ENERGY OBSERVER
A MONTHLY NEWSLETTER FROM AMERLUX®

FEB 2020

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. https://www.amerlux.com/

LED Energy Market Observer:

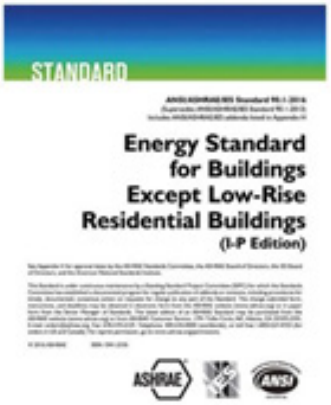
1. **Laser Light Pioneer Now Moving in on Li-Fi** - SLD Laser, the Santa Barbara, CA company co-founded by Shuji Nakamura, is heading to this week's CES consumer electronics show in Las Vegas to show off laser-based Li-Fi that it says can operate at a blistering 20 Gbit/s, which it noted is 20 times faster than 5G, assuming a 5G speed of 1 Gbit/s. Li-Fi, or light fidelity, wirelessly transmits data using the light spectrum rather than the radio spectrum of Wi-Fi, Bluetooth, and cellular. Deployments so far have been based on LED light sources, not lasers. SLD's purported 20 Gbit/s speed is also 20 times faster than the fastest LED-based Li-Fi, which Edinburgh, Scotland-based pureLiFi has shown at 1 Gbit/sec under controlled conditions. PureLiFi, like SLD, is also developing laser-based Li-Fi. https://www.ledsmagazine.com

2. **Project Connected Home over IP** - Project Connected Home over IP is a new Working Group that plans to develop and promote the adoption of a new, royalty-free connectivity standard to increase compatibility among smart home products, with security as a fundamental design tenet. Amazon, Apple, Google, and the Zigbee Alliance joined together to promote the formation of the Working Group. The goal of the Connected Home over IP project is to simplify development for manufacturers and increase compatibility for consumers. The project is built around a shared belief that smart home devices should be secure, reliable, and seamless to use. By building upon Internet Protocol (IP), the project aims to enable communication across smart home devices, mobile apps, and cloud services and to define a specific set of IP-based networking technologies for device certification. The project aims to make it easier for device manufacturers to build devices that are compatible with smart home and voice services such as Amazon's Alexa, Apple's Siri, Google's Assistant, and others. https://www.connectedhomeip.com/

3. **Signify Pumps Up Hue with More Voice Controls, Outdoor Products, and Enhanced Zones** - Signify continued to expand its Hue line of smart lighting, unveiling voice controls for home entertainment systems, introducing new outdoor luminaires and new wall switches, and enhancing the "zone" feature in Hue's control app that lets users subdivide the settings of a room's lights. Users of Signify's home entertainment system will now be able to control those systems verbally, commanding them to sync light settings to the action in movies, television shows, video games, and music. Until now, users have relied on touchscreen app controls, which they can still use. Like with the touch controls, users will communicate with Signify's Philips Hue HDMI Sync Box, which connects to video and audio systems. Using the Hue Sync mobile app, users can talk to the Sync Box via either Amazon Alexa, Google Assistant, or Apple Siri, giving instructions that will prompt lights to flash, dim, brighten, change colors, and react in other ways in response to the actions in a show. https://www.ledsmagazine.com

4. **Zhaga Book 18 Ed. 2.0 has been Published** - Zhaga Book 18 Ed 2.0 specifies the mechanical, electrical and communication interfaces between luminaires and sensors and/or communication modules. This includes details for a solution with two modules. Book 18 Ed. 2.0 brings together complementary specifications from the Zhaga Consortium and the D4i specifications from the Digital Illumination Interface Alliance (DiiA). Zhaga and DiiA have collaborated to achieve true plug-and-play interoperability, a strong benefit for specifiers, purchasers, installers and end users. https://www.zhagastandard.org/

5. **ASHRAE/IES 90.1-2016 Takes Effect as National Standard** - By February 2020, the 2016 version of ANSI/ASHRAE/IES 90.1, Energy Standard for Buildings except Low-Rise Residential Buildings, takes effect as the national energy reference standard, based on a 2018 Department of Energy (DOE) ruling. By that time, all states must adopt a commercial building energy code at least as stringent as the standard, or justify why they cannot comply. Commercial building energy codes regulate the energy-efficient design of nonresidential buildings. Though some are state-specific (such as California, which has Title 24 Part 6), most are based on a model code. The DOE ruling is likely to result in gradual adoption of either the 2016 or 2019 version (which was recently released) of 90.1 or an updated version of the IECC (2018 or 2021). https://www.energycodes.gov/resource-center/training-courses/ansiashraeies-standard-901-2016



6. **The New Jersey AEE Chapter Will Be Hosting a CEM Training Course and Test** - At the Trane Offices, 9 Chapin Rd, Bldg. B – Suite 200, Pine Brook, NJ 07058 on Monday, March 16, 2020, 8:00 AM to 2:00 PM. Attendees are encouraged to complete a Certified Energy Manager (CEM) Exam Application or Energy Manager in Training (EMIT) Exam Application 3-4 weeks prior to taking the exam. If an applicant doesn't meet one of the CEM eligibility criteria, they can still apply for the Energy Manager In-Training certification, EMIT. The EMIT certification is valid for six years, which allows applicants time to meet the full CEM certification eligibility requirements. Register for the CEM Certification at: https://njaee.org/meet-reg1.php?mi=235335&id=159

7. **Judge Allows California's Shift to Energy Saving Light Bulbs** - U.S. District Judge Kimberly Mueller of Sacramento rejected a petition from the NEMA and ALA to temporarily block new minimum efficiency standards for light bulbs that the California Energy Commission adopted in November. The judge said the associations are unlikely to succeed in their lawsuit, which argues that the state rules conflict with federal law. Mueller said state regulators appear to have acted properly under exemptions that gave special privileges to California and Nevada to adopt tougher regulations more quickly than the U.S. Department of Energy. The new regulations include incandescent and halogen candle- and flame-shaped bulbs used in chandeliers and sconces, reflector bulbs used in recessed cans and track lighting, round globe bulbs, and bulbs that can operate at three different light levels. http://www.startribune.com/judge-allows-california-s-shift-to-energy-saving-light-bulbs/566612891/

8. **California Gets a Green Light to Enforce Stricter Light Bulb Standards** - Last month, the U.S. District Court for the Eastern District of California issued an order denying a request for a temporary restraining order against the state's standard. The request was made by the NEMAand the ALA in their lawsuit challenging the standard adopted by the California Energy Commission (CEC) in November of last year. The lighting industry groups argued that CEC's action was preempted by the federal Energy Policy Conservation Act (EPCA), but the court ruled that California legitimately exercised its powers under certain exemptions that were granted in the federal law. Last November, the CEC adopted a 45-lumens-per-watt energy conservation standard for five types of general service lamps. The standard was scheduled to take effect January 1, of this year. It was an expansion of a standard covering common pear-shaped A-lamps that had already been in effect in California since 2018. The more recent action broadened the reach of that standard to cover most other types of incandescent and halogen bulbs and will lead to their removal from retail shelves. https://www.ecmag.com/

9. **NEMA & ALA Drop Lawsuit to Block New California Light Bulb Standards** - The National Electrical Manufacturers Association and the American Lighting Association yesterday ended their legal challenge to the California Energy Commission's Nov. 13 decision to expand its minimum efficiency standards for bulbs. The move came two weeks after the U.S. District Court for the Eastern District of California refused to issue a temporary restraining order at their request. https://www.nrdc.org/media/2020/200115

10. **Circadian Lighting Gets Front and Center at Strategies in Light on Wed., Feb. 12** - Over the years, the advisory board has striven to make the Strategies in Light program broadly applicable to the entire LED and solid-state lighting (SSL) chain, while simultaneously staying on the leading-edge of LED technology and lighting applications. In its infinite wisdom, the planning team has seen fit to arrange not one but TWO panels on different topics in lighting for health and wellbeing — more specifically, circadian lighting, in this case. Not a fad but a genuine evolution in the concept of artificial lighting, circadian lighting holds the promise of more closely mimicking the natural day-and-night cycles of light that may provide significant improvement in quality of life. https://www.ledsmagazine.com/blogs/article/14075003/circadian-lighting-gets-front-and-center

11. **Design Guideline for Promoting Circadian Entrainment with Light for Day-Active People** - Finally, the industry has a Design Guideline that we can use for specifying Circadian Entrainment on our jobs. But the DG doesn't come from IES, it is published by Underwriters Laboratories (UL). This DG has been a long time coming. In 2007 the National Institute for Health (NIH) first published data proving the important effects of the circadian system on health. For 13 years the industry has had lots of discussion with very little results. During those 13 years a handful of circadian experts have built lucrative practices advising manufacturers on the important role of circadian stimulus and health. Now that there is a Design Guide, manufacturers should be able to navigate their way without the cost of those consultants. https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=36592

12. **Retirement Chain Installing Circadian Lighting in Memory Centers** - A nationwide chain of retirement communities plans to install circadian lighting at a few of its memory care facilities with hopes of improving residents' daytime alertness and nighttime sleep, in a possible precursor to a wider deployment across other locations. Watermark Retirement Communities, Bridgeport, CT said it is implementing the True Circadian system from Healthe Inc., aimed at delivering stimulating frequencies during waking hours and relaxing light in the evening hours. Healthe says it enriches cyan lighting during the day, boosting the 480-nm light, and that it depletes the cyan at night. https://www.ledsmagazine.com/

13. **How to Use Office Lighting to Improve Occupant Alertness by Dan Hounsell** - Office lighting remains one of the most hotly debated topics among facility managers in institutional and commercial facilities. Managers, along with lighting product managers and manufacturers and researchers, bring a variety of opinions, insights and experiences to discussions about the most effective way to light a range of office spaces in order to address such priorities as worker productivity and energy efficiency. In one of the latest developments, researchers from the Lighting Research Center at Rensselaer Polytechnic Institute and the U.S. General Services Administration (GSA) recently published a study exploring the way light impacts alertness during the day and sleep quality at night in daytime office workers. https://www.facilitiesnet.com/

14. **National Lighting Bureau to Launch a Trusted Warranty Program** - In the spring of 2020, the National Lighting Bureau (NLB) is planning launch a "Trusted Warranty" Evaluation Program designed to independently evaluate warranty processes among manufacturers and recognize companies with a "Trusted Warranty" designation. The policy was written by a number of NLB members, including organizations such as IES and NEMA, service providers such as Imperial Lighting, and manufacturers such as GE Current and Lutron. The draft policy is open for public review and comment at: https://nlb.org/trusted-warranty-program/

15. We**sco Beats Out CD&R in Deal to Buy Anixter** - Anixter International Inc. announced Monday an agreement to be acquired by Wesco International Inc. in a deal valued at $4.5 billion. The deal appears to end a hard-fought battle between Wesco and Clayton, Dubilier & Rice for Anixter, which include multiple bids and counter bids, and more than one announced deals between Anixter and CD&R. Under terms of the latest deal, Wesco will pay the equivalent of $100 for each Anixter share outstanding, including $70 in cash, 0.2397 shares of Wesco common stock and preferred stock consideration valued at $15.89 for each Anixter share. Anixter's first announced deal with CD&R was for $81 a share in cash. https://finance.yahoo.com/

16. **Tech Giant Unveils UK's Biggest PoE Network** - Semiconductor giant Arm has unveiled the UK's biggest lighting installation based on Power-over-Ethernet at its new £90 million head office in Cambridge. In all, some 6,000 luminaires are energised and controlled using Cat6 cables at the 19,000 square-metre HQ, which houses 2,500 staff. The control protocol is DALI and, as it's all phase dimmed from a single infrastructure, it gave the lighting designers flexibility in the selection of light sources. The lighting is integrated with sensors, switches and scene panels, enabling optimised occupation, illuminance and scene control with an equivalent performance to any sophisticated DALI system. https://luxreview.com/

17. **Osram Bets Big on Casambi Wireless Lighting Tech** - Osram has extended its technology deal with Bluetooth lighting pioneer Casambi to roll out the tech into more of its products. The move is significant as it will be seen as a big vote of confidence in the Finnish company and its influential role in the future of Bluetooth wireless lighting control. An agreement has been signed that will see Osram leverage the benefits of Casambi's embedded Bluetooth module and software technology. The move will act as a base to develop further intelligent Casambi-ready hardware, as well as lighting control software for the professional lighting market. Casambi's embedded Bluetooth module is designed for integration with LED drivers, lighting control systems and luminaires. https://luxreview.com/article/2020/01/osram-bets-big-on-casambi-wireless-lighting-tech

18. **2019 IES Annual Conference Proceedings Available for Download** - Proceedings of the 2019 Illuminating Engineering Society Annual Conference which was held August 8-10, 2019 in Louisville, KYas a downloadable document, available for $250. https://www.ies.org/product/ies-2019-annual-conference-proceedings/

19. **LIGHTFAIR to Return to New York in 2021** - LIGHTFAIR will take place during New York City's annual celebration of design, NYCxDESIGN, in 2021. The world's largest annual architectural and commercial lighting tradeshow and conference will be located at the Jacob K. Javits Convention Center alongside international high-end and contemporary furnishings tradeshow ICFF for its five-day conference and three-day tradeshow. Registration is open for the show May 3-7, 2020 in Las Vegas. https://www.lightfair.com/

20. **NEMA Welcomes Department of Energy Final Process Rule** - The National Electrical Manufacturers Association (NEMA) today welcomed the Department of Energy (DOE) final Process Rule that modernizes its current appliance efficiency rulemaking process to conform to changes in the law, clarify ambiguities, and streamline the rulemaking process. The Electrical Standards & Products Guide lists NEMA standards, product categories, and the member manufacturers of those products. ESPG is the guide to electrical products and is read by buyers, specifiers, contractors, and distributors—your client base. Each year, ESPG lists all NEMA standards and other publications, as well as sales contact information, by product type, for hundreds of electrical manufacturers. https://www.nema.org/pages/default.aspx

21. **North American Smart Lighting Market Valued at $2.4 Billion** - The North America smart lighting market reached a value of $2.4 Billion in 2018. Looking forward, the market is projected to reach a value of $7.4 Billion by 2024, registering a CAGR of 19.6% from 2019-2024. Smart lighting system is rapidly replacing traditional lighting solutions as it is economical, sustainable and draws lesser power. It is also accessible through smartphone applications, which makes it easy for the user to control. This lighting system has enabled real-time illumination monitoring, intelligent sensing and improvement in connected lighting technology. Further, the evolution of big data and the Internet of Things has improved the integration of smart lighting with other automated systems used in smart homes. https://www.researchandmarkets.com/

22. **Philly Just Took a Step Toward Getting LED Streetlights Citywide** - The City and Philadelphia Energy Authority put out a call for qualifications from contractors interested in helping LED-ify the city. Philadelphia energy officials are seeking contractors that can customize street lighting so it could vary from neighborhood to neighborhood and through different times of the day. The city has not yet identified funding mechanisms for the citywide LED switchover. There's no implementation date either. The request for qualifications, due in March, will be followed by a request for proposals. So there's still some time to walk down a Philadelphia street at night under that old sepia light. https://whyy.org/articles/philly-just-took-a-step-toward-getting-led-streetlights-citywide/

23. **Bluetooth Mesh Reaches New Heights In Vegas** - Components with the Silvair firmware were used to retrofit the lighting system in the iconic Stratosphere Tower, the tallest freestanding observation tower in the U.S. As part of the retrofit, precisely 100 LED downlights were installed across the space. They were divided into 11 groups, with each group controlled by a Bluetooth SIG-qualified Fulham EliteControl fixture controller. The component provides downlights with Bluetooth mesh connectivity and full lighting control capabilities. The system was set up using eliteBlue, Fulham's smartphone app for commissioning, customising, and monitoring mesh-connected luminaires. High- and low-light scenes were then created for each zone to allow for different mood lighting. https://luxreview.com/article/2020/01/bluetooth-mesh-reaches-new-heights-in-vegas

Global LED Energy Market Observer:

24. **UK Wholesalers Must Take Back End-Of-Life Lamps** - Defra has now confirmed that from the end of 2020, most vendors will be required to provide in-store takeback of so-called Waste Electrical and Electronic Equipment (WEEE). The new requirement will apply to all retailers and electrical wholesalers with annual sales of all products above £100,000. The legal obligation to collect only applies where a customer buys a similar product to that being returned. However, the challenge of enforcing this strictly probably means many will simply offer the service to all customers. https://luxreview.com/article/2020/01/wholesalers-must-take-back-end-of-life-lamps---govt

25. **French Li-Fi Vendor Unveils Faster Transmitters and Broader Coverage** - At CES last week, French Li-Fi vendor Oledcomm enhanced its product offerings, more than doubling the speed of its ceiling-mounted transmitter, adding software that supports the handoff of signals as users wander from one Li-Fi point to another in a building, and introducing a super-fast version for industrial uses. vendors like Oledcomm continue to up their game in an effort to make the technology more attractive. https://www.ledsmagazine.com/

26. **LED Displays with Sensor Integration Open up to New Applications** - The 34th NEPCON Japan was held last week from January 15 to 17 in Tokyo. Launched more than 30 years ago, the show has grown together with the Japanese and Asian electronics industry, gathering specialists of electronic components, materials, packaging devices, LEDs, lasers and more. Worldwide visitors and professionals continuous to participate in the event to learn the latest trend and technology of the industry. https://www.ledinside.com/showreport/2020/1/nepconjapan_led_sensor

27. **Signify LED Lighting Gets Spotlight at Davos World Forum** - Signify has announced a solid-state lighting (SSL) project in the Alpine village of Davos, Switzerland that will play host to the World Economic Forum Jan. 21–24. The project included an upgrade of street lights to LED sources including installation of the Philips Interact City connected lighting and Internet of Things (IoT) platform. Moreover, the Davos Congress Centre that will host the forum was retrofitted with a variety of Philips-branded SSL products. https://www.ledsmagazine.com/

Monthly Feature: Connected Lighting Is Changing for the Better -
From rising construction costs to the shrinking labor force, electrical contractors' jobs aren't getting any easier. When you're already juggling many challenges, keeping up with evolving technologies can feel daunting. Perhaps that's why many contractors choose to stick with the products they've used forever: why reinvent the wheel, and risk introducing complexity to your projects?

But that thinking is outdated, especially when it comes to connected lighting. If your customers aren't asking for it already, they soon will be. Tech trend analysts have forecasted that smart electrical grids and smart buildings are two of the most likely use cases for the Internet of Things (IoT) technologies. Connected lighting's benefits are very real, and we're still only scratching the surface.

Uber-connected and extremely energy-efficient "smart cities" are on the horizon; Toronto, Canada, and Greenville, S.C. are currently deep into the planning phases, with more cities set to follow suit in the coming years. IoT is integral to the infrastructure of the future, with incredible possibilities for businesses and buildings everywhere.

If your impression is that connected lighting is too impractical or complex, it's time to take another look at the solutions available today, which can help solve contractors' most common pain points.

Let's dive into the facts about connected lighting.

Misconception #1: Connected lighting is a fad
Does it seem like there's a "smart" version of everything nowadays? Smart cars. Smart vacuums. Smart doorbells. It's enough to make one wonder whether the whole "smart things" phenomenon will stick around.

While the smart fridge may or may not end up going the way of the dinosaur, smarter, connected lighting is an entirely different story. As energy codes grow more stringent and energy incentives more attractive, the demand for connected lighting will only increase. Many architects and designers also advocate for connected lighting because of its tangible effects on wellness, productivity, and overall ambience.

And it's not just about lighting anymore. Businesses are increasingly considering lighting systems the backbone for even smarter solutions, from sensors that collect building data to systems that can track people and equipment.

Connected lighting isn't going anywhere.

Misconception #2: Connected lighting is cost-prohibitive
When customers balk at connected lighting's initial price tag, it's likely because they don't have all the facts. The fact is, the ROI is far greater than the initial investment. Because of sophisticated sensors and controls, connected lighting systems can save customers up to 70% in energy costs. Customers will reap the benefits of drastic energy savings for many years.

Connected systems like WaveLinx can help your bottom line, too. For example: you can eliminate up to 60% of your wire runs, saving up to 45 minutes per control zone, so you'll get more done with fewer people. Many states provide rebate incentives for LED fixtures with integrated sensors, to the tune of $75 per fixture.

Misconception #3: Commissioning is complicated
We get it: you went into electrical contracting, not IT. The convergence of lighting and wireless technology can be intimidating, especially with how fast both seem to evolve. In the past, connected lighting commissioning has also presented challenges for contractors.

But today's connected lighting systems haven't just gotten smarter from a feature perspective; the best ones are designed to be more intuitive for every user, including contractors working on the install. The WaveLinx system is basically plug & play, with automatic commissioning and code compliance (no matter the location of your project). You can wrap up your jobs up to 40% faster and move on to the next opportunity.

Misconception #4: There's a steep learning curve
Eighty percent of electrical contracting firms currently report having difficulty filling hourly craft worker positions. If you're one of them, you may be hesitant to rock the boat by introducing new technology or products. But you'd be missing out on a big opportunity to diversify your portfolio and skillset, with minimal training.

WaveLinx provides free training videos, perfect for on-site tutorials, as well as local and classroom certification programs where you can learn how the system works in as little as two hours. It's a lot easier than you think to get up-to-speed, and the pay-off in future project fees will more than make it worth your while.

In a nutshell:
Connected lighting systems help you reduce costs and complete projects faster with fewer call-backs. WaveLinx' all-in-one system—which features the most expansive selection of lighting fixtures and controls on the market—ensures that everything works together smoothly. That means no hiccups and no kinks, just a nice, easy process from the installation on through commissioning. Finding out why here

https://www.eaton.com/us/en-us/company/news-insights/lighting-resource/buildings/4-myths-about-connected-lighting--debunked.html#connected-lighting