COLOR KINETICS

Illuminating Bridges

An Application Guide

Spectacle in your city.

A well-lit bridge can become a landmark, a gathering point, and a source of civic pride. It draws people to the waterfront, shapes a city's identity, attracts visitors, and generates economic activity that ripples through the surrounding area.

Color Kinetics has been transforming bridges of every type, from modest urban crossings to monumental landmark structures, into destinations that people return to see, for nearly 30 years.

The right bridge lighting system does more than illuminate a structure. It creates the kind of place people linger, photograph, and return to. A lit waterfront becomes a gathering point. A glowing span changes how people move through and experience the city at night. Light turns a crossing into a destination.

This guide shows you how.

Photography: Veronique

Lighting Public Infrastructure Since 1997

Color Kinetics has been bringing landmarks and public spaces to life around the world. Bridges, underpasses, city halls, airports, parks, arenas, and power stations. We have the experience and expertise to take on any public infrastructure project.

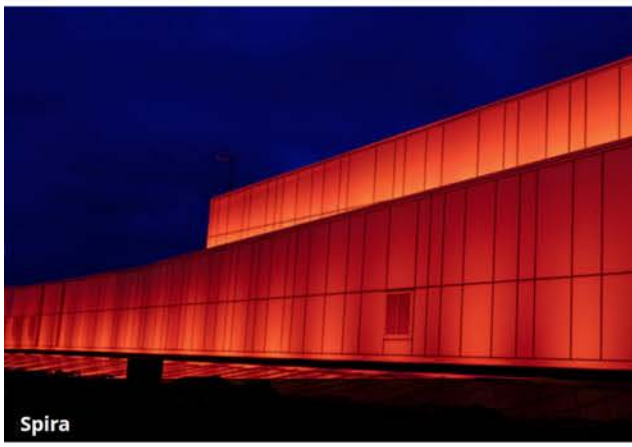
See what is possible at: colorkinetics.com/global/showcase


Hoan Bridge


Howrah Bridge


De Zwerm


Tyne Bridge


Spira


Kungsträdgården Metro...


Hock Plaza Building


Kickapoo Lucky Eagle...


Caycedo Plaza


Dubai Frame


Signify Factory Tijuana


Mosaic

 Photography: For photo credits see specific showcase at colorkinetics.com/global/showcase.


The Barn


Soft Time


Wortham Center for...


Paseo de Levante


Erie Canals


Boorloo Bridge


Anaheim Convention...


San Antonio Colorline...


TEATRO
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ique Buenaventura...


The Davis Building


Marc Brickman Residence


Endeavour Condo Clear...


151 N Franklin St


159th and Lone Elm...


Wahda Arch


Liverpool Rascule Bridge


Stirling Old Bridge


Infinity Bridge


LA Health Training...

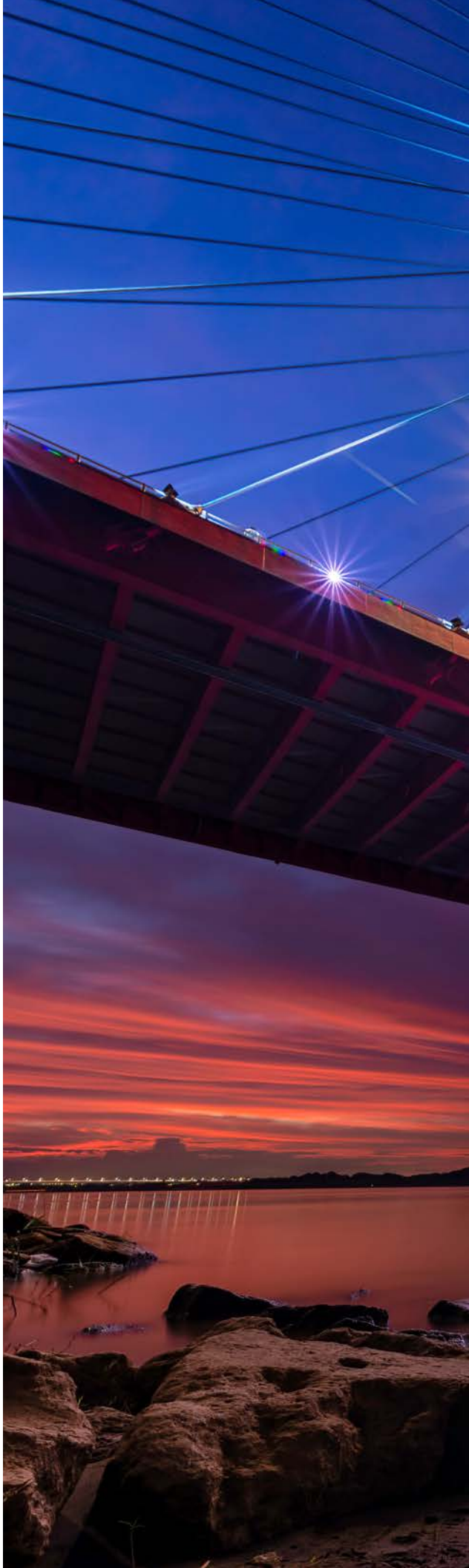

Kanazawa Port


REGIONS FIELD

More Than a Lighting Supplier

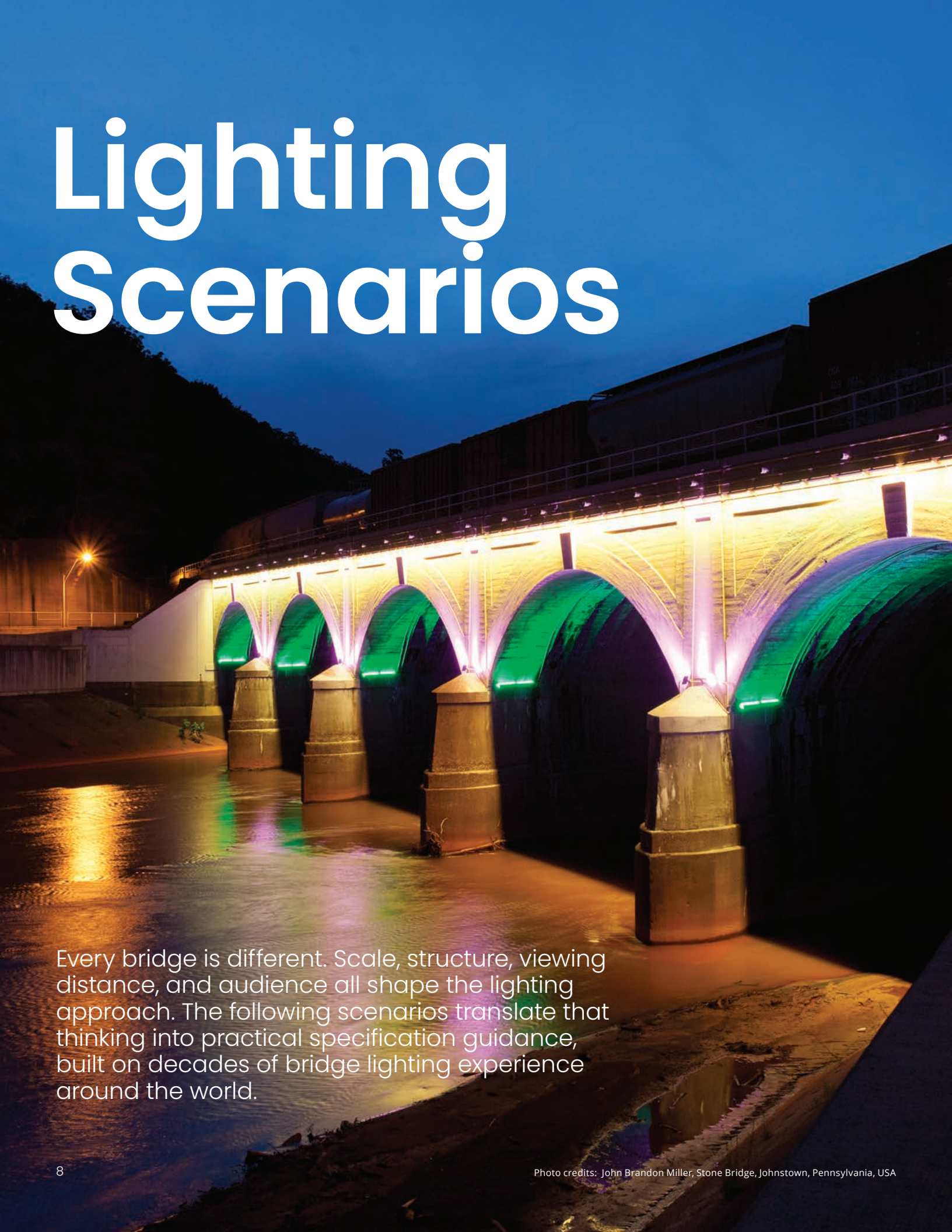
Lighting a bridge is a complex undertaking. The right solution depends on the structure, the scale, the environment, and the vision. Color Kinetics has been delivering complete LED lighting systems since 1997, and we bring that experience to every bridge we light.

- **Complete integrated systems**
  Every Color Kinetics bridge installation is a complete, integrated system. Luminaires, power, control, and network infrastructure are specified and engineered to work together from the outset.
- **Deep technical knowledge**
  Bridge environments are demanding. Long cable runs, extreme weather, structural vibration, and complex control requirements call for real-world expertise. Our specialists can answer the hard questions early, before they become problems on site.
- **Sustainable by design**
  Energy efficiency is built into every system we specify. Bridge lighting that runs every night of the year benefits significantly from the efficiency and longevity of Color Kinetics LED systems.
- **Support from concept to commissioning**
  Our network of responsive experts and certified system integrators is available throughout the project, from your first conversation through commissioning and beyond.



Photography: VietDung, Nhật Tân Bridge, Hanoi, Vietnam

Lighting Scenarios



Every bridge is different. Scale, structure, viewing distance, and audience all shape the lighting approach. The following scenarios translate that thinking into practical specification guidance, built on decades of bridge lighting experience around the world.

Photo credits: John Brandon Miller, Stone Bridge, Johnstown, Pennsylvania, USA

Not always the standard answer

At a viewing distance of nearly a mile across the Mississippi River the signature sparkle points on the Hernando de Soto Bridge are not a standard luminaire setup.

The “jelly-jar” is a custom array of six 90°x90° Graze MX4 RGBA luminaires mounted in a 620 mm (2 ft) tall bracket, acting as a single high-intensity point source visible at extreme distance.

Where viewing distances are unusually long or the installation presents unusual challenges, standard luminaire output should be evaluated early in the specification process.

Our depth of technical knowledge and decades of experience are there to help you find the right solution. Contact us.

Suspension and Cable-Stayed Bridges

Two structural elements. One lighting strategy.

Towers and Pylons
A suspension or cable-stayed bridge tower can range from 30 m (100 ft) to over 243 m (800 ft) on major landmark bridges. Towers are the vertical anchor of the bridge's nighttime identity. They establish scale, define the skyline profile, and are visible from the greatest distance. Lighting the tower typically requires a combination of long-throw flood from ground level, linear accent running the height of the pylon column, and close-range wash at the base.

Cables and Deck
Stay cables and suspension hangers are the defining visual element of this bridge type and the element most visible to passing traffic, waterway users, and distant viewers. Node size is determined by viewing distance. Deck edges and parapets provide the horizontal counterpoint to the vertical cable array, anchoring the composition at waterline and defining the bridge's full length.

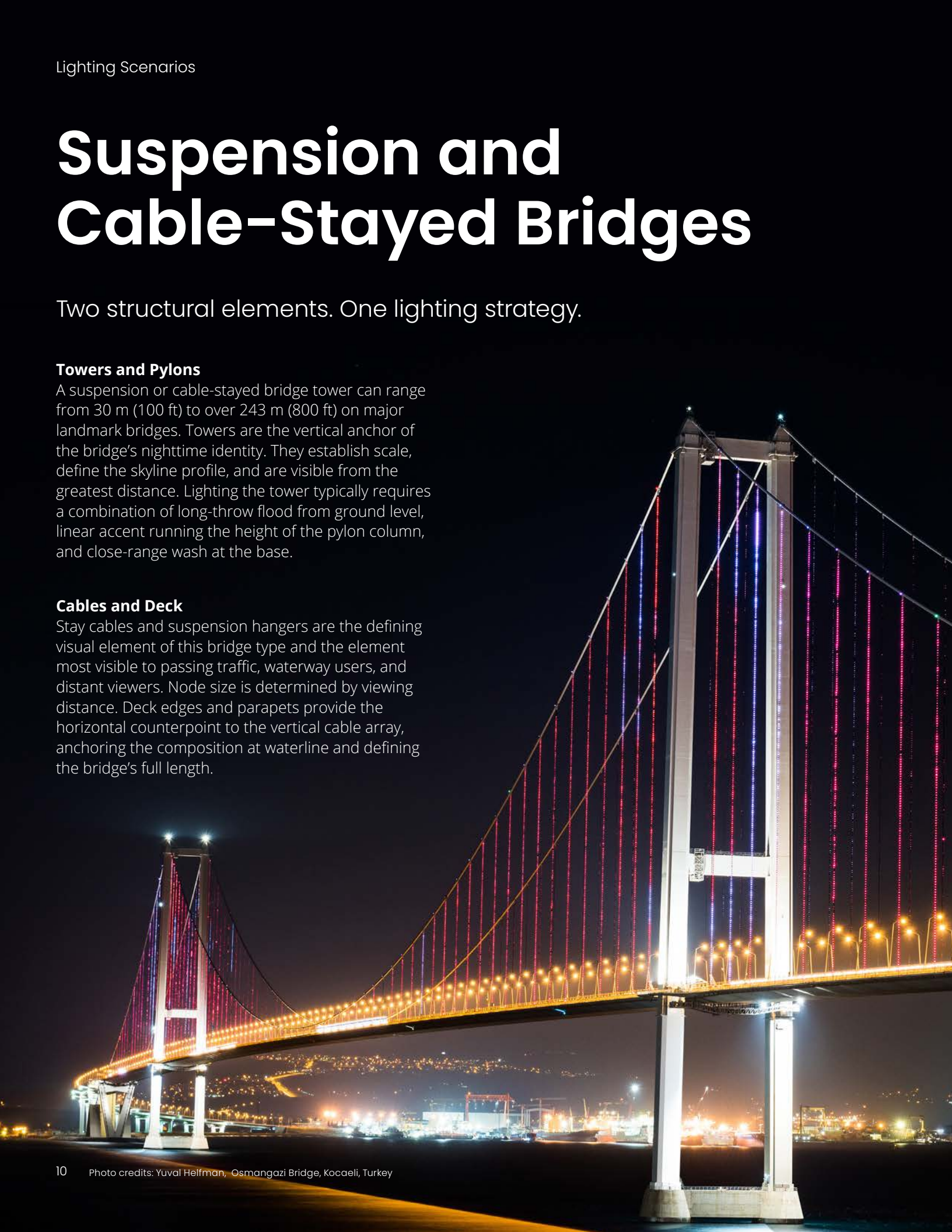


 Photo credits: Yuval Helfman, Osmangazi Bridge, Kocaeli, Turkey

Four lighting layers transform a suspension or cable-stayed bridge into a landmark that rewards viewing from any distance.

The first layer establishes the vertical anchor.

The first layer establishes the vertical anchor. ReachElite High Punch luminaires located at grade aim upward at the tower faces, revealing height and mass. The towers read as luminous columns against the sky, establishing the bridge's presence and forming the foundation for the full installation.

ReachElite High Punch delivers high-intensity light to structures over 300 m (1,000 ft) away with its narrow native 3° beam. For broader coverage of wide pylon faces, ReachElite High Output provides maximum-lumen floodlighting with a native 20° beam. For smaller bridges, Blast Powercore provides strong throw in a compact form.

The second layer activates the bridge's defining visual element.

At landmark scale, the cable array effectively becomes a massive video screen, dynamic content and color sequences playing across hundreds of nodes spanning the full structure. Flex nodes run the full length of each cable or hanger, with node density and size determined by viewing distance.

Flex Compact Pro is recommended for medium viewing distances, while **FlexElite** is recommended where the primary audience is at distance, opposite bank, promenade, or waterway.

The third layer adds the horizontal counterpoint.

Graze Powercore along the deck parapet and edge beam defines the full length of the bridge and anchors the cable array at waterline. The composition now reads as a complete structure, vertical towers, diagonal or catenary cables, and a continuous horizontal deck line, rather than isolated elements.

For single-plane cable-stayed bridges where cables run on one side only, Graze placement must account for the asymmetry. The illuminated cable plane and the unlit side create a strong directional composition that should be considered from all primary viewing locations.

The fourth layer adds articulation and sparkle to the tower columns.

ArchiPoint or Accent Compact units located linearly down the upper pylon section reveal the tower's structural detail and add a point-source quality that differentiates the pylon from the broader flood wash.

The full system is now active: flood establishes mass, nodes animate the cables, graze defines the span, and accent articulates the structure.

Renderings: LiAS North America

Arch and Tied Arch Bridges

Understanding the Arch.

The arch is the defining visual element shared by all three bridge types in this category. What changes is where the arch sits and how it relates to the deck.

Arch Bridges
Arch bridges come in two configurations: On a **through-arch bridge** the arch rises above the deck, visible against the sky. On a **deck-arch bridge** it sits below, visible primarily from the waterway or opposite bank.

Tied Arch Bridges
With a **tied arch bridge** the arch rises above the deck as with a through-arch, but the horizontal thrust is carried internally by a tie beam at deck level rather than transferred to the ground through the abutments. Vertical or diagonal hangers carry the deck load from the arch, and when lit they create a curtain of light across the open spandrel. The tie beam is a strong linear element in its own right.

In each case the deck edge and parapet define the bridge's horizontal profile at waterline.

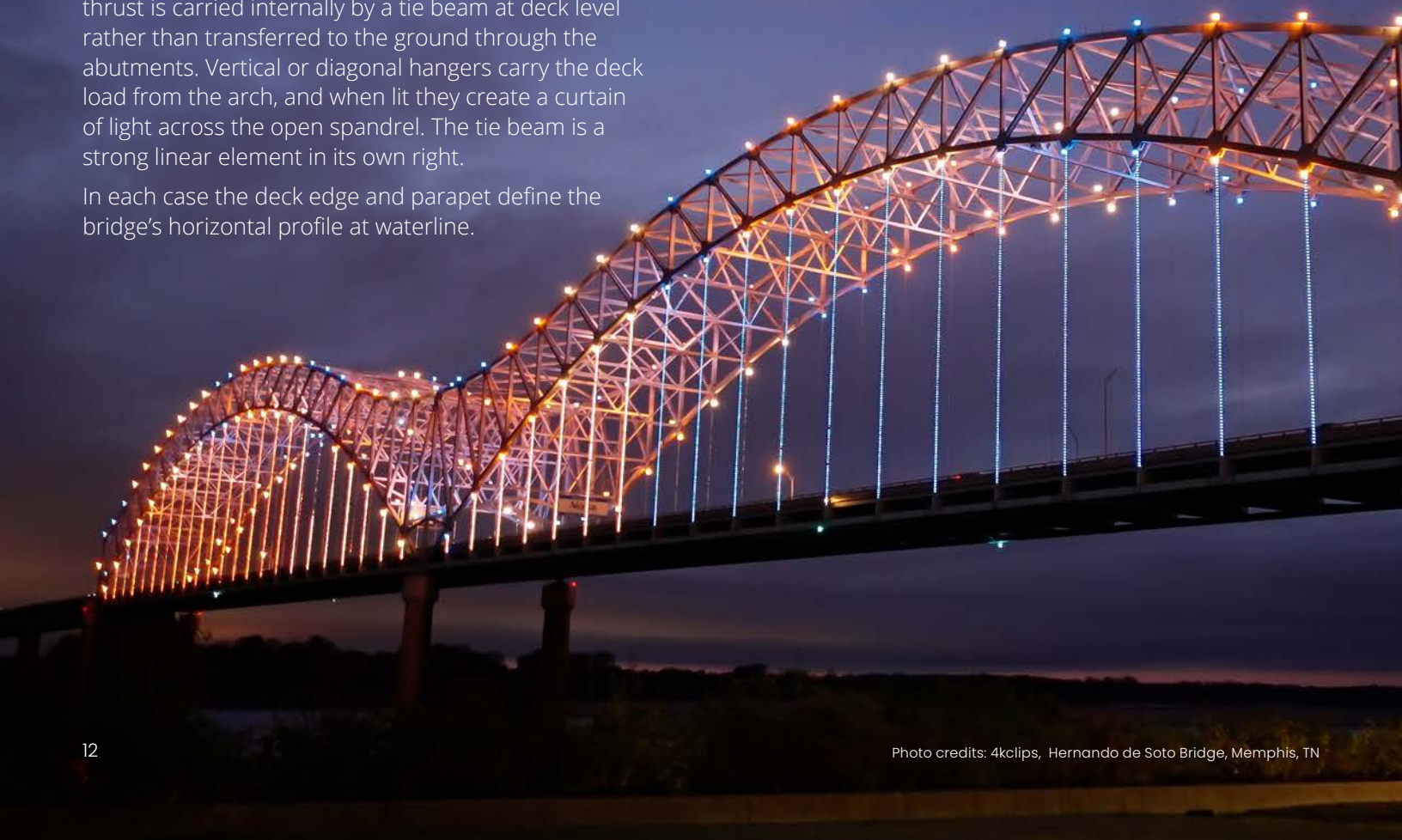


Photo credits: 4kclips, Hernando de Soto Bridge, Memphis, TN

Four lighting layers bring an arch or tied arch bridge to life at night.

The first layer establishes the arch form.

Luminaires aimed upward at the arch reveal the curve against the sky, from the deck on through-arch bridges, from the riverbank on deck-arch bridges. The arch reads as a luminous curve, establishing the bridge's presence and forming the foundation for the full installation.

ReachElite High Punch delivers high-intensity light from distance with its narrow native 3° beam. For smaller bridges, Blast Powercore provides strong throw in a compact form and close-range color wash of the arch face. Spacing is determined by the arch radius, tighter on sharper curves to avoid banding.

The second layer anchors the composition at waterline.

Graze Powercore along the deck parapet and tie beam defines the full bridge length at waterline, anchoring the arch and establishing the relationship between the two primary structural elements.

Where the parapet features decorative railings or ornamental steelwork, adjusting the graze angle reveals that detail, shadows cast by the railing pattern add visual richness without additional luminaires. On the Hernando de Soto Bridge, Graze Powercore defines the full 274 m (900 ft) tie beam cleanly at waterline, making the complete span readable at distance.

The third layer activates the hangers.

Creating a curtain of light across the open spandrel. The arch pushes out, the hangers pull down, the deck tie holds it together. Hanger count and spacing determine the density of the effect: closely spaced hangers produce a continuous curtain, widely spaced hangers read as individual lit lines.

Flex Compact Pro nodes run the length of each hanger from arch to deck.

The fourth layer adds sparkle.

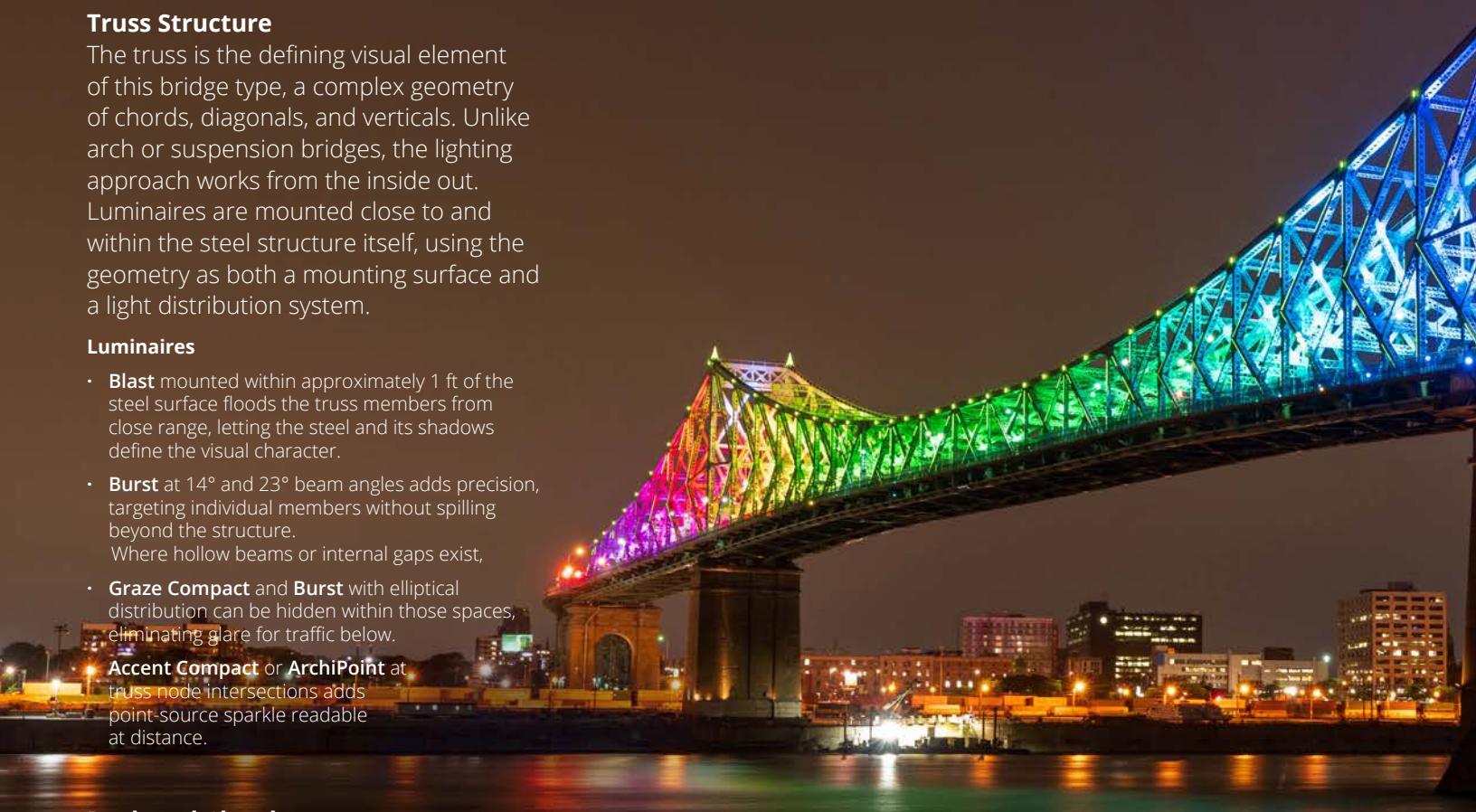
The fourth layer brings close-range color wash and individual pop at every structural connection across the full span. The full system is now active: flood establishes the form, graze defines the span, hanger nodes reveal the structure, and accent articulates the detail.

Blast Powercore grazes the arch face adding color saturation and surface detail. Accent Compact at hanger attachment nodes adds punctuation and sparkle at the structural connections.

Renderings: LiAS North America

Cantilever and Through Truss Bridges

The truss structure and the deck and chords are the two defining elements of these bridges.



Truss Structure

The truss is the defining visual element of this bridge type, a complex geometry of chords, diagonals, and verticals. Unlike arch or suspension bridges, the lighting approach works from the inside out. Luminaires are mounted close to and within the steel structure itself, using the geometry as both a mounting surface and a light distribution system.

Luminaires

- **Blast** mounted within approximately 1 ft of the steel surface floods the truss members from close range, letting the steel and its shadows define the visual character.
- **Burst** at 14° and 23° beam angles adds precision, targeting individual members without spilling beyond the structure.
  Where hollow beams or internal gaps exist,
- **Graze Compact** and **Burst** with elliptical distribution can be hidden within those spaces, eliminating glare for traffic below.
- **Accent Compact** or **ArchiPoint** at truss node intersections adds point-source sparkle readable at distance.

Deck and Chords

The upper and lower chords define the horizontal profile of the bridge. The deck edge and parapet anchor the composition at waterline.

Luminaires

- **Graze** along the upper and lower chords and deck parapet provides continuous linear wash defining the horizontal profile and anchoring the full span length at waterline.

Photo credits: Shawn.ccf, Jacques-Cartier Bridge, Montréal, Québec, Canada

The first layer reveals the truss.

Blast Powercore mounted within approximately 1 ft of the steel floods the structural members from close range, letting the steel and its shadows define the installation character.

The second layer adds precision.

Burst Powercore at narrow beam angles targets individual members, concentrating light on the steel without spilling beyond the structure.

The third layer anchors the composition.

Graze Powercore along the upper and lower chords and deck parapet anchors the composition at waterline. The truss now reads as a complete form between two continuous horizontal lines.

The fourth layer maps the structure.

Accent Compact or ArchiPoint at truss node intersections adds point-source sparkle that traces the full structure at distance. The full system is now active: flood reveals the steel, precision wash articulates the members, graze defines the span, and accent maps the structure.

Renderings: LiAS North America

Different by Design

Some of the most rewarding bridge lighting projects are not what you might expect.

Four unique bridge types—pedestrian bridges, historic arches, moveable bridges, and tunnels each have their own character, audience, and lighting logic.

Understanding what makes each type distinct is the starting point for a successful specification.

Photo credits from top to bottom: Micheal Sestak, Chung Lee, John Brandon Miller, and Amit Geron

Tunnels and Underpasses

Canal tunnels and underpasses invert the usual lighting logic. There is no external view and no distant audience, the entire experience is interior. The goal is to transform a space that is inherently dark and enclosed into an environment that feels safe, engaging, and memorable.

The portal is the most important single element as it sets the expectation for the space from outside. Tunnel length determines the control strategy: short tunnels work as a single zone, while long tunnels benefit from zoned content that creates a sense of journey.

Luminaire robustness including mechanical impact, vibration and corrosion resistance is critical within these typically damp environments. Temporary flooding, and maintenance access also need to be considered.

Brockville Rail Tunnel
Brockville, Ontario
Canada's first railway tunnel, 525 m (1,722 ft), built 1860. Civic regeneration project drawing 30,000 additional annual visitors.
Photo: Keith Hare

2nd Street Tunnel
Los Angeles, CA
Road tunnel with dynamic color lighting featured in many movies, events, and civic occasions, built c.1924.
Photo: Forman & Associates

Luminous Passage
Sacramento, CA
Road underpass, 46 m (150 ft).
Photo: Micheal Sestak

Gosford Street Underpass
Coventry, England
Road underpass, 100 m (328 ft).
Photo: LITE Architectural

De Zwerm Underpass
Eindhoven, Netherlands
Road underpass with responsive lighting in the abstract shape of birds that automatically changes color and speed in response to traffic flow and temperature.
Photo: Frank Tjepkema, Studio Tjep

Løvstakken Bicycle Tunnel
Bergen, Norway
World's longest pedestrian and cycle tunnel, nearly 3 km (1.9 mi), built 2021. Entry-triggered responsive lighting alerts oncoming traffic.
Photo: Thea Collett, Light Bureau

Clink Street Viaduct Tunnel
Southwark, London
Pedestrian tunnel beneath Victorian railway arches.
Photo: Redshift Photography

Regent's Canal Tunnel
London, England
Brick-lined canal tunnel, 878 m (2,881 ft), built 1818.
Photo: Redshift Photography

Moveable Bridges

Bascule, lift, and swing bridges present a challenge no other bridge type shares.

The lighting must work in two configurations, closed and open, and the transition between them is itself a lighting opportunity.

In the closed position the lighting follows standard principles for the structural type. In the open position the geometry changes entirely and a design that works closed may look incomplete when open. Luminaires on moving parts require flexible conduit connections or be on fixed structures.

Pedestrian Bridges

Pedestrian and cycle bridges are primarily experienced from within, not observed from a distance.

Viewing distances are short, so node size matters more, light levels must be comfortable rather than powerful, and details invisible on vehicular bridges such as railing profiles, deck texture, the structure's underside become primary design surfaces. Glare that would be acceptable at distance is intolerable at arm's length.

The primary consideration is the human experience of moving through the lit environment.

Fairport Lift Bridge
Fairport, NY
Vertical lift canal bridge over the Erie Canal, 49 m (160 ft), built 1913.
Photo: NYPA

Welland Bridge
Welland, Ontario
Vertical lift bridge, 70.6 m (232 ft), with 51.8 m (170 ft) lift towers.
Photo: Angelo Miceli, Signify Canada

Tradeston Bridge
Glasgow, Scotland
S-curve pedestrian cantilever, 103 m (338 ft), built 2009.
Photo: Lightways Ltd.

Skydance Bridge
Oklahoma City, OK
Pedestrian bridge inspired by Oklahoma's state bird, the scissor-tailed flycatcher, 119 m (390 ft), built 2012.
Photo: Ralph Cole

Salford Quays Lift Bridge
Salford, England
Pedestrian vertical lift arch, 91.2 m (299 ft), built 2000.
Photo: Chung Lee

Liverpool Bascule Bridge
Liverpool, England
Scherzer rolling lift bascule, Stanley Dock, built 1932.
Photo: ITE Architectural

Coaticook Footbridge
Quebec, Canada
Suspension footbridge, 169 m (554 ft), built 1921.
Photo: Ulysse Lemerise / OSA

Be'er Sheva Bridge
Be'er Sheva, Israel
Lenticular pedestrian arch, 210 m (689 ft), Built 2016.
Photo: Amit Geron

Historic Bridges and Structures

Historic arch bridges; stone, brick, or early iron, present specific mounting and access constraints that modern structures do not.

Luminaires are typically ground-mounted in traffic islands or footpath edges rather than attached directly to the structure, and heritage authority approvals may restrict surface attachment entirely. Viewing distances vary widely — some historic bridges are intimate crossings, others are civic landmarks lit for a riverbank audience.

Ground-level uplight flood is the primary approach. ReachElite High Output establishes the overall form, Graze runs the parapet length for linear definition, and BurstScape in-ground uplights provide discreet close-range wash where surface-mounted luminaires would be intrusive. Guard bases and robust enclosures are standard on ground-mounted installations.

The Queretaro Aqueduct demonstrates the approach at viaduct scale: 240 ReachElite High Output and 146 Graze units ground-mounted in traffic islands at 1.8 to 24.4 m (6 to 80 ft) from the structure, all in guard bases.

Stirling Old Bridge
Stirling, Scotland
Medieval stone arch bridge, 82 m (268 ft), built c.1500.
Photo: LITE Ltd

Smeaton's Bridge
Perth, Scotland
Nine-arch stone bridge over the River Tay, 272 m (892 ft), built 1771.
Photo: LITE Ltd.

Edirne Tunca Bridge
Edirne, Turkey
Ottoman stone arch bridge, 136 m (446 ft), built 1608. Underwater lighting on piers.
Photo: Signify

Kungsträdgården station
Stockholm, Sweden
Historic metro station resembling an underground archaeological excavation.
Photo: Richard Bertilsson, Control Dept

Queretaro Aqueduct
Queretaro, Mexico
Stone arch aqueduct, 1.2 km (0.75 mi), 74 arches, built 1738.
Photo: SCOSI and LEDPROYECTA/SIGNIFY

Stone Bridge
Johnstown, PA
Seven-arch stone railroad bridge, built 1887. Survivor of the 1889 Johnstown Flood.
Photo: John Brandon Miller

Dumbarton Bridge
Dumbarton, Scotland
Five-span stone arch bridge over the River Leven, built c.1765
Photo: ITE Architectural

Grand Île Historic Center
Strasbourg, France
Two historic arch bridges, 30 m (98 ft) and 60 m (197 ft) spans.

Photography: ReePhoto, Suramadu Bridge, Surabaya, Java, Indonesia and Bangkalan, Madura, Indonesia

Choosing the Right Network

Scale, span, content, and interactivity. Four factors that determine the right network for your installation.

Scale – The number of light points.

Span or Distance – How far the control signal travels.

Content – What the system is asked to do, from static scenes to multiple simultaneous shows, video, and streaming video.

Interactivity – Whether the system needs to respond to external inputs in real time, traffic, temperature, or live event triggers.

DMX suits smaller installations where luminaires operate in unison. KiNET handles larger, more complex installations, video content, streaming video, and interactive lighting, while adhering to Ethernet, DMX, and other industry standards. KiNET also minimizes flicker, allowing installations to be captured on video without distraction.

Fiber Optic Networks for Long Runs

When the sheer size of an installation is a challenge, fiber optic networks are typically preferred. Fiber transmits control signals over long distances without degradation, and by its very nature is immune to electrical interference common in bridge environments.

A fiber optic loop from the head end to distribution points and back provides data redundancy. Home run lines from distribution cabinets carry combined data and power to the luminaires, minimizing failures and simplifying maintenance.

Color Kinetics complete range of lighting controllers

To unlock the full potential of your luminaires, you need the right controller.

From simple to use all-in-one controllers with pre-programmed light shows, to full-featured controllers with timeline-based show editing, Color Kinetics offers a full range of control options that integrate perfectly with your project.

Read more about why **Control Matters**

Creative control with our complete, easy-to-use system

Color Kinetics Creation & Control portfilio was designed for content creators providing a faster, easier way to create fantastic light shows. With easy-to-use tools and an intuitive user interface it all adds up to a great experience.

Color Kinetics Creation & Control Portfolio includes:

ColorPlay 4 – Next-generation creative authoring software.

QuickPlay Pro 2 – Advanced commissioning and control software.

iPlayer 4 – Compact but powerful show storage and playback solution.

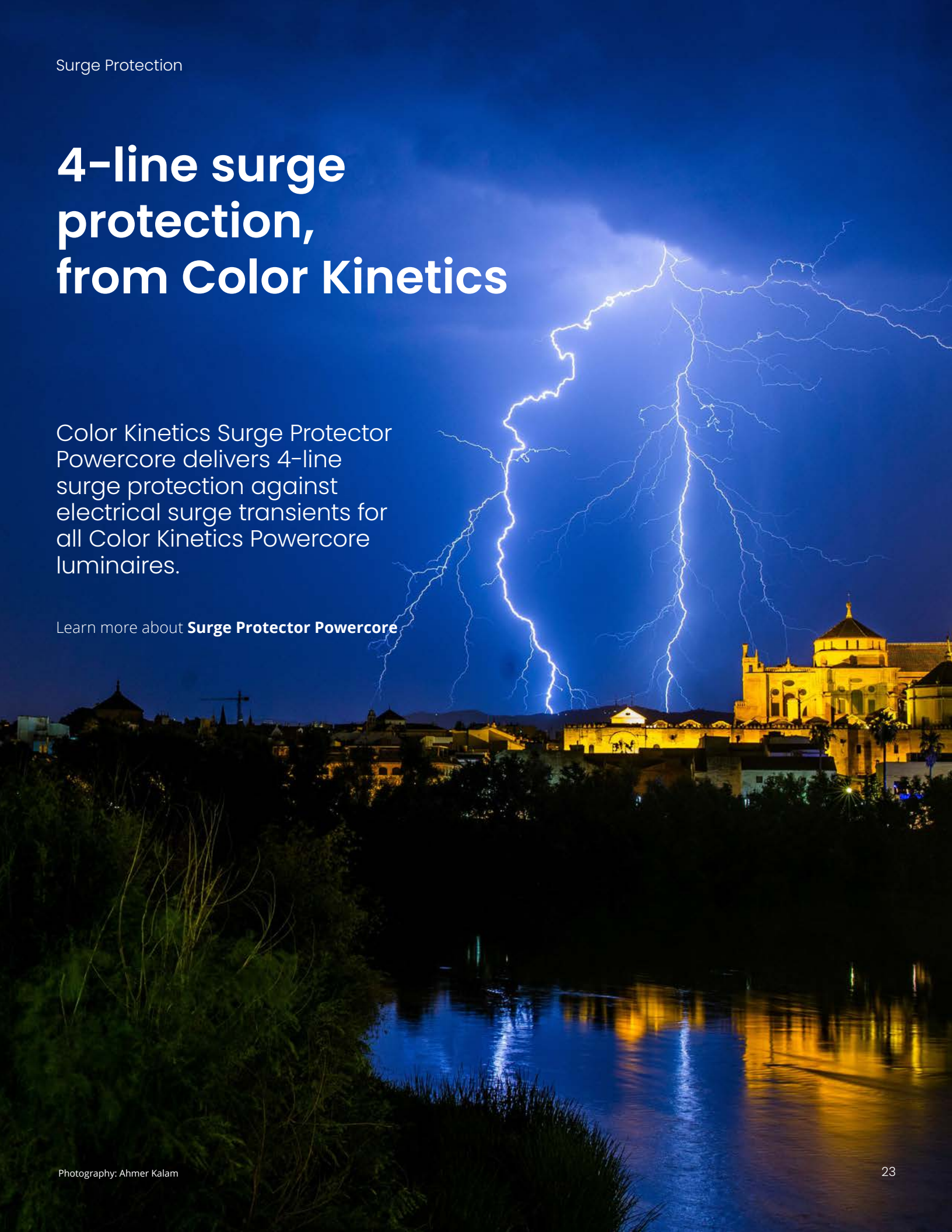
Features	iColor Player	ColorDial Pro	Antumbra Button iColor Keypad	Antumbra Touch iColor Keypad	iPlayer 3	iPlayer 4
Protocol	DMX	Ethernet	Ethernet	Ethernet	DMX	Ethernet
Nodes	170	170			340	500 – 15,000
Light Universes	1	1			2	1 – 90
Light Show Playback (Quantity)	1	8	6	6	>100	>100
Lighting Effects Playback (Quantity)	25	7	6	6	25	12
Video Playback	—	—	—	—	—	Animation Effects with Image/Frame
Scheduling	—	—	—	—	Configurable on device	Configurable on Web Interface
Multiple Zones	—	—	—	—	—	Supported
Sensors Integration	—	—	—	—	Contact closure with AuxBox via serial port	—
Keypad Integration	—	—	On-Board	On-Board	Serial Keypad	Ethernet Keypad
API / Cloud	—	—	—	—	—	HTTP REST via Interact Landmark
Commissioning Software	QuickPlay Pro 2	QuickPlay Pro 2	QuickPlay Pro 2	QuickPlay Pro 2	QuickPlay Pro 2	QuickPlay Pro 2
Authoring Software	ColorPlay 3	—	Antumbra iColor Keypad Effect Manager	Antumbra iColor Keypad Effect Manager	ColorPlay 3	Light System Composer
Power Consumption	5 W	PoE	3 W max via PoE	3 W max via PoE	5 W	180 W maximum

For more information visit **colorkinetics.com/controls**

4-line surge protection, from Color Kinetics

Color Kinetics Surge Protector Powercore delivers 4-line surge protection against electrical surge transients for all Color Kinetics Powercore luminaires.

Learn more about **Surge Protector Powercore**



Photography: Ahmer Kalam

Cover photo: mandritoiu

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