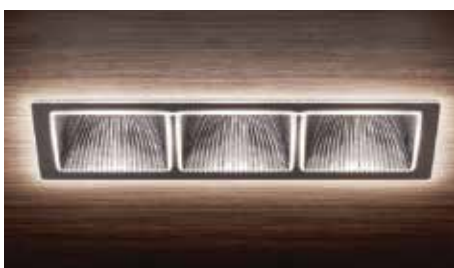


2023 PROGRESS REPORT



The IES Progress Committee's mission is to keep in touch with developments in the art and science of lighting throughout the world and prepare a yearly report of achievements for the Society. Acceptance is based on an impartial judging process used by the committee to evaluate each submission on its uniqueness, innovation and significance to the lighting industry. There were 91 submittals in 2023; 61 were accepted into the report.

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Zinkon Creative Studio

2023 PROGRESS REPORT

LED CHIPS AND MODULES



Samsung introduced a new 2835 mid-power LED, the LM281B+ PRO 2 with the highest reliability in its family. By incorporating a reinforced protection coating, the new LED improved lumen maintenance by more than 10%, and 12% against sulfur and humidity, respectively, compared to the conventional 2835 LEDs while achieving more than 25,000 hours of lifespan. Additionally, structurally resilient wires applied inside provide low breakage risk due to extreme thermal changes, and are guaranteed for 500 cycles under extreme temperature conditions, more than 2.5 times longer than the conventional 2835 LEDs.



Modular International's 579e LED Modules are the industry's highest efficacy LED module series for adjustable downlights and multiples fixtures with delivered efficacies of up to 156 lumens per watt. They are available in 50-, 70- and 90-millimeter sizes with wattages ranging from 7 to 35 watts, beam angles ranging from 20 to 90 deg, CCTs ranging from 2700K to 4000K with CRI of 90+. With field-changeable reflectors, customizable shielding and media-filtering options, over 39,000 high-efficacy product combinations are possible.

LED REPLACEMENT LAMPS



Current has expanded their offering of LED replacement lamp options for hazardous locations with the industry's first types to meet Class II Division 1 hazardous locations. Offered as retrofits for ED17 and ED28 lamp shapes with output ranging from 3,000-23,500-lumens, these lamps provide energy saving opportunities in areas where explosive or flammable gases, vapors or liquids may exist under normal operating conditions.



Also from **Current** is the industry's highest output LED replacement for BT56 HID lamps. At 85,000 lumens, it is 30% higher than the closest competitors. The lamps operate from 277- through 480-volts and match the ANSI length and diameter for BT56 lamp shapes. They have an efficacy of up to 180 lumens per watt, while lasting up to 16 times longer than the metal halide lamps they replace. They are available in 4000 and 5000K with a color rendering index of 70.



Current's LumenChoice + SpectraChoice Type B LED T8 lamps are the first to offer both wattage and color-temperature selectability in one lamp for 4-ft T8 applications. One integrated switch allows users to adjust power and lumen output to optimize light wattage and light levels, while a second switch offers CCT adjustment. The selectable 8-, 12- or 16-watt levels correspond to 1,100, 1,600 or 2,000 lumens with CCT options of 3500K, 4000K or 5000K. The lamps also have a published CRI of 80 and a rated life of 70,000 hours L70.



Green Creative's CCT Select Emergency TLED lamps are the first to offer an all-in-one solution for general lighting and battery backup emergency lighting with selectable color temperature. CCT's are selected with on-board DIP-switch settings of 3500K, 4000K, or 5000K. Intended for double-ended wiring, bypass applications, the lamps operate on 120- to 277-volts and include a built-in lithium battery which produces 600 lumens of constant lumen output over 90 minutes when in emergency mode.

2023 PROGRESS REPORT

LED REPLACEMENT LAMPS (CONT'D)



The AdjustaPAR lamp series from **Green Creative** are the industry's first LED PAR lamps designed with integrated switches enabling in-field selection of color and beam angle. Available in PAR30, PAR30 LN and PAR38 reflectors, one switch on the lamp neck allows selection of 25-deg narrow-flood or 40-deg flood beam angles. A second switch can be used to select one of five CCTs ranging from 2700K to 5000K. The lamps have a CRI greater than 90 and a rated life of 25,000 hours.



Green Creative's CCT Select PinFit PL Omni lamps are the industry's first CCT-selectable LED omnidirectional alternative to quad-tube compact fluorescent lamps. A switch on the lamp base allows selection between 3000K, 3500K or 4000K with outputs of 1,150 or 1,200 lumens. The lamps also feature a patented, modular base design allowing for compatibility with G24q 4-pin or G24q 2-pin lamp holders, making them capable of being installed with compatible electronic or magnetic CFL ballasts or direct-wired, ballast bypass installations.



Rated at 200 lumens per watt and 10,000 lumens, **eLumigen's** LED filament HID replacement lamps were accepted for being the highest efficacy, highest output LED filament lamps. Additionally, these are the only high output filament lamps that can operate on both AC and DC voltage. These lamps have an ED28 envelope and E39 mogul base. They are available in 5000K, 70 CRI, can operate in base-up, base-down or horizontal applications in wet, damp and dry locations with a rated life of 25,000 hours.



Green Creative's Refine PAR lamps with swappable lenses are the industry's first PAR lamps with a patent-pending lens that allows for field-changeable light distributions. Available in PAR20, PAR30 and PAR38 reflector sizes, the lamps feature lenses that can easily be removed and replaced to provide 15-, 25- or 40-deg beam angles in color temperatures ranging from 2700K to 5000K.. Many types operate from 120 to 277 volts, and all lamps have an L70 rated life of 25,000 hours.



RAB Lighting introduces LCBT8 SmartShift lamps, the first Bluetooth-enabled LED Linear T8 ballast bypass to offer tunable-white with color temperature and a National Sanitation Foundation rating. Having a CCT range of 2200K to 6500K, dimming can be controlled via RAB's Lightcloud Bluetooth mobile app. The lamps are available in a 4-ft version with an input wattage of 18 watts and a lumen output of 2,200 lumens.



RAB Lighting expands their Lightcloud Blue wireless control system, which was accepted in the 2022 Report, with new RGB color-tunable lamps. Lightcloud Blue RGB A19 and BR30 lamps can deliver colored light or tunable-white CCTs ranging from 2200K to 6500K via a Bluetooth mobile app that requires no gateways. The app features a SmartShift-ready program which synchronizes with local sunrise and sunset hours to automatically adjust CCT over the course of the day. The A lamp is available in an 8-W, 800-lumen version while the 7-W BR30 delivers 650 lumens. Both types have a CRI of over 90 and an L70 rating of 25,000 hours.

2023 PROGRESS REPORT

LUMINAIRES – DOWNLIGHTS



Cooper Lighting Solutions

Halo HLBC Slim Regressed Canless Downlight is the first 2-in-1 canless downlight that can be installed directly under a joist or in a housing. The HLBC includes selectable CCTs plus a dim-to-warm setting, as well as selectable lumen ranges. It includes both canless and retrofit installation methods, allowing the same luminaire to be installed in spaces that require a housing as well as spaces where no housing is required.



Green Creative introduces the INNOFIT Plus Commercial Retrofit Downlight, which provides the highest efficacy in the market. It provides three selectable lumen levels as well as three selectable CCT values. Available in multiple sizes including 4 in. and 9 ½ in., with phase and 0-10-V dimming options, the INNOFIT has an industry leading 140 lumens per watt as a canless retrofit.



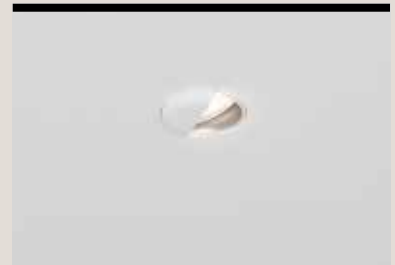
The NYX new counteraction downlights from **Green Creative** boasts the highest efficacy in the market for field-selectable CCT and selectable-lumen downlights. It is a shallow housing luminaire with a max height of 2 ½ in. and includes round and square trims in multiple styles and colors. It has an efficacy of 100 lumens per watt.



Zaniboni Lighting introduces the Mini RD Downlight, the smallest beveled aperture that utilizes a unique drywall anchor installation method. It has a 1.1-in. aperture diameter with a beveled trim. The top part of the trim screws into drywall, and the light engine plugs into the driver and pushes into the trim.



Also from **Zaniboni Lighting**, the Mini RX Downlight is the smallest beveled aperture that utilizes a unique screw-in bolt action installation method for wood or stone ceilings. The Mini RX has a 1.1-in. aperture diameter with a beveled trim. The top part of the trim screws into a retaining nut above the wood or stone ceiling and the light engine plugs into the driver and pushes into the trim.



Complementing these two luminaires, the Mini TDW Wallwash luminaire from **Zaniboni** is the smallest in its class for trimless wallwashers with a protrusion of just 0.19 in.

2023 PROGRESS REPORT

LUMINAIRES – DOWNLIGHTS (CONT'D)



The LUNA 4-in. Wi-Fi regressed RGB gimbal is a line extension to the OnCloud system from **Liteline**. LUNA uses Wi-Fi connected by WiZ to control several fixtures in the OnCloud system to create circadian rhythms, tunable-white solutions, RGB color selections and other schedules via the app. Each fixture is individually addressable and the LUNA has regressed optics that deliver 910 lumens, as well as 30-deg tilt and 360-deg rotation.



Acuity Lighting offers Aculux WarmDim® solution, the industry's highest output 3-in. downlight with warm-dimming capability. With a CCT dimming range of 1800K to 3000K, the 1,500-lumen, 10-deg spot offers up to 50% higher lumens than competitive warm-dim downlights currently in the marketplace. These luminaires also have a color tolerance specification of 1 MacAdam ellipse, which is important when considering fixture-to-fixture color consistency.

HEALTHCARE



Neo-Ray, a Cooper Lighting Solutions brand, introduces the Define Patient Luminaire. It is a first-of-its-kind linear luminaire with adjustable optics and adjustable baffles, designed for a patient room to ensure appropriate footcandle levels for specific emergency operations such as intubation. Light baffles at each end of the fixture are adjustable for aiming and can be removed for cleaning. Each baffle has the ability to interchange black and white internal cones to reduce glare and match design intent.

RECESSED TROFFERS



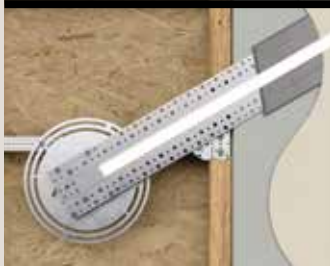
Lean by **A-Light** is a 2-ft by 2-ft troffer recognized for its combination of features, with sustainability in mind, to reduce shipping volume and packaging by up to 88%, therefore saving embodied carbon associated with transporting product to the job site. It uses existing architectural ceiling tile as the primary reflector. The asymmetric design which integrates the acoustic ceiling tile increases sound-absorbing performance.



Kirlin Lighting introduced a line extension of its MRI-safe cove light that now includes RGBW as an offering. It is the only MRI-safe cove light on the market that has all connections inside the MRI room shield and features plug-in RJ45 connections for easy installation.

2023 PROGRESS REPORT

LINEAR



Pivotaire, by **Optique**, is a non-linear, recessed mud-in fixture offering a unique mounting system with rotation to allow placement at multiple angles in a slim profile drywall installation. The fixture allows multiple configurations for angles and corners, has a depth of 0.7 in., and output ratings of up to 700 lumens per ft.



The Peerless Proper by **Acuity Lighting** is a suspended linear direct/indirect luminaire with a 5-in. wide aperture allowing outputs up to 1,200 lumens per ft direct, and 1,500 lumens per ft indirect, the highest output in a combination luminaire. It is available in single or two-circuit configurations with an efficacy ranging from 105 to 143 lumens per watt.



The Stiletto by **Scout Lighting** is the only line voltage luminaire in its class that can be specified in 1/2-in. increments up to 12 ft. It is available in multiple color temperatures as well as warm dim, tunable-white and RGBW. The extruded side rails allow for addition of multiple accessories.



The Lync from **Nulite** was accepted into the Report as the shallowest linear direct/indirect luminaire with integral driver. Available in both 3- and 5-in. widths, the fixture height is 3/4 and 1 in., respectively. The luminaire offers multiple distribution patterns up to 1,300 lumens per ft.



The Omni rounded linear from **Cooper Lighting Solutions** has the highest output for linear suspended luminaires at more than 1,500 lumens per ft indirect, and 1,250 lumens per ft direct. Modular baffles with a TIR optical system provide individual snap-in replacements or adjustments with ultra-low glare UGR values, while still providing sufficient light in the space. The Omni boasts 144 lumens per watt and 2,480 lumens per ft total output.



Cooper Lighting Solutions Cirque round linear has the highest output for linear suspended luminaires at more than 1,500 lumens per ft indirect and 1,250 lumens per ft direct. Modular baffles with a TIR optical system include individual snap-in replacements or adjustments providing an 80-deg distribution. With ultra-low glare UGR values, the Omni boasts 148 lumens per watt and over 2,000 lumens per ft total output.

2023 PROGRESS REPORT

LINEAR (CONT'D)



VAULTA architectural linear luminaire by **Cooper Lighting Solutions** is an open-aperture style luminaire designed for low glare to meet WELL v2 and LEED v4.1. It provides 1,500 lumens per ft indirect and 1,250 lumens per ft direct, and includes a discreet optical solution with white or black baffles as well as a continuous rolled lens of up to 100 ft. Five different distributions, including diffuse direct, asymmetric direct, low glare baffle direct, batwing direct and batwing indirect, make VAULTA extremely versatile.

WALL-WASH LUMINAIRES



Spectrum Lighting's 3-in. round recessed wall-wash luminaire was accepted for its unique optical system. The RNW3 includes a unitized reflector system that directs the light both vertically and horizontally to the surface, and controls room side glare in one precision optical chamber. The luminaire is available in multiple outputs up to 2,500 lumens.

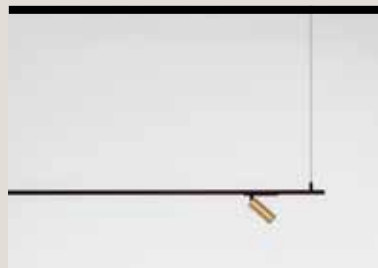


The S330 from **The Lighting Quotient** is the only recessed-pocket luminaire with fully adjustable linear optics in a choice of single or dual heads. The heads are fully adjustable and lockable, allowing smooth aiming for walls up to 40 ft tall. Specifiers may elect to include one row of static white and one row of RGBW for maximum versatility. Aperture width is field adjustable from 4 to 6 in. or 9 to 12 in.

TRACK



iGuzzini's Superrail is the first submitted low-voltage track with the ability to configure fixtures on the top and bottom positions. In addition to projectors, the track system also offers linear and pendant product luminaires to be installed. The track uses a 48-V remote power supply with 0-10-V dimming control, and the upper and lower track can be used in a two-circuit configuration.



Minimal Track from **Jokerlight** was recognized for its simplified installation process. It is a 24-V rail with a surface-mounted profile, coupled with an interior rubber cable. This design enables flexible shaping to accommodate various applications, allowing straightforward installation, saving time and effort for installers. The track's small scale is intended for use with miniature projectors.

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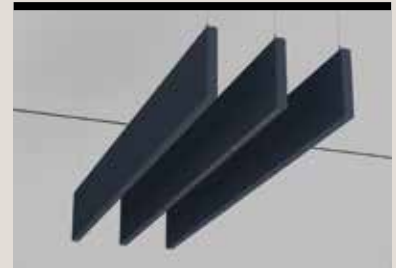
SUSPENDED LUMINAIRES



From **iGuzzini**, the Light Shed 60 is the first PEP-Ecopassport certified product submitted to the IES Progress Report. To carry this certification, the series was subjected to a rigorous review following strict ISO 14025 guidelines. This ensures a full independent environmental impact disclosure on all aspects of development, manufacturing, installation, operation, and end-of-life. The family of lighted and non-lighted modules can be configured individually or in groups. The individual lighted module delivers up to 3,089 lumens or 108 lumens per watt, and is available in four color temperatures, 80 or 90 CRI, and has eight dimming strategies.



LightArt introduces the Ocean Coil Marina pendant series. These fixtures are made from 100% recycled ocean-bound and nearshore diverted plastic waste, such as single-use plastic bags and bottles, fishing nets, trawls and rope that was recovered near coastlines, beaches and waterways. The waste is converted into spherical pendants using additive printing technology and is available in two sizes and three colors. The series is specifiable in 2700K to 4000K, 80 or 90 CRI, and can deliver up to 2,778 lumens or 116 lumens per watt.



The Omni CV from **Zaniboni Lighting** is the first acoustic baffle system that can be furnished with occupancy, daylight and air-quality sensors. The manufacturer claims that these various sensors can control light levels as well as room temperature through the building HVAC system. All products feature embedded Bluetooth qualified mesh, and the panel is both powered and hung via aircraft cable. Each 3000K, 90 CRI lighting panel delivers 1,402 lumens, and the polyester baffle acoustic panel has an NRC rating as high as 1.36.

SURFACE MOUNT



Featuring an innovative “J-shaped elbow” on the stem, but concealed within the housing, the Monopoint cylinder from **Lucifer Lighting** allows 360-deg rotation and room-side hot aiming from nadir to 90 deg. In standard static white, it delivers up to 2,205 lumens while the warm-dim version delivers up to 975 lumens. The Monopoint is available in color temperatures ranging from 2200K to 4000K and claims a best-in-class CRI over 97.

TASK LUMINAIRES



The Hitsville Task Light from **Kirlin Lighting** is the first ligature-resistant patient task light in the market to offer an adjustable LED module for precise hot aiming and flexible mounting positioning. Further, it is the only behavioral health task light to offer a continuous dimming switch on the faceplate. This allows the patient the ability to dim from 100% to 1%, or back up to full output, by simple touch. It is also offers three field-changeable optics and has an optional IP66-rated faceplate and lens.

HIGH BAY LUMINAIRES



The Millwright HBR industrial high bay by **Fanlight Corporation** offers the highest average efficacy of 175 to 177 lumens per watt in the industrial LED high bay category, which is roughly 25% higher than comparable products. In addition, the Millwright drivers are capable of being mounted up to 100 ft from the luminaire housing.

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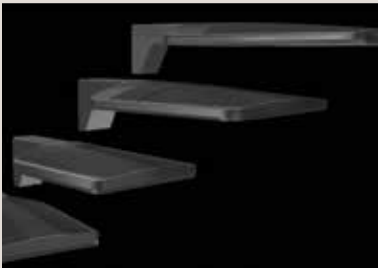
OUTDOOR – AREA LUMINAIRES



The Melli luminaire by **Selux** is the industry's first exterior luminaire to have its materials listed in the Declare Label database. The Declare program is a platform to qualify sustainable building products, and manufacturers must willingly disclose product information that can be found on the Declare labels. Melli also offers a wide range of optics across the family with three light-engine options from Gen5 optics with five distributions, to spot optics and flood optics at 9, 20, 40, and 80 deg, and diffuse optical cylinders in long and short profiles.



Acuity Brands Lighting has introduced D Series area luminaires with extreme backlight control optics. The BLC4 is the first in the market to be able to reach 0 fc in as little as 5.5 ft behind the pole. Other solutions require 13 ft, to as much as 29 ft, behind the pole in order to reach 0 fc. The benefit of such a short offset to this boundary line allows designers added flexibility. Poles and luminaires can be placed very close to the property line while maintaining the short offset and avoid individual light trespass onto adjacent properties.



The ALED Field Adjustable Area Light by **RAB Lighting** has been recognized by the Committee. In the specification grade area light category, ALED offers the highest efficacy at 151 lumens per watt and the highest color rendering at 82 to 85 CRI. It is also the first area light to feature field-adjustable dimming and CCT. The weight of the area lights range from 13 to 34 lbs.



Cooper Lighting Solutions introduces the Drive Current Z component as part of its Galleon II offering. It is the most configurable driver with 10 milliampere increments using the online configurator, provides up to 159 lumens per watt, and up to 540 lumen packages that are available without a special order.

OTHER INDOOR



Crystal by **iGuzzini North America** is the first recessed luminaire to use Opti Diamond technology as a unique way to light up the ceiling and the floor. This technology that adopts the catadioptric principle, revolutionizes the visual perception of space and enhances well-being, and has an efficacy 140 lumens per watt. The frame gathers the light emitted by the reflector and spreads it over the ceiling, thereby combining décor and function for even better spatial distribution.

OUTDOOR ACCENT



The CoviO Graze from **Cooper Lighting Solutions** provides the highest light output for an outdoor accent luminaire of over 1,500 lumens per foot and an industry leading 112 lumens per watt. It provides wall washing and grazing lighting with more than 9 optical distributions and an integral driver. The fixture has 94 CRI, and is available in four correlated color temperatures. It can dim down to 1% with phase and 0-10-V controls.

2023 PROGRESS REPORT

OUTDOOR ACCENT (CONT'D)



From **Acuity Brands Lighting**, the SAF RGBW with Flame series utilizes a patent-pending optical engineering design to create a unique accent gradient effect using two color beams from a single luminaire. The new luminaire incorporates dual DMX drivers and quad chip RGBW technology for smooth blending and improved performance. The combination creates an unequaled approach to deliver RGBW wall grazing for a wide range of exteriors and select interior applications.

ROADWAY LUMINAIRES



Arca Pro from **Selux** is an exterior luminaire that qualifies to display the Declare label. It can be configured for either street or pathway applications, is available from 2700K to 5000K, offers eight mounting configurations, six optical distributions, and delivers the highest in class of 23,976 lumens and 132 lumens per watt.

FLOODLIGHTS



The Rio LAZR Floodlight from **B-K Lighting** is the first floodlight to utilize a true laser diode source. It provides a market-leading beam throw distance and narrow spread while delivering 288 lumens with 14,386 candela. The integrated 14.5-W laser light engine module is designed with electrical disconnects for easy field upgrade and maintenance. The fixture offers three optics, two lens types, five cap styles and is available in numerous finishes.

CONTROLS



XDIM from **RAB Lighting** is the first wall dimmer with a modular, interchangeable control panel to swap between 0-10 V, TRIAC, ELV, MLV, as well as connectivity with Bluetooth mesh. A line extension of the previously accepted Lightcloud Blue control system, the XDIM adds to the breadth of the portfolio while helping meet the upcoming NEC 70 requirements that impact battery-operated dimmers. It can function both to dim a connected load, or as a hard-wired dimmer to comply with NEC 70 while controlling addressable Lightcloud Blue luminaires.



The SLX-VIDEO sensor from **Livable Cities**, a division of LED Roadway Lighting, uses edge computing video technology mounted in an ANSI C136.41 receptacle on a roadway luminaire to count traffic and pedestrians, and report into a central management system. The generated roadway data allows system operators the ability to analyze traffic levels by time-of-day and day of week, enabling the use of real detected data to optimize lighting levels for roadways. In addition to broadcasting the data to a central location, the SLX-VIDEO sensor can store up to one terabyte of data for later retrieval.

LIFE SAFETY



FirstLink by **Bodine** offers the industry's first mobile-app-based wireless mesh network emergency lighting system with enterprise level features and controls at an easily accessible level. It is more than just a data collection system for the code required monthly and annual emergency testing. FirstLink is easy to install, has low overhead, is easy to use and versatile.

2023 PROGRESS REPORT

LIFE SAFETY (CONT'D)



Also from **Bodine**, the Committee has accepted the BLK 1000. It is a small form factor emergency lighting retrofit kit. The integral LED module provides more than 1000 lumens at 6 watts, offering an efficacy 34 percent better than the nearest competitor. This means more light in the emergency mode and less energy required, which translates to less input power required to charge the battery.



Acuity Brands has introduced the industry's first integral battery pack option for the Incito and EVO families of 4- and 6-in. cylinders. They are engineered to incorporate an emergency battery into the cylinder without the need for a power canopy. The integral battery backup solution is available in a 6-watt emergency battery and 4-in. cylinder with up to 2,500 lumens, and a 6-in. cylinder up to 4,500 lumens. All luminaires with emergency battery backup options comply with NFPA 101, and deliver constant light output throughout the 90 minutes required by code. All cylinders have a variety of colored finishes, trim options, 90 CRI options, mounting options, and lighting control solutions.

MATERIALS



Pure Beam is an optical technology developed by Glint Lighting to deliver consistent photometrics at every beam angle and throw. Glint is the first lighting company to integrate biomimetic moth-eye antireflective nanostructures into the optics, which reduce scattered light to vanishingly low levels. The materials have less than 0.5 percent reflectivity out to nearly 60 deg, out-performing every other known commercial antireflective structure approach used in optics. Even when employed in conventional luminaires, this technology significantly reduces glare and increases center-beam candlepower.

PUBLICATIONS



CS Design has published "Latitude + Lux; High Latitude Daylight Design." This document is designed to educate lighting professionals and architects, using case studies, on how best to approach daylighting and building design in extreme conditions. The authors researched buildings in the far north, looking at phenomena and proposed solutions to conditions provoked by low angle and highly variable daylight availability, possibly serving as a reference that will compliment LEED and WELL standards.



The **IES** has published LM-83-23 "Approved Method: IES Spatial Daylight Autonomy and Annual Sunlight Exposure." This standard updates the IES Spatial Daylight Autonomy simulation process and model requirements, reports Annual Sunlight Exposure accounting for the use of automated daylight management systems, and provides guidelines for tabular reporting.



LM-93-22 "Approved Method: Optical and Electrical Measurements of Far UV-C Excimer Sources" was released this year. This new lighting measurements standard is for far UV-C excimer sources, such as those used in disinfection applications.

2023 PROGRESS REPORT

PUBLICATIONS (CONT'D)



LP-16-22 “Lighting Practice: Documenting Control Intent Narratives and Sequences of Operations” is another new timely standard from the **IES**. This new standard provides detailed guidance on the documentation of Control Intent Narratives and Sequences of Operation.



Germicidal ultraviolet products are becoming a more significant part of our industry. RP-27.1-22 “Recommended Practice: Risk Group Classification and Minimization of Photobiological Hazards from Ultraviolet Lamps and Lamp Systems” provides expanded risk group classification for all ultraviolet lamp systems and the measurement conditions for different applications.



TM-33-23 “Standard Format for the Electronic Transfer of Luminaire Optical Data” has been updated. This standard contains newly required elements, additional harmonization, and two potential approaches for including multiple sets of data within a single file.

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