

LUMINOUS SPEC

SUMMER 2018

“.....it’s about giving back as much as it is to provide education and tools to **drive the success of the next generation**”

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FEATURED PROFILE

Steven Rosen

Theatrical sensibility drives compelling spaces



Steven Rosen, President and Creative Director
Available Light



Museum of the Bible, History of the Bible exhibit
Location: Washington, DC, USA
Photographer: ©Jay Rosenblatt

Steven Rosen, President and Creative Director of Available Light in Salem, Massachusetts, was always keenly interested in the dynamic nature of spaces shifting over time. While his formal education focused on the ever-changing world of stage design, his career path was fine-tuned by notable lighting designers such as David Munson, Thomas Lemons and Rick Chamberlain. Today, Steven and his team at Available Light work to apply theatrical lighting concepts like immersion and drama to make architectural spaces more interesting, comfortable and compelling.

How do you maintain a fresh, new outlook on creativity?

There are so many ways to fuel creativity, both from an artistic response and via a constant eye on emerging/enabling technologies. When approaching a new project, we make an effort to avoid the same old ruts that can be easy to fall into; rather, we look to try something completely new or at least a novel twist on an old idea. Sometimes, a shred of a small concept turns into something of a hook for a whole project—that's exciting! Nature is a huge source of inspiration. When I share a lighting inspiration with others, it's almost always a picture or representation of natural light. We're also inspired by understanding how others are using and thinking about light; not just other lighting designers but manufacturers, too. The process that product designers use in developing lighting products is a very different approach than how we think about applying light, but the end game is the

same—to create compelling, creative and inspiring environments. Our team is constantly scouring different conferences from lighting to museums to architecture and more. We share interesting imagery or products with each other. In fact, we have a weekly virtual meeting across all our locations, as a forum for these discussions. It's great to learn from and feed off of each other, and it shows in our work. There's definitely an Available Light style and aesthetic, but that can easily be broken down into who was the main designer on a project as we each have our own distinct style.

How often does it happen that you have a lighting product tweaked or custom created?

It's funny, it seems as if there's an infinite number, variety and spectrum of products across the lighting universe, yet, I don't know that we've ever done a project of substantial size where we didn't ask a manufacturer for a "special." For instance, we restored



Museum of the Bible, History of the Bible exhibit
 Location: Washington, DC, USA
 Photographer: ©Jay Rosenblatt

and renovated the lighting system for the Giant Ocean Tank at the New England Aquarium in Boston, Massachusetts. This is a massive 40-foot wide, 4-story high, 200,000-gallon salt water tank filled with a beautiful array of marine and plant life. A corkscrew ramp hugs the circular tank so that visitors enjoy an up-close look from top to bottom. We got rid of all the incandescent and metal halide fixtures and replaced them with LED fixtures to light the tank and the adjoining penguin exhibit. We have a theatrical spirit here at Available Light, so one of the cool things that we added was a subtle color-changing component. Red light is immediately absorbed by water, so rather than using RGB color-changing fixtures, we had white-green-blue fixtures developed. The lights are always changing over time; it's a very fluid lighting system. The visitor experience feels like a natural day; clouds pass by and the light changes subtly over time. The WGB fixtures weren't custom made, they were a modification of an existing fixture. We do that all the time in collaboration with manufacturers; when almost everything looks right, but if we could just manipulate the dimming curve or change one color output, or modify a louver to control the light a certain way, the luminaire would be perfect for a particular application. With the advent of LEDs and the way they're packaged and controlled, the possibilities of changing a fixture has grown exponentially. Another example from a purely technical point of view is that we can have the

manufacturer tweak a fixture to reduce the amount of electricity that it consumes to meet an energy code. I wouldn't say we do a lot of completely custom fixtures though. When you walk into a corporate interior or hotel lobby and see beautiful fixtures, more often than not, that lighting fixture choice comes from an interior designer or architect. Most work that we do supports the decorative light to create the ambiance or immersive experience that makes a space special to be in. So, more often than not, the focus is not on the light fixtures, it's on the elusive quality of the space. The beautiful chandelier from the interior designer may not be fully lighting the space, but visitors think it is. The work we do in and around it supports the chandelier and makes it feel like an amazing piece.

How do you frame controls conversations with clients?

This is a topic that weighs heavily on us, and more so with each passing year. There seems to be a universal abhorrence to lighting controls by architects and interior designers. The minute you bring up controls, their eyes glaze over; they don't want anything more complex than a light switch on the wall. The problem is that the world is a more complicated place. I use the example of how we throw garbage away. In the old days, if we had trash, be it a newspaper, plastic bottle or apple peel, we threw it in the same garbage can,



New England Aquarium's Great Ocean Tank
 Location: Boston, MA, USA
 Photographer: ©Kwesi Budu-Arthur

easy as that. Now, when you throw something away, there's a waste and recycling station with three, four or five bins vying for your attention. You have to analyze your trash to decide which bin to toss it into. The same is true with lighting control; it used to be easy, but now it's dependent on other factors. The first and probably the most important is a great desire to limit energy consumption. Legislatively, controls are critical; codes are demanding them. Another reason is that, because of LED systems, it's easier to treat an architectural system more like a theatrical system. This is where I'm getting to the answer of your question. Sophisticated control systems run in our blood at Available Light because most of us have theater backgrounds. We use the analogy that every light fixture is a paintbrush and has a very specific task. When possible, you want to control that fixture individually so that, as the task becomes more important, that light fixture becomes more important in the design. So, the more granularity of control that you have, the better it is not only for energy consumption but for ease of use of the space and for the enjoyment of the people in that space. We typically develop a Controls Narrative to work our way into client conversations; where we tell the story of the lighting. We'll ask if they want brighter light in the morning, and dimmer light before they leave at night,

and very often, the answer is yes. Now they're hooked, and we can say that in order to have that, they need controls. We'll travel down the road together, hand-in-hand, and keep all the complicated stuff on the back end. The end result will include the functionality they want with an interface that makes sense and is easy for them and their team to operate. It boils down to introducing the notion that controls are not bad and hopelessly complicated.

Does a needs-based narrative work when talking to clients about how lighting integrates with the Internet of Things?

This is something that, as lighting designers, we are just beginning to grasp; we're just scratching the surface now. Everything from asset tracking, location beacons and all these "smart" systems are coming online and hooking up to lighting systems because lighting has the best view of the room. It makes sense. But whereas we use a needs-based narrative with controls, when it comes to projects with IoT connectivity, it's a different scenario. In that case, right now the client is driving the conversation, wanting a system to do X, Y and Z. They often understand the benefits of this new world of sensing and data collection better than we do because it involves aspects of their business that we don't

normally have visibility to. The same goes for Li-Fi; it's a similar conversation to that of IoT integration. It's very exciting. A Li-Fi signal is different than a wireless signal. Massive amounts of data move differently over high frequency blinking lights compared to copper wire. Maybe five years from now, it'll be different, but at this point, the concept is driven more from the client than from the lighting designer. So, we learn what they need, and then communicate with manufacturers to determine how to integrate that into the lighting system. We still need to control the conversation, because IT shouldn't take on the role of lighting designer. In the end, it's most important, at least to us, that the lighting is the right lighting for that space. Whatever attributes we hang in the closet with it, like data collection, needs to be a secondary thought that doesn't affect the quality of light in the space.

How have your roles as IALD Fellow and the former President of the IALD Education Trust impacted you?

Our morals and ethics start with our parents, and from there, we develop our own set of rules and guidelines. My parents were adamant about us having a great education to drive success in our lives. It was less important to them what we studied than it was that we studied. It's important for me to pay that forward,

not only with my own children but also as a business owner. In that regard, I have two inter-related goals. One is to create opportunities for lighting design. As lighting designers continue to gain visibility and demonstrate critical value, we need to become more integral on project teams. The second is to inspire and nurture the next generation. The profession continues to grow, and as demand increases for lighting design services, we need to ensure that there are enough qualified people to fill the seats and take on projects.

Is that where the Lemons Scholarship and Project Candle come in?

Absolutely, we created the Lemons Scholarship in partnership with the IALD Education Trust to honor Tom Lemons and to help defray costs for lighting design students. Project Candle is a cooperative initiative that seeks to encourage students from participating universities to enter the lighting profession and develop them accordingly. We have also sponsored a similar program at Parsons. Again, it's about giving back as much as it is to provide education and tools to drive the success of the next generation.



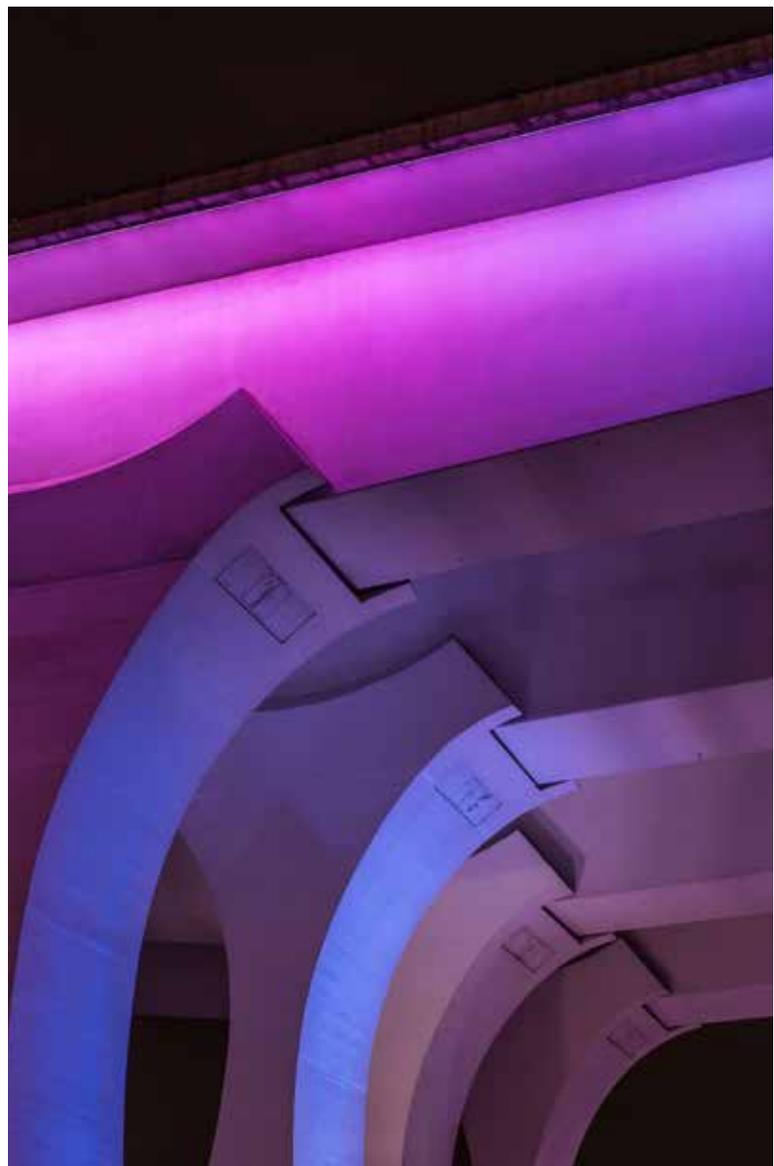
New England Aquarium's Great Ocean Tank
Location: Boston, MA, USA
Photographer: ©Kwesi Budu-Arthur



PROJECT SPOTLIGHT

FESTIVE BRIDGE ADDS BRILLIANCE TO THE CITY SKYLINE

The ten-lane I-35W bridge is a vital connector over the Mississippi River's Saint Anthony Falls in Minneapolis, Minnesota. A recently completed upgrade to the connected LED lighting system spanning the bridge captures the imagination of onlookers, and also brings special attention to the commemoration of holidays, important civic causes and special events. More than 650 Philips Color Kinetics outdoor architectural lighting luminaires, including ColorGraze MX4 Powercore, ColorBlast Powercore gen4, and ColorReach Powercore gen2 were used. The luminaires are specially designed to withstand extreme vibration, temperature and corrosive conditions found on the bridge, and are programmed and controlled by the Philips ActiveSite cloud-based lighting management system, which also provides reporting tools and historical analysis for unprecedented insight into system operations. Static displays accentuate multiple aspects of the bridge's architecture, while dynamic displays can be choreographed to sync with music, indicate the action during a sporting event, or even mimic the enchantment of the Aurora Borealis. Thanks to the expanded connected LED lighting system, the bridge is an icon in the Minneapolis skyline and a source of pride throughout the entire Twin Cities region.





AROUND THE WORLD

DYNAMIC LIGHTING AS MESMERIZING AS A BUTTERFLY

The Tropical Butterfly Garden and Insect Museum in Konya, Turkey is among the largest attractions of its kind in Europe. Thousands of visitors from near and far come here to interact with free-flying butterflies that are housed amidst their native flora in an indoor tropical habitat, and learn about a wide variety of butterflies, insects and plants. The conservatory's 1600 square meter structure was designed to mimic that of a butterfly, and thanks to a computer-controlled, color-changing LED lighting system from Philips Lighting, millions of colors bathe the façade at night to represent the butterfly life cycle and mimic the spectrum-wide beauty of its inhabitants. At the same time, the lighting system allows the owners to drastically reduce their environmental impact and energy bill, as it is far more efficient than conventional lighting technologies.





INDUSTRY NEWS



CLUE competition edition 04 winners announced!

Congratulations to the winners of the 4th annual CLUE international lighting design competition! With the theme of **Light and our other senses**, the competition received more than 360 project entries from 58 countries.

Santiago Bautista of Denmark claimed first prize for **SOL (Suspended Omnidirectional Light)**, with the goal of recreating the lighting and acoustic conditions found in Mediterranean countries to reduce Season Affective Disorders (SAD) and increase energy and engagement in other countries around the world. In addition to a \$5,000 grant, Mr. Bautista also received a travel stipend to attend LIGHTFAIR® International 2018 in Chicago, Illinois, along with a VIP Pass. While at the conference, he also attended the IALD Education Trust Benefit dinner to meet and network with leaders and influencers in the field of Lighting. The IALD dinner celebrated excellence in lighting design and honored the recipients of the 35th Annual IALD International Lighting Design Awards. Second prize was awarded to Kareem Asfahani of Lebanon for **Auraroma**, a multisensory solution that revitalizes spaces though changing lights and complementary aromas; and third prize went to Caroline Haydee De Carli and Joao Pedro Lopes Andrade of Brazil for **Awallness**, that seeks to create connection and build empathy through sight, touch and voice. Three honorable mentions were also awarded for the quality and innovation of their lighting design approach.

Visit www.cluecompetition.com for detailed descriptions of these amazing innovations.

SOL (Suspended Omnidirectional Light)

SOL (Suspended Omnidirectional Light) is a device that aims to recreate the lighting and acoustic conditions of the Mediterranean countries in the darkest regions of the world.

Its first proposed application is to be installed on Israels Plads in Copenhagen, which is used as a playground by the students of the N. Zahle School. By exposing these children to SOL, it is expected to reduce Seasonal affective disorders (SAD) and increase their level of energy and engagement.

DAY-LIGHT TRANSPARENCY INDEX

Dark Blue Sky	Cloudy Day	Overcast	Average Sunlight	Sunny Sunrise
10,000 lx	6,000 lx	3,000 lx	1,000 lx	200 lx

LUMINOUS FLUX

100,000	10,000	1,000	100	10	1	0.1
Best Bright	Dappled Day	Daylight Overcast	Dark Day Overcast	Twilight	Deep Twilight	Full Moon

LIGHT COLOR AND INTENSITY

The color and intensity of this light varies during the day to achieve similar conditions to the ones of the chosen location. This provides not only an extension of the light hours but also an increase of light intensity through the dark days.

360° SOUND RING

360° sounds are simultaneously played from the SOL ring to complement the light therapy. These will vary throughout the day to mimic the sounds of nature on a bright day.

SOL (Suspended Omnidirectional Light)

AURAROMA

Borac is sparingly bestowed a merely two percent of public spaces within its foot print. In light of this, Auraroma offers a low cost solution to revitalize the run down Borac Staircases with a canopy composed of water resistant multicolored strips that are semi dyed on-site semi-annually.

The literal weaving of hue, scent, and light produce a dynamic multisensory space that hosts different scenes as its hue and aroma change on a circular track. Soft hues, nature aromas, and the sporadic breaking through of sunlight impregnate a fresh natural forest scene of daybreak. While warm hues, spiced aromas, and dimming lights perform a dim and intimate twilight scene at nightfall.

By putting Borac at the center of this urban revival, people are stimulated on an individual and collective level by the only sense directly able to process creativity, emotion, and memories undeniably, a much needed dash of inspiration is added to Borac's urban jungle.

TECHNICAL COMPONENTS:

- FLEXIBLE PHOTOVOLTAIC CELLS:** Solar energy is stored in a connected battery.
- SCENTED-TEXTILES:** Micro-manufactured scent is released in the capsules held by the fibers.
- NATURAL DAYLIGHT:** Sporadic openings perform a natural daylight boost.
- COLORED ACETATE FILM:** Different hues and shades of daylight energy and diffuse.
- TUBE STRUCTURE:** A custom spaced system weaves strips together.
- REBLEN:** Fibers rotate the strip along their trajectory.
- LASER ELECTROLUMINESCENT WIRE:** Photocatalytic material wires light up the sky during the night.

SWITCHING AT DAWN & DUSK: Strips flip inside out so that only the desired hue and aroma are at play.

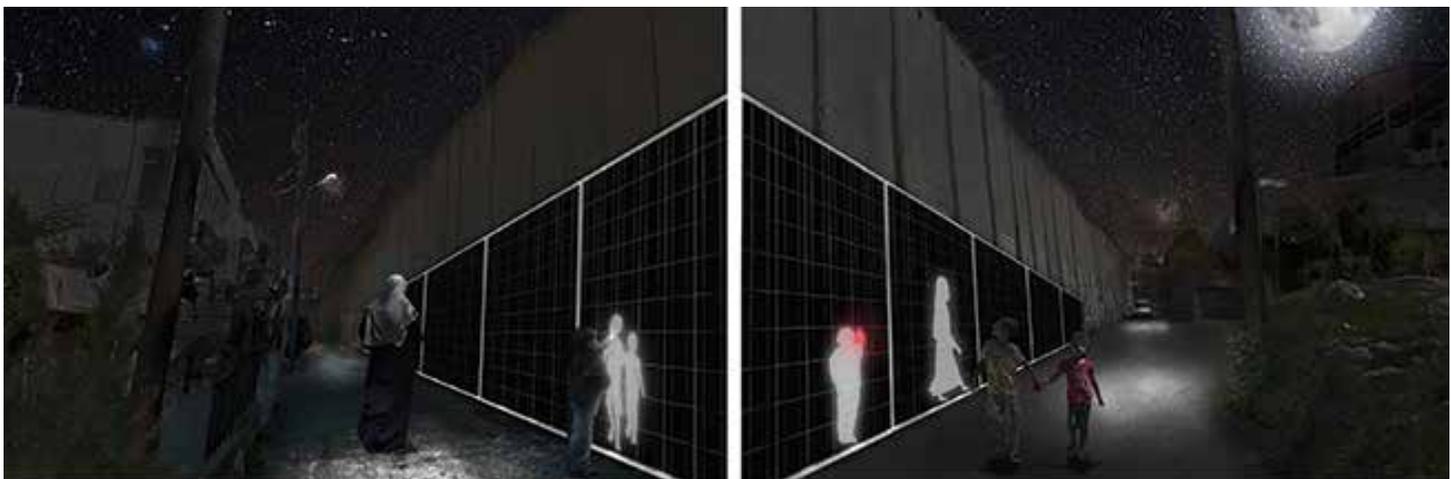
SCENT REACTION POINT: Diagram showing scent dispersion patterns.

SPRING FAMILY (Spring & Summer)
AUTUMN FAMILY (Fall & Winter)

YELLOW HUES (Yellow & Green)
ORANGE HUES (Orange & Red)
SPICE FAMILY (Spice & Warm)
SUGAR FAMILY (Sweet & Soft)

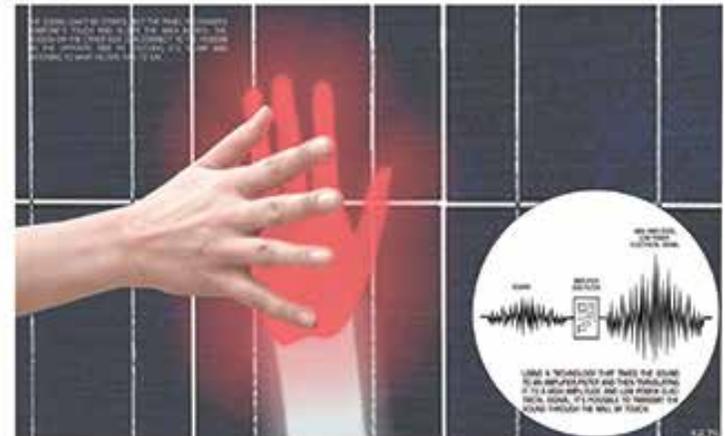
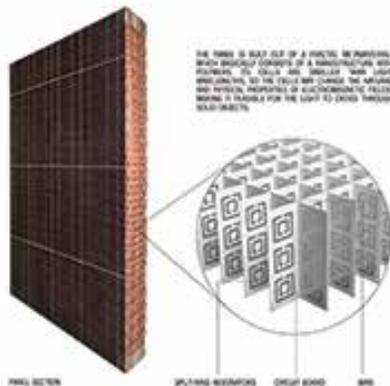
Timeline: DAWN (11:00 AM) → DUSK (11:00 PM) → DAWN

Auraroma



AWARENESS

THE CONFLICT BETWEEN ISRAEL AND PALESTINE IS WELL-KNOWN WORLDWIDE, AND THE ISRAELI WEST BANK BARRIER IS ONE OF ITS MOST REMARKABLE CHARACTERS. SYMBOL OF SEGREGATION AND HATE, THE WALL RUNS FOR 18 KILOMETERS AND DIVIDES THE CITY OF BETHLEHEM IN A WAY THAT RECALLS A LOT THAT BERLIN FROM THE 80'S. THIS INTERVENTION PROPOSAL REVOLVES AROUND A PANEL ATTACHED TO THE WALL FOR REMEMBERING THAT THE BEINGS ON THE OTHER SIDE OF THE BARRIER ARE HUMANS TOO. BY ENLIGHTENING THE SILHOUETTE OF WHOEVER WANDERS ON THE OPPOSITE SIDE, THE AWARENESS OFFERS A POSSIBILITY OF CONNECTION AND EMPATHY NOT ONLY BY SIGHT BUT ALSO THROUGH TOUCH AND VOICE. FOR ONE TO BE HEARD, ALL IT HAS TO DO IS TOUCH THE WALL AND WAIT FOR AN OPPOSITE-SIDED PEER TOUCH THE WALL.



Awallness

TECHNICALLY SPEAKING

TECHNICALLY SPEAKING: *Smooth Sailing to Smart Lighting*

At a macro timescale, the lighting industry traversed from calm, predictable waters to giant waves of revolutionizing technologies. The emergence of LED lighting changed everything; and now that we've all successfully traversed that first wave, the entire lighting industry—and those reliant upon us—clearly understand its sustainable, functional, aesthetic and connectivity benefits. LED technologies are now standard and embraced around the world. The same holds true for the next technology wave: smart lighting. In fact, in many ways, smart personal devices, smart appliances, and other smart technologies created a natural entry point for smart lighting. Along with that, passionate lighting and technology pioneers dove in, and are still defining the leading edge of what's possible. It may seem chaotic, but this early and fast-moving progress is the essence of pure innovation, and once we reach and crest this wave, smart lighting technology will seem essential with incomparable benefits.



In order to understand smart lighting, we start by looking beneath the churn at the motivating undercurrent. As codes, regulations and sustainability initiatives grow more restrictive, LED lighting-derived energy savings must correspondingly increase, which then creates opportunity for further restrictions, much like a sea serpent consuming its own tail. Networked and connected lighting provide an opportunity to significantly outpace energy savings beyond that afforded by LED technology alone. This includes capabilities far beyond on/off/dim, such as occupancy sensing, group sharing occupancy, daylight harvesting, task tuning, and autonomous/programmable lighting scenarios. The DLC released a report of compiled data from a variety of sources to demonstrate the significant energy savings of a networked lighting system. Download the report at designlights.org/index.cfm/lighting-controls/reports-tools-resources/nlc-energy-savings-report/.



The exciting benefit of smart lighting is access to data. Data that could fill an ocean—or a puddle—depending on an individual's preference. Its purpose is not to overwhelm, but to inform and even learn. Smart fixtures can talk to each other, wireless switches, other devices, centralized stations and cloud-based data centers. This exchange of information can be aggregated, analyzed, and used to support productivity improvements like space utilization, asset management, labor allocations and more. As an extra bonus, smart lighting often includes the ability to personalize the space. Especially in an office setting, the ability to personalize lighting in a space empowers workers and enhances wellbeing. Unsurprisingly, that leads to an improvement in productivity.

With a solid understanding of smart lighting benefits, a fleet of partnering experts and tools at your disposal, and an arsenal of value-generating solutions for your clients, you can confidently plot a course towards smart lighting success.

To learn how Philips Lighting approaches smart lighting from the inside out, watch the archived webcast Smart Lighting Made Easy: Cutting through the clutter to simplify commercial smart lighting in North America. event.webcasts.com/viewer/event.jsp?ei=1192167&tp_key=9e3bdb9545.

PRODUCT NEWS



Create memorable focal points and exciting destinations

The Philips Color Kinetics **iColor Accent Compact RGBW** direct view linear LED fixture has been updated with a true

white that is desirable in video displays and where corporate identification is very important. Customize installations with various lengths and two lens styles for wider viewing angles or straight on viewing depending on the desired outcome.

Visit colorkinetics.com/ls/rgb/icolor-accent-compact-rgbw/ to learn more.



Go further with powerful, precise, and controlled light

Choose Philips Color Kinetics **ReachElite** 100W, 200W and 300W, to light architectural details that you want the world

to notice. Not only does ReachElite provide the power of up to three LED lights in one, but each module can also be used in a different way—allowing a lighting designer to accent, graze, wash, or throw light with a single luminaire.

Visit colorkinetics.com/reachelite to learn more.



Enhance a building, define a brand

Lighting is essential to any architectural or landscape design. It's a subtle—but crucial—detail that affects how people experience a building

and a brand. Philips **VAYA Free Form** tape light, a slim flexible linear LED luminaire, helps you establish your visual identity and keep it consistent.

Visit colorkinetics.com/vaya/free-form/ to learn more.



Going beyond the road

Not all roadway applications are created equal. The Philips Lumec **RoadFocus LED off road** cobra head luminaires offer a versatile solution for applications that are outside

the range of traditional roadway lighting. From traditional streets to off road applications, The RoadFocus product family will help you simplify your luminaire selection.

Visit philips.com/roadfocus to learn more.



Small in size impressive in styling and performance

Complete a project from the warehouse to elegant commercial spaces with one family - Philips Chloride **Compac** LED exit & emergency products.

These exits, combos, remote units, and recessed emergency units have the same elegant aesthetic, have small profiles, yet are as rugged as they need to be for light industrial areas.

View the full product offering at philips.com/Compac.

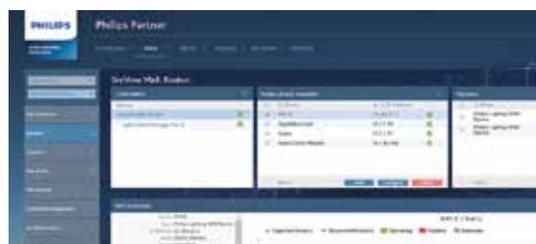


The innovative ceiling just got better

Philips **OneSpace** prefab next generation is well within your reach for some of your smaller budgets. How did we make it affordable? We based our

offering on the most popular sizes and configurations, and created a product that is more efficient, easier to maintain from below, and is available with 0-10V dimming.

Visit philips.com/onespace to learn more.



Value Engineering, don't let your budget hold you back

Philips Color Kinetics **ActiveSite version 1.6** now brings remote monitoring to even some of the tightest budgets. Now ActiveSite 1.6 works seamlessly with our economical and reliable, Philips Color Kinetics **Vaya** product family. Couple these two products together when you are forced to "value-engineer" a job, but gain monitoring, control, and reduce maintenance costs for your customer.

See how they work together: colorkinetics.com/ActiveSite.

EDUCATION

Webinars



Crowd management for sports venues

DATE: LIVE June 28, 2018 – 10 am EDT

Presented by Timmy Setiawan

Join this webinar on June 28, 2018 and listen to Timmy Setiawan, an architect and stadium designer who will share his knowledge about the crowd control in the stadium. He will talk about stadium safety and security plans using illumination/lighting design for the evacuation procedure in situations of emergencies.

REGISTER: lighting.philips.com/main/education/lighting-university/lighting-university-browser/webinar/crowd-management-for-sports-venues



The 3 CLUE winners sharing their projects - *Light and the senses*

DATE: LIVE July 26, 2018 – 10 am EDT

Presented by Santiago Bautista, Kareem Asfahani and Caroline Haydee De Carli, Joao Pedro Lopes Andrade

Join this webinar on July 26, 2018 and listen to the next generation of lighting designers, presenting the three top-placing projects from CLUE Edition 04 - Light and the Senses.

REGISTER: lighting.philips.com/main/education/lighting-university/lighting-university-browser/webinar/clue-winners-light-and-the-senses

Lighting Application Center

Light shapes what we see, do, and feel. The best way to learn about light and lighting is to experience it in three-dimensions, in full scale, and with dynamic, hands-on engagement. That is what happens at the Lighting Application Center, located at the Philips Lighting Company North America headquarters in Somerset, New Jersey.

Here, visitors experience how lighting impacts people and spaces through over 20,000 square feet of indoor interactive and demonstrative areas, and outdoor demonstrations. Independent lighting professionals provide practical information on the latest in lighting technology – solid state, lighting systems and services, daylight control, and energy-efficient display sources, as well as application techniques. Skills and knowledge gained here will help to improve project outcomes and support successful enterprises.

Experience light your way

For added convenience, visit our applications center in Markham, Ontario, Canada, or visit one of our many lighting facilities and factories around the country. Additionally, you are invited to take advantage of distance learning via our online e-learning tools and webinars.



Continuing education credits

Upon completion of each workshop, participants receive a certificate with professional development hours that may be self-reported for possible Continuing Education credit. Some programs offer AIA Learning Units. See program agendas or announcements for specifics.

Visit education.lighting.philips.com for onsite class schedules and online courses/elearning/e-videos.

EDUCATION

2018 Specifier Seminar Schedule

Now's your chance! Architects, engineers, lighting designers, and other specifying lighting industry professionals looking to stay abreast of the latest LED technology trends and information will benefit from these educational programs hosted by Philips Lighting. Participants are responsible for travel and lodging. Availability is limited, so contact your Philips Lighting representative today for enrollment in one of these programs, also detailed at education.lighting.philips.com.

Lighting Trends and Technology Update

SYNOPSIS: Visit the Lighting Applications Center (LAC) at Philips Lighting North America headquarters to learn about the latest LED lighting technologies, including Philips Lighting innovations, and discuss the latest industry information, insights and implications with independent and renowned industry experts and guest lecturers.

CEU/AIA: 7-9 credits earned

LOCATION/DATE: Somerset, NJ, September 12-13, 2018

Philips Lighting Open House

SYNOPSIS: Tour a Philips Lighting manufacturing facility to learn how luminaires are crafted, and meet the lighting experts behind the design and manufacturing process.

LOCATION: Philips Lighting Hadco facility, Littlestown, PA
Philips Lighting Lumec facility, Boisbriand, QC, Canada

REGISTER: Contact Luminous.Spec@signify.com for details.

Lighting Excellence Workshop

SYNOPSIS: Take a hands-on, technical approach to LED luminaire design and manufacturing processes, using examples from Philips Lighting brands made on-site. Learn practical applications, talk to a cross-functional team of lighting experts, and take a tour of the factory for a behind-the-scenes understanding of these key products.

CEU/AIA: 1-3 credits earned

LOCATION/DATE:

Philips Lighting Gardco/Hadco/Stonco facility, San Marcos, TX, July 25-26, 2018

Philips Lighting Ledalite facility, Langley, BC, Canada, October 24-25, 2018

Philips Lighting Gardco/Hadco/Stonco facility, San Marcos, TX, November 2, 2018



Lighting University

A comprehensive range of educational resources for people to expand their lighting knowledge.

Visit education.lighting.philips.com



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