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2017

# PROGRESS REPORT

The 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 240 submittals in 2017; 118 were accepted into the report.

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# 2017 PROGRESS REPORT

## LED REPLACEMENT LAMPS

It's well understood that LED retrofit lamps offer a simple means to replace existing light sources, while delivering substantial energy savings. This year's Report starts off with several such lamps that achieve increasingly higher efficacy in new form factors and incorporate intelligent features.



**Soraa** Sky is a secure network and sensor based lighting system, enabling intuitive features such as automatic configuration and scheduling, occupancy/vacancy detection, and spectral tuning in powerline and BLE communication-enabled BR30 LED lamps that can be integrated with other smart home devices.



**Philips Lighting** InstantFit LEDT8 lamps are the first wireless, network-capable linear retrofit lamps featuring sensors for occupancy and daylighting harvesting as well as individual and group or zone control.



**Energy Focus's** Red Cap Type B TLED is the first to offer a code-compliant battery back-up function, eliminating the need for external power supplies while delivering light output required to meet NFPA emergency egress requirements.



At over 145 lpw, **ULT's** Everline are the industry's highest efficacy Type B, or self-ballasted, LED T8 lamps that also feature a double-ended bypass design which simplifies installation.



**ETC's** Source4wrd LED engine is a retrofit for existing Source 4 fixtures offering energy savings of up to 80 percent and up to 100 times longer life than halogen HPL lamps.



**Kobi Electric's** LED GX23 PL-S lamp is the first twin-tube CFL retrofit that will operate either with or without a pre-existing ballast.



**Green Creative** introduces five new LED retrofit lamps: (1) a first-to-market, 3,200 lumen 277-V A23 lamp.



(2) At 121 lpw, the industry's highest efficacy A21 125-W equivalent lamp.



(3) The highest efficacy and highest lumen output LED PAR38, PAR30, PAR20 family.



(4) The highest efficacy 75-W A19 equivalent.



(5) The 100-W A21 retrofit lamp, which, along with the 75-W equivalent, can be used in enclosed-rated luminaires.



#### LEDVANCE

introduces an A21 LED replacement for 150-W incandescent lamps that outputs 2,550 lumens.



Also from **LEDVANCE**, an A19 replacement lamp that contains a motion sensor with a 180-deg field of view and a photocontrol.



The **SYLVANIA** Ultra LED high-lumen lamp is a retrofit for 250-W metal halide rated up to a 130-deg Fahrenheit ambient in enclosed luminaires that carries a 10kV surge-protection rating.

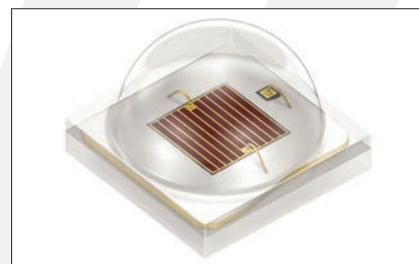
## LED CHIPS AND MODULES



**CREE's** Xlamp CXA2 premium color COB arrays offer 98 CRI, color coordinates on the black body locus and up to 50 percent higher efficacy than LEDs of similar size and quality.



**OSRAM's** Duris p 9 delivers the industry's highest lumen output and efficacy in a compact package, at 473 lumens and 164 lpw respectively, that results in a small optical footprint facilitating smaller luminaire designs.



**OSRAM's** OSLO square hyper-red, which had been acknowledged in a prior Report, is now available in an industry-first 2-sq millimeter chip that is 60 percent more efficient than the previous generation products.

## OTHER LIGHT SOURCES



Another industry first, LaserLight fiber, from **Soraa Laser**, is the industry's first white light fiber-delivered, laser-pumped, phosphor illumination module. It emits 500 lumens from a surface diameter of only 300 microns, facilitating micro luminaires as small as 1 cubic in.



Such improvements include VLM 60 and 100 series LED drivers from **ERP Power**. The 60- and 96-W, Class 2 version is a mere 5 to 5.4 in. long and less than 1 in. in height.

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**Philips Lighting** Xitanium Outdoor SR drivers are the first to incorporate a digital interface, based on DALI protocol, enabling network control and interoperability with sensors while reducing complexity in outdoor lighting systems.



Another example of additional features is **Bodine's** BAC-40-EM-10, which combines a 40-W programmable current LED dimming driver that also delivers up to 10 watts to an LED load for up to 90 minutes in the emergency mode.



A similar advancement is **OSRAM's** Optotronic programmable emergency driver, which incorporates externally connected battery packs to deliver a maximum of 18 watts in emergency power mode.



**Fulham's** HotSpot constant power emergency driver is another new driver to combine power for normal operation with emergency mode while featuring an integrated life-data recorder for logging time in standby mode, emergency mode and emergency events.



**Philips Lighting** Xitanium drivers with simple set technology are the first to allow fixture manufacturers to program step dimming within a range of 10 to 70 percent resulting in greater flexibility than bi-level step dimming.



**Optic Arts** VintageDim is the industry's first 24-V DC output dimming power supply with a dimming profile to enable dim to warm capability of LED tape via a single 0-10-V control circuit.

## CONTROLS



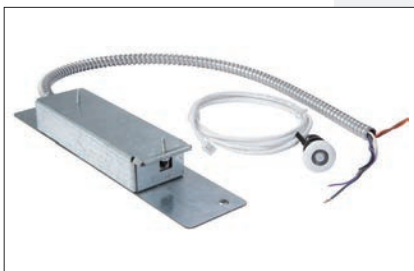
**B.E.G.** has introduced the MINI sensor, the smallest, non-fixture based PIR occupancy/vacancy sensor on the market. At 1.5-in. in diameter, it provides high performance with a small profile. It can be remotely configured using an Android or iOS app, and is IP65 rated.



**Wattstopper**, a division of Legrand, has brought color control into the mainstream with its DLM Color Control Schedule Switch. The device has a high-resolution screen, mounts in a standard backbox, connects to DLM load controllers via Cat 5 cable and allows correlated color temperature changes to occur automatically based on user preferences.



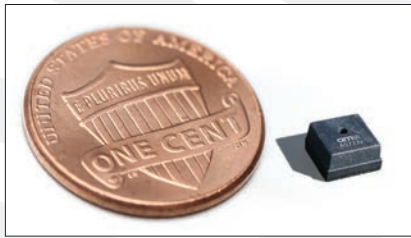
**Wattstopper** has also introduced another color solution in the Equinox App. The app allows easy scheduling of CCT color, scene setting including color, and manual color control from a smartphone, touch screen or PC.



Converting existing fixtures into smart devices has been made easier by **Eaton's** Portfolio Lumawatt Pro. This solution connects a multi-use sensor to a 0-10-V downlight, allowing task tuning and occupancy and daylight data sharing to occur wirelessly.



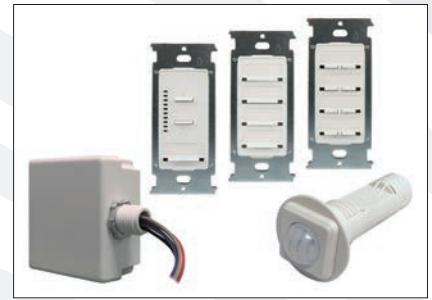
Intellect Intelligent Fixture Controls have been introduced by **Leviton**. They are a modular mesh network control system that integrates Bluetooth Smart technology. It can be configured, monitored and remotely controlled from an Android or iOS smart device via the Bluetooth-enabled Neuron App.



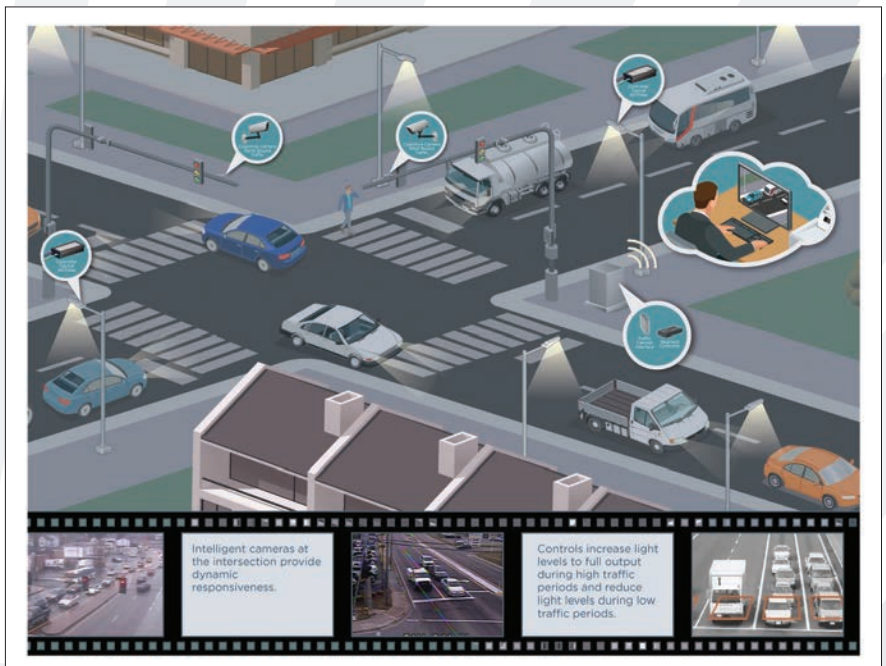
**AMS** has brought the AS7221 Spectral Tuning IoT Smart Lighting Manager to market. It is the first chip-scale white color tuning integrated lighting manager that can be adopted by fixture companies. AS7221 will address CCT-tuning to the CIE 1931 color space, automatic lumen and color temperature changes over time, and integration with dimming and sensor inputs.



**Leviton** has simplified wireless in the home with its line of Decora Smart with Wi-Fi dimmers and switches. These devices allow connection to the home network directly, without the hubs that other systems require. Voice control, time-based events and control from the My Leviton app are all readily available.



In the growing world of wireless lighting control systems, **Douglas** has launched Dialog, the first entirely Bluetooth Low Energy wireless communication system. The system includes sensors, wall controls, load controllers and a gateway, and has the functionality to satisfy all of the current energy codes.



The first-to-market exterior system with cloud-based AI analysis for urban street lighting is from **Echelon**. The InSight Cognitive Vision System claims to feature artificial intelligence for smart city applications, like traffic monitoring, over a lighting control network.

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The **ETC** DMX Emergency Bypass Controller is the first UL924 listed control bypass for any DMX controller device. It features multiple outputs for up to six separate DMX runs to multiple locations and has a configurable emergency preset.



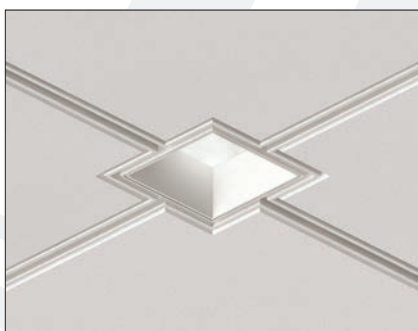
LED Dual Profile arraya5 Tuning Module from **Lumenetix** is the first LED module featuring the combination of dynamic color tuning, dimming and Bluetooth connectivity. It mixes five colors, and features two user-selectable lighting profiles of Dynamic Dimming and Tunable Color. The former matches halogen intensity and CCT shift, and the latter independently tunes intensity, CCT from 1650K to 8000K, color hue and saturation.



**Wattstopper's** Blanco 3 Logic Module is the first driver module that enables dynamic color tuning and connectivity with Bluetooth. It delivers tunable white light precisely along the blackbody curve at a range of 2700K to 6500K at 90+ CRI with color consistency within a two MacAdam ellipse.

## LUMINAIRES - DOWNLIGHTS

This year the committee accepted multiple LED downlights into the Report with new features and best in-class performance not seen in previous years.



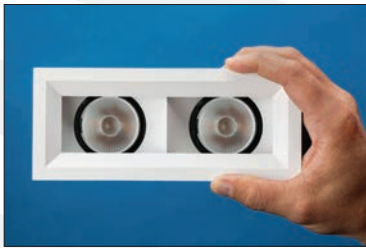
New from **USAI Lighting** is the Connect Intersection Downlighting luminaire. It offers integration into the ceiling plane at grid intersections. The luminaire is compatible with multiple Armstrong ceiling systems. It is also seismic code compliant for D, E and F areas.



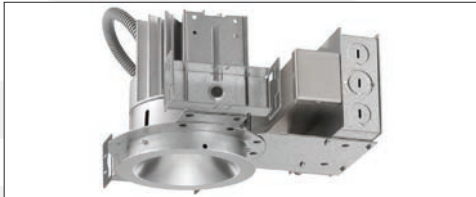
**RAB lighting** submitted the RDLED adjustable accent luminaire. At 3.5 in., it is the shallowest 2-in. aperture downlight with an IC-rated wet-location listing. An adjustable accent version further extends this family of shallow luminaires.



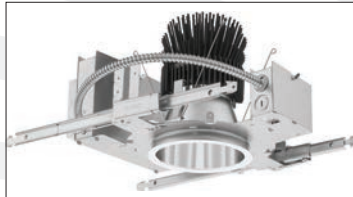
The ELEMENT by **Tech Lighting** offers the smallest aperture LED adjustable luminaire featuring a full 45-deg tilt. With a 1.4-in. aperture and an overall 2.75-in. ceiling cut-out, this luminaire is available in up to 1,300 lumens with multiple optics and color temperatures.



**Acuity's Gotham Lighting** introduced the Myo product this year. This compact LED multiple luminaire features a chamfered heat sink that allows for true 40-deg tilt on independently aimable and addressable accent lights. Seven beam angles and four different elliptical options are available in 500 to 4,500 lumens per light source.



**Acuity Brands Indy Lighting** Gen4 L-Series Downlight has achieved 136 lpw from a 4-in. aperture downlight with a lumen output up to 7,665 delivered lumens, comparable to a 70-W HID in that aperture size. The downlight also offers a Bluetooth BLE beacon.



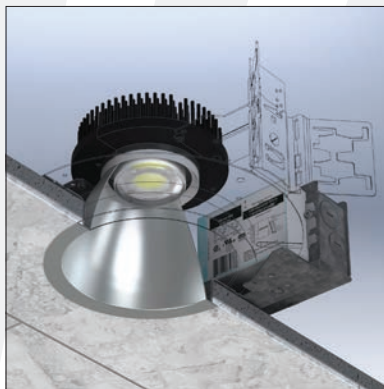
Also from **Acuity Brands** is the **Gotham EVO** luminaire now available with a 6-in. aperture up to 15,000 lumens yielding efficacies from 99 to 119 lpw.



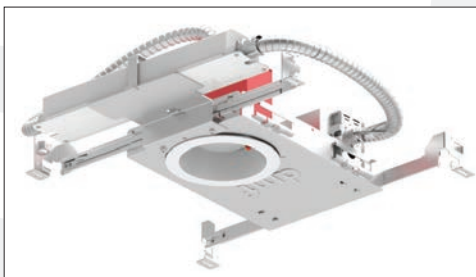
From **USAI** comes the BeveLED Micro downlight. This 2-in. luminaire was accepted as the smallest aperture LED downlight with the option for tunable white. The 1-1/4 in. square aperture is available with beam spreads from 35 to 50 deg and features either an adjustable tilt or a fixed wall-wash option.



**Eaton's** Cooper Lighting PR8 by Halo was accepted as the first 8-in. diameter LED downlight to feature selectable CCT and selectable wattage/drive current dip switches. With over 120 lpw, light output options are available in 1,000 to 4,000 lumens and with a wet-location listing.



Wet-location listing and high output were noted in the submission from **Pathway Lighting Products**. The WLE 4-in. downlight features an open-aperture appearance utilizing a silicone-sealed dome directly over the LED module. This novel design feature offers an alternative to lensing the bottom of the fixture.



**DMF Lighting** has expanded their One-Frame product to include the DRDHNJF luminaire. It is the only fire-rated recessed LED downlight housing with integral emergency lighting, that also includes fire, sound, airtight, IC and wet-location listings.



The MX downlight from **Intense Lighting** features digital beam shaping from spot to flood in their 3.5-in. aperture LED downlight. Using a Bluetooth BLE interface, they are able to wirelessly control the beam from 24 deg to over 50 deg. The system also allows dimming and color tuning control from 2100K to 6500K.



The ID+ 3.5-in. Adjustable from **Focal Point** is the shallowest recessed LED adjustable accent luminaire with a 3.125-in. recess depth featuring a 35-deg tilt. The ratcheting tilt locking mechanism allows for tool-less adjustability with a simple one-handed push, providing aiming in 1-deg increments.

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## RECESSED TROFFERS



First up is the Forum LED Panel Lite from **Liteline Corporation**. At an overall depth of 1-7/8 in. the fixture provides even light distribution across the entire panel at an efficacy of up to 125 lpw. Available in 2 by 2, 1 by 4, and 2 by 4 configurations, this is the first field-selectable color temperature and wattage panel with no external controls needed.



The Corelite Bridge Recessed LED series from **Eaton** is the first recessed luminaire to use a horizontal edge-lit light engine positioned below the reflector. This system delivers direct and indirect distribution and uniformly illuminates the reflector cavity.

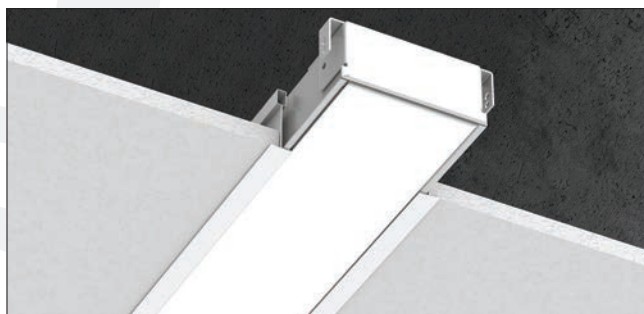


From **Kenall Manufacturing** comes a complete family of sealed high-abuse and healthcare luminaires using Indigo-Clean Disinfection Technology. This is the first and only series of functional, ambient white luminaires in North America to provide on-demand bacterial disinfection using a wavelength of 405-nanometer visible blue light within the light spectrum. The luminaires kill airborne and surface contaminants such as Staph, including MRSA, without sacrificing designed light levels.

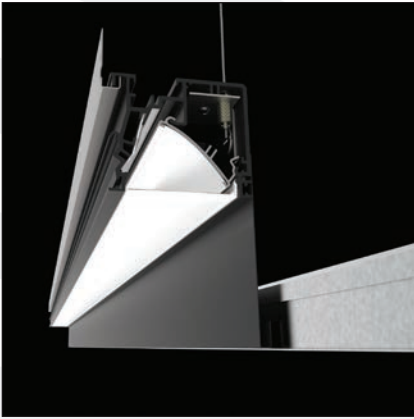
## LINEAR LUMINAIRES



Starting us off is the SHARK linear LED marine-grade fixture series from **RAB Lighting**. Boasting the industry's highest efficacy for an 8-ft marine grade industrial luminaire fixture at 140 lpw, the SHARK series is also the first of its type with integrated wireless mesh network control.



The Shalo 3 LED from **LumenWerx** is the shallowest recessed linear fixture family with a fully integrated driver yet reviewed by the committee. With an efficacy of 106 lpw, the integrated-driver fixture only requires a plenum depth of 1-3/4 in., is 3-3/8 in. wide, is available in lengths from 2 to 12 ft, and can be factory configured into runs.



Using the Ledalite MesoOptics technology, the Ledalite TruGroove Perimeter series from **Philips Lighting** provides both perimeter ambient illumination and grazing. The ambient version delivers efficacies up to 115 lpw, and MesoOptics technology softens and controls stray light particularly at the ends and corners. The grazer version features a proprietary reverse parabolic optic allowing a top-to-bottom uniformity of 8 to 1 on a 9-ft wall.



The Vapor Tight Luminaire from SYLVANIA **LEDVANCE** is the first to provide both motion and daylight microwave sensor and emergency battery backup in one vapor tight luminaire. Delivering an efficacy of up to 137 lpw, the fixture will operate from minus 40 to plus 40 deg C.



From **Tempo** comes the pr1me FX series, which uses a proprietary optic and Micro-Reflector system that directs 85 percent of the light out of the cove compared to traditional systems where only 60 percent of the light gets out. This modular system design minimizes installation labor and the fixtures are factory set at a 20-deg tilt to ensure uniform, glare-free illumination in the space.



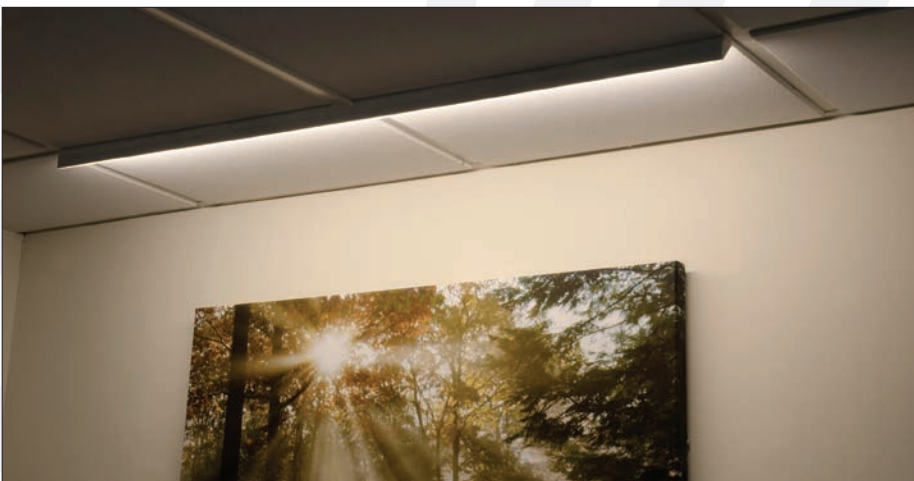
The Compose LED Module from **i2Systems** delivers 95 lpw in a miniature 2-½ in. wide by 1-⅓ in. high form factor. The modular cove system uses a proprietary optical system to indirectly and volumetrically light the space, and claims to create no halo effect when mounted 6 in. from the ceiling plane.



With an efficacy of 130 lpw, the Liberty LED Linear Fixture series from **Louvers International** is the first vandal-resistant, high performance luminaire family to offer the Nimbus 9 Unifi system which allows integral occupancy, power monitoring and end-of-life detection.



At 157 lpw, the TECTON LED system from **Zumtobel** achieves the highest efficacy of any continuous-row LED system on the market. The system can be configured in runs up to 72 ft for 120 volts, and 144 ft for 277 volts. Thanks to a unique trunking system, the TECTON LED allows the reconfiguration of luminaire attachments anywhere along the entire trunk run.



From **JLC-Tech** comes the T-BAR LED Asymmetrical family of luminaires. This unique fixture, which incorporates a proprietary multi-ribbed lens that bends light by 30 deg, mounts 1 to 2 ft from the wall replacing a piece of the grid in the ceiling system.

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## TRACK

In the track category this year, the ability to individually control the track head luminaire was the theme.



**Edison Price Lighting** brought us two track luminaire families incorporating the Xicato XIM Gen4 LED modules. The first family was the MiniMax XIM with Bluetooth beacons. This museum track lighting family includes a CRI up to 98 and the ability to assign up to 16 programmable control groups with the ability to report operational data.



Also incorporating the Gen4 LED modules is the **Edison Price Lighting** Artima/3 XIM family with Bluetooth beacons. This family includes numerous options, a 3-5/8 in. diameter housing and a CRI of 98.



Rounding out the track category this year is the IQ 48V Track System with Bluetooth Low Energy control from **Intense Lighting**. The system features a 2-3/8 in. diameter fixture that allows wireless dimming independent of other luminaires. It is claimed that this is the first 48-V intelligent track and luminaire system to offer beacon technology, allowing the fixtures to communicate with external websites or other compatible devices such as smart phones or tablets.

## SUSPENDED LUMINAIRES



The first was the BeveLED Block from **USAI Lighting**. The innovative, unique design completely encloses surface mounted junction boxes in ceilings, eliminating clutter and potential safety hazards. The system offers numerous options, and is available with dim-to-warm technology.



From **Eaton** comes two Neo-Ray suspended product families featuring a proprietary curved light guide utilizing 3D embedded optics. The first family is the Neo-Ray Covera suspended luminaire. This system delivers up to 115 lpw, features an indirect batwing optical distribution with increased end-to-end fixture spacing. The flexible mounting system enables designers to use pierced tile installation for a minimalistic appearance.



Also using the 3D embedded optics is **Eaton's** Neo-Ray Converge suspended luminaire family. The Converge's unique uplight provides uniform color and light distribution. It also features a flexible mounting system allowing installation with no visible hardware.



From **Finelite** comes the E2 Linear luminaire family. The E2 is the first micro profile pendant luminaire available with the ability to ship tailored lengths from 1 ft to 8 ft in increments of  $\frac{1}{16}$  of 1 in. in 10 working days. The system can also be factory configured into continuous runs. It is the first micro-pendant luminaire to incorporate a simple screw adjustment gantry for leveling the fixture, resulting in faster installation.



The FLAMINGO from **Vibia** is an LED decorative pendant system that can be field-configured into different positions providing desired lighting effects. By separating the light source from the diffuser, the light can be directed to create effects unique to the space.



From **DECO Lighting**, the Vector Linear Architectural Luminaire family showcases the new DECO Tune system utilizing advanced 5-channel color tuning technology. The light engines simply snap into place once the housings are in installed.



The 65-W, 4-in. Cylinder series from **Meteor Lighting** offers up to 6,000 lumens from a 4-in. downlight. The fixture incorporates a unique Thermal Beam structural design which allows heat to be dispersed through the entire housing, improving LED performance and life



**Current, powered by GE** brings us the Current Lumination LED LOP. This system features an efficacy of 110 lpw, in-field customization of the uplight and downlight distributions, and a CRI and R9 of 90 using the GE TriGain technology. The system is Daintree network capable.



Also from **Current, powered by GE** is the Lumination LED LUS. This system delivers an industry leading 165 lpw and the highest total lumen output of 24,000 lumens. Available with multiple distributions and a CRI and R9 of 90, this fixture is also Daintree network capable.

## SCONCE

The ZipThree Wall Mount 707 by **Vode Lighting** is the smallest profile linear wall mount



in the industry at 0.25 by 3.78 in. ZipThree offers up to 137 lpw with 2,691 lumens per ft at 80+ CRI. Versions with a 90 CRI are also available.

## PORTABLE LUMINAIRES

The Ascend and Ascend HE from **OLED Devices** make up the first family of OLED desk lamps to be submitted to the Progress Report. The desk lamps are available in a 42 to 46 lpw efficacy and an L70 life expectancy of greater than 10,000 hours at maximum brightness, and 50,000 hours at half brightness.



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## HIGH BAY LUMINAIRES

ISON Highbay HBIF3 by **Orion Energy Systems** offers the highest efficacy of 214 lpw for a high-bay luminaire. The future-proof, modular design allows for color temperature and light output upgrades in the field.



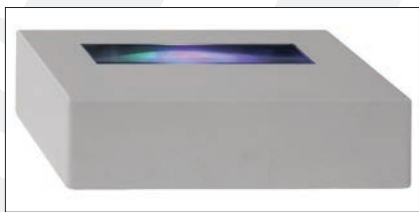
The **Luceco** LHBR1 Highbay was accepted to the 2017 Report as the highest efficacy IP65-rated high bay at 166.7 lpw. It features an integrated cast aluminum open frame convection cooling heat sink to significantly extend the lifetime of the system.



## OTHER INDOOR LUMINAIRES



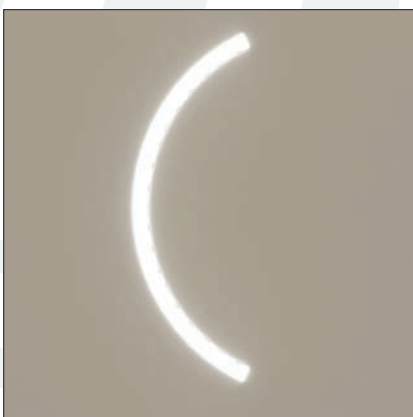
Submitted by **The Lighting Quotient**, the Elliptipar S43x offers the highest delivered lumens in an indoor asymmetric indirect luminaire, exceeding 50,000 lumens.



Eklipse by **Griven USA** is the first RGBW DMX-controllable window ledge system for façade lighting applications. It offers dynamic white, static warm or neutral white color choices.



TREADSAFE LED stairwell luminaire by **RAB Lighting** is the shallowest 2-in. stairwell luminaire with an integral ultrasonic sensor. Additional features include 114 lpw, 4,004 total lumens, and 0-10-V dimming or bi-level control.



**PreciseLED** has introduced the industry's first direct-view curvable shallow LED line with  $\frac{5}{8}$ -in. depth and a mud-in channel. Zenlite Arc utilizes insertable flanges to allow the electrician to install the fixture before the contractor installs the drywall.



Developed by **OSRAM, the Traxon Technologies** Dot XLQ-8 RGBW offers the highest efficacy RGBW node at 34 lpw. It offers the lowest power consumption among 3.4-W products, with algorithms for enabling true white color as well as variable nodes and pixel pitches.



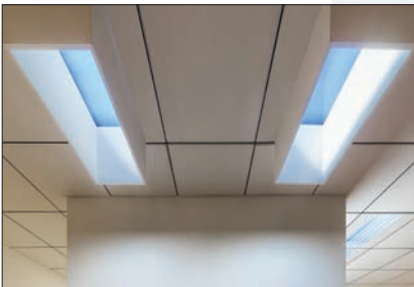
The SenScape SPG18 by **Kenall Manufacturing** was accepted as the highest efficacy parking garage luminaire with 20kV surge protection. It is a low-profile fixture and IP65-rated. It is offered in 30, 50, 70 and 100-W nominal luminaires, and provides a higher efficacy and more than three times the uplight of the closest competitive fixture.



By **Active Grow LLC**, the SG300 300-W LED Grow Light is the industry's first luminaire to receive ETL horticultural lighting certification, with the highest Photosynthetic Photon Flux of 900 micromols per second per square meter. It features a PPFD output equivalent to 600 and 1,000-W double-ended HPS lamps for areas up to 6 by 4 ft. Lighting spectrum is formulated specifically to promote A and B chlorophylls as well as essential carotenoids.



**Visa Lighting** has introduced Sole, the industry's first vandal-resistant, light-integrated mirror. These shallow, recessed mirrors with integrated LED lighting provide a stylish solution for high-abuse environments. It is available with an amber LED night light to minimize sleep disruption.



ST, submitted by **CoeLux**, is the first light box that is able to reproduce the light of the sun and sky. It is a fairly compact module creating an artificial window facing a luminous sky, traversed by the rays of a bright sun.



The **CoeLux** HE reproduces the effect of nature. It allows direct view of sunlight with a realistic sun perceived at infinite distance surrounded by a clear deep blue sky.



**Luminii** has introduced Linii, which is the industry's highest efficacy 5/8-in. thick direct view LED at 58 lpw, with a sliding splice box accessible through the lens. The Linii sliding j-box allows the installer to easily work around existing joist conditions.

## OUTDOOR - AREA LUMINAIRE

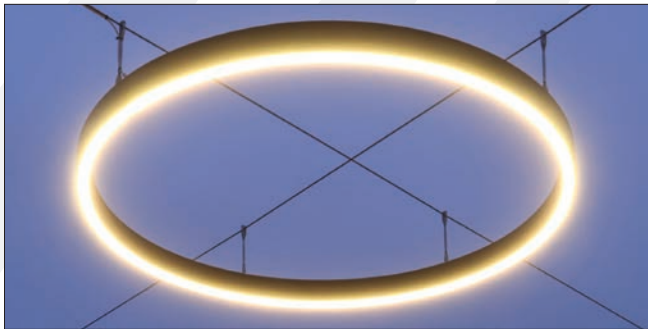


The Exelia LED Column from **Selux** claims their new technology provides high performing, visually comfortable lighting with zero uplight. We accepted them into the Report for their unique 98 lpw achievement, high for a bollard type luminaire.



The Light Linear VT, a street and area lighting pole with integrated vertically-mounted optics, has been developed by **Ligman Lighting USA**. The fixture is integrated into the pole design without a horizontal fixture mounted to the top. Multiple distribution options are available.

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The first IP67, wet-location catenary high-performance light fixture has been introduced by **Structura**. Their Aura Outdoor Wood Pendants have a field adjustable rod and rail design to position the light in areas with no structure above them. They come in linear, round and square designs.



**Acuity Brands** launched **Holophane's** new HMAO LED III high-mast luminaire. It has an efficacy of up to 144 lpw, and is designed as a replacement for 1,000-W HPS. It features IP66, 3G and 5,000-hour salt-fog ratings.

## ROADWAY LUMINAIRES



The Triboro roadway luminaire from **RAB Lighting** has an industry-leading 5G rating. It also features a color range from 5000K down to 2000K to replace HPS, and delivers 75 lpw of an amber white mix with 70 CRI.

## FLOODLIGHTS

Last year floodlights were submitted that had de-icing features, high center beam candle power and lightweight housings. This year we see higher efficacy, expanded optical choices, modules that enable the addition of non-lighting features and a 480-V option.

**WE-EF Lighting USA** has released the FLC-200 LED99 floodlight.

It provides 107 lpw and the widest range of optical options in its class featuring five beam spreads. It also has asymmetric, wall-wash and linear lens options.



The Arini from **Hess America** is recognized as the first floodlighting system with service modules including Wi-Fi, closed-circuit TV, speakers and an optional color changing indicator cap.



From **Eaton's Ephesus Lighting** comes the Ephesus Prism RGBA. It is the first 480-V high-output RGBW floodlight with wireless control.

It is also available in 120 to 277-V versions. An optional Air Mesh system creates custom static scenes while offering operation through smart phones, tablets, etc. It can provide luminaire health and status monitoring.



## MEDIA/SIGN LUMINAIRE



From **Current**, powered by **GE**, the Tetra LED Tape is a high-efficacy linear sign lighting system. It has a 1-in. depth and is field-cuttable every 2 in. This tape is also available in multiple colors with regular output, and high output in white only, providing up to 308 lumens.

## OTHER OUTDOOR LUMINAIRES

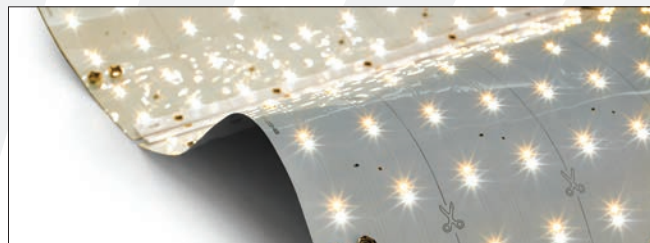
The Incoplas LED Hybrid high bay from **Shat-R-Shield** features a unique IP69K as well as UL1598A marine-grade listing. It is NEMA 4X and UL wet-location rated along with certifications from the NSF, DLC, UL and the USDA. It produces 122 lpw.



The first LED catenary system with a lockable tilt mechanism is the Lanova LED from **SELUX Corporation**. It uses unique proprietary optical systems to create lighting effects ranging from diffuse to sharp. It can provide the full range of IES distribution types.



The first exterior IP65-rated flexible LED panel system, called TILE Exterior, has been introduced by **Cooledge Lighting Inc.** It is the only complete wet-location rated panel system for luminous surfaces where all components including flexible panels, connectors, wiring and LED drivers have a minimum IP65 rating.



The TILE from **Cooledge Lighting Inc.** is a tunable white illumination system for luminous surfaces that provides constant lumens and deep dimming at all CCTs. It is the first flexible and tunable white panel for creating luminous surfaces.

## LIFE SAFETY

**Liton's** DLQ360EM was accepted into the Report as the smallest surface mounted 4-in. aperture downlight with integral emergency features. At 4- $\frac{3}{4}$  in., its shallow housing is also suitable for wet locations with an IP65 listing.



## ACCESSORIES - REFRACTORS

**LensVector** has been accepted into the Report for the introduction of their Liquid Crystal Beam Shaper. For the first time manufacturers, designers and users of light can change the shape of their light electronically with an application on their handheld or any architectural control system. Liquid Crystal lenses permit spatial tuning of the light by moving molecules of liquid crystal with very small electric fields and at very low energy. Energy use is in milliwatts.



# 2017 PROGRESS REPORT

## ACCESSORIES - METERING EQUIPMENT

The PG100N Handheld Spectral PAR Meter from **United Power Research Technology Corporation** is a customized PAR meter for the measurement of grow light spectral qualities. Photosynthetically Active Radiance is measured along with the spectral wavelength between 380 and 780 nanometers. General lighting data such as CCT, CRI and LUX are included within the 40 different lighting measurement parameters.



## ACCESSORIES - RETROFIT KITS



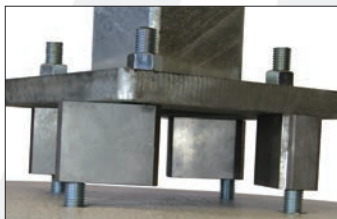
An LED Human Centric Troffer Retrofit Kit was submitted by **Above All Lighting**. This is the first retrofit troffer submitted to the committee with tunable white lighting and wireless control via remote or smartphone or tablet app. The color temperature range is 2700K-6500K with a CRI of over 80.



**Orion Energy Systems** introduces the Orion ISON LDRMH, featuring visible light with technology shown to be effective in removing bacteria such as Staph, MRSA, E. coli and C Diff through the use of a precise spectrum of light. The troffer incorporates an antimicrobial coating and includes the option for color tuning.

## ACCESSORIES - OTHER

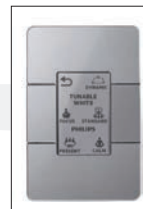
New from **Light Pole Systems** is the Anchor Bolt Adapter. Its unique spacer allows a smooth installation in fitting poles when site conditions have a variance in the bolt pattern. This eliminates the need to demolish the existing fitting or use of custom adapter plates.



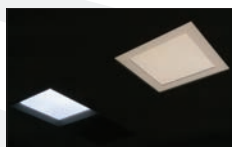
## LIGHTING SYSTEMS

Lighting systems have the potential for increased functionality and energy savings.

The Antumbra Display by **Philips Lighting** was recognized as the first to offer tunable white through Power over Ethernet. Color temperature can shift from 2700K to 6500K while having the ability to keep intensity constant. The product can also follow a customized daylight curve over a 24-hour time period. A research study conducted at the University of Twente with the European version indicated an increase in concentration and reading speed and a decrease in frequency of errors through the use of color tuning and intensity shifts.



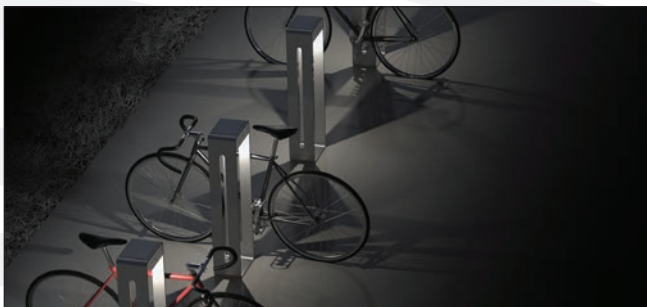
**Sky Technologies** introduces the SkyPlug Mating Device. This is the first quick coupling jack system providing a simple plug-and-play installation of luminaires, avoiding traditional wiring and minimizing labor. The National Electrical Code has modified the definition of the receptacle to accommodate the use of this device.



New from **Acuity Brands Lighting** is the LightFlex CCT, the industry's first tubular daylighting solution that uses an integrated remote phosphor panel to adjust cool daylight CCTs to warmer CCTs between 3600K to 3700K depending on the time of day. The integrated remote phosphor panel absorbs blue light and re-emits longer wavelengths to produce high quality warmer CCTs with high efficiency and uniformity.

## SOLAR EQUIPMENT

Solar equipment is gaining attention for energy savings and net-zero building efforts.



**Meteor Lighting's** Solar Bike Rack requires zero wiring and is photo sensor activated. The rack can provide 12 hours average lighting time, is available with a wide or narrow distribution and is available in 5700K, 3000K, amber, red, green or blue. The stainless steel product is made with fully recyclable materials.

## RESEARCH

To continue to advance the field of lighting, research plays a vital role. One item was noted this year.



Purdue University has produced the research paper "Daylight Glare Evaluation with the Sun in the Field of View with Window Shades." The research, funded by Alcoa and **Lutron**, measured discomfort glare, evaluated existing glare indices, and examined alternate illuminance-based criteria through fabrics. Corrections were proposed for the Daylight Glare Probability when the sun is visible through the shades.

## PUBLICATIONS

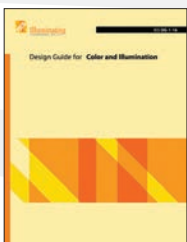
Over the past year, the IES published two recommended practices, a design guide and a guideline.



ANSI/IES/RP 29-2016 is a *Recommended Practice for Lighting for Hospitals and Healthcare Facilities*. The objective of this document is to provide context, define challenges, and demonstrate recommended lighting design practices for healthcare-specific environments.



ANSI/IES RP-30-1 is the *Recommended Practice for Museum Lighting*. The purpose of this document is to enhance the decision-making process by providing specific standards for satisfying the special requirements of museums and art galleries.



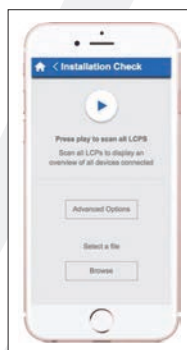
DG-1-16 is a *Design Guide for Color and Illumination*. This guide takes the reader from basic vision and color vocabulary, through methods of measuring and quantifying color, and culminates in the practical use of commercially available white light and colored lights.



G-1-16 is a *Guideline for Security Lighting for People, Property, and Critical Infrastructure*. The objective is to provide guidance for designing security lighting systems for new facilities and for the evaluation and retrofitting of existing facilities and systems in response to known or perceived threats.

## DESIGN TOOLS

Last, but not least, we have one design tool that was accepted.



**Eaton's** new DALI Installation Checker is the first tool that verifies the installation and connectivity of all devices in a DALI network. The tool can be accessed from any smartphone, tablet or laptop computer with no additional hardware required. The DIC addresses all DALI devices, evaluates quality of the DALI bus, and compares device type and quantities to the system design.