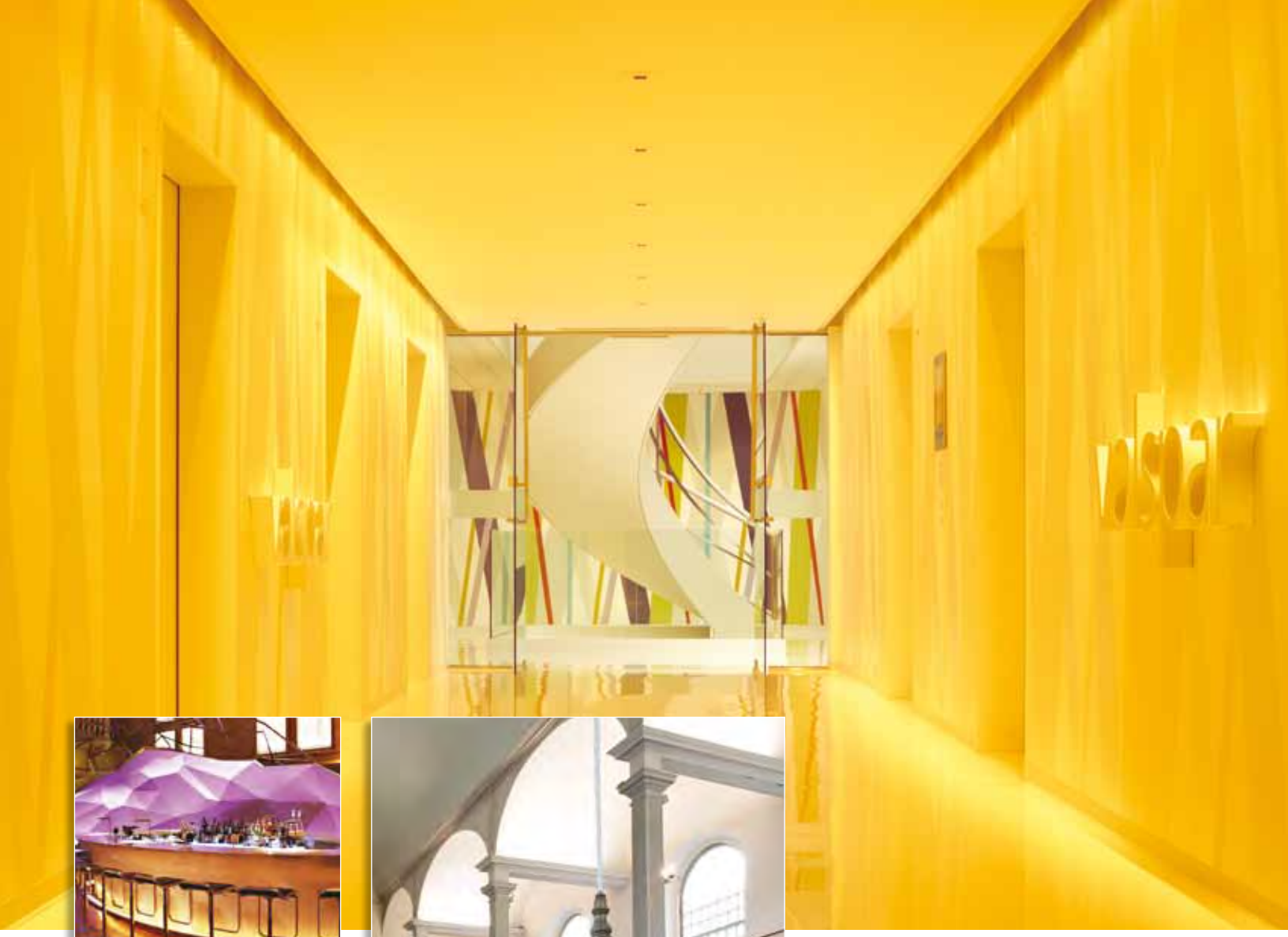


LED Cove Lighting

Creativity inside and outside the cove

PHILIPS

COLOR KINETICS

Photography: Richard Pare

Creativity inside and

The Cove series of linear LED lighting fixtures from Philips Color Kinetics is ideal for all traditional cove and indirect lighting applications. It also offers extraordinary flexibility for creating highly innovative and intricate lighting installations outside the cove. Our low-profile linear LED cove fixtures can produce solid white, solid color, intelligent white, or color-changing light at various levels of intensity and beam angles to support an astonishing array of traditional and unconventional applications.

Traditional cove lighting is an indirect lighting technique in which linear lighting fixtures are connected end-to-end and concealed within a cove, soffit, or similar architectural structure. Coves are often positioned at the perimeter of a space, either near the top of a wall to direct light upward onto the ceiling, or at the edge of a ceiling to direct light onto the top of the wall.

From general illumination to spectacular, innovative lighting effects

Solid white LED cove lights from Philips Color Kinetics provide general illumination from traditional center-ceiling and perimeter coves in the dining room at Corton Restaurant in New York City, USA (above left). iColor Cove MX Powercore fixtures, installed behind frosted panels, produce a stunning interactive experience in the Target Interactive Breezeway atop Rockefeller Center in New York (top right).

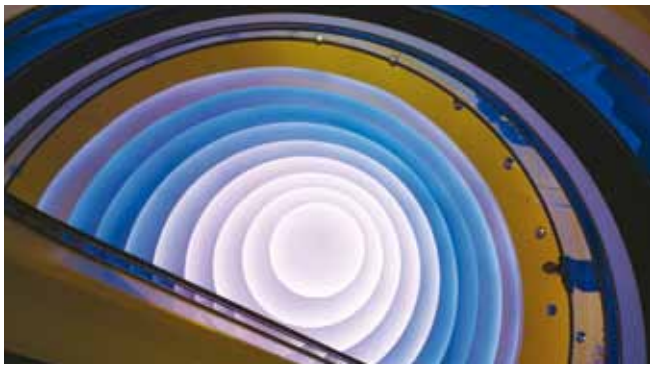
Photography courtesy of Electroland

outside the cove

Coves in the center of the ceiling, curvilinear or round coves, vertical coves, and other special shapes and types of openings can create an extensive range of effects.

Outside the cove, LED cove lighting fixtures can produce spectacular and innovative effects limited only by your imagination. The color-changing linear LED fixtures in our Cove series create dynamic and interactive lighting experiences that simply cannot be achieved with conventional cove lights.

For over 10 years, Philips Color Kinetics has enabled millions of feet of cove installations around the world.



Photography: Mikael Silkeberg

PUB, Stockholm, Sweden

iColor Cove MX Powercore, color-changing LED cove lights, illuminate the dome at PUB, Stockholm's oldest department store. Lighting scenes change throughout the day to vary the ambience of the space. (See also page 14.)

Stunning, uniform light from a cove

Indirect lighting from a cove or other architectural feature plays a significant role in establishing the mood or atmosphere of a room. When used effectively with other lighting techniques, cove lighting can heighten the sense of drama in a room or make a room feel brighter and more cheerful. Cove lighting can emphasize intriguing architectural detail such as unusual ceiling lines or coffered ceilings.

Superior color consistency in linear cove applications

Achieving consistency of light output in white-light cove applications is one of the most difficult challenges facing lighting designers. Light sources are positioned very close to illuminated surfaces, so there is very little room for color mixing, and the appearance of the light is strongly angle-dependent. Even small variations in color temperature and hue are clearly visible.

Linear fluorescent light sources are fairly uniform, but cove applications that use them can suffer from socket shadowing — areas of low luminance toward the ends of the fluorescent tubes — and hot spots, creating an uneven distribution of light along the illuminated surfaces.

Linear LED cove lights pose their own challenges to consistency and uniformity of light distribution. The beam produced by an LED cove light is a series of adjacent point sources, each with some difference in hue and color temperature. Unless these differences are tightly managed, unwanted variations in light output can result.

With Optibin, our proprietary binning algorithm, Philips Color Kinetics LED cove lighting fixtures set new standards for color consistency and uniformity across LED sources, fixtures, and manufacturing runs. For white-light applications, we allow significantly smaller variations in color temperature (CCT) and hue (Duv) than the limits set by the ANSI chromaticity standard. This means that color variations along linear runs are virtually invisible.

Our LED cove lights also feature extremely high color spatial uniformity (CSU), exceeding accepted industry standards. There are no visible color variations across the beam from center to edge, or at different viewing angles — an especially important consideration in angle-dependent cove lighting applications.

The result is extremely uniform and consistent color in linear cove applications, with no socket shadowing, hot spots, color shifting, tiger-striping, or unwanted edge effects.

World Market Center, Las Vegas, Nevada, USA

World Market Center uses approximately 8,000 ft (2.4 km) of eW Cove Powercore, energy-efficient LED cove lighting fixtures from Philips Color Kinetics, to illuminate the atrium of its Building C.

Photography: Darius Kuzmickas

Exactly the right level of light

Many lighting design professionals recommend a layered approach to lighting design. The layers — ambient, task, focal, and decorative — each perform a different function in the lighting of a space, often blending and reinforcing each other.

Cove lighting is part of the ambient layer, which provides the uniform, overall lighting for a space. The ambient light layer is critical for establishing the atmosphere of a space.

Lighting the walls from a cove or slot at the edge of the ceiling can make a room seem more spacious, warm, and intimate, while lighting the ceiling from a cove at the top of a wall can make the room seem cooler, quieter, and more formal. The more even the lighting, the more relaxed the room will feel.

Adjusting the light level of the ambient layer relative to the light level of the task layer can also change the feeling of a space. If the ambient light level is significantly lower than task light levels, the space will appear more dramatic. If the task and ambient light levels are nearly the same, a space will seem brighter, more cheerful, and more calming.

In white-light applications, ambient or cove lighting often provides sufficient illumination for creating a comfortable visual environment and for moving around in a space. If the light level of the ambient layer is high enough, however — above 30 fc or 300 lx — it can provide sufficient illumination for many general tasks, such as seeing into cabinets and drawers, casual reading, shaving, and business.

Soild white (eW), solid color (eColor), intelligent white (iW), and color-changing (iColor) LED cove lights from Philips Color Kinetics are available at different levels of intensity for a wide range of ambient lighting needs.

King Boulevard aboard the Carnival Valor

The owners of Boston-based Rustic Kitchen Bistro & Lounge wanted warm, attractive lighting to properly accentuate the alcoves within the Biltmore-inspired ceiling of the restaurant's Tuscan Room (facing page). Neon and fluorescent light sources did not offer the desired color temperatures, and the owners wanted to avoid frequent lamp replacements in the dining room.

Because they offer a wide range of color temperatures, long useful source life, and zero-maintenance operation, the restaurant owners chose iW Cove Powercore fixtures, which provide controllable white light ranging from a warm 2700 K to a cool 6500 K. Unlike conventional light sources, the fixtures maintain their precise color temperature even when dimmed. Now the staff can set the precise shade of white light that they desire at the touch of a button — a cooler color temperature during the day, for example, and a warmer color temperature in the evening.

On this page, runs of eW Cove Powercore LED fixtures illuminate the guest tables and contribute to the complex lighting scheme in Rustic Kitchen's Broadcast Kitchen Studio at Mohegan Sun Pocono Downs, in Pennsylvania.

Warm Cool White

Your White

Intelligent white (iW) cove lighting fixtures from Philips Color Kinetics combine channels of cool, neutral, and warm white LEDs to offer a range of color temperatures that you can adjust with a simple wall-mounted device. With these intelligent, dimmable, digitally controllable cove lights, you can select the precise shade and intensity of white light that you need.

By adjusting the color temperature of intelligent white cove lighting fixtures, from warm (more yellow / red) to cool (more blue), you can instantly alter the emotional effect of a space, and dramatically affect the appearance of objects on display in stores, galleries, and museums. By selecting the appropriate color temperature of your light sources for your environment, you can create the atmosphere you desire, positively influence buyer behavior, and increase productivity in the workplace.

Because LED light sources do not color-shift when dimmed, you can vary the brightness of your cove lighting fixtures while maintaining a consistent color temperature.

Rustic Kitchen Bistro & Lounge, Boston, Massachusetts, USA (above) and Pocono Downs, Wilkes-Barre, Pennsylvania, USA (opposite)

Photography: John Brandon Miller (above), Tom Bomer (opposite)

Consistently elegant

World Market Center in Las Vegas, Nevada, USA (here and on page 4) uses approximately 16,000 linear feet (4.8 km) of cove lighting fixtures to illuminate the atrium of its Building C. Over 8,000 feet (2.4 km) of eW Cove Powercore white-light LED cove fixtures, installed in the atrium ceiling and elsewhere, blend seamlessly with conventional 3000 K T8 fluorescent cove fixtures.

Photography: Darius Kuzmickas

Phoenix Children's Hospital, Phoenix, Arizona, USA

Energy-efficient iColor Cove MX Powercore linear LED lighting fixtures in three levels of coves integrate with other LED and conventional lighting fixtures to create an ever-changing and engaging environment for the lobby of the 600-bed Phoenix Children's Hospital (above and opposite).

Energy-efficient light, exactly where you want it

Because their light sources are inherently directional, LED cove lights excel at angle-dependent lighting applications. They are far more efficient at delivering illumination to target areas than conventional incandescent or fluorescent lamps.

Conventional lamps radiate light in all directions, including toward the back of the cove, where the light is wasted. Because LED cove lights direct all of their light output into a tightly defined beam angle, they waste far less light. They can deliver equivalent or superior illuminance to a wall or ceiling even when their total lumen output is lower than the total lumen output of comparable conventional luminaires.

For white-light applications, linear LED lighting solutions achieve high levels of efficacy, in some cases exceeding 50 lumens per watt (lm / W) — sufficient to earn the ENERGY STAR label, the government-backed symbol for energy-efficient products in the US.

LED cove lights from Philips Color Kinetics offer environmentally conscious buyers green, energy-efficient lighting solutions without sacrificing quality or quantity of light. With its long useful source life, low energy consumption, and virtually maintenance-free operation, eW Cove MX Powercore fixtures offer total cost comparable to dimmable T5HO and 2-lamp T8 strip lights in cove and accent lighting applications.

The affordable eW Cove QLX Powercore can produce up to 272 lumens, replacing comparable T8 and T12 fluorescent sources with a three-year payback, and comparable halogen and xenon sources with a one-year payback.

Photography: Blake Marvin

Versatile installation in virtually any situation

Solid white (eW) and solid color (eColor) LED cove lights from Philips Color Kinetics can be installed in narrow or tight architectural features where fluorescent lighting systems requiring ballasts, external power supplies, and other electronic components cannot.

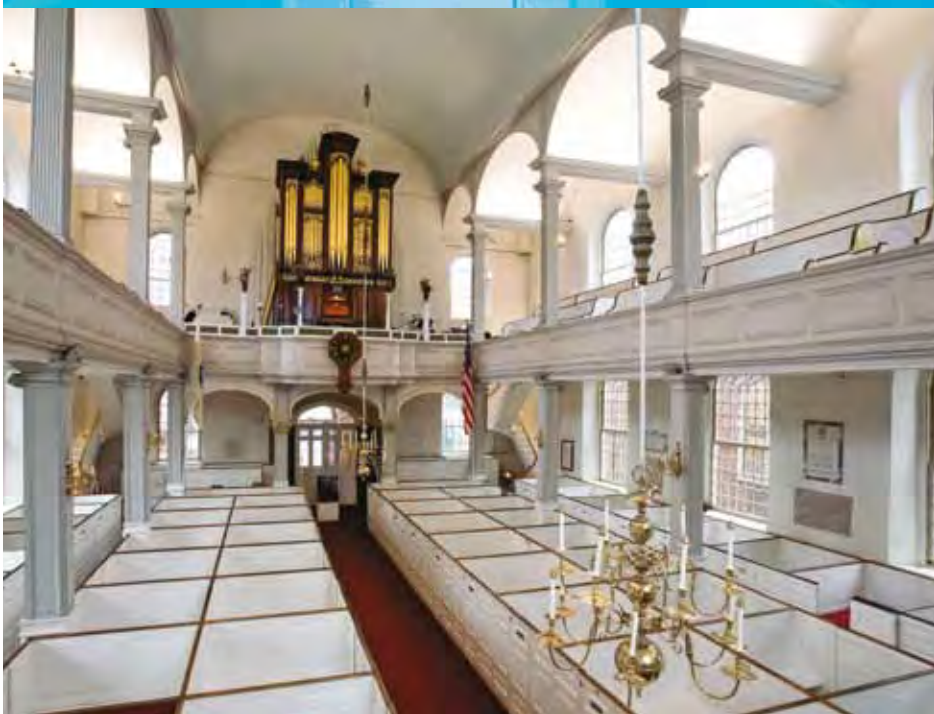
Patented Powercore technology rapidly, efficiently, and accurately controls power output to fixtures directly from line voltage, simplifying installation, eliminating the need for external power supplies, and allowing long runs of fixtures on a single circuit — over 100 fixtures per circuit in many configurations.

With flexible end-to-end locking power connectors, you can position compact LED cove lights from Philips Color Kinetics even in challenging mounting circumstances, such as in domes, curved soffits, and other unusually shaped coves.

When connected end to end, LED cove lights from Philips Color Kinetics produce extremely uniform light with no socket shadowing, tiger-striping, or unsightly edge effects. Jumper cables specifically designed for each fixture in the Cove line can add extra space between units to accommodate nearly any layout.

Photography: Mikael Silkeberg

PUB, Stockholm, Sweden



Any cove, any situation

Top: eW cove lights illuminate the catwalk at ghd, Leeds, UK.

Center: Intense color from coves at the top and bottom of the walls in Valspar Corporation's main office in Chicago, Illinois, USA.

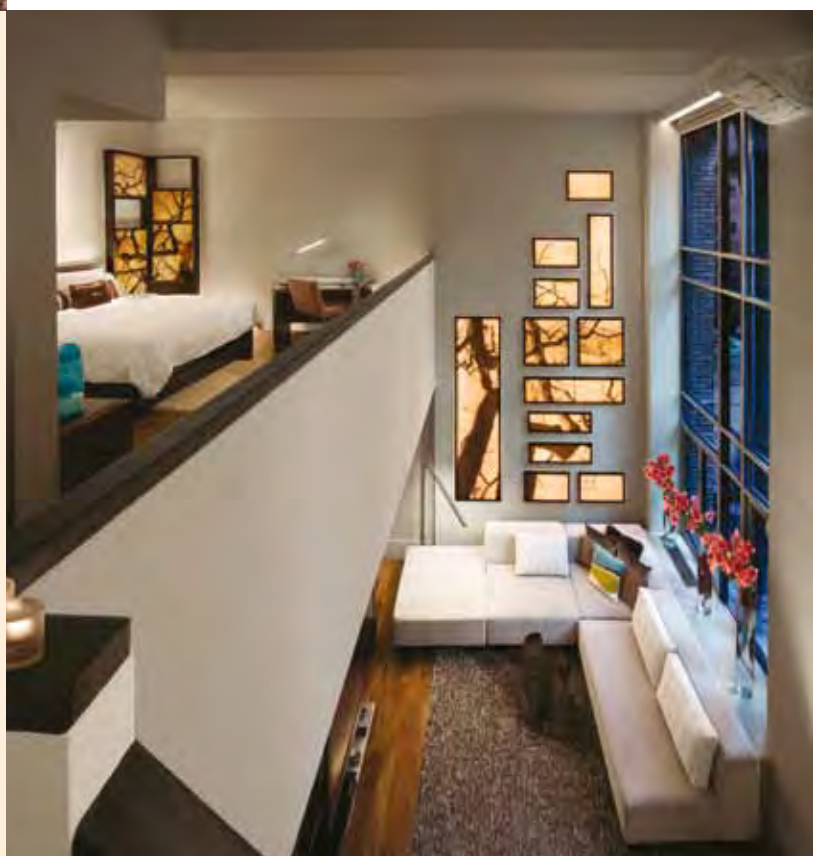
Bottom: eW Cove Powercore fixtures fill the interior of Old North Church, Boston, Massachusetts, USA, with uniform white light.

Photography: Chris Gascoigne (top), © Craig Dugan Photography (center), John Brandon Miller (bottom)

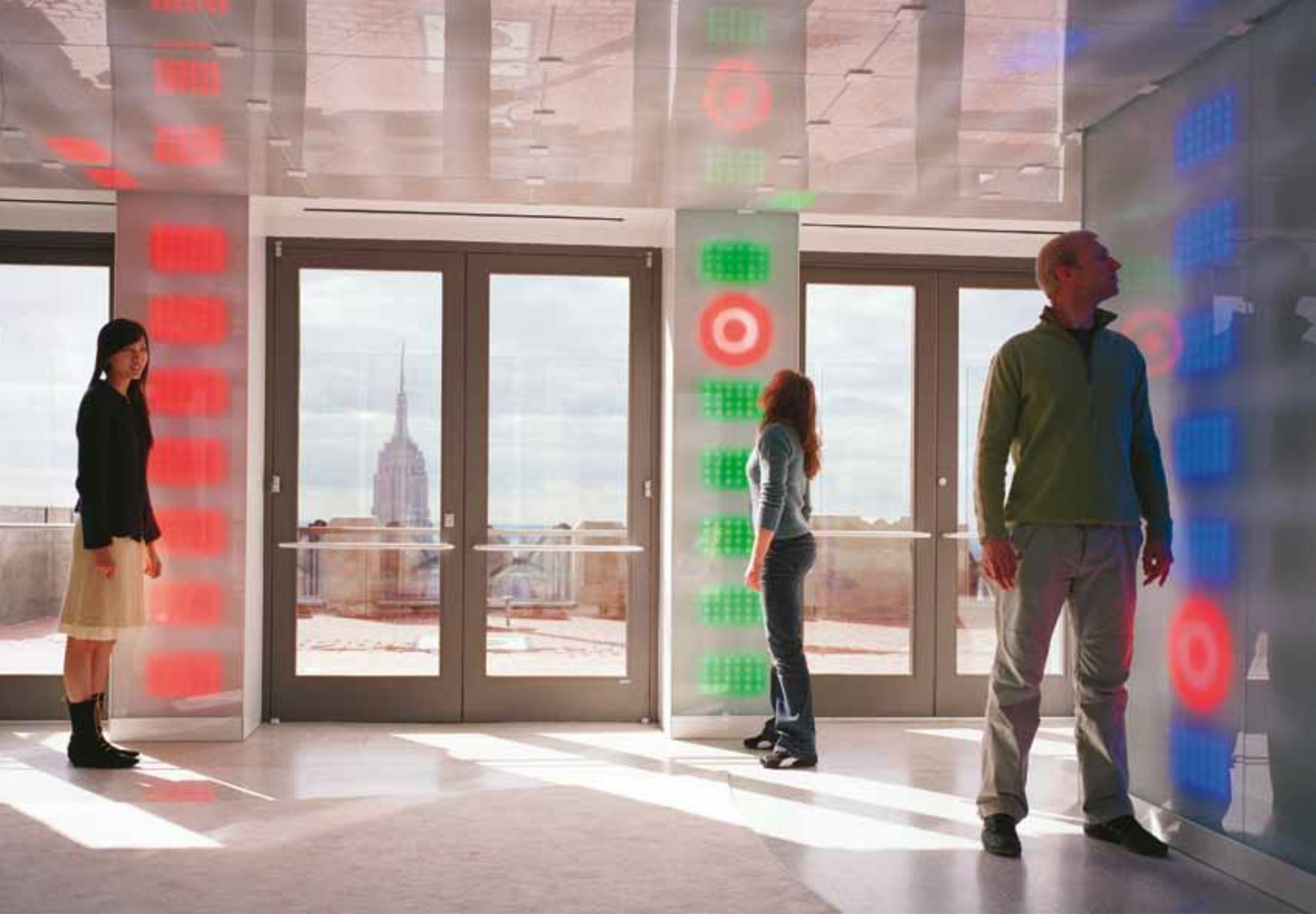
Manhattan's W New York luxury hotel offers guests a respite from the hectic pace of Manhattan life. In 2009, the hotel performed renovations to transform its guest rooms, spa suites, and sophisticated Wow suites into relaxing, private sanctuaries.

To enhance the soothing, nature-inspired décor, New York-based architectural lighting designers G2J Design concealed over 3,000 linear feet (914.4 m) of low-profile eW Cove Powercore 2800 K white-light LED fixtures throughout the suites.

In the double-height suites, the designers concealed eW Cove Powercore fixtures behind the partition and wall art panels. During the day, the panels appear as art objects, while at night they become light boxes that softly illuminate the space. The designers also concealed eW Cove Powercore fixtures above the bed canopies, within the graphic acrylic art panels above the headboards, above the minibar to provide task lighting, and within the window pockets to highlight the curtains and fill the room with soft ambient light. eColor Cove Powercore fixtures add dramatic splashes of color above the minibar.



Photography: Frederick Charles



Photography courtesy of Electroland

Think outside the cove

Cove lighting fixtures from Philips Color Kinetics may be cove in name and form factor, but they're much more than traditional cove lights. Our high-output, precisely controllable, versatile, linear LED lighting fixtures enable ingenious accent and direct-view lighting applications both inside and outside the cove.

LED lighting has revolutionized the way we think about light, and the way we deploy light sources to illuminate our spaces. It's important to think of LED lighting fixtures as more than simply solid-state replacements for conventional lighting fixtures and systems.

Intelligent white and color-changing LED cove lights from Philips Color Kinetics offer options for creatively illuminating a space that go far beyond conventional lighting systems. Solid-color LED cove lights can dramatically illuminate spaces as diverse as restaurants, nightclubs, spas, retail stores, showrooms, and domes. Full-color LED cove lights offer color-changing light digitally controllable in fine increments for producing dynamic effects, creating interactive environments, and displaying large-scale video. Intelligent white LED cove lights offer a range of color temperatures with which you can instantly vary the atmosphere of a room or enhance the appearance of objects on display.

Because of their energy-efficiency, minimal maintenance requirements, long useful source life, and cool beam of light, LED cove lights from Philips Color Kinetics can be integrated directly into furniture, artwork, and architectural features where conventional lighting fixtures cannot.

Limitless possibilities

Color-changing iColor Cove MX Powercore linear LED lighting fixtures are mounted within a Möbius-strip-like sculpture sheathed in glass beads at the Miracle Mile Shopping Center in Las Vegas, Nevada, USA. Because of their low profile and cool beam of light, LED lighting fixtures from Philips Color Kinetics can be incorporated into decorative and architectural structures for effects that go far beyond those achievable with conventional lighting systems.

Planning successful cove applications

Planning a successful cove application involves a number of related considerations. To begin with, you must identify what type of effect you want to produce, then select fixtures that provide sufficient light levels and distribution. In retrofit applications, you must make sure that your cove fixtures offer form factors and operating temperature ranges appropriate for existing coves or soffits. In new installations, you must design and build coves with the appropriate finish, horizontal and vertical clearance, and openings.

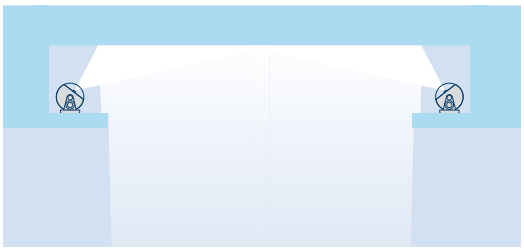
Once fixtures and cove dimensions have been determined, you must place fixtures properly within the coves and aim them to achieve seamless color mixing and blending. If you're using color-changing or intelligent white cove fixtures, you must identify the number and locations of power supplies, controllers, and other required system components. If you're using solid colored or solid white light fixtures, you must select and install switches or compatible dimmers.

The sections that follow offer rules of thumb and general guidelines for planning and installing successful cove applications using Philips Color Kinetics cove lighting solutions. However, keep in mind that many factors can affect the performance of cove lights in real-world applications, including ceiling height and the relative levels of other light sources in the space. Therefore, we strongly recommend creating dimensional models, mockups, or computer renderings prior to installation.

Common cove designs

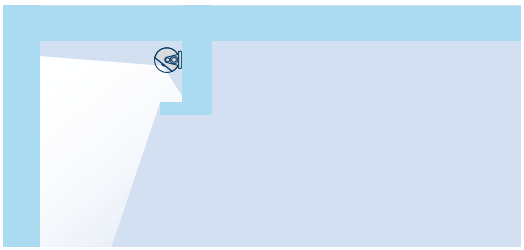
Ceiling illumination from perimeter cove at top of wall

Rustic Kitchen, Boston, Massachusetts, USA



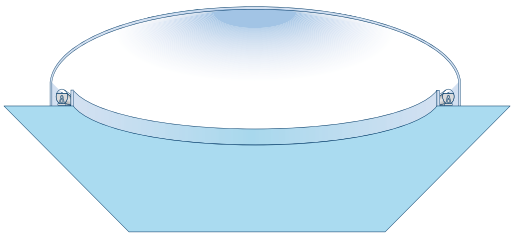
Ceiling illumination from a center cove

Lacoste, USA



Wall illumination from perimeter cove at edge of ceiling

Lassen Residence, Kapalua, Hawai'i, USA



Radius application

Dublin Airport, Dublin, Ireland

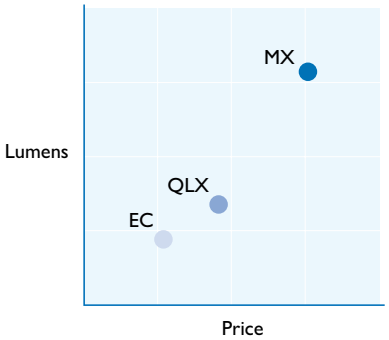
Photography: John Brandon Miller (top), courtesy of LACOSTE (center top), Steven Cordrey (center bottom), courtesy of Dublin Airport Authority (bottom)

Selecting the right fixture for your application

Philips Color Kinetics offers an extensive line of LED cove lighting fixtures to support virtually any conventional indirect or decorative lighting application for a cove. Choose the type of light you want — color-changing, intelligent white, solid color, or solid white — then choose the beam angle and level of light output to achieve the desired lighting effect.

When evaluating LED cove lights against conventional cove lights, keep in mind that you must discount the total lumen output of fluorescent or incandescent lamps by the fixture's efficiency.

For instance, a high-performance fluorescent cove lighting fixture reports 860 lumens for the two T2 lamps used within the fixture. However, the fixture's efficiency is 66.9%, which means the fixture outputs only 575 total lumens (66.9% of 860 = 575 lumens out, with 285 lumens wasted).



The efficiency of integrated LED lighting fixtures, on the other hand, is always 100%, since the LED sources (lamps) are integrated into the fixture, and the entire system is tested as a unit. In terms of fixture lumen output, then, eW Cove MX Powercore produces lumens per foot equivalent to the T2 fluorescent fixtures.

Illuminance, which measures how much light a fixture delivers to a target area at a certain distance, is often a better index of the performance of a light fixture in a given application. This is especially true for cove and other indirect lighting applications, where the amount of light emitted from the cove, the angle of incidence, and the fixtures' throw has a significant impact on the resulting effect.

See page 24 for summary specifications on all Philips Color Kinetics LED cove lights, including lumen output and illuminance values at various distances.

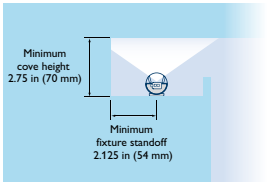
Philips Color Kinetics LED cove lights at a glance

	Cove MX	Cove QLX	Cove EC
Color-Changing (iColor)	RGB	RGB	RGB
	 iColor Cove MX Powercore	 iColor Cove QLX	 iColor Cove EC
Beam Angle	125° x 120°	100° x 40° / 120° x 120°	120° x 120°
Light Output	387 lumens	39 – 50 lumens	11 lumens
Intelligent White (iW)	2700 K – 6500 K	—	—
	 iW Cove MX Powercore		
Beam Angle	110° x 110°		
Light Output	656 lumens		
Efficacy (lm / W)	37.3		
Color Rendering Index (CRI)	82		
Solid Color (eColor)	Red Green Blue Amber	Red Green Blue Amber	Blue Amber
	 eColor Cove MX Powercore	 eColor Cove QLX Powercore	 eColor Cove EC Powercore
Beam Angle	110° x 110°	110° x 110°	110° x 110°
Solid White (eW)	2700 K 3000 K 3500 K 4000 K	2700 K 3000 K 3500 K 4000 K	2700 K 4000 K
	 eW Cove MX Powercore	 eW Cove QLX Powercore	 eW Cove EC Powercore
Beam Angle	110° x 110°	110° x 110°	110° x 110°
Light Output	537 – 630 lumens	232 – 272 lumens	140 – 172 lumens
Efficacy (lm / W)	43.9 – 53.1	42.5 – 48.7	45.0 – 56.9
Color Rendering Index (CRI)	81 – 84	82 – 85	82 – 83

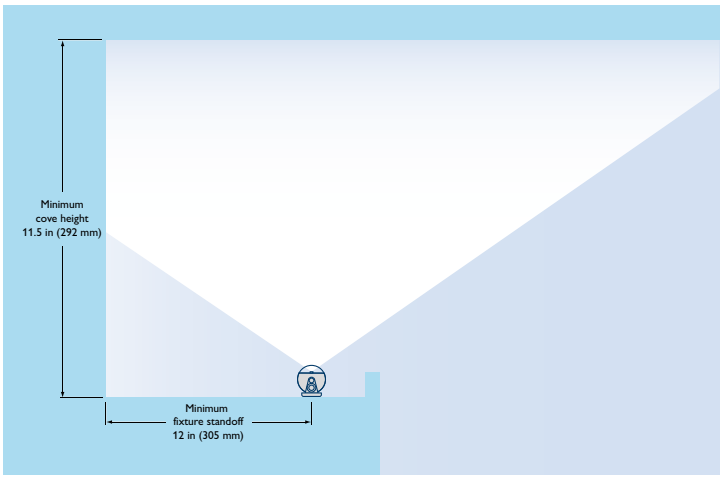
Determining cove dimensions

For consistent results, the cove width and height should accommodate a fixture's minimum mixing distances, and can vary greatly depending on fixture output. The diagrams to the right show example minimum cove dimensions for eW Cove EC Powercore and iColor Cove MX Powercore. Specific dimensions and positioning depend on the details of your installation.

eW Cove EC Powercore
110° beam angle, 180° rotation



iColor Cove MX Powercore
125° beam angle



All dimensions given assume that coves and illuminated surfaces have a matte white finish. Matte white is recommended, as it can increase reflectivity in the cove by as much as 20%, diminish discoloration in white light applications, and increase overall system efficacy.

The table below lists illuminance values for various distances in footcandles (fc), as measured during photometric testing by independent, third-party testing labs. (For lux, multiply the fc values by 10.) You can use these figures as a general indication of the capability of our LED cove lights at different distances.

Summary Specifications for Philips Color Kinetics LED Cove Lights

Fixture	Color / CCT	Beam Angle	Lumens / Ft	Illuminance (fc*)						Minimum Cove Dimensions	
				0.5 ft 15 cm	1.0 ft 30 cm	1.5 ft 46 cm	2.0 ft 61 cm	2.5 ft 76 cm	3.0 ft 91 cm	Height	Standoff
iColor Cove MX Powercore	RGB	125° x 120°	387	458	115	51	29	18	13	21.5 in (546 mm)	12 in (305 mm)
iColor Cove QLX	RGB	100° x 40°	39 – 42	99	25	11	8	4	3	2 in (51 mm)	1.375 in (35 mm)
	RGB	120° x 120°	46 – 50	70	18	8	4	3	2	2.75 in (70 mm)	1.875 in (48 mm)
iColor Cove EC	RGB	120° x 120°	11	13	4	2	.9	.6	.4	2 in (51 mm)	1.75 in (44 mm)
iW Cove MX Powercore	2700 K – 6500 K	110° x 110°	656	940	235	104	59	38	26	11.5 in (292 mm)	8 in (203 mm)
eW Cove MX Powercore	4000 K	100° x 100°	632	952	238	106	60	38	26	9.5 in (241 mm)	9 in (229 mm)
	3500 K	100° x 100°	576	864	216	96	54	35	24	9.5 in (241 mm)	9 in (229 mm)
	3000 K	100° x 100°	534	804	201	89	50	32	22	9.5 in (241 mm)	9 in (229 mm)
	2700 K	100° x 100°	527	804	201	89	50	32	22	9.5 in (241 mm)	9 in (229 mm)
eW Cove QLX Powercore	4000 K	110° x 110°	272	349	87	39	22	14	10	7.5 in (191 mm)	7 in (178 mm)
	3500 K	110° x 110°	235	306	77	34	19	12	9	7.5 in (191 mm)	7 in (178 mm)
	3000 K	110° x 110°	242	312	78	35	19	12	9	7.5 in (191 mm)	7 in (178 mm)
	2700 K	110° x 110°	232	296	74	33	19	12	8	7.5 in (191 mm)	7 in (178 mm)
eW Cove EC Powercore	4000 K	110° x 110°	172	216	54	24	14	9	6	2.75 in (70 mm)	2.125 in (54 mm)
	2700 K	110° x 110°	140	180	45	20	11	7	5	2.75 in (70 mm)	2.125 in (54 mm)

* For lux, multiply fc by 10

Positioning fixtures in coves

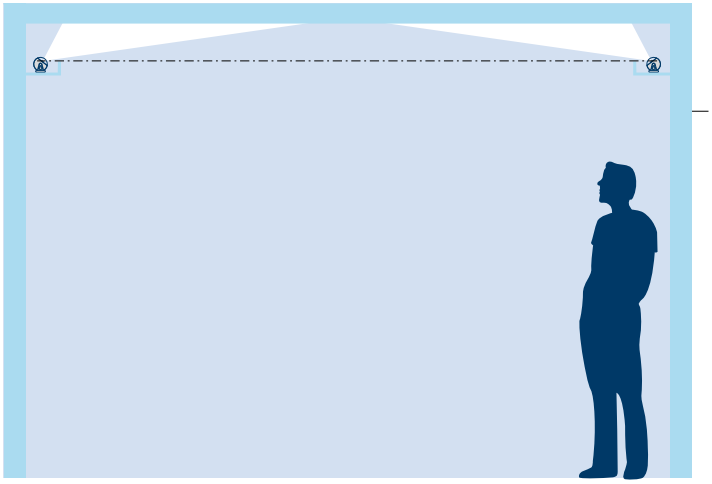
Coves should be wide enough so that you can position the fixture to achieve the desired lighting effect. Fixture standoff (distance from the back of the cove), fixture setback (distance from the cove opening), and fixture aiming (angle of incidence of light onto the illuminated surface) are all critical for ensuring the desired intensity and uniformity of light inside and out of the cove.

Minimum fixture standoff is an especially important consideration, and one that is often overlooked. Even though linear LED lighting fixtures direct a high proportion of their light output out of the cove, the back of the cove receives a certain amount of light, usually due to a combination of fixture aiming, reflected light, and spill light. Because linear LED lighting fixtures emit light as a series of point sources, positioning the fixture too close to the back wall of the cove can result in unwanted hot spots and shadowing. On the other hand, positioning the fixture too close to the cove fascia can trap the majority of a fixture's light output within the cove.

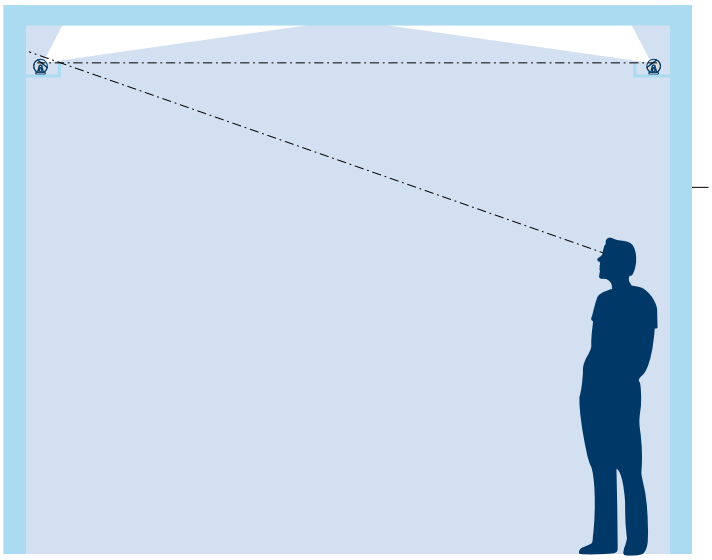
Cove lighting applications are especially sensitive to the joints between light sources. When connected end-to-end and positioned and aimed properly, Philips Color Kinetics LED cove lights produce uniform, consistent light with no socket shadowing or hot spots.

Because of end-of-run effects typical of all linear lighting fixtures, minimum mixing distance increases at the ends of runs of multiple fixtures, or when single fixtures are used in isolation. Extra care should be taken to avoid or conceal unwanted color flares or variations in such situations. We also recommend stopping coves short of end walls to prevent sharp cutoff lines.

For maximum light output, position fixtures close to the line of sight



For coves less than 9 ft (2.7 m) from the floor, determine the line of sight by drawing a horizontal line from the top edge of the cove fascia to the back of the cove.

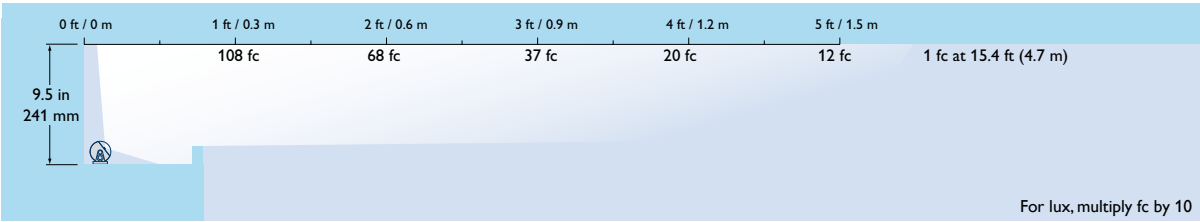


For coves more than 9 ft (2.7 m) from the floor, find the farthest point from which the cove is visible at a height of 7 ft (2.1 m), and draw a line from that point through the top edge of the cove fascia to the back of the cove.

Aiming fixtures

Next to proper fixture positioning within the cove, fixture aiming has the greatest impact on the amount of light out of the cove and the resulting effect.

Most LED cove lights from Philips Color Kinetics have housings that can rotate through 170° or 180° in increments of 10°.



As the diagram above shows, properly aiming fixtures let you achieve dramatic and unusual effects from coves. Here, eW Cove MX Powercore fixtures are rotated in such a way as to create a grazing effect on the ceiling, throwing bright white light to a distance of over 5 ft (1.5 m) toward the center of the room from a perimeter cove.

Private Spa, Limerick, Ireland

In the words of the 2009 IALD Award of Excellence press release, the design concept for the Limerick House Spa was "to create a series of calming, coherent and relaxing spaces in a newly carved-out basement."

The pool is halo-lit from the perimeter by concealed iColor Cove MX Powercore fixtures that bounce light down the walls and define the ceiling profile with a distinct line of light, providing a warm white glow or dramatic colors. The IALD judges called the project "an archetypal achievement for pool and spa lighting design."

Photography © Christian Richter

Reducing costs with LED cove lighting systems

LED cove lighting systems offer a cost-effective alternative to conventional incandescent and fluorescent systems. Although the initial fixture cost may be higher, LED-based lighting systems can offer a significant reduction in total cost of ownership (TCO) over traditional systems by reducing the "cost of light."

Total cost of ownership (TCO) is essentially the total cost to the owner of buying, installing, maintaining, and operating a lighting system over the total useful life of the product. LED lighting systems offer reduced TCO as the result of a decrease in the cost of energy consumed, as well as a significant decrease in maintenance expenses throughout the system's useful life. Maintenance expenses include both the cost of lamps and the labor required to replace them. In addition, decreased heat generation means less heat load and lower air conditioning costs.

When performing TCO comparisons, make sure you account for all factors that have an appreciable effect on initial, installation, configuration, maintenance, and energy costs. For instance, initial costs include the cost not only of lamps and fixtures but also the cost of required accessories such as cabling, ballasts, and power supplies, as well as the cost of control, including switches, dimmers, and digital controllers. Configuration costs can include fees for lighting designers and system integrators (for example, for integration with building controls or remote monitoring systems).

When calculating maintenance costs, make sure to consider relamping and replacement costs (based on the lighting system's rated or useful life), as well as the cost of labor for repairing, replacing, or cleaning lighting fixtures and other critical system components.

Also be sure to account for any costs related to compliance with local or national regulations, and factor in rebates or other available economic incentives for installing energy-efficient lighting systems in your region.

Photography © Christian Richter

Building a complete lighting system

Linear LED lighting fixtures in the Philips Color Kinetics Cove series are part of a complete system that consists of fixtures and other components for delivering power and control the fixtures.

Power Options

Many LED cove lighting fixtures from Philips Color Kinetics feature patented Powercore technology. Powercore rapidly, efficiently, and accurately controls power output to fixtures directly from line voltage, eliminating the need for external power supplies.

Solid white (eW) and solid color (eColor) fixtures with Powercore can be wired directly to line power sources, and can use standard ON / OFF switches or commercially available electronic low voltage (ELV-type) dimmers.

Intelligent white (iW) and color-changing LED fixtures with Powercore use the Philips Data Enabler Pro to merge line voltage with control and deliver them to fixtures over a single standard cable, dramatically simplifying installation and lowering total system cost.

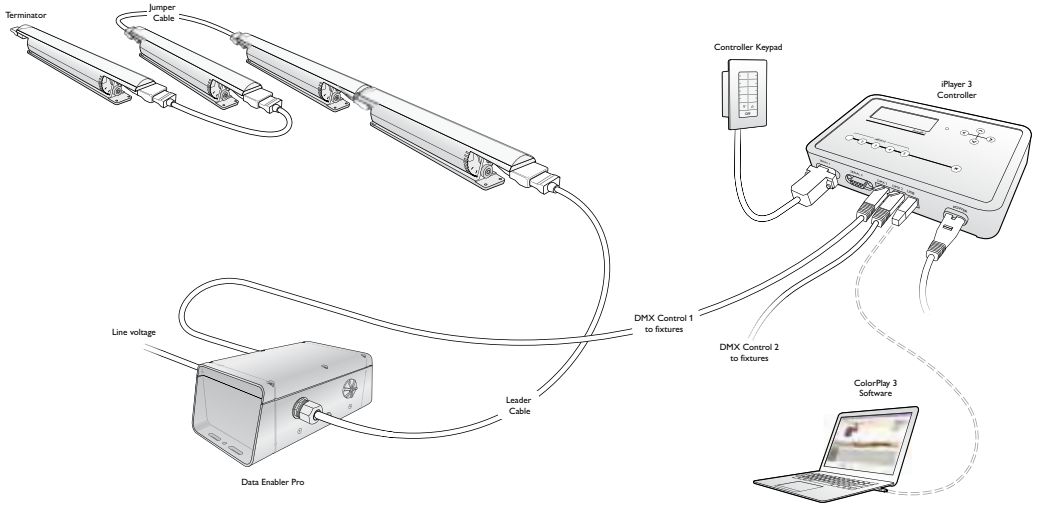
Powercore allows long fixture runs, minimizing the need for extra equipment, simplifying installation, and reducing total system cost. Depending on fixture power consumption, input voltage, and circuit and wiring details, you can create individual fixture runs of 40 to 200 fixtures or more.

Low-voltage fixtures, such as iColor Cove QLX and iColor Cove EC, require power / data supplies available from Philips Color Kinetics.

Layout Options

Pre-configured leader cables allow you to position fixtures at a distance from power sources, and mount power / data supplies and Data Enabler Pro devices in unobtrusive or concealed locations away from coves and other architectural features.

Pre-configured jumper cables of various lengths let you work around obstacles and features or add extra spacing between fixtures when needed.



A typical iColor Cove MX Powercore system

A typical iColor Cove MX Powercore system consists of one or more runs of fixtures, one or more Data Enabler Pro devices to deliver data and power over pre-configured leader cables, a controller such as iPlayer 3 for delivering dynamic light show content to fixtures, and a wall-mounted light show triggering device, such as Controller Keypad.

Control Options

As digital light sources, LED cove lighting fixtures can be precisely controlled by dimmers, push-button devices, and advanced software-based control systems. Philips Color Kinetics offers a full range of lighting control systems specifically designed to integrate seamlessly with our LED cove lights.

Simple wall-mounted controllers with pre-programmed light shows and dynamic effects, such as ColorDial Pro, can control small installations of a few to a few dozen intelligent white or color-changing lighting fixtures with no light show authoring or programming required.

With DMX- and Ethernet-based control solutions from Philips Color Kinetics, such as iPlayer 3 and Light System Manager, you can author and deliver dynamic light show content to lighting installations ranging from a few fixtures to complex installations with thousands of individually controllable full-color LED nodes.

Video System Manager Pro is a content server with support for large-scale video applications requiring hundreds of thousands of individually controllable LED nodes.

Philips Color Kinetics also offers controller accessories, such as wall-mounted keypads for triggering shows, remote triggering devices, and protocol converters to support all of your networking needs.

Meat Market Restaurant, Miami Beach, Florida, USA

Photography: Robin Hill

A complete portfolio of LED lighting solutions

Philips Color Kinetics offers industry-leading, high-performance LED lighting solutions for the full range of theatrical, presentation, and portable lighting applications, as well as for architectural applications both indoors and outdoors.

The set of LED lighting fixtures and digital controllers summarized on the facing page, which includes all of the products mentioned in this guide, is only a sampling of our complete line of solid white, solid color, intelligent white, and color-changing LED lighting solutions.

For an overview of all Philips Color Kinetics LED lighting fixtures, controllers, and power / data supplies, see the latest Philips Color Kinetics Product Portfolio. For stunning photographs and case studies that showcase our LED lighting solutions in signature installations around the world, see the latest volume of our Illumination Gallery.

Visit Philips Color Kinetics Online

You can always visit us online at **www.philipscolorkinetics.com** for complete product information, including photometrics, installation instructions and other product documentation, and sales and ordering information.

iColor Cove MX Powercore

Our premium color-changing cove light, this compact, high-performance fixture affords virtually limitless options for filling indoor alcoves and accent spaces with vibrant light. Ideally suited for backlighting and cost-effective indoor wall grazing.

iColor Cove QLX

Compact, linear LED fixture that generates saturated color and dynamic effects in coves, accent areas, and other interior spaces. Available in two lengths and two beam angles. Flexible mounting and positioning options for virtually any desired configuration.

iColor Cove EC

The most cost-effective iColor Cove fixture, designed for applications where lower light intensity and lower costs are desired. Offers an economical way to bring color-changing light and effects to alcoves, task areas, and other tight spaces.

iW Cove MX Powercore

Offers brilliant, intelligent white light of up to 600 lumens per foot. Three channels of warm, neutral, and cool white LEDs produce color temperatures ranging from 2700 K to 6500 K with excellent color rendering across the range.

eColor Cove MX Powercore

Maximum output solid color LED cove light. Offers environmentally conscious buyers a green, energy-efficient lighting solution without sacrificing quality or quantity of light. Available in Red, Green, Blue, and Amber.

eColor Cove QLX Powercore

Low-profile LED cove light delivers high quality and quantity of solid color light at an affordable price. Designed for wall and ceiling glow effects, wall washing, and indirect lighting from a single cove. Available in Red, Green, Blue, and Amber.

eColor Cove EC Powercore

Dimmable, linear LED alternative to traditional cove lighting where solid blue or amber light is desired. Low profile, rotating housing, and flexible end-to-end locking power connectors for ease of installation.

eW Cove MX Powercore

Maximum output linear LED fixture for cove, general, and accent lighting. Wide beam angle and a range of fixed colors and color temperatures for accent lighting, indirect general illumination, and wall and ceiling cove applications.

eW Cove QLX Powercore

Low-profile cove light affordably delivering high-quality white or colored light in four color temperatures and four solid colors Replaces non-LED cove lights for wall and ceiling effects, wall washing, and indirect lighting from a single cove.

eW Cove EC Powercore

Dimmable, linear LED alternative to traditional solid white or colored cove lighting. The cost-effective choice for a wide range of interior retail, exhibit, hospitality, and architectural settings.

Video System Manager Pro

Integrated hardware / software solution that streams video playback and visual effects output to Philips intelligent LED lighting systems. Can process output for up to 250,000 individually controllable LED nodes.

Light System Manager

Versatile show authoring and control for large-scale lighting installations. Supports up to 15,000 individually controllable LED nodes depending on system configuration.

iPlayer 3

Compact DMX control solution with powerful light show authoring, storage, and playback capabilities with on-board controls for superior ease of use. Supports two complete DMX universes.

ColorDial Pro

Ethernet-based, stand-alone lighting controller and interface for color-changing LED lighting fixtures from Philips Color Kinetics. Features enhanced LCD screen for configuring effects and simple dial-and-button controls.

Philips Color Kinetics
3 Burlington Woods Drive
Burlington, Massachusetts 01803 USA
Tel 888.385.5742
Tel 617.423.9999
Fax 617.423.9998
www.philipscolorkinetics.com

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