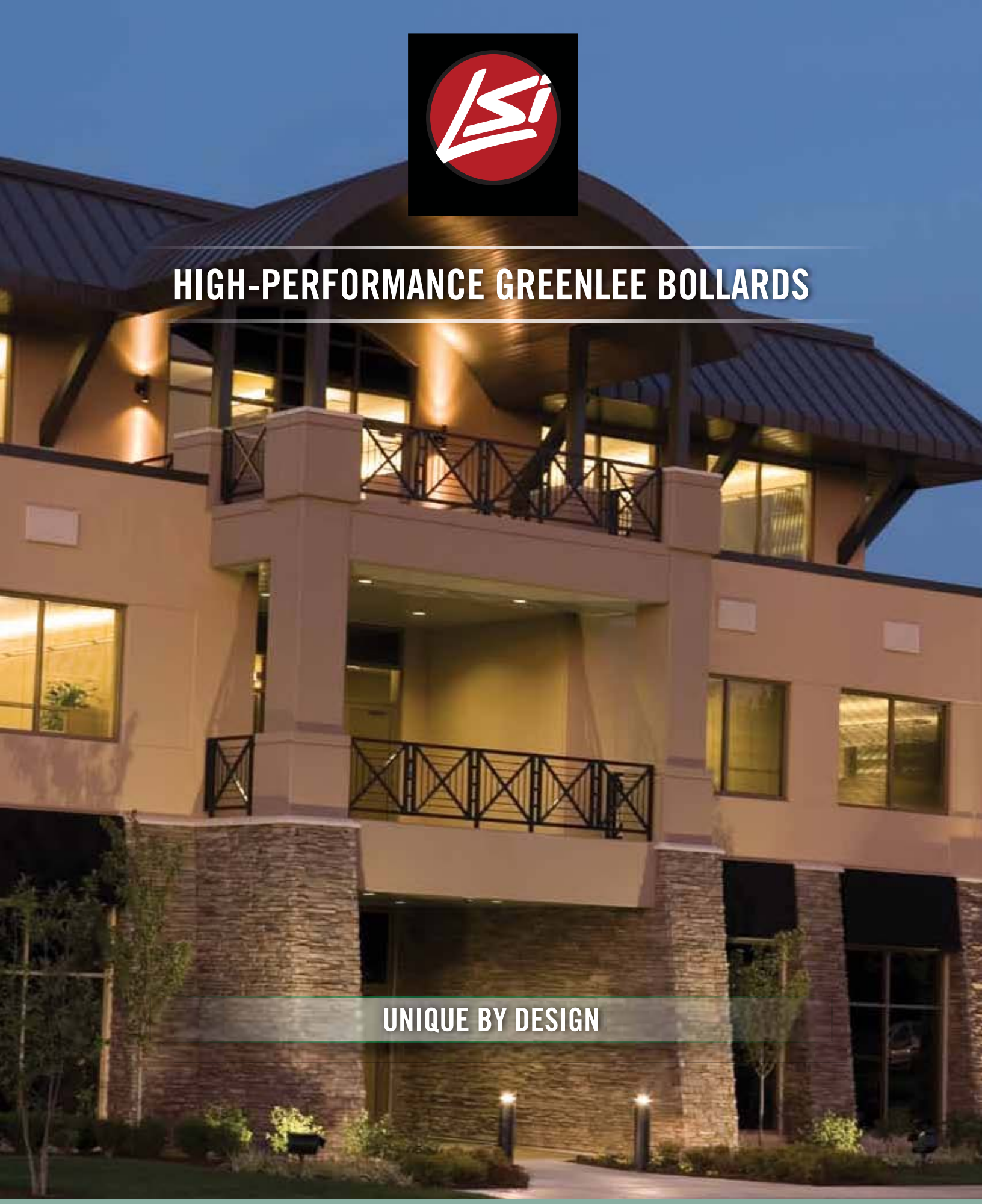
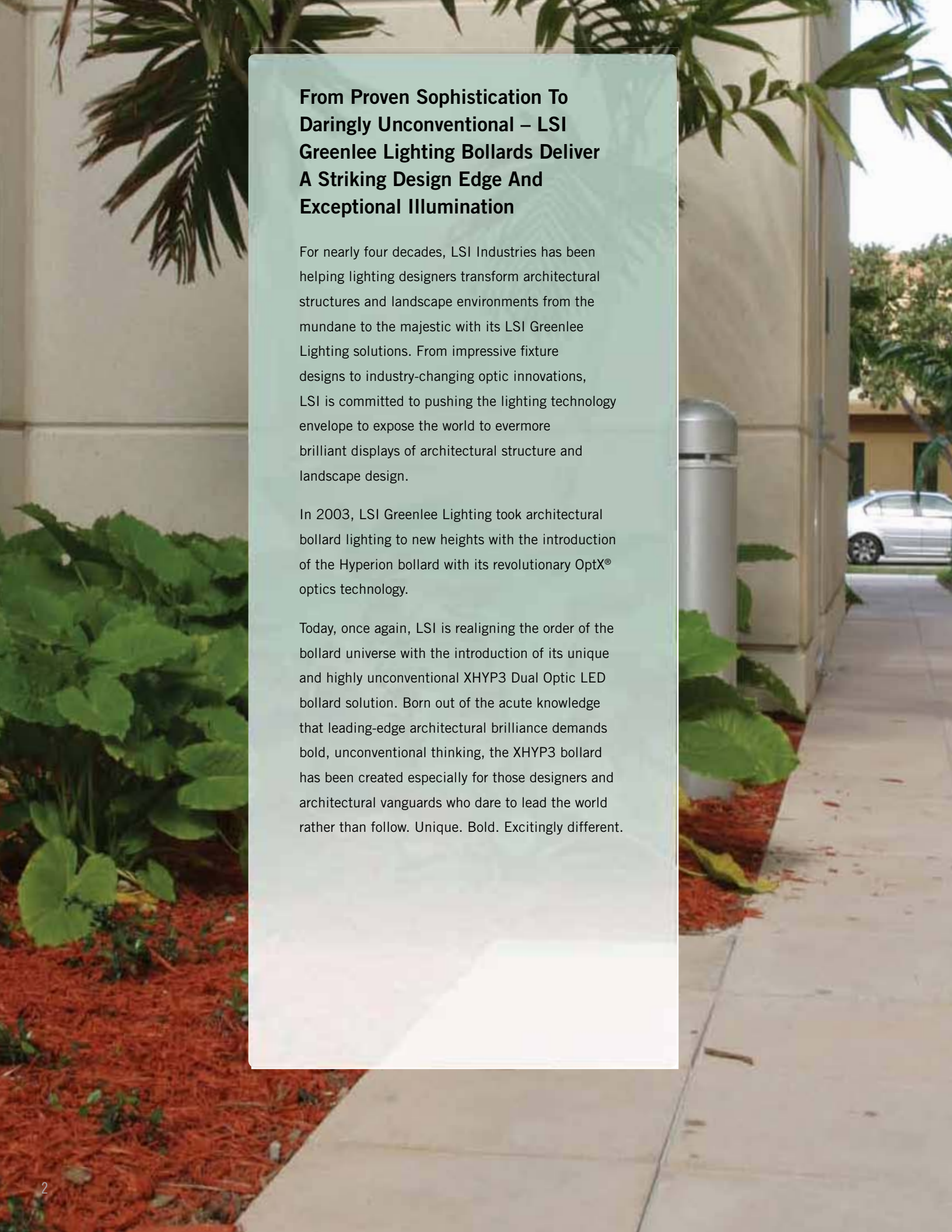


HIGH-PERFORMANCE GREENLEE BOLLARDS

UNIQUE BY DESIGN

Leading Today > Lighting Tomorrow



From Proven Sophistication To Daringly Unconventional – LSI Greenlee Lighting Bollards Deliver A Striking Design Edge And Exceptional Illumination

For nearly four decades, LSI Industries has been helping lighting designers transform architectural structures and landscape environments from the mundane to the majestic with its LSI Greenlee Lighting solutions. From impressive fixture designs to industry-changing optic innovations, LSI is committed to pushing the lighting technology envelope to expose the world to evermore brilliant displays of architectural structure and landscape design.

In 2003, LSI Greenlee Lighting took architectural bollard lighting to new heights with the introduction of the Hyperion bollard with its revolutionary OptX® optics technology.

Today, once again, LSI is realigning the order of the bollard universe with the introduction of its unique and highly unconventional XHYP3 Dual Optic LED bollard solution. Born out of the acute knowledge that leading-edge architectural brilliance demands bold, unconventional thinking, the XHYP3 bollard has been created especially for those designers and architectural vanguards who dare to lead the world rather than follow. Unique. Bold. Excitingly different.

The Power of Progress – Revolutionary Ideas in Bollard Lighting

Progress occurs when people dare to be different. At LSI, we're all about progress. It's why we continue to introduce new lighting innovations that make a difference. Our innovations enhance designers' abilities to express themselves in profound new ways and inspire architects to pioneer impressive new structural solutions and landscape masterpieces. We believe in the power of progress. We believe in revolution, not evolution.

The Power of Choice – Great Solutions in Either LED or HID

XHYP3
(LED)

XHYP3 Bollard with Dual-Beam LED Optics

- Patent-Pending Dual Optic System utilizing LSI's advanced Crossover® LED technology results in exceptional fixture spacing while achieving superior lighting uniformity.
- Unique dual-aperture housing design pushes the envelope of progressive conventions while the dual-array optical system serves up incredibly uniform illumination in either 180° or 360° distributions in near and far fields. Focused optics in the lower aperture reduce the 'dark-halo effect' found with typical bollards.
- Optional internal Doppler motion sensor and integral emergency backup provide unparalleled control for incomparable energy efficiency.

Hyperion Bollard with HID OptX

- Precision-guided optical system provides higher illuminance levels without using a large aperture or refractor that compromises the nighttime sky. This patented technology directs light onto usable planes effectively, efficiently and precisely where you want it.
- Sophisticated styling sets this fixture apart with the narrowest aperture of any bollard in the world, while providing unparalleled vandal resistance.
- Extraordinary performance such as extremely uniform illuminance between luminaires results in nearly perfect transitional areas between indoor and outdoor lighting systems for improved visibility, an enhanced sense of security and vastly improved wayfinding.

Hyperion
(HID)

LSI Lighting Bollards – Focused on Meeting Your Needs

At LSI, we understand that striking optimum balance between architectural aesthetics, illumination performance and energy efficiency is important when using bollards for transitional walkway lighting. Whether you choose XHYP3 with LED or the Hyperion with HID OptX, you get an impressive appearance and leading-edge performance.

- Tailored, uniform illumination over greater distances to create safe, inviting, energy-efficient environments.
- Unique, distinct fixture designs that complement and enhance your architectural statement day and night.
- Precise lighting control to project the right amount of light in the areas where you want to provide seamless lighting between transitional zones.

Enhancing the Essence of Architectural Excellence

An impressively detailed building and brilliantly conceived landscape design deserves to be complemented and enhanced by a substantial luminaire. The LSI bollard family delivers finely tuned form, quality construction and high performance to help define the essence of your architectural statement.

Durable, Reliable Construction

When it comes to robust durability, the XHYP3 and Hyperion bollards have no equals. LSI Greenlee Lighting bollards are engineered and built from the ground up, inside and out, to withstand abuse unlike any other. From their one-piece construction, extreme weather DuraGrip® finish, vandal-resistant apertures and lenses, and optional roughneck (RN) heavy-duty mounting base, these fixtures are built to last.

Impressively Cost Effective

Two Great Choices

✔ HID Offers Best Initial Cost

✔ LED Offers Best Total Cost of Ownership

XHYP3 and Hyperion luminaires represent leading-edge innovation in terms of form and function. By leveraging the most advanced design, engineering, construction materials and light sources, LSI Greenlee Lighting bollards provide lowest life-cycle cost performance to deliver operational value beyond the initial product cost.

- **Quick, Easy Installation** – reduces time and labor costs
- **Advanced Optics Performance** – precise lighting control and exceptional uniform illumination over greater distances means fewer fixtures required for lower upfront and operational costs
- **Long-Life Reliability** – with up to 100,000 hours of expected life, the LED bollard essentially eliminates maintenance and the associated material and labor costs

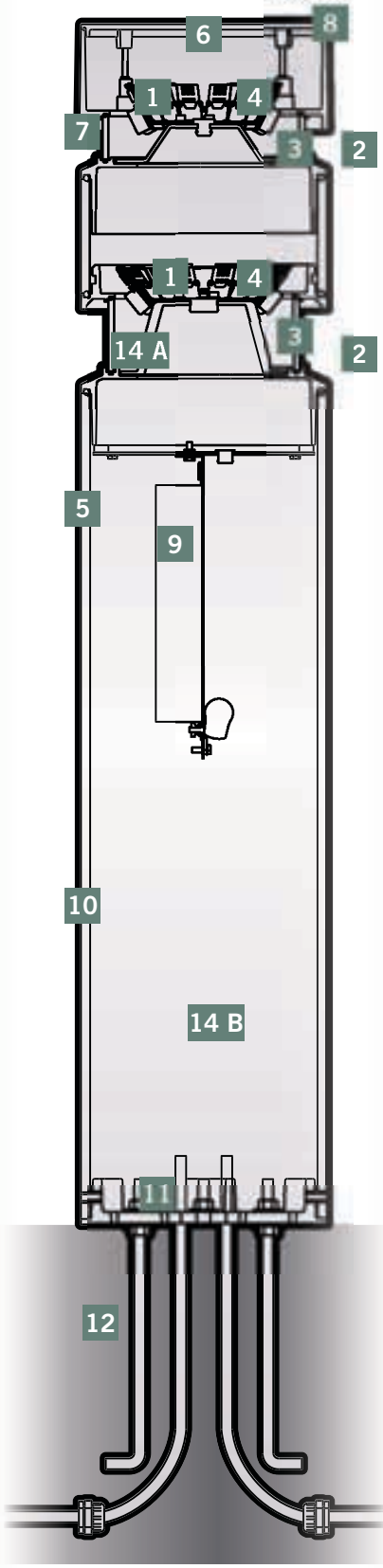
No Maintenance Required

Intelligent Construction

Striking the optimum balance between architectural aesthetics and practical illumination the XHYP3 with Crossover LED technology or Hyperion with HID OptX, you

XHYP3 LED Bollard

LSI's LED fixtures are designed and built around our innovative, patented SmartTec™ intelligence platform. Integrated intelligence combines with components designed, engineered and manufactured to work in unison to deliver the most reliable, energy-efficient and cost-effective LED lighting solutions possible.



1 Optics

- Patent-pending dual-beam optics deliver unprecedented fixture spacing, while providing great uniformity. 360° or 180° distribution.

2 Vandal-Resistant Aperture

- XHYP3 aperture openings are 1.47" upper and 2.47" for lower array. Patent-pending dual-array optical system provides uniform illumination in near and far fields around bollard. Focused optics in the lower aperature reduce the "dark-halo effect" found with typical bollards.

3 Vandal-Resistant Lens

- Two one-piece heavy-walled borosilicate lenses are recessed .764" and protected by three cast ribs for vandal resistance. Exposed portion of top lens is only .934" tall with the lower lens being only 1.831" tall.

4 LEDs

- Sixteen or 30 select high-brightness LEDs in cool white or neutral white. 70 CRI (nominal).

5 Heavy-Wall Housing

- One-piece, heavy-walled extruded aluminum, .322" thick for vandal resistance. When combined with roughneck (RN) base plate, it is extra resistant to vandalism in abuse-prone areas such as schools and parks.

6 Crown

- Flat or domed, heavy-cast aluminum. Dome top recommended for high-abuse areas.

7 Concealed Access

- Four captive, concealed #10-24 x 2½" Allen head screws secure crown to lower housing for added security.

8 Sealing & Gaskets

- All silicone gaskets are standard on XHYP3. LED optical chamber is fully sealed and breather vented. LSI's special breather design reduces internal pressures and vacuums to ensure long-life seal and component integrity.

9 Driver

- LSI's proprietary driver technology provides unsurpassed system efficiency, control and protection. Components are fully encased in potting material for IP68 moisture resistance. Driver complies with IEC and FCC standards.

10 Finishes

- Standard colors include metallic silver, graphite, satin verde green, black, bronze, white or platinum plus. Finished with LSI's DuraGrip® polyester powder-coat finishing process that withstands extreme weather changes without cracking or peeling. Guaranteed for five years.

11 Mounting Base

- Extra thick, ⅜" cast, T6-treated aluminum base is chromate-conversion coated and black-powder coated for corrosion resistance. Optional roughneck (RN) heavy-duty mounting base. Laser-cut ⅜" steel weldment, reinforced with four extra-heavy gusseted mounting points. Bright zinc plated for corrosion protection. Bollard housing attached to roughneck (RN) base with ⅜" dia. 18-8 stainless-steel roll pins. Each pin provides 10,000 lb. shear strength for extreme vandal resistance.

12 Anchor Bolts

- ⅜" x 10" long heavy-duty galvanized steel. Four are furnished.

13 Fixture Height

- Nominal standard height is 42". Non-standard heights are available in 6" increments. Minimum height is 30".

14 Options

A) Internal Motion Sensor

- Internal Doppler motion sensors (3ea @ 120°) activate switching of luminaire light levels. Upon inactivity, light level is gradually ramped down (7 sec.) to low level to allow eyes time to adjust.

B) Emergency Options

- Emergency LED driver/battery operates 10 upper-array LEDs for a minimum of 90 minutes when primary AC power failure occurs.

Engineered Excellence

performance is a core benefit of specifying an LSI Greenlee Lighting bollard. Whether you choose get impressive appearance and leading-edge performance beyond the ordinary.

Hyperion OptX Bollard

1 Optics
- OptX optics is the heart of this luminaire. A clear lamp is precisely positioned in a highly engineered and patented cavity and fan assembly that functions like an integrating sphere. Known as Constructive Occlusion technology, this sphere uses a proprietary internal coating that realizes 96% reflectance. The lamp's radiant energy is distributed by this finely tuned, reflective surface to desired zones.

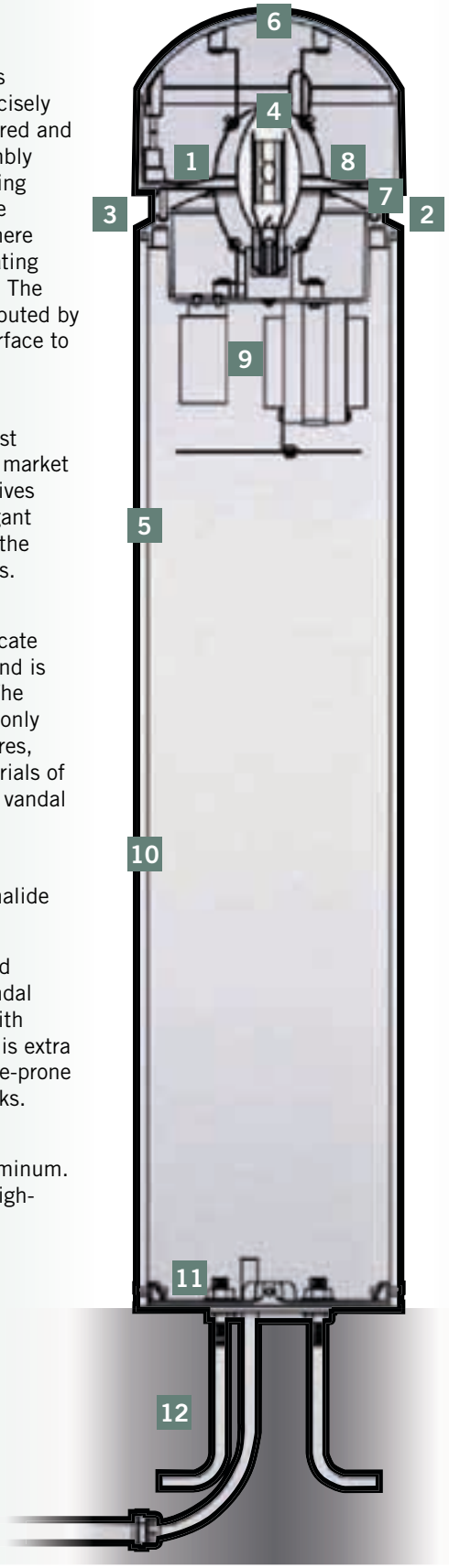
2 Vandal-Resistant Aperture
- Hyperion features the narrowest aperture of any bollard on the market (a mere 1.167" wide) which gives the luminaire a sleek and elegant appearance while minimizing the target area available to vandals.

3 Vandal-Resistant Lens
- One-piece, heavy-wall borosilicate lens is recessed a full .764" and is protected by three cast ribs. The exposed portion of the lens is only .671" tall. These design features, combined with premium materials of construction, provide superior vandal resistance.

4 Lamps
- Standard and ceramic metal halide

5 Heavy-Wall Housing
- One-piece, heavy-wall extruded aluminum, .322" thick for vandal resistance. When combined with roughneck (RN) base plate, it is extra resistant to vandalism in abuse-prone areas such as schools and parks.

6 Crown
- Flat or domed, heavy-cast aluminum. Dome top recommended for high-abuse areas.



7 Concealed Access
- Added security against vandals, crown attaches to lower housing with four captive, concealed #10-24 x 2½" Allen head screws.

8 Sealing & Gaskets
- Silicone gaskets and seals ensure Hyperion is as dependable as it is rugged.

9 Ballasts
- Standard ballast is high power factor, designed for -20°F/-30°C minimum starting ambient. Universal electronic ballast available.

10 Finishes
- Standard colors include metallic silver, graphite, satin verde green, black, bronze, white or platinum plus. Finished with LSI's DuraGrip® polyester powder-coat finishing process that withstands extreme weather changes without cracking or peeling. Guaranteed for five years.

11 Mounting Base
- Extra thick, ½" cast T6-treated aluminum base is chromate-conversion coated and black-powder coated for corrosion resistance. Optional roughneck (RN) heavy-duty mounting base. Laser-cut ⅜" steel weldment, reinforced with four extra-heavy gusseted mounting points. Bright zinc plated for corrosion protection. Bollard housing attached to roughneck (RN) base with ⅜" dia. 18-8 stainless-steel roll pins. Each pin provides 10,000 lb. shear strength for extreme vandal resistance.

12 Anchor Bolts
- ⅜" x 10" long heavy-duty galvanized steel. Four are furnished.

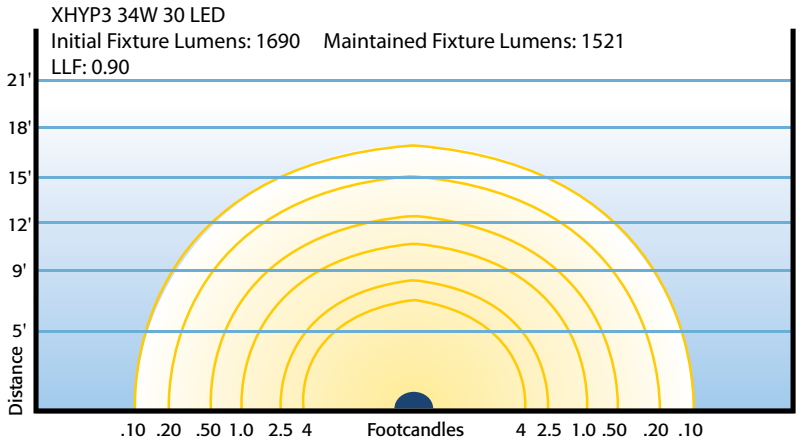
13 Fixture Height
- Nominal standard height is 42". Non-standard heights are available in 6" increments. Minimum height is 18".

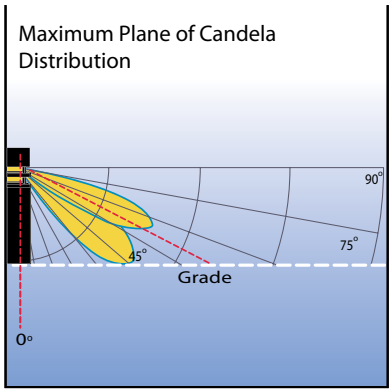
XHYP3 with LED

Extraordinary optical performance is simply an understatement when it comes to the new XHYP3. Now you can get Hyperion-like performance in LED. Incredibly unconventional in appearance, it's unquestionably the XHYP3's unique patent-pending Dual Optic System that sets it light years ahead of any other architectural bollard.

The XHYP3 utilizes the latest, most advanced LED technology in the world, combined with a superior opitcal design to deliver the best uniform lighting performance among LED bollards on the market today. Its unique design provides unparalleled advantages:

- ***Upper Aperture*** – directs light to outer zones while contributing simultaneously to the inner zones near to the fixture
- ***Lower Aperture*** – directs light to the inner zones while overlapping with the outer zones to generate superior uniformity and spacing

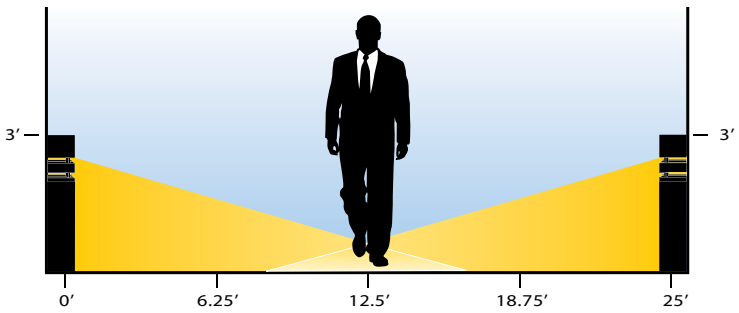




Other key performance characteristics that separate the XHYP3 from standard bollards:

- *Lower light angles result in less glare in the eyes of pedestrians and motorists*
- *While the initial fixture lumens of the HID and LED Hyperion bollard are about the same, the XHYP3's maintained lumens supply an estimated 30% advantage over comparable HID fixtures.*
- *The average recommended spacing between two XHYP3 fixtures is 25' – 30' whether for retrofit or new construction. This spacing provides the right amount of light, right where you need it, eliminating wasted light, energy and money.*
- *Unbelievably cost-effective to begin with, it gets even better when you specify the optional integral motion sensors (IMS) and button-type photo cell (PCI) to help further reduce energy consumption, making the total cost of ownership and ROI even more attractive.*
- *Complete XHYP3 photometry is available at www.lsi-industries.com*

180º Light distribution



XHYP3 with LED – 25' recommended spacings

Superior Optical Performance

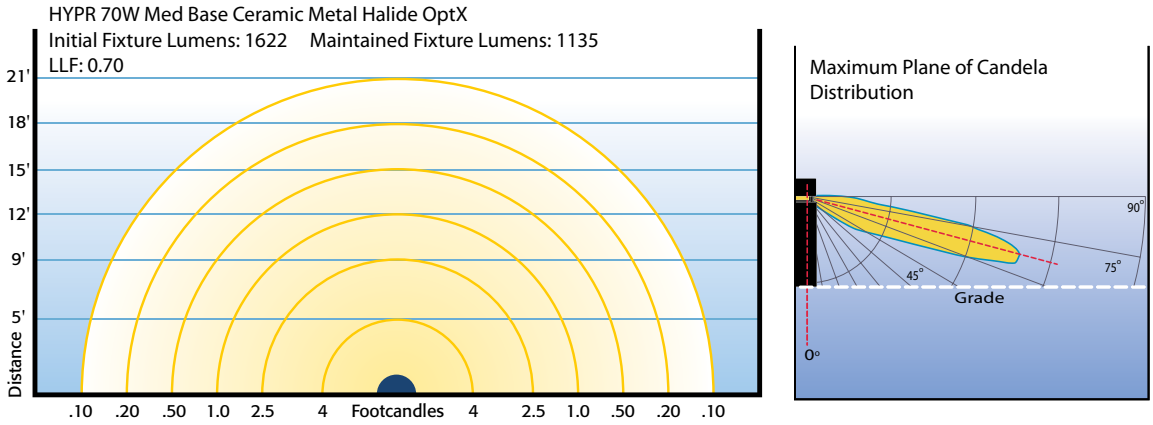
Hyperion with OptX

Superior optical performance is the key point of distinction between the Hyperion with OptX and conventional bollards. Although impressive in appearance, it's the Hyperion's leading-edge optics and performance that truly separate it from all other bollards.

Hyperion vs. Standard Bollard Illumination – The Difference is in the OptX

Hyperion with OptX delivers incomparable performance advantages over standard bollards:

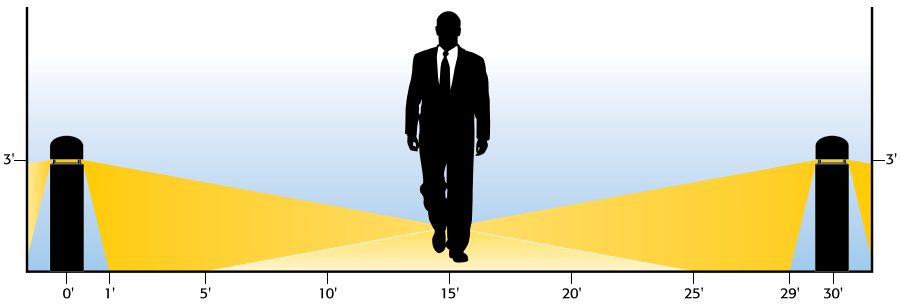
- Luminaires can be placed farther apart than any other bollard on the market. Increased spacing means fewer fixtures as well as lower ownership and operating costs, while achieving optimal performance
- Tailored, uniform distribution over greater distances
- Superior horizontal throw and illuminance levels
- 96% reflectance of optical components provides energy-efficient operation



The Hyperion OptX precision-guided optical system provides higher illuminance levels without using a large aperture or refractor that compromises the nighttime sky.

- *OptX uses Constructive Occlusion® to distribute visible energy. A Cavity and Fan™ arrangement projects radiant energy from a precisely positioned lamp into selective zones*
- *Hyperion provides vertical illuminance, required for the recognition of facial features, yet no light is directly projected above the horizontal*
- *Complete Hyperion photometry is available at www.lsi-industries.com*

180° Light distribution



Hyperion with OptX – 30' recommended spacings

Lowest Overall Cost of Ownership. Best ROI.

Although energy savings make compelling arguments for LED and HID, the real value only begins there. When you consider the total cost-of-ownership aspects and the green benefits, the true value of LSI's LED solution shines even more brightly. Multiple light control options with the lowest possible installation, maintenance and energy requirements translate into impressive savings. Figure in utility company rebates, and EPAct tax deductions and the financial benefits can be even more astounding.

Lowest Initial Cost – For low upfront cost, nothing beats LSI Hyperion, and although LED does require a higher initial investment than HID, it provides a faster ROI.

Lowest Cost of Installation – Time is money. Quick-and-easy installation is engineered into every LSI bollard to reduce your costs.

Best-In-Class Performance – The right amount of light for the application. Optical efficiency. Directional precision. Optional controls like the internal Doppler motion sensor and emergency backup: *value-engineered performance with lowest overall energy consumption that all add up to tremendous economic value.*

Longest Operating Life – LSI LED products ensure the coolest running, highest level of control, performance and component protection in LED technology today. And it adds up to superior operating life.

Utility Rebates – Many utilities offer rebates. Be sure to check to see if your utility company offers any custom rebate for LED bollards. This is a potential savings that could positively affect your ROI.

Green Design – LSI's XHYP3 LED bollard reduces energy consumption and is RoHS compliant (no lead or mercury).

Annual Savings Comparison				
Fixture Model	**100W MH**	**XHYP3 Bollard**	**XHYP3 Bollard w/IMS**	**XHYP3 Bollard w/IMS**
			(6 hours full brightness)	(4 hours full brightness)
Fixture Quantity	20	20	20	20
Fixture Wattage (Including Ballast Loss)	129	34	34 (11.8 dimmed mode)	34 (11.8 dimmed mode)
Total KW	2.58	0.68	*0.46	*0.38
Total Annual Average Energy Cost	$1,130.04	$297.84	$200.60	$168.19
Total Annual Average Maintenance Cost	$576.91	$0.00	$0.00	$0.00
Total Annual Average Energy & Maintenance Costs	$1,706.95	$297.84	$200.60	$168.19
% Energy Saved		73.60%	82.20%	85.10%
% Maintenance Saved		100.00%	100.00%	100.00%
% Energy & Maintenance Saved		82.60%	88.20%	90.10%

*Total averge KW with IMS
Based upon 12hrs/day & 365 days/year at $0.10/KW

Combining Traditional Form and Function with High-Performance LED

Introducing the XBVR3

For a more traditional architectural bollard design with an LED light source, choose the XBVR3.

This bollard's features include:

- **Revolutionary new LED optic system that makes its performance second to none, in a traditional style**
- **Full range of styling (dome top, flat top and color decals) and shielding (indirect or external louver) choices**
- **Newly enhanced single-aperture LED light engine. The XBVR3 delivers more than 1,300 lumens, making it a good solution in uniform lighting for spacing up to 20 feet.**

This specification-grade bollard is designed and built around LSI's SmartTec™ intelligence platform so you'll enjoy the energy savings, performance and maintenance savings found in all of LSI's LED products. Its durable design, 60,000- to 100,000-hour life expectancy and 5-year warranty mean it's meant to last. The XBVR3 rivals the accomplishments of any high-performance, traditional bollard on the market today.

LSI Lighting Solutions

LSI offers a wide range of high-quality, energy-efficient products that fully support and enhance your entire exterior site.

Transitional – Bollards and Pedestrian-Scale Pole Mount


XHYP3
LED


XBVR3
LED


Architectural
Bollards
HID


Hyperion
HID


Bollard
HID


XAS3
LED


Lexington, Enterprise
& Intrepid
LED & HID


Challenger® Medium
HID


Lifestyle
HID

Wall-Mount


XAWS3
LED


PTWS
LED & HID


Escalante
LED & HID


Euclid
HID


Greenbriar® Wall Sconce
HID


Challenger® Wall Sconce
HID


Cascade
HID


Eagle
HID


Hilton® Wall Sconce
HID


Sierra
HID


XSL2
LED

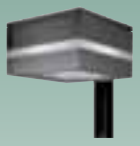
Parking Lot

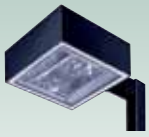

XGB3
LED


XAM3
LED


Challenger®
HID


Citation®
HID


Greenbriar®
HID


Heritage®
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