ENERGY OBSERVER
A MONTHLY NEWSLETTER FROM AMERLUX®

FEB 2021

People-first office lighting

Aerus

Lighting designed to turn comfort into productivity

Aerus was made for people inside commercial and institutional settings, essentially eliminating glare and poorly lit spaces. With direct/indirect illumination and state-of-the-art optics, the lighting solution creates an environment for more comfort, control and productivity. The thin-profile solution leverages low-voltage, aircraft cable that supplies power to the fixture without a visual power feed. AERUS mounts 12" below the ceiling compared to the industry standard of 18" to 24", eliminating "hot spots" on the ceiling and yielding wider spacing that delivers the IES standard for office lighting with minimal fixtures. Amerlux - Commercial Lighting Manufacturer

LED Energy Market Observer:

1. **Lighting: We're Doing It All Wrong by Craig DiLouie** - In an article published in LIGHT LINES, SLL Light Lines September/ October 2020 by Matrix Print Consultants Ltd - issuu four lighting experts say current lighting design practices are based on satisfying outdated tasks, resulting in inadequate designs, missed opportunities, and an improper understanding of efficient delivery of light. In a nutshell, the experts, including Kevin Kelly, Christopher Cuttle, Peter Boyce, and Peter Raynham, say current lighting design focuses on delivering proper illuminance on a horizontal task plane, which in turn was based on predominant paper-based tasks. They call for providing minimum ambient illuminance, which involves lighting the volume of the space and lighting equipment that delivers light to room surfaces like walls and ceilings as well as the traditional workplane. Lighting: We're Doing It All Wrong – LightNOW (lightnowblog.com)

2. **2021 Construction Outlook by Jim Lucy** - While the pandemic's impact on the 2021 construction market is on everyone's mind, some major changes in demand for key project types may present even larger challenges — and opportunities. Even before the pandemic hit, it was always going to be tricky to forecast the 2021 construction market. Huge macroeconomic and demographic changes were already in play that were reshaping demand for new projects and would determine how many buildings would be built in the future, how big they would be, and where they would be located.
2021 Construction Outlook | EC&M (ecmweb.com)

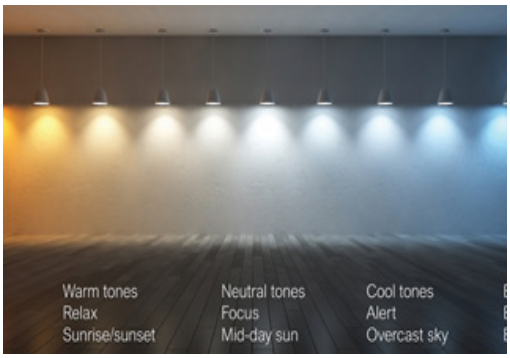
3. **New LRC Report Titled "Lighting Answers: UV Disinfection Products"** - This publication includes information on products that produce optical radiation at specific ultraviolet (UV) or very short visible wavelengths, designed for use in disinfecting indoor building surfaces and/or air. Three key aspects of UV disinfection are considered throughout the document: product effectiveness, radiation safety, and energy use in buildings. Important aspects of UV disinfection discussed in the publication include the wavelengths of optical radiation commonly used for disinfection, key characteristics of UV disinfection products currently on the market, field measurement and assessment of UV disinfection products, and currently available codes and regulations pertaining to these products. The publication also provides a concise guide for professionals who are considering the specification of UV disinfection products in buildings, including a discussion on selecting the dose of UV radiation needed to inactivate various types of pathogens (viruses, bacteria, or fungi). Lighting Answers | Publications | NLPIP | Programs | LRC (rpi.edu)

4. **UBTECH ADIBOT: The UV-C Disinfection Robotic System** - The ADIBOT system consists of two UV-C models: the stationary ADIBOT-S model and the autonomous ADIBOT-A model. ADIBOT-S is a stationary robot that is manually placed in the desired disinfection space for use. ADIBOT-A is an autonomous solution that can be programmed and mapped to independently navigate one or multiple floor plans. Both ADIBOT systems provide 360-degree radiant light coverage, powerful UV-C disinfection, and intelligent safety features including the use of "risk mitigation" cameras, PIR sensors, sensor enabled safety signage and an emergency remote control. ADIBOT UV-C robots are able to provide a safe, disinfected environment for students, customers and employees. UBTECH is proud to be able to provide a more intelligent robotic solution during these unprecedented times. https://ubtrobot.com/adibot Watch the video: https://www.youtube.com/watch?v=SwmzHlWasno&feature=emb_logo

5. **Javits Center NYC Confirms for 2021 LIGHTFAIR** - October 25-29 conference and October 27-29 trade show. Trade show floor adaptations include wider aisles, one-way traffic and booth capacity limits with open-style designs and hard-wall surfaces encouraged. Conference updates include smaller class sizes, hybrid programming and socially distant configurations in classrooms and meeting spaces. Digital tools including fully online registration, appointment setting on the LightFair mobile app and the use of electronic lead retrieval/ digital information also encourage social distancing and contactless interactions. The full Safer Floor, Safer Show plan is available at: The Future Illuminated | LightFair Commercial Lighting Tradeshow

6. **DALI-2 Certification Now Includes Part 208 for Relays and Switches** - The DALI Alliance recently announced it has extended the DALI-2 certification program to include control gear that function as switches and relays. Such devices implement Part 208 of the DALI-2 certification scheme, which is built on the international IEC 62386 standard. Part 208 devices are most frequently used with non-controllable luminaires, allowing them to be switched on/off as part of the lighting control system. They can also be used to switch non-lighting loads such as motors, actuators, blinds, shutters or curtains.The first certified devices that implement Part 208 are already listed in the online DALI Alliance product database. https://www.dali-alliance.org/news/255/dali-2-certification-now-includes-part-208-for-relays-and-switches

7. **Full-Spectrum Controls Unlock the Potential of Dynamic Lighting by Lutron's Craig Casey** - New light sources and control technologies have now ushered in the era of dynamic light — light that is digitally controlled, flexible and responsive, and able to reflect the natural progression of daylight over the course of the day with changes in both color temperature and intensity. Dynamic light goes beyond basic dimming to provide advanced capabilities including warm dimming, tunable white, and full spectrum control, inviting an even more symbiotic relationship between light and the people in a space. Today, advanced LED solutions enable flexible design palettes that include all hues of white, fully saturated colors, tunable white capabilities, warm dimming that mimics the familiar comfort of the stalwart incandescent lamp, and tremendous energy efficiencies. The more we understand the link between dynamic light and wellbeing, comfort, productivity, and human performance, the more compelling and powerful it is. ONLINE EXCLUSIVE: Full-spectrum controls unlock the potential of dynamic lighting | LEDs Magazine

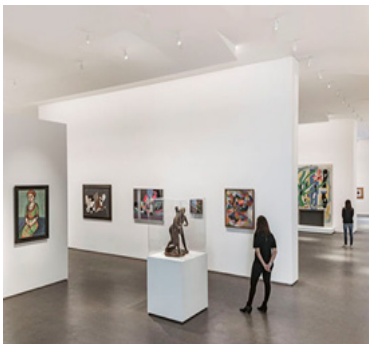


8. **EW's Top 10 LED Lighting Picks for January 2021** - Congratulations to the project managers and marketing teams of Acuity Brands, LEDVANCE, Leviton, Lind Equipment, MaxLite, Milwaukee Tool, National Specialty Lighting, Nora Lighting, Retrolux with Avi-on, and Universal Lighting Technologies for having their products selected for this month's Top 10 LED Lighting Picks. Do you have a product you would like us to consider for our future monthly picks? Send a brief description of the product and a high-resolution image (300 dpi or better) to Jim Lucy, Editor-in-Chief, Electrical Wholesaling, at jlucy@endeavorb2b.com. Top 10 LED Lighting Picks for January 2021 | Electrical Wholesaling (ewweb.com)

9. **Amerlux Partners with Vyv to Offer Antimicrobial Lighting** - The partnership represents a groundbreaking venture for Amerlux, which in recent months has sought to broaden its product portfolio in response to customer demand for lighting that can help clean environments. Within 90 days, Amerlux will integrate Vyv's antimicrobial light technology into a variety of existing and new product lines. The antimicrobial lighting targets microorganisms such as bacteria, fungi, yeast and mold while also meeting international standards for continual and unrestricted use around people, animals and plants. https://vyv.tech/press-releases/amerlux-inks-partnership-with-vyv-to-offer-antimicrobial-lighting/

10. **Ground-Breaking Optics Debut in $450 Million Art Gallery** – Innovative lighting optics developed by technologists in the US are being used for the first time in new US$450 million art gallery. QuarkStar's radical Edge-X technology has been specified by top lighting design practice L'Observatoire for the newly opened Kinder Building, centerpiece of a massive expansion to the Museum of Fine Arts in Houston, TX. The expansion was the largest fine art gallery project in North America in 2020, designed by US 'starchitect' Steven Holl. QuarkStar's Q-Wall asymmetric linear lights with the Edge-X optics have been installed in nearly all galleries that use artificial lighting as their primary source of exhibit illumination. https://www.luxreview.com/

11. **Manage Lighting to Reduce Energy Consumption and Cost by Jim Romeo** - Improve lighting, and you will improve a facility's energy efficiency. Manage your lighting—with equipment, technology and best practices—and you will reduce overall energy consumption and reduce costs. As LED and other lighting technology matures, contractors and other service firms are stepping up to help facility managers further improve lighting operations. Lighting as a Service (LaaS) may well be part of a growing type of service used by more firms, now and into the future. https://www.ecmag.com/



12. **LRC Releases New Guidance on Circadian-Effective Lighting** - The Lighting Research Center (LRC) at Rensselaer Polytechnic Institute recently published new guidance documents for designing circadian-effective lighting in K-12 classrooms and hospital patient rooms while avoiding increased energy use. Lighting design can reduce energy use by ensuring that each area of a space is lighted appropriately. Architectural design can maximize the use of daylighting. Download some of the other design-related completed projects and ongoing programs at the LRC: LRC Energy Program (rpi.edu)

Global LED Energy Market Observer:

13. **The Lighting 'Nook' That Helps People with Autism** – The Sensory Nook is the first mobile lighting pod designed to support people with special needs in education, care sector, public and social spaces and the workplace. They are designed provide a safe shelter that doesn't isolate individuals but allows them to take part within the protection of a personally controllable sensory environment. The standard Sensory Nook unit is 2000mm x 920mm x 1960mm. They are modular by design and supplied in a range of combinations to suit specific client needs. Unveiled: The lighting 'Nook' that helps people with autism - Lux Review

14. **TrendForce 2021 Infrared Sensing Market Trend**- 3D Sensing, LiDAR, SWIR LED - According to TrendForce 2021 Infrared Sensing Market Trend- 3D Sensing, LiDAR, SWIR LED, as the market growth of major applications including 3D sensing for mobile devices (smartphone, tablet and AR), automotive in-cabin sensing (DMS and OMS), LiDAR markets (ADAS, autonomous vehicle, industry, delivery and smart city), eye tracking, security surveillance and PPG continuously boost demands, the infrared sensing market scale in 2025 is expected to reach USD 3.79 billion. The following major applications all have above-average growth momentum! https://www.ledinside.com/node/31781

15. **NICHIA Reveals Dual Function LED for General Illumination and Bacteria Disinfection** - Nichia has released the new NF2W585AR-P8, a 4.0mm x 3.6mm LED, a staple of Nichia's General Lighting portfolio. http://www.nichia.co.jp/jp/product/led_product_data.html?type='NF2W585AR-P8' It has been well-known for years that UV-C and UV-B wavelengths, ranging from ~200nm–380nm, has been used for disinfection. However, it has recently been proven that visible light, ranging from ~380nm–420nm, also has a bacteria disinfection effect. The NF2W585AR-P8 is an LED solution with a peak pump emission wavelength of ~405nm. Through Nichia's leading phosphor and die technology which has been refined over decades of innovation, Nichia is able to achieve the balance between general white lighting and disinfection bacteria, all out of a single LED. Nichia envisions this LED will be widely used for environmental hygiene maintenance in food factories, kitchens, hospitals, public facilities, and similar applications. NICHIA Reveals Dual Function LED for General Illumination and Bacteria Disinfection - EdisonReport

16. **99.99% of Coronavirus Particles Killed in 30 Seconds with Nichia's UVC LED** - In the future, it will work with various brands to adopt this LED in products such as air purifiers and air conditioners for places that cannot be disinfected with alcohol. According to Nichia, when the wavelength is 265nm, the virucidal effect is the best. Yet, due to the short wavelength, the optical output power decreases. Besides, long lifespan cannot be reached, and the lifespan of 260nm UVC LED is 2,000 hours. Thus, the research team adjusted the wavelength to 280nm and increased the optical output power. The optical output power at 280nm was increased to 70mW (35mW at 265nm). According to the results, after the adjustments of optical output power, the virucidal effect of 280nm UVC LED can be 1.3 times more effective than the 265nm, and the lifespan can be significantly increased to 20,000 hours. After successfully developing the UVC LED, Nichia is ready for mass production. https://www.ledinside.com/node/31808

17. **Organisers Cancel the LuxLive 2021 Exhibition** - LuxLive 2020 was originally postponed from last November to November 2021 due to the ongoing Covid-19 pandemic. 'The decision to cancel the Event is based on a number of factors,' said portfolio director James Samuel. 'These include the ongoing impact of the pandemic and the uncertainty it is causing for hosting live events. However, while a traditional in-person exhibition has been cancelled, plans are being made to look at the replicating last year's successful digital conference, which ran on the days when the show was due to take place. The LuxLive exhibition, which was launched in 2011, is Europe's largest annual lighting event, attracting 6,500 professional visitors to London's ExCeL annually. Organisers cancel the LuxLive 2021 exhibition - Lux Review

18. **2021 Must-Read Introduction to Energy Commodities: Trading and Trends Explained** - In this energy commodity guide, we explain what types of energy commodities make up the energy market. We explore the present energy consumption figures, future projections, and the types of energies we are likely to consume more of in the near future. Several long-term trends could create trading opportunities in energy over the next two decades: https://commodity.com/energy/

a. Emerging Market Growth Energy
b. Efficiency Revolution
c. Population Growth
d. Electricity Penetration
e. Industrialization in Developing Economies

19. **217 Firms Sign Up with Signify to Promote UV-C in the UK** - SOME 217 contractors, resellers and wholesalers have signed up to promote and distribute Signify's Philips-branded UV-C lighting range in a major push to promote the technology in the UK. The network will help sell and safely install the company's recently unveiled disinfection products, which it says can help in the effort to make workplaces, schools, offices, hospitality venues, shops and transport Covid-secure. Signify has made major investments in anticipation that the market for upper-room disinfection using UV-C lighting is set to dramatically expand. Signify is increasing production of its UV-C mercury lamps by eight-fold, and has introduced no fewer than 12 product ranges using UV-C light. 217 firms sign up with Signify to promote UV-C in the UK - Lux Review

20. **The SLL Lighting Guide LG20 to Help Facilities Managers** - Lighting and Facilities Management sets out a logical approach to identifying and undertaking lighting related tasks such as relamping and upgrades. LG20 published by the Society of Light and Lighting provides guidance on outlining energy consumption and the maintainability of existing lighting installations. It aims to offer the necessary tools to ensure these three integral aspects. Firstly, quality of delivered light – considering lighting levels; uniformity; unified glare rating (UGR); and colour rendering. Followed by the right amount of light – watts and lumens; colour temperature and fidelity; maintenance factor; useful life expectancy of LED light sources and understanding L and B values; and inrush current. Finally, timing – considering lighting controls; presence, absence, and motion detectors; photocells; daylight linking; constant illuminance adjustment; dimming and regulation. Download at: CIBSE - Building Services Knowledge

21. **YesHealth Group and Nordic Harvest Complete First Phase of Construction on Europe's Largest Vertical Farm** - The new Nordic Harvest vertical farm stands 14-stories high in a 7000 sq. meter facility at Copenhagen Markets, on the outskirts of Denmark's capital. It will be Europe's largest and most efficient indoor vertical farm, featuring YesHealth Group proprietary technologies, robotics, hydroponics, arrays of more than 20,000 LEDs, and smart software for processing over 5000 individual data points, all integrated with Nordic Harvest's design of process flow and packaging. Production will begin in the first quarter of 2021 and profits are projected within the first year, making this vertical farm a model of feasibility for the industry at large. 12/24/20 Business Wire

22. **International Code Council Releases IECC 2021** - Estimated to be 10% more energy-efficient than the 2018 version, 2021 International Energy Conservation Code (IECC) is now available for purchase. The book's attention to detail, its logical organization, and its thorough yet concise coverage all make it an ideal tool for transitioning from the 2018 to the 2021 edition of the International Energy Conservation Code®. The new model energy code contains a number of changes, including mandatory plug load controls, electric vehicle infrastructure and charging stations, voluntary renewable energy guidelines, and others. Gain full access at: 2021 International Energy Conservation Code® (iccsafe.org)

23. **Stacked Molecules Create Efficient and Stable Pure-Blue OLEDs** - While red and green OLEDs with excellent performance exist, producing efficient blue OLEDs with long, stable lifespans has proved challenging. Researchers in Japan have developed pure-blue organic light-emitting diodes (OLEDs) with high efficiency and long lifetimes. They say that this blue light source matches the excellent performance of red and green OLEDs, overcoming one of the major hurdles hindering the development of OLED displays. The team achieved this by stacking two novel emitter molecules on top of each other and splitting the energy conversion and emission processes between them. This makes them promising light-source technologies for future displays. Stacked molecules create efficient and stable pure-blue OLEDs – Physics World

Monthly Feature:

AIA: Nonresidential Building Spending to Decline Through 2021, Bounce Back in 2022 - Slowing demand at architecture firms in 2020 is expected to contribute to a projected 5.7 percent decline in construction spending for 2021, according to a new consensus forecast from The American Institute of Architects (AIA). The AIA Consensus Construction Forecast Panel—comprised of leading economic forecasters—expects steep declines this year in construction spending on office buildings, hotels, and amusement and recreation centers. Health care and public safety are the only major sectors that are slated to produce gains in 2021. Growth in nonresidential construction is expected for 2022, with 3 percent gains projected for the overall building market matched by both the commercial and institutional sectors. "The December jobs report confirmed that the economy needs additional support in order to move to a sustainable economic expansion," said AIA Chief Economist Kermit Baker, Hon. AIA, PhD. "As pandemic concerns begin to wane and economic activity begins to pick up later in 2021, there is likely to be considerable pent-up demand for nonresidential space, leading to anticipated growth in construction spending in 2022." AIA Consensus Construction Forecast, December 2020

	Estimated $	Forecast % Change	
	2020	2021	2022
Nonresidential Total	–	-5.7	3.1
Commercial Total	–	-7.1	3.1
Office	–	-9.3	0.1
Retail & Other Commercial	–	-3.5	5.2
Hotel	–	-20.2	8.8
Industrial Total	–	-4.5	1.5
Institutional Total	–	-4.0	3.2
Health	–	1.2	3.2
Education	–	-3.9	2.7
Religious	–	-6.7	-2.9
Public Safety	–	1.0	-0.4
Amusement & Recreation	–	-12.6	11.1