw
Blue Lighting Consultants



39 | The evolution of lighting technology and its application within the built environment remains intrinsically linked to our progressive nature as human beings. For lighting designers, **inclusivity is necessary in both practice and application**, as we light the spaces of today and tomorrow.

Liberty MacDougall ARUP



43 | A standardized method of manufacturers reporting technical data, not unlike nutritional labels on food. There could be a different one for controls data and fixture hardware. Both would need to use standardized graphics. SSL has grown so fast that it's simply too confusing for anyone entering the industry, as well as for seasoned professionals.

Debra Gilmore
Gilmore Lighting Design

40 | In a tech-focused world, **curiosity will grow about new ways to personalize everyday life.** Light will be a leader and create meaningful, dynamic and memorable moments that increase awareness about the power of light. The industry will transform lighting into a robust backbone and become the center of integrated building solutions.

Sam Koerbel Lytei



41 | **Move away from complexity and more toward simplicity,** starting with light sources. When you count the cost of all the materials involved in the manufacture and control of LEDs, birth to disposal, we waste far more than we ever gain from that light source. Let's rethink light and the environment.

Daniel G. Salinas
Salinas Lighting Consult



42 | As we come out of pandemic, there will be **renewed focus on both health and the environment.** Already sustainability metrics are part of lighting specifications. At Acuity Brands we are proud of our commitment to improving our world by achieving 100 million metric tons of carbon reduction by 2030.

Rick Earlywine
Acuity Brands

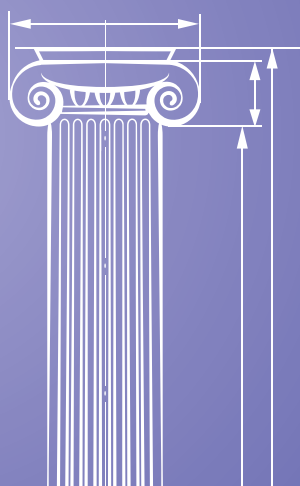
44 | Environmental accountability on materials, packaging and luminaires. We need to consider how the life cycle of the luminaires we specify impacts the future of the planet. The lighting industry must **minimize the use of plastics and packaging while maximizing the post-consumer opportunities** for lighting materials.

Jessica Krometis
Hartranft Lighting Design

45 | As we continue down the path of human-centric

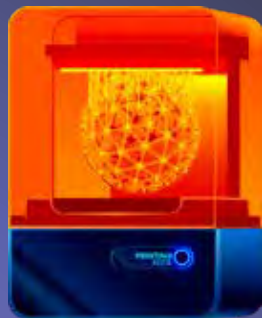
lighting in a digital age, we've already witnessed substantial advancements. When we marry that to progress in the fields of augmented reality and AI, I think we get to a place where **the algorithm evolves to the point where it can create a synergy across these developing technologies**, centered around the human experience through light... that could be extraordinary.

Jean Jacques SDA Lighting



46 | Lighting is increasingly asked to play **a more active role in architecture**—and lighting offers the opportunity to tell stories and convey more emotions to shape the identity of a project. As such, users will also become an active counterpart to interact with the experiential qualities of light.

Jean Sundin OVI



47 | Seamlessly integrating lighting into architecture is a hallmark of modern lighting design. **3D printing of lighting is the next “wow” advance.** Printing structures with lighting will be fantastic, but also printing scale models of conditions, forms and spaces with lighting effects for testing and presenting will be mind-expanding.

Christopher Stroik
Stroik Lighting Design

48 | **Lighting sustainability must expand to incorporate justice and its human benefits.** We have laws and rules protecting night skies for astronomers and color temperatures for turtles, yet no thoughtful lighting strategy for underserved communities. Lighting impacts how communities live and appear, and we have the power to make that change.

Lauren Daindridge Gaines
Performance Lighting Systems



49 | **The future of design will be photocentric and we will compose light like music.** Fusing science, technology and critique, a new dawn of earthly cultures will emerge to give agency to photology.

Creative photal practices will attune photons with optronics for the welfare of all beings and ecosystems.

Nathalie Rozot PhoScope

50 | Collaboration with more trades. With the addition of acoustics, germicidal and natural materials to lighting, we will need to do **more coordination with trades we normally would not sit in the room with.** Budgets will be more interchangeable and how we look at where lighting goes will shift.

Mariel Taviana Acevedo SOLUS

