2019 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 129 submittals in 2019; 72 were accepted into the report.

IES PROGRESS COMMITTEE

Jered Widmer, IALD
Chair
The Lighting Practice

Shaun Fillion
Vice-Chair
RAB Lighting

Tejal Thakur
Secretary
Lightspek

Gregory Adams
BCER

Jay Eissner, P.E., LC
Visa Lighting

Tim O'Keefe, LC
Luminii Corp.

Chris Bailey
Hubbell Lighting

John Green, P.E., LC, FIES
Lambda 530 Consulting

Edwin Rambusch
Rambusch Decorating Co.

Mark Benguerel
Finelite, Inc.

Sarena Heumann, LC
Eric Johnson Associates

Dyke Riffle
Riffle & Associates

Greg Bennorth
Universal Lighting Technologies

Peter Jacobson
Con Edison

Kenneth Schutz
Focus Lighting

Kristin Bernick
Diversified Lighting

Rick Leeds
Flos USA, Inc.

Shelli Sedlak, LC, LEED AP
Current

Rob Cilic, LC
LEDVANCE

Howard Lewis
Spectro Lume, LLC

Anthony Serres, LC
Signify

Boyd Corbett
Impact Architectural Lighting

Mark Lien, LC
IES

Sandra Stashik, P.E., FIES
Acuity Brands

Kim Daley
Hartranft Lighting Design

Andrea LoPiccolo
Suburban Wholesale Lighting

Paula Ziegenbein, LC, Assoc. IALD
Hartranft Lighting Design

George Doukas
Electronic Theatre Controls

Michael Lunn
Eaton

**Ardra Zinkon, CLD, IALD**
Tec Studio

2019 PROGRESS REPORT

LED REPLACEMENT LAMPS

Most LED retrofit lamps for pin-based CFLs are designed to be installed either vertically or horizontally. The SureFit Convertible LED lamp from **Aleddra** addresses fixture needs for position-specific lamps with a unique design that allows the lamp face to adjust by 90 deg. The lamp also features an extendable arm which facilitates proper positioning when installed vertically in a recessed downlight, and a rotatable pin-base to ensure that light shines downward when installed horizontally. Available in types to replace 18 or 26W, pin-based CFL lamps, the SureFit Convertible LED lamp can operate with an existing electronic ballast or directly on line voltage.

Green Creative introduces the industry's highest efficacy LED retrofit lamp for 40W twin-tube compact fluorescent lamps, at 162 lumens per watt. With an input of 13 watts and output of 2,100 lumens, the lamp is also the lowest wattage replacement for lamps of this type. The DIRECT PLL Type A retrofit lamp is compatible with existing instant-start or programmed rapid-start ballasts and is on the DLC Qualified Products List, making them eligible for utility incentives where available.
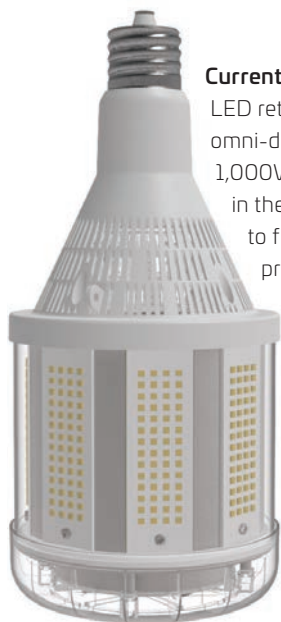
Current by GE introduces a new LED retrofit lamp that is the first, omni-directional Type B LED 1,000W metal halide replacement in the marketplace, designed to fit the 1,000W HID ANSI profile and mimic the original distribution pattern. With lumen output up to 65,000, these lamps achieve up to 144 lumens per watt. The lamp offers 60% energy savings and two and a half times the life of the metal halide lamps they are intended to replace.

The HID-115-V-EX39-850-BYP-HB from **RAB Lighting** is considered to be one of the highest efficacy LED retrofits for HID lamps in high-bay applications. With performance of over 137 lumens per watt at 5000K and an 80 CRI, the 115W version is said to replace 400W metal halide lamps. The retrofit has a unique form factor that is intended to provide comparable photometric performance.

The **RAB Lighting** A21 tunable white bulb with Perfectlight Technology is the first A-type bulb to incorporate the Sunlike natural spectrum LED chips accepted in last year's Report. The bulb can be tuned from 2700K-5000K, and dimmed from 1-100% via manual controls, schedules, scenes, automations or sensors. Integrated Lightcloud controls enable each bulb to become part of a smart lighting solution.

LED CHIPS AND MODULES

The Fortimo Instant Fit LED module from **Signify** is the first easily field-replaceable LED module, without screws, that follows the upcoming Zhaga Book 21 standard. Book 21 defines a cost-effective mechanical and electrical interface for tool-less replaceable linear LED modules, enabling plug-and-play interoperability. Fortimo modules feature an interface that serves for electrical and mechanical connection, and allows a luminaire to be serviced rather than scrapped when the module fails. These LED modules are rectangular shaped, and can be used in both indoor and outdoor lighting applications.

Q-Tran introduces the industry's first individually addressable, static-white LED tape. This product uses DMX control to facilitate segment control in as small as 1-in. lengths. This uses 6V LED chips versus industry standard 3V LEDs. Typically, DMX control has focused on RGB or RGBW, but this product brings granular control and programming capabilities such as flashing, strobing, chasing and show cues to applications where high-quality static-white CCTs are desired.

LED - OTHER

As a different type of LED source, **PreciseLED** introduced the Zigbeam, which is the first miter-able LED tape light allowing the creation of seamless 90-deg turns. The tape light has 45-deg cut-able conductors embedded into the printed circuit board, as well as the standard perpendicular conductors. Previously, the way to turn a corner was accomplished via either jumper cables or using a tape light that has flexible horizontal movement.

LUMINAIRES - DOWNLIGHTS

Acuity Brands Lighting expanded the Gotham EVO family to include the industry's broadest selection of 2-in. aperture downlights including a complete line of single, double and corner wall washers. The products are claimed to be the only ones in this aperture size designed with uniformity optimized beam distributions to meet narrow, medium and wide spacing criterion.
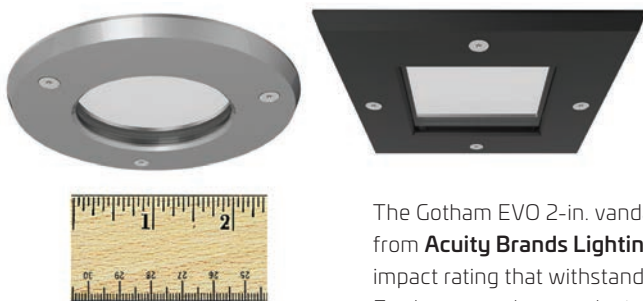
The Gotham EVO 2-in. vandal-resistant, IP66-rated downlight and adjustable accent luminaires from **Acuity Brands Lighting** are an industry exclusive for this aperture size. Featuring an IK10 impact rating that withstands 20 joules of impact, they are suitable for high-abuse environments. Furthermore, they can be installed from the room side to simplify installation and maintenance.

2019 PROGRESS REPORT

HEALTHCARE

New from **Aleddra** is the ViraPure Circadian Overbed Light. This fixture was recognized as the first overbed light to feature tunable white and a ViraPure coating. The high-density coating used throughout the housing continuously cleans viruses and bacteria present on the surface. The coating is activated by visible light, and UV is not required. The bed light also features four modes: general, reading, exam and nightlight.

Kenall introduced the MEDmaster Medslot multi-function luminaire for patient rooms. This luminaire has been accepted as the first LED multi-function medical light with slot aperture and IP64 and NSF2 rating for cleanability and ingress protection. The luminaire includes a low-voltage controller that utilizes two separate circuits wired to the LED boards.

The Lenga from **Visa Lighting** was accepted as the narrowest slot aperture in an asymmetric, dual patient light application with the added feature of color tuning.

TROFFERS

The new Metalux OHB industrial luminaire from **Eaton** delivers industry-leading performance and reliability in the high-bay/low-bay category by producing greater than 200 lumens per watt and a TM-21 lumen maintenance of L96 at 60,000 hours. The luminaires are also the first to use the Zhaga standard connector for simple installation and upgrade of standard occupancy sensors to IoT integrated sensors.

The 3D SPANL LED edge-lit luminaires from **Acuity Brands Lighting** offer high efficacy at over 130 lumens per watt while achieving unified glare ratings as low as 15.9. The luminaires incorporate a double layer PMMA panel that includes etched elements giving the panel an illusion of depth.

Vora 50L from **Litecontrol** was accepted for its wide range of configurations. These are the industry's only architectural edge-lit troffers, available in five sizes, including the first ever 1-ft by 1-ft, with the highest lumen output and a wide range of customization options. At 2.2-in. deep, Vora is the thinnest available architectural edge-lit troffer and the first to be available in five standard correlated color temperatures in a choice of 80 or 90 CRI.

For anti-microbial lighting, **Hubbell Lighting** introduces the SpectraClean product family, offering the most complete portfolio of troffers with the industry's first vaportight and striplight luminaires with disinfecting options. These options include Blended mode which has enhanced white light for ambient lighting with continuous disinfection; Blended Plus mode having an enhanced white light with a scheduled high intensity cleaning cycle; and Independent mode which alternates between pure white light and SpectraClean mode.
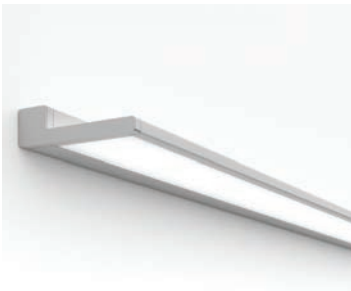
LINEAR LUMINAIRES
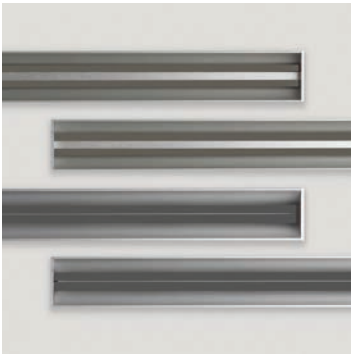
ModuleX was recognized for their submission of the PRISM, a family of line-voltage micro-linear luminaires with a 1.25-in. wide profile, an integral miniature driver and a compound reflector optic.
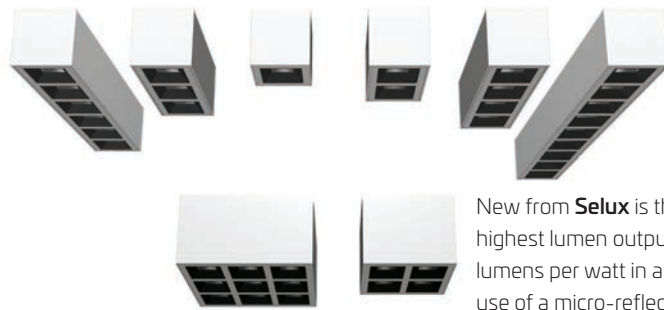
New from **Selux** is the Piix which features the highest lumen output and highest efficacy at 111 lumens per watt in a micro-array luminaire. Its use of a micro-reflector cell allows for efficient and precise lighting without high-angle glare. It is available in single cell, linear and square formations.

The STRP-LED from **RAB Lighting** has been accepted as the highest efficacy lensed LED striplight on the market at 142 lumens per watt and up to 5,539 lumens in a 4-ft unit. It also offers an optional integrated microwave occupancy sensor.

The Aculux Lini from **Acuity Brands Lighting** is recognized as offering the most options in a configurable micro-recessed family of luminaires. The Lini includes linear downlights, adjustable-accent and wall-wash luminaires in 2-, 4-, 6-, 8- or 12-cell configurations with four different optics ranging from 15-50 deg.

AXIS Lighting introduces the Pose wall- and surface-mount luminaire as the smallest profile, linear wall-mount featuring a miniature integral driver. The fixture is 1-³⁄₈-in. tall and 4-¹⁵⁄₁₆-in. wide. The luminaire is available in multiple configurations and optical distributions.

The Rogue from **Louvers International** has been accepted as the smallest profile linear LED luminaire with the added feature of concealed RGBW uplight incorporated.

Glint Photonics was recognized for their submission of the Radian luminaire. The fixture utilizes unique beam adjustment through tiny shifts of the lens barrel, with no reorientation of the luminaire or use of gimbals. Using this Light Shift technology, the luminaire provides a clean and orderly appearance within the space, reducing the look of visual clutter.

2019 PROGRESS REPORT

SUSPENDED LUMINAIRES

The Duo 4 cylinder from **Meteor Lighting** is the highest output 4-in. up and downlight pendant-mounted cylinder with a diameter of less than 5 in. The luminaire delivers more than 4,300 lumens of downlight and claims to be the only 4-in. up and downlight cylinder with no visible power cord that offers both independent up or downlight dimming as well as a 2700K-6500K white color tuning option.

Likewise, the Duo 6 cylinder from **Meteor Lighting** is the highest output 6-in. up and downlight pendant-mounted cylinder with a diameter of less than 6.5 in. The luminaire delivers more than 6,400 lumens of downlight and claims to be the only 6-in. up and downlight cylinder with no visible power cord.

The Multilux by **Luminis** features the Syrios light engine that delivers 4,100 lumens per head for a fixture maximum of 22,000 lumens which is the highest lumen rated fixture in the natatorium market segment. The multi-circuit design enables customizable configurations and individual head control including the selection of primary and secondary optics, a full range of CCT and CRI within the same luminaire, and DMX capability. Beam angles range from 9-55 deg with 358-deg head rotation, 30-deg tilt, individual light-engine control, and stem, cable or surface mounting options. All Multilux heads are IP65 rated.

From **LumenWerx**, the Voila 2 is the most efficient 2-in. downlight yet reviewed by the Committee. The advanced optical technology of the proprietary Hyflex optics delivers an efficacy of up to 128 lumens per watt at 80 CRI, and up to 117 lumens per watt at 90 CRI. It is also the first 2-in. downlight to offer a true 10-deg beam angle, and the wall-wash version delivers a leading max to min value of 3.71 allowing for a smoother and hot-spot free vertical distribution.

Clusters by **LumenWerx** delivers a smooth and uniform vertical distribution with an efficacy of up to 85 lumens per watt. It is the first miniature downlight product family offering pendant-mount, wall-wash and recessed-adjustable wall-wash distributions in 3-, 5- or 10-cell configurations with 30-deg aim from vertical. Clusters is also first to market with pendant planer options available in 2-by-2 and 3-by-3 cell configurations. Configurations can be ordered with numerous beam spreads, several louver finishes, and five remote or integral driver options. The 1.5-in. channel is available in 1-in. increments in section lengths from 4-12 ft and can also be surface mounted.
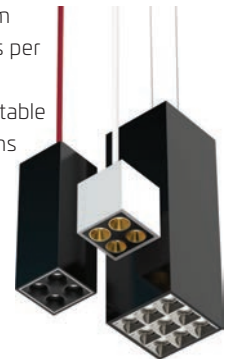
From **Eureka Lighting**, the Arena is the thinnest pendant ring-shape luminaire relying only on magnets for the installation of fully adjustable light fixture heads and repositionable power feeds. Its innovative low-voltage ring design enables users to snap on or off light fixtures at will. Each light fixture is equipped with strong magnets that form a safe, low-voltage connection to the ring luminaire allowing users to move, gang together, flip up or down, pivot, or aim the light fixture without tools or the need for a licensed electrician.

The Shaper Sense Acoustic LED Pendant Collection from **Eaton** is the first acoustical family of luminaires submitted to the Committee backed by substantial independent acoustical test data. These luminaires are rated for 85% transmissivity allowing natural daylight to pass through when turned off. At 120 lumens per watt the luminaires deliver over 4,500 lumens. Available in multiple color temperatures with a choice of 80 or 90 CRI, the fixtures integrate with various control systems. The acoustic substrate is 100% recyclable. The natural fiber wool is 100% biodegradable and is a rapidly renewable material because it grows back on sheep.

SURFACE-MOUNT LUMINAIRES

The 2-ft by 2-ft EZPANHE edge-lit LED panel lights from **RAB Lighting** offer the industry's highest efficacy at 133 lumens per watt. They are also offered in the industry's lowest available wattage. At 12 watts and 1,789 lumens, these luminaires are ideal for corridor lighting at very low lighting power densities of 0.11 watts per sq ft.

COVE LUMINAIRES

The Pilot PCM cove luminaire from **Insight Lighting** features the industry's first RGBW Quad Chip in a medium-size profile for superior color saturation and color mixing. This AC plug-and-play cove lighting system is 2.5-in. tall, available in 12- and 48-in. modules, and a standard 120-deg distribution with nine optional distributions. The system delivers 90-plus CRI, and is offered in CCTs of 2700K-4000K.

From **Acuity Brands Lighting** the Winline 500 is the first universal voltage, integral driver, linear cove and accent lighting family to deliver up to 141 lumens per watt, which equates to 1,000 lumens per ft. The Winline is available with 9-by-9 and 120-by-120 deg or wall-wash distributions and is wet-location rated. The Winline is offered in 2700K-5000K in either 80 or 90 CRI. It's also available in tunable white and RGB and can be paired with numerous control options.

SCONCES

The HALV from **RAB Lighting** is the first architectural grade ADA-compliant LED wall sconce to offer an optional integral microwave sensor and the first to offer an integral emergency battery. It features the highest color rendering index for an ADA-complaint wall sconce in the market at 93 or higher. The HALV is available with 14 lens options, four color temperatures, six finishes and four trim options.

From **Acuity Brands Lighting** the Gotham EVO aiming adjustable wall-mount cylinder family delivers an industry-best 5,000 lumens for the 4-in. versions and 8,000 lumens for the 6-in. versions. Available in either round or square with a broad range of general illumination and high contrast or accent distributions, the EVO is the only aiming adjustable wall-mount cylinder where the tilt and rotation can be locked into position.

2019 PROGRESS REPORT

PORTABLE LUMINAIRES

The AireLuxe Air Purifier by **Aleddra LED Lighting** is the first combination circadian light luminaire and air purifier reviewed by the Committee. The AireLuxe features antiviral air filtering and self-cleaning protection using ViraPure film nanotechnology that was recognized in the 2018 Report. The surfaces of the luminaire and the filters are coated with ViraPure where its antiviral photocatalytic effect is activated by ambient visible light thus killing airborne microbes making contact with the luminaire surfaces. Also, special UV LEDs are used internally to break down ozone, pollen and dust particles in the air.

Aleddra LED Lighting has introduced the Air-Purifying Circadian Desktop Light, which has been accepted into the Report as the first air-purifying luminaire of its type. It has an air-permeable light shade that also functions as an air filter. By coating the ViraPure nanotechnology on the air-permeable light shade and combining a forced air circulation via a fan at the bottom of the housing, the airborne bacteria, viruses, fungi, volatile organic compounds and NOx around the light unit are sucked in from the bottom of the housing and trapped on the light shade.

HIGH-BAY LUMINAIRES

Of the two high-bay luminaires, the Whiz 2.0 from **Meteor Lighting** at 4.4-in. tall and 16.2-in. wide is the smallest form factor architectural high-bay luminaire on the market delivering up to 35,400 lumens. It is the first luminaire of its type to feature 0-10V, 1% dimming, with DMX high resolution dimming. The IP65-rated Whiz 2.0 is also the only luminaire of its type that can be mounted to deliver either direct or indirect illumination. The luminaire is available in four color temperatures up to 85 CRI, four beam angles from 25-100 deg, and is natatorium-rated.

Peloton from **Hubbell Lighting** is the first LED high-bay luminaire to be listed under a new NEC section that requires "Directly Controlled Luminaires" to be UL924 listed. The NEC requires the luminaire to return to 100% illumination during an emergency event to allow the safe egress of occupants. The Peloton also features an industry-best operating range of up to 65-deg C, and a best in class L70 rating of 170,000 hours.

OTHER INDOOR LUMINAIRES

The Auragami LED Light Sheet from **EVO-Lite, LLC** is the first and only LED light sheet that can be field cut along its length, width and both diagonals. The Auragami allows the removal of a single LED which is an area of only .66-sq in., 30% less than any other product in the market. It delivers a best-in-class 860 lumens per sq ft at an industry low individual LED brightness of only 2.6 lumens and that allows uniform luminance at the closest distance between the diffuser material and the light engine. Available in five color temperatures up to 95 plus CRI, it can be dimmed from 100-0%.

OUTDOOR - AREA LUMINAIRES

Eaton has developed the industry's first outdoor lighting products that utilize WaveLinx via a Zhaga standard 4-pin connector for wireless connectivity. The 4-pin connector works with intelligent drivers using DALI, which enables connected, smarter and more efficient data-driven applications. These products include:

The Prevail LED area/site luminaire which now supports an integrated outdoor security camera and networking equipment.

The Arbor LED architectural post-top luminaire.

The Galleonaire LED area/site luminaire, which utilizes a thermally-conductive polymer heatsink.

The Galleon family, including Galleon, Galleon Wall Companion and Galleon Pedestrian Companion.

The Impact Elite family of wall luminaires.

Also from **Eaton** is the Caretaker LED area/site/dusk-to-dawn luminaire, which offers the highest efficacy of a luminaire in this category at 156 lumens per watt. The Caretaker has been optimized to provide market-leading efficacy and maximum area/application coverage in a dusk-to-dawn luminaire.

OUTDOOR - WALL LUMINAIRES

Hubbell Lighting has submitted the Pursuit from Architectural Area Lighting, which is the first IP66 exterior linear luminaire that can be connected to form an uninterrupted ribbon of light up to 150 ft. This is done by providing seamless continuous runs with end-to-end internal connections and a continuous roll of external diffuser without breaks or light leaks. Pursuit is available with symmetric, asymmetric, wall-graze and wall-wash distributions.

Insight Lighting has introduced its Pilot AC Exterior Plug N Play wall-graze lighting product, which is the first in this category to offer multiple lengths, CCTs, colors and wattages in under 2.5 in. in height. It includes power packages of 4, 7 and 10 watts per ft. All products come standard with 0-10V dimming and allow easy installation and integration with many industry-standard dimming products.

PARKING GARAGE LUMINAIRES

The Ivepark by **RAB Lighting** is the industry's shallowest LED garage luminaire with edge-lit lens and uplight. The Ivepark is only 3-⅝-in. in depth and offers a maximum efficacy of 137 lumens per watt and 80 CRI. Its edge-lit technology provides uniform, low-glare distribution.

ROADWAY LUMINAIRES

Supporting growing demands for intelligent street lighting, the SLiQ Luminaire from **LED Roadway Lighting** is the first luminaire to include traffic sensing, wireless network controls and lighting inside of a single IP66 roadway lighting product. Traffic counting, speed detection and directional traffic-flow data are all available from the luminaire. Installation is as simple as plugging in the luminaire; no external sensors, connections or modifications are required.

2019 PROGRESS REPORT

CONTROL SYSTEMS

The Etherion LED driver by **PreciseLED Inc.** is the first Power-over-Ethernet driver for 24V applications featuring flicker-free, wireless 1% dimming. They are compatible with 24V tape lights, and are suitable for indoor applications.

Universal Lighting Technologies has submitted the PWX Driver family, which offers the industry's highest efficiency with the lowest standby power in both linear and compact form factors. The PWX drivers are Class 2, fully programmable, dimmable and provide auxiliary power for controls.

CONTROLS - SENSORS

Crestron was recognized in the Report for the SolarSync Photosensor, the first open-loop sensor to detect correlated color temperature as well as luminous intensity. The sensor is capable of detecting CCT ranges from 2000K-25000K.

CONTROL SYSTEMS

From **I-Star** comes the first Bluetooth Mesh Control System, recognized as the first 0-10V to Bluetooth module. It allows luminaires to be controlled by both 0-10V controls, as well as a mobile app. It is compatible with all 0-10V dimmable drivers and can work with color tuning drivers to realize wireless tunable control.

ETC was recognized for the introduction of the first PhaseAdept Dimmer Module for LED loads as low as 1W total. The dimmer is a dual-density module for use in any new or existing ETC power enclosure without concern for the age of equipment, making for easy retrofit solutions.

An advancement to the **Eaton's Cooper Lighting** WaveLinx product includes wireless field installation with option for dynamic CCT. Luminaires utilizing this new control were noted earlier in this Report.

Village Controls is recognized this year with the DANbox, a third-party agnostic-diagnostic analysis network box. It utilizes industrial-grade asymmetric encryption to link startup with field service technicians through purpose-built cloud applications, which supports device discovery, native system functionality, network traffic monitoring, as well as alerts and alarms related to system operation.

The **McWong** smart outdoor lighting control platform is recognized as having the broadest selection of modules, photocells and sensors, with Bluetooth connectivity. The system does not require a gateway, and works with any Bluetooth mesh qualified software product. It can be set up with a mobile phone or tablet using an app or a web browser.

LIFE SAFETY

Aleddra introduces the G2 Emergency T8. This two-in-one LED replacement tube features general illumination as well as emergency lighting using an integrated lithium battery. It is recognized as the first T8 retrofit ballast bypass with built-in battery. The G2 features the lightest weight in the industry with an integrated battery shut-off switch. It is ETL certified and features a 90-minute battery capacity.

ACCESSORIES

The Rover by **Rubidium Light** is the first remote GPS-based automated lighting measurement system providing the measurement of resultant lighting levels in large areas like sports fields. It is an unmanned ground vehicle, much like a remote control car, that utilizes the latest in GPS and drone technology to plot and guide itself around areas of interest. The Rover system reduces the time to undertake lighting audits in these areas by 95% and increases accuracy compared to traditional on-site measurement methods.

From **ETC, Inc.**, the DataTrack Backbone is the industry's first data track for large scale luminaires. The structural stability of DataTrack Backbone allows for full-sized long-throw fixtures to be installed in high-bay applications like museums where clean design and maximum lumens are needed. Aluminum extrusion can be supported on up to 10-ft centers with a distributed load capacity of 190 pounds with a 100-pound maximum point load.

LIGHTING SYSTEMS

The FineTune Tailored Control System by **Finelite, Inc.** was developed using the results of the DOE funded research project "Luminaires for Advanced Lighting in Education." TCS is the only system with 0-10V and DMX layer-pack controllers that can meet Title 24 2019, is UL924 listed as standard and is equipped with built-in tunable-white technology. It is the only system with built-in integrated processors, memory and real time clocks that source automatically via mobile-phone connections as standard in layer-pack controllers. It is the first system to offer a Bluetooth app with factory preloaded circadian schedules, and user ability to create tunable-white schedules, set trims, adjust demand response, set occupancy functionality, or create, copy and repeat named spaces when on or off site. TCS is also the first system to offer a tunable-white single gang local switch with continuous dimming and ON/OFF functions.

The VividTune Color Solutions CCT Slide Controller from **Eaton** features the first open-loop correlated color temperature 0-10V slide controller. The control unit provides a full CCT range from cool, neutral to warm, and is ideal for light commercial lighting applications using a broad offering of ambient recessed troffers, suspended fixtures and recessed downlights. The CCT slide controller is a companion to the 0-10V dimmer used for the luminaire ON/OFF/DIM control and employs intuitive "warm" and "cool" lighting color temperature icons. The unit features an integrated full-travel slide control for easy precise operation and no line voltage is required for the installation of this device.

From **Healthe**, a Lighting Science company, the SunTrac Ecosystem features the first master control device that automatically synchronizes wireless-enabled SunTrac A19 lamps to the cycle of the sun using GPS technology. A GPS locator identifies local time and continuously broadcasts a system-wide mesh command to all lamps within range. The lamps generate the appropriate spectrum and intensity based on a pre-configured proprietary schedule, or the user can personalize the bulb using the SunTrac app. It provides a CCT range of 2200K-5000K, a CRI of greater than 90 and an R9 of greater than 50. A backup battery retains settings during power outages or relocation, and no Wi-Fi is required.

2019 PROGRESS REPORT

PUBLICATIONS

The **IES** has published one new Recommended Practice, three new Technical Memoranda and one new Approved Method this year. RP-8-18, the *Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting*, is a substantial revision to previous versions. It is an aggregate of several IES standards covering roadway and parking facility lighting. It supersedes 12 previous IES documents as well as two Transportation of Canada design guides.

TM-33-18 is the *Standard Format for the Electronic Transfer of Luminaire Optical Data*. The development of SSL with color changing capability has generated the need to have spectral power distributions as part of the available data. This standard forms a comprehensive data format for these products as well as for horticultural, aquacultural and animal husbandry lighting applications.

TM-30-18 is the *IES Method for Evaluating Light Source Color Rendition*, which describes a method for evaluation of light source color rendition that quantifies both overall average and hue-specific properties using numerical and graphical techniques.

TM-18-18 is the *Overview of Impact of Optical Radiation on Visual, Circadian, Neuroendocrine and Neurobehavioral Responses*. This document educates the lighting community with research-based information on the impact of optical radiation on human health and well-being and the direct biological influences of light/dark cycles.

Last, LM-88-18 is *Approved Method: Optical and Electronic Measurements of AC-LED Packages and Arrays or Modules*. This method describes the procedures to be followed and precautions to be observed in performing optical and electrical measurements of AC-LEDs for total luminous flux, total radiant flux, total photon flux, color characteristics, electrical voltage, current and power.

DESIGN TOOLS

Addressing design tools, new from **Lighting Analysts** is the Photometric Power Tools Software. The software provides a solution to fixture manufacturers that, if used appropriately, can potentially improve the quality and the reliability of photometric files. This is the first batch editor for IES files intended to solve IES data maintenance problems associated with LED product cycle by allowing volumes of IES files to be scaled at one time. The software also updates IES keywords and tabulates common calculated metrics such as BUG, LER and UWLR to allow quick and easy inspection of any entire product line's performance.
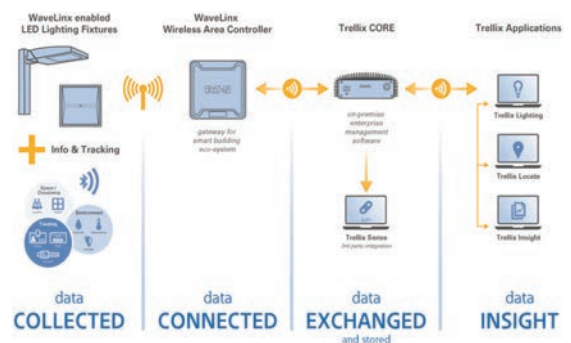
Eaton's Cooper Lighting introduces Trellix Lighting Software. This product offers self-diagnostic troubleshooting to reduce maintenance downtime through the use of smart tips and a wizard to solve site issues without the need of a technician or factory call. There is a consistent user interface, so mobile, tablet and PC all have the same appearance and feature set for ease of navigation.