



Amerlux and FSG Work Together to Re-Light the Post Tops at the Dublin House in Red Bank, NJ - FSG installed Amerlux Avista® decorative post top retrofits at the Dublin House in Red Bank, NJ that surround their property. Installation takes 15 minutes and provides 2700K light. Other cities, like Rumson, Fair Haven and Little Silver all have similar post tops and all are looking for a suitable retrofit. All across the country, old, outdated streetlights are being transformed into high-powered performers thanks to Avista® retrofit with the advanced LED light engine. Discover how retrofitting your existing fixtures or complementing new ones can enhance the beauty and safety of your environment. <http://www.amerlux.com/> <https://www1.fsgi.com/> Watch the video: <https://www.youtube.com/watch?v=q4iGi8Oqlew>

Amerlux Introduces SPEQ Track Lighting Solution - The new track lighting solution SPEQ line boasts a clean, controlled, and powerful beam for commercial spaces, high-end retail, and gallery exhibits. The design looks like conventional track lighting, so it does not draw attention to itself. Unlike most LED track lighting solutions, Amerlux says that SPEQ can deliver a powerful, controlled beam from just about any mounting height. Also, the design does not have a visible heat sink or venting like other LED-based solutions. "We just added allure to high-end clothing and luster to sparkling jewelry," said Frank Diassi, who is Amerlux's founder and chairman. The SPEQ is available with a Class A Full Gamut chip that delivers full saturation of color and clean, crisp whites, or with correlated color temperatures (CCTs) including 2200K, 2700K, 3000K, 3500K and 4000K. The track light dims with TRIAC and ELV dimmers on 120V/277V systems. <http://www.amerlux.com/products/interior/track-heads>



LED Energy Market Observer:

- 1. NEMA'S electroindustry is the Monthly Magazine of the Electrical and Medical Imaging Industries** - Each issue features various perspectives and in-depth analyses of technical issues, international developments, and new technologies and projects in the electroindustry. In addition, the magazine covers legislative and regulatory issues, electrical standards trends, business issues, and international events, as well as the activities of NEMA and its member companies. The February 2018 is dedicated to "Better Living Through Lighting". http://www.nema.org/news/EI%20PDF/EI_Feb18.pdf
- 2. Is 3-D Printing the Next Frontier for the LED Lighting Industry?** - Although LED lighting has become a mature technology, a new technology is quickly rising as a potential benefit to the LED and SSL industries. Additive manufacturing is the fabrication of a 3D object by depositing a polymer-based material using print heads, nozzles, or other material deposition or solidification processes using a layer by layer approach with digital information from a computer-aided design (CAD) model. The ability to achieve product customization and design uniqueness is the primary reason for merging lighting with additive manufacturing. The benefits of additive manufacturing for SSL include custom fixtures and components, improved visual appeal and functionality, rapid prototyping, faster new product introductions, and reduced fixture cost. <http://www.ledsmagazine.com/articles/2018/01/is-3-d-printing-the-next-frontier-for-the-led-lighting-industry.html>

3. Micro LED vs OLED: Competition Between the Two Display Technologies - The emergence of Micro LED does steal some of the limelight from OLED that has been dominating the television market for the past few years, but can Micro LED really challenge OLED? Almost all the big names we can think of in the tech industry see Micro LED as the next big thing. Samsung launched a massive modular display, while Apple acquired Micro LED developer LuxVue and even filed a patent covering a foldable iPhone sporting a Micro LED screen. People started to expect an Apple Watch and/or iPhone that features Micro LED technology. Even if the high brightness, wide color gamut, and modular design of Micro LED displays attracts a lot of attention, this technology is still at the R&D phase. <http://www.ledinside.com/>

4. Vividgro Acquires Home Grow Marijuana App to Facilitate Smart LED Horticultural Lighting - VividGro, a manufacturer of high-quality LED grow lighting products that has become an AgTech leader, acquired WeGrow, a cannabis home grow app with over 20,000 downloads in the iTunes Store. WeGrow, which launched its chatbot-based technology in April 2017, has dramatically simplified the learning process of growing cannabis using personalized conversations. A 2017 Harris poll shows that 8.8 million, or 16% of all adults, would grow marijuana if it were legal to do so in their state. Growing marijuana for personal use increases the number of gardeners in the United States by 9% to 152.1 million. The survey also finds that the age group most likely to grow their own cannabis is millennials, the target market for a chatbot platform. <http://bizled.co.in/vividgro-acquires-home-grow-marijuana-app-to-facilitate-smart-led-horticultural-lighting/>

5. DOE's Connected Lighting Systems Efficiency Study — PoE Cable Energy Losses - Power over Ethernet (PoE) technology offers the ability to provide both low-voltage direct-current (DC) power and communication over a standard Ethernet cable—also referred to as a local area network (LAN) cable or Category cable. Light-emitting diode (LED) technology has reduced the power required for lighting applications, while advances in PoE standards and technology have yielded substantial increases in the amount of power that can be delivered to a networked device over a single cable. As a result, PoE technology is emerging in lighting and many other applications beyond its historical foothold in telephony and networking equipment. Several major LED luminaire manufacturers have introduced PoE connected lighting systems in recent years, making this a potentially disruptive technology. This report summarizes the results of an exploratory study investigating power losses in Ethernet cables used between PoE switches and luminaires in PoE connected lighting systems. The following recommendations, stemming from the study findings, are offered to help streamline the adoption of PoE technology in lighting applications: https://energy.gov/sites/prod/files/2018/01/f47/cls_poe-cable-pt1_nov2017_0.pdf

6. DOE Presentations from SSL R&D Workshop Now Available Online - Thanks to all who participated in the 15th annual DOE Solid-State Lighting R&D Workshop, held January 29--31 in Nashville, TN. Lighting experts from across the country and abroad gathered to address the complex science and technology challenges facing SSL today. The mix of perspectives -- spanning universities, labs, and companies large and small -- resulted in a robust and exciting exchange of ideas on SSL research progress and future R&D needs, generating much food for thought. Visit the DOE SSL website to view the workshop presentations and materials: <https://energy.gov/eere/ssl/2018-solid-state-lighting-rd-workshop-presentations-and-materials>

7. Learning Lighting by Jim Lucy - Electrical Wholesaling's picks for the best resources available to keep pace with the technological transformation of the lighting market. The industry has plenty of resources to help lighting pros keep up with all of the changes. In this article, Electrical Wholesaling's editors offer their picks for the best lighting education resources. The lighting industry is blessed with a good group of trade associations that focus on helping their members learn about the new age in lighting. Here's an A-Z listing of the lighting trade groups and government programs that we think have the most to offer to electrical distributors, reps and manufacturers. Thank you Jim for the <http://energywatchnews.com/> mention. <http://www.ewweb.com/lighting/learning-lighting>

8. Wave Illumination Debuts Pocket-Sized WaveGo Smartphone-Connected Light Measurement Device - Wave Illumination based in Largo, Florida has introduced a light measurement device called WaveGo that works with a smartphone app. The small device plugs into a smartphone, and offers simple measurement for characterization of light sources. Furthermore, the company says that the device is accurate in its light source measurements including lux, absolute irradiance, color temperature, color rendering, Melanopic lux, TM30, and PAR. Users can select any combination of measures including absolute irradiance spectrum, lux, CIE 1931 color, CRI (Ra, R1-15), TM30 (Rf & Rg), and PAR for each measurement taken. <http://www.solidstatelightingdesign.com/wave-illumination-debuts-pocket-sized-wavego-smartphone-connected-light-measurement-device/>

9. Smart Lighting Control Systems are Solving Real-World Problems - LED lighting has come a long way from its initial days. Today it is combined with digital lighting controls to create smart lighting solutions that dramatically save on energy consumption and the related operating costs. But in addition to these savings, organizations deploying smart lighting solutions are achieving impressive results in other ways. Let's take a look at a few examples.

- 1) Improve Comfort, Productivity and Safety in the Workspace
- 2) Directly Impact Critical Decision-making and Streamline Workflows
- 3) Integrate Best-in-Class User Experience
- 4) Customize Lighting to Meet Unique Needs of Specific Demographics and Tasks

<http://info.osram.us/blog/lighting-control-systems-solve-real-world-problems>

Global LED Energy Market Observer:

10. Osram Opto Semiconductors Launches Human Centric Lighting (HCL) Concept - At its headquarters in Regensburg, Germany, Osram Opto Semiconductors has installed a Human Centric Lighting (HCL) concept. The lighting deployment features a brightly-lit façade for the company's new main building LO1 and interior lighting that the company developed to enhance the working environment for associates, as well as improve sustainability. According to the company, the concept utilizes technologies from the entire value chain of the Osram Group, ranging from individual LEDs to the complete lighting solution. The company notes that a continuous light deficit or unsuitable lighting can result in sleep and eating disorders, lack of energy, and even depression. In order to prevent such issues, the HCL concept interior lighting meets the needs of human biorhythms. <http://www.solidstatelightingdesign.com/>

11. LEDvance Successfully Delivers 25 Million LED Lamps to Indian Government - To Energy Efficiency Services Limited (EESL), the Indian government agency in charge of executing India's UJALA (Unnat Jyoti by Affordable LEDs for All) initiative. The deal, which LEDvance won in a public tender in March 2017, is one of the largest government contracts of all-time for the company. The on-time conclusion of the project in December 2017 is the result of a close collaboration with MLS Co. Ltd, which is part of the investment consortium that acquired LEDvance from Osram GmbH back in March 2017. The government deal in India also blends in with LEDvance's commitment to sell 2.5 billion LED lamps by 2023. <https://finance.yahoo.com/news/ledvance-successfully-delivers-25-million-010000679.html>

12. Philips Lighting's New Name Is a Closely-Guarded Secret - Philips Lighting's new title – set to be released at the upcoming Light + Building exhibition in Frankfurt in March – is a closely-guarded secret, said to be known by only 10 people worldwide. 'We intend to announce our new corporate name in the first half of 2018,' CEO Eric Rondolat told the press. The name change will come roughly two years after former parent Royal Philips sold off Philips Lighting in a stock market offering. 'Needless to say, we'll continue to use the Philips brand for our product as we have a brand licence agreement for the coming decade.' Speculation is mounting that the switch is expected to reflect the importance of IT-based lighting and services. <http://luxreview.com/>

13. **Philippines Govt Induces LED Penetration for Future Growth** - The major players in the market include Philips, Yatai, Firefly, Akari, General Electric and Green Energy Saving. The LED lights market in Philippines is currently in a nascent stage and is expected to grow at a remarkable rate in the coming five years. Manufacturing plants for LED lights are expected to be installed in the country by both national and international players. The demand for LED lights has shown a consistent rise since its inception in the Philippines and the same trend is expected to continue at least for the next five years. The new report covers market size on the basis of revenue, market segmentation by type of LED, usage, type of luminaire, type of lamps, distribution channel and by region. The report also includes the government initiatives and regulations in LED lights market, competitive landscape and company profiles for major players in the LED lights market. <http://bizled.co.in/philippines-govt-induces-led-penetration-for-future-growth/>

14. **Micro LED / Mini LED / COB LED Digital Displays Become the Center of Attention - ISE 2018 LIVE** - Integrated Systems Europe (ISE) 2018 in the Netherlands is an international well-known exhibition for display. This international exhibition took place from February 6 to 9 in the Netherlands and has caused a lot of attention in the digital display industry. At ISE 2018, Micro LED, Mini LED and COB digital displays are the three main focuses. Fine pitch LED digital displays aim to achieve more sophisticated results. <http://www.ledinside.com/>

15. **SUSI Partners Agrees to Finance Philips Lighting's Lighting as a Service for European Customers** - Philips Lighting to deploy Light as a Service (LaaS) projects throughout Europe to help lighting customers upgrade their lighting to more energy-efficient alternatives and reduce carbon emissions. Philips Lighting's LaaS business model includes the design, building, operation and maintenance of new lighting installations. Most importantly for the customer, with LaaS, the benefits of the efficient lighting systems can be obtained with no upfront investments and the costs of the lighting spread over a predetermined period. So, the customer can immediately realize savings on energy costs and can begin repaying for the project from these savings. <http://www.solidstatelightingdesign.com/susi-partners-agrees-finance-philips-lightings-lighting-service-european-customers/>

16. **PoE Resurfaces, at Danish Office Building by Mark Halper** - Working with Cisco, Philips Lighting heralds a new Copenhagen office building as a Nordic first. As we've pointed out before, with all the talk about wireless LED lighting networks such as Bluetooth Mesh, it's easy to forget that wires can also turn lights into intelligent data systems. Philips Lighting has served up another reminder of the possibility, announcing a 400-luminaire "smart office" installation in Denmark using Power over Ethernet (PoE). The two-story building in the Copenhagen municipality of Albertslund comes straight out of the PoE textbook, as it is a new build. Smart lighting economics says that PoE makes more sense when buildings are first constructed than in a retrofit, which would entail costly ripping out of existing infrastructure, and where wireless can be the more prudent way to go. Power over Ethernet carries low-voltage electricity — which is all that LEDs require — over the same Ethernet cable that transports data around a company's computer networks. As such, it eliminates many of the costs associated with conventional electrical wiring. The Ethernet cables also transport data to the luminaires, which can serve a multitude of purposes in addition to lighting control. <http://www.ledsmagazine.com/articles/2018/02/poe-resurfaces-at-danish-office-building.html>

17. **Singapore Airport's T4 Opens with Acclaim for Lighting** - Singapore Airport's (Changi Airport) new Terminal 4 has opened to acclaim for its lighting, which is technical blend of natural and artificial lighting. The client placed highest emphasis was put on visual comfort, guidance and creating a sense of place. A central, daylit galleria opens up baggage reclaim areas for a welcoming arrival. Visibility across the floor, up to and from departures visually connects all areas. Daylighting responds to extreme variations within the galleria itself and in comparison to the surroundings. Views through the shading system and fritted roof glazing are made possible, direct sunlight is reduced to enjoy the suspended artwork from all directions. Application of a static daylight system to simplify maintenance represented a challenge. Still the outcome shows soft transitions, reduced glare and a high level of uniformity with room for visual accents and artwork distributed throughout the terminal. Watch the video: <https://www.youtube.com/watch?v=KSmEOTY36uk>

18. **Pope Gives Blessing to LED Revolution at St Peter's** - Planning for the new LED lighting system for the world's largest church has entered its final phase. The lighting calculations and simulations for completely new lighting concept – with the emphasis on indirect illumination – have been successfully completed. The design eliminates unsightly drop shadows on the circular inscription, which is carved into the wall below the cornices of the basilica. A total of 700 custom-made luminaires with more than 100,000 LEDs will bathe individual works of art and statues at the basilica. The lighting – scheduled to be completed by Christmas 2018 – is being supplied by Osram, who also lit the Sistine Chapel and the Raphael Rooms in the Vatican in recent years. <http://luxreview.com/article/2018/02/pope-gives-blessing-to-led-revolution-at-st-peter-s>

19. **City of London Unveils Smart Lighting Strategy** - The City of London is working on a innovative lighting strategy that will use smart lighting to cut energy and light pollution, and manage light levels and colour at different times of the day. The proposals – which cover the 'Square Mile', the financial and commercial heart of British capital – are being developed with leading independent lighting design practice Speirs + Major. Included is the use of 'remotely-operated' lighting to complement the look of historic buildings. The first of its kind in London, the strategy will use smart technology and see urban spaces lit in various lighting types, levels and colours at different times during the night. This will complement the work that is already underway to upgrade the City's street lighting to LED. <http://luxreview.com/article/2018/02/city-of-london-unveils-smart-lighting-strategy>

20. **Hong Kong International Airport Cuts Luminaire Number in Half with Thorn Lighting** - Hong Kong International Airport has established itself as the busiest cargo airport in the world. It processes more than 65 million passengers each year. The airport handles more than four million tons of cargo annually and serves as a passenger hub for destinations in Asia and beyond. The refurbished Terminal 2 with check-in facilities and a stylish Sky Plaza shopping and dining area covers over 140,000 square meters. Having previously installed Thorn products in Terminal 1, the airport authorities contacted the Zumtobel Group APAC regional office in Hong Kong about a lighting solution for the Terminal 2 refurbishment project. The Zumtobel Group suggested the Thorn HiPak LED high bay. The client was immediately impressed by the lighting quality and the efficiency of the robust HiPak LED high-bay. They found that one HiPak fitting could replace two of the original LED luminaires, because of the HiPak's powerful lumen output and high efficacy. At the same time, the stable color temperature could avoid any changes in tone at the edge of the light beam for consistent light color and quality. <http://www.solidstatelightingdesign.com/hong-kong-international-airport-cuts-luminaire-number-half-thorn-lighting/>

21. **How OLED Oversupply Will Affect Opportunity of Mini LED in Smartphone Display Market** - Several recent commentaries have pointed out a chance of OLED experiencing an oversupply due to the tepid sales of the iPhone X, especially when there will be three OLED suppliers, namely Samsung, LG Display and BOE. Last month, it was also learnt that some Chinese phone brands, such as Huawei and Xiaomi, consider to upgrade its LCD smartphone screens with Mini LED backlights. Over a billion of smartphones have been shipped in 2017. Only one seventh of them are iPhones and nearly one fourth of them Samsung phones. Among that many iPhones, only a portion of them are iPhone X. From simple maths, we can get an answer that those spare flexible OLEDs originally intended for the iPhone X is still far from sufficient to support 50% of the phones, let alone the whole rest. <http://www.ledinside.com/>

National Energy Market Observer:

22. **General Electric Strikes Deal to Sell Portion of GE Lighting** - GE has agreed to sell GE Lighting's business in Europe, the Middle East, Africa and Turkey, as well as its Global Automotive Lighting business. The company previously announced plans to sell both GE Lighting and Current, a unit that spun out from GE Lighting in 2015. The buyer is a company led by Joerg Bauer, who previously served as president of GE Hungary, which is where the business unit being sold is headquartered. The sale "also would include use of the GE Lighting brand during a transition period, after which the new organization would develop, manufacture and sell products under the iconic Tungshram brand. <http://www.crainscleveland.com/article/20180215/news/152106/general-electric-strikes-deal-sell-portion-ge-lighting>

23. News Release Announcing GE's Fourth Quarter Results - GE Lighting's "North American Consumer business, including GE's Current business unit, and other assets continue to be marketed as part of a separate sale." Revenue for GE's lighting unit, which includes GE Lighting and Current, fell to \$546 million in the fourth quarter of 2017, down 7% from \$584 million during the fourth quarter of 2016. Revenues for Current jumped 9%, but GE's traditional lighting business fell 21%, according to a news release announcing GE's fourth quarter results. https://www.ge.com/investor-relations/sites/default/files/ge_webcast_pressrelease_01242018.pdf

24. Acuity Brands, Inc. Announces Acquisition of Lucid Design Group, Inc. - An Oakland, CA-based provider of building analytics through its industry-leading BuildingOS® business intelligence platform. The Company believes the combination of Lucid's BuildingOS platform and Acuity Brands' large installed base of networked sensors for lighting and building automation controls and its Atrius(TM) Internet of Things (IoT) ecosystem will provide the industry's most comprehensive building operations and analytics platform, enabling customers to have unparalleled insights about their energy use and other building operations. Lucid provides a data and analytics platform to make data-driven decisions to improve building efficiency and drive energy conservation and savings. Its SaaS-based BuildingOS platform enables owners, operators, and occupants to gain powerful insights into the operations of their buildings. <https://www.acuitybrands.com/>

25. RAB Lighting Laying off 121 Employees at Northvale, NJ HQ - More than 100 workers at RAB's Northvale headquarters could lose their jobs as of March 9, according to the WARN notice. NJ law requires companies to issue a WARN (The Worker Adjustment and Retraining Notification) notice when a company plans a large-scale layoff. The 70-year-old company manufactures energy-efficient LED lighting. The cuts follow a plan announced early last month to move RAB's northeast distribution center to Cranbury in Middlesex County. Employees from the Northvale office will be able to apply for positions there, the company said. Corporate headquarters and manufacturing will continue to operate at the Northvale office. The company was named a top 50 fastest growing company in the state in 2015 by NJBIZ. <http://www.nj.com/>

26. AD Members Gather to Discuss Digital Future - Distributor buying group AD hosted its second annual eCommerce Summit at the Westin in Denver, CO, Feb. 7-9. Over 250 AD Independent Distributors from six industries and three countries joined their peers to discuss strategy, objectives, and tactics for independent distributors looking to win in an evolving digital world, the group said in a release. The event included one-on-one coaching sessions, sharing best practices, platform-focused networking, member-led panels and keynote speeches from industry experts. <http://www.ewweb.com/bulletin-board/ad-members-gather-discuss-digital-future>

Monthly Feature:

Installing Lighting Controls in Commercial Buildings

<http://www.ecmweb.com/lighting-control/installing-lighting-controls-commercial-buildings>

Consistent, scheduled revisions to national model codes are designed to keep pace with changing construction practices, incorporate new technologies, and improve building efficiency. Standards-writing organizations publish energy standards on a multi-year cycle. States and municipalities subsequently adopt these standards into law at different times. Beyond that, the requirements are typically different for renovations versus new construction and can also change by building and space type. Because energy codes are complex, it can be difficult to stay informed, especially with projects that reach across broad geographic areas or include a variety of building types. Specifiers and contractors are tasked with ensuring lighting control systems are code-compliant and still meet demanding occupant-performance requirements, but this can be challenging.

These seven questions provide answers that help ease the process of implementing code-compliant lighting and control solutions that meet customers' needs and budget requirements without sacrificing performance essential to reducing energy use, increasing occupant comfort, and improving space use. Answers address common points of confusion, provide strategies for meeting code on every project, and identify ways to take advantage of resources that will help clarify code requirements.

1. Which energy code applies to my project? Prior to occupancy, all buildings must meet the energy code that has been adopted by the local authority having jurisdiction (AHJ). Energy standards, such as ASHRAE 90.1: "Energy Standard for Buildings Except Low-Rise Residential Buildings and the International Energy Conservation Code" (IECC), are developed nationally on a three-year cycle. Most state codes are based on these standards. California is the exception to this rule, as it uses the "California Title 24 Part 6 Building Energy Efficiency Standard" in a concerted effort to ensure buildings achieve a very high level of energy efficiency and preserve outdoor and indoor environmental quality. California is pushing toward zero net energy by 2020 for residential buildings and 2030 for commercial buildings.

States must adopt a minimum code standard, but they also have the option of adopting and making amendments to these standards. Local jurisdictions within each state must generally adopt the state's code while having the option of amending that code prior to adoption — provided it is at least as energy-efficient as the state code. Given the multiple editions of IECC in existence today, coupled with the opportunity for states and AHJs to amend their codes, keeping track of specific requirements can be difficult. Code information is generally available online at the IECC and ASHRAE websites, but more targeted energy code look-up tools are available through manufacturers' websites to find state or local energy codes.

2. How do I know if a certain product complies with energy code requirements? Individual products are not certified to meet building energy codes. Energy codes require specific functionality, depending on space type, daylight availability, and whether or not the space is illuminated and intended for use as a means of egress during an emergency. The correct product application in buildings, rather than the products themselves, deliver the necessary functionality to comply with energy codes. Typical required lighting control functions include scheduled or automatic shutoff, multilevel, and daylight-responsive. One product or group of products can be installed and programmed in accordance with a defined sequence of operations to meet the functional code requirements for each space.

3. How do retrofits differ from new construction in terms of code compliance? Project scope changes code requirements. New construction will always have the most stringent energy code requirements. Retrofits often have fewer requirements, but the threshold for including energy-savings strategies is different within each code. Energy code requirements for lighting alterations or "retrofits" vary, depending on the adopted code and the scope of the retrofit. Projects in which only a small number of luminaires are replaced typically do not need to meet any additional control requirements. The exact percentage varies in each energy code, but replacing a higher percentage of luminaires makes it more likely the project will have to meet updated code control requirements. New construction codes may have to be met in projects that either include replacement of all luminaires or involve the relocation of walls or partitions. Check local energy codes for the precise limits on lighting alterations and the associated lighting control requirements. Using digital ballasts or drivers along with wireless sensors and controls can make future lighting retrofits and rezoning of lighting in a space easier and faster. Consider approaching each retrofit with future updates in mind.

4. Is there an advantage to occupancy-based control versus timeclock control? Timeclock (also known as time switch) control automatically turns off the lights in a space when that space is normally unoccupied, such as during nighttime hours. This is most useful in areas that conform to a prescribed schedule. An occupancy sensor is a device that automatically reduces or turns off the lights in a space after all occupants have left that space. As long as the space is occupied, the lights remain on. In most energy codes, the baseline requirement is scheduled shutoff (timeclock), but occupancy sensors can also meet this requirement in most applications, and some of the newer codes require occupancy sensors in certain space types. If the code allows an option, consider the strategy that best meets the immediate and long-term needs of the space. In certain spaces, some energy codes also require automatic shutoff for half of the 120V receptacles. Occupancy sensors and timeclocks that control the lighting can also be paired with receptacles to make it easier to meet any automatic receptacle shutoff requirements. The same occupancy sensors that control lighting and receptacles can also control HVAC systems. This is typically done in hotel guest rooms where the latest energy codes require automatic shutoff of lights and receptacles as well as automatic stepdown or step-up of the thermostat in the guest room while it is vacant.

5. What fixture/control strategies can be used to meet daylighting requirements? Daylight code requirements are typically defined per daylight zones, and daylight zones generally fall into one of two categories: sidelight or toplight. Sidelight zones are adjacent to windows and are typically based on window height (distance from the top of the window to the floor). Toplight zones are under skylights and defined based on ceiling height. In each case, the location of obstructions, such as partitions, change the daylight zone area.

Exceptions to the daylighting requirements also exist based on total lighting power in all daylight zones in a space and window surface area. While the daylight control requirements promote the use of natural daylight in a space, they don't address glare and heat gain — factors that can inhibit productivity by reducing occupant comfort. Using automated shading systems and appropriate fabrics can help preserve the benefits of daylight while controlling the amount of glare and heat entering a space as a result of direct sun exposure.

6. Are manual controls required for occupant safety? Manual or “local” controls are required in most spaces, but exceptions, such as the ability to mount the manual control in a remote location or to waive the requirement altogether, do exist, depending on the code and the space. These exceptions most often occur in spaces that may be used as means of egress or where constant illumination is required. Always check the local code for exceptions to the manual control requirements, since they vary widely.

7. What if I still need help determining which requirements I need to meet? Various manufacturers and industry organizations provide reference materials, and local training sessions are sometimes offered as well. For general information about building energy codes and standards, visit www.energycodes.gov. If further interpretation or clarification need to be made for a project, directly contacting your state's building department is another option. Solutions for code compliance and best practices. Designing a building or space that meets code is a basic requirement. As a designer/installer, it's important to offer alternative solutions that go beyond minimum compliance and identify best practices and solutions that promote well-being and best serve the various needs of the people in the space. No single resource can guarantee a code-compliant solution, so it's essential to verify selected control strategies with a local AHJ for energy code amendments.

Craig Casey is a senior building science engineer with Lutron Electronics Co., Inc. in Coopersburg, Pa.

He can be reached at ccasey@lutron.com