

# JCI/RES July 2015 Conference

Steve Martel

Andrew Zetterstrom



**HOLOPHANE**<sup>®</sup>  
LEADER IN LIGHTING SOLUTIONS

**AEL** American  
Electric  
Lighting<sup>®</sup>

ACUITY BRANDS INFRASTRUCTURE LIGHTING

# JCI / RES July Conference

- Steve Martel
  - Holophane/ AEL Dedicated
  - Rhode Island and Massachusetts
- Andrew Zetterstrom, LC, MIES
  - Holophane / AEL Dedicated
  - NYC, Long Island, Hudson Valley

# JCI/RES Conference – July 2015

- Holophane/Acuity Brands
- LED Technology Trends
- Choosing LED Fixtures
- HLP Product Overview
- PHS – Highbay with Uplight

Uniformity

SSL Lighting

Energy Savings

Cost of luminaires

# “Great time to be in the Lighting Business”

White Light

Maintenance Savings

Controls - dimmable

Utility Rebates

**HOLOPHANE**

*Industrial Solutions*



# Holophane/Acuity Brands

# Acuity Brands

- Largest lighting manufacturer in North America
- Flagship Brands include Lithonia, Holophane, Mark Lighting, Gotham, and several more.
- Only lighting conglomerate that focuses EXCLUSIVELY on lighting and controls.
- Maintains agency sales channel and direct factory sales personnel.

Market Leader

**AcuityBrands.**



**AcuityControls.**

eldoLED<sup>®</sup>  
your product | our drive

MARK  
ARCHITECTURAL  
LIGHTING<sup>®</sup>

Peerless<sup>®</sup>



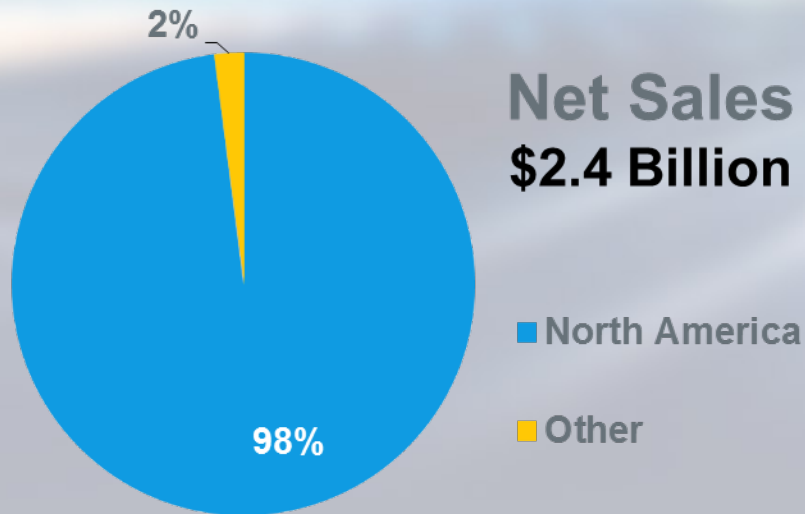
WINONA<sup>®</sup>  
solutions | forms | light

# Market Leader

## North American Market

### 2014 Sales & Mix

**Net Sales  
\$2.4 Billion**



- + 16 Manufacturing Facilities
- + 7,000 Associates

### Competitive Dynamics

- + #1 Market Share in North America
- + Most Extensive Solutions Portfolio
  - Leading provider of luminaires, controls, components, solutions and services
  - 1.7 million+ SKUs
- + Sales Channel Leadership
  - 14 Channels Served
  - #1 Sales Force in Key Markets



# Market Leader

## Solutions Portfolio

### Indoor

- + General Purpose
- + Architectural
- + Downlighting
- + Track Lighting
- + Emergency
- + Relight
- + Rough Service
- + Surface
- + Flexible Wiring
- + Controls

### Outdoor

- + Area & Parking
- + Roadway & Street
- + Floodlighting
- + Security
- + Sports
- + High-Mast
- + Building Mounted
- + Poles & Post
- + In-grade
- + Underwater
- + Accent & Border
- + Controls

## Applications



*Education*



*Office*



*Healthcare*



*Commercial*



*Warehouse*



*Industrial*



*Infrastructure*



*Roadway & Street*



*Architectural*



*Residential*

# Lithonia Lighting

- Back of house solution
- Stock product in Pennsylvania
- Lowest first cost leader



# Gotham Lighting

- Architectural and commercial grade downlighting



# Mark Lighting

- Architectural grade recessed and surface mount product.
- Made in Edison, NJ.
- Many products can ship in 10 days (OTM)



# Peerless Lighting

- Direct, Indirect, and direct/ indirect pendants and surface mount.
- Best in class – visual comfort, LPW, Uniformity
- Award winning designs
- Quick Ship capabilities



# Healthcare Lighting

- Products specific for the Healthcare market.



# Holophane

- Over 115 years experience bringing optical devices and luminaires to the industry
- Help spur the formation of the IESNA, first meeting held at Holophane in NYC.
- First to develop a method to measure both light distribution and light intensity in luminaires
- Innovations include the high bay, low bay, wallpack and “vapor-proof” fixtures
- Holophane manufactures highly differentiated, superior solutions, with robust mechanical design, optimal thermal performance, energy efficiency, quality components and patented optics.
- Glass optics which reduces depreciation of light and long life.



# Acuity Brands Controls

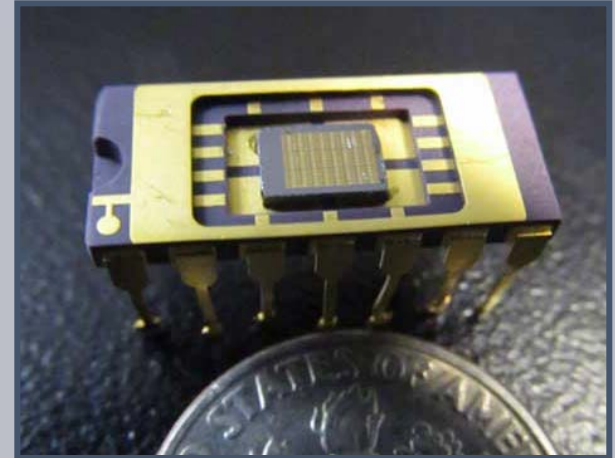
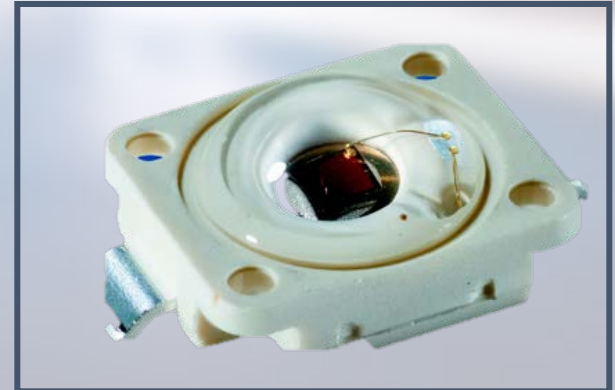
- XPOINT Wireless
- ROAM
- Sensity/ Cisco Partnership
- LC&D
- ELDOLED – Dim to Black



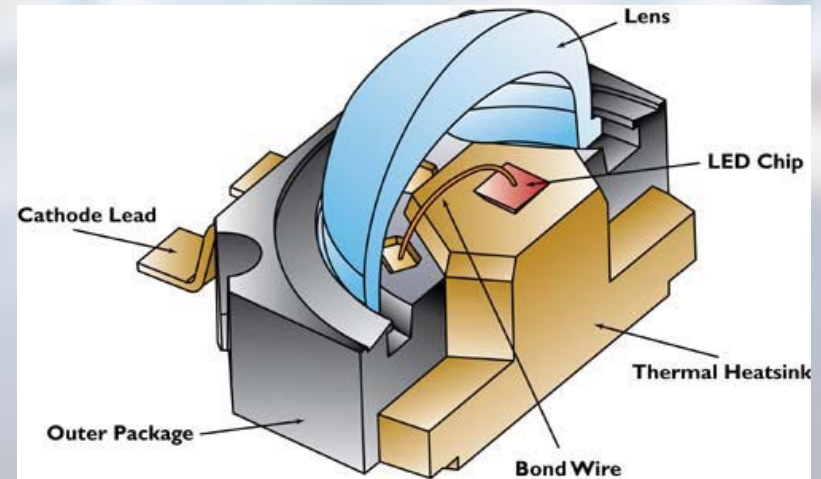
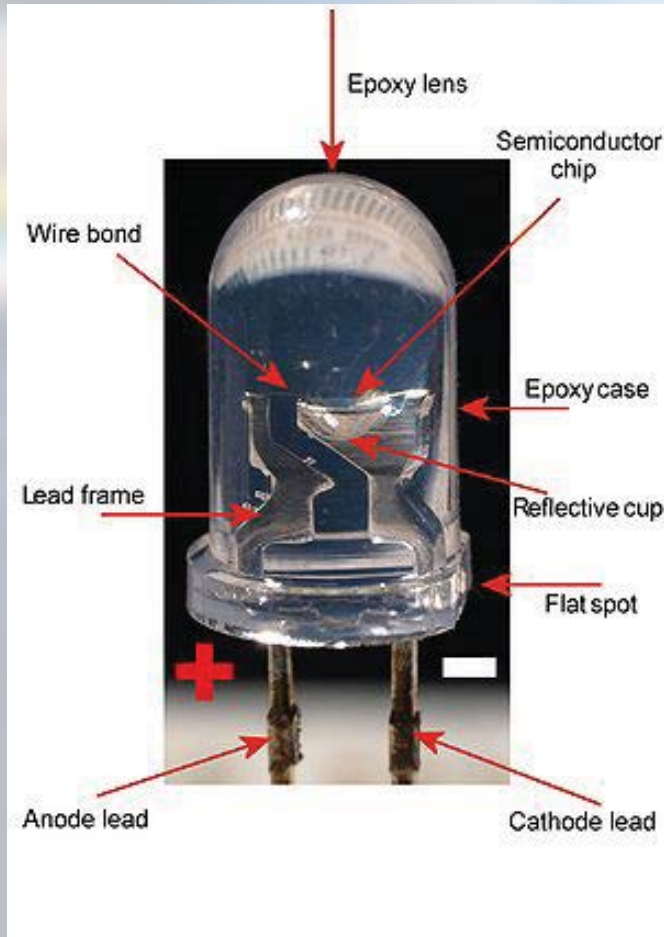


# LED Technology Trends

# Light Emitting Diodes (LED)



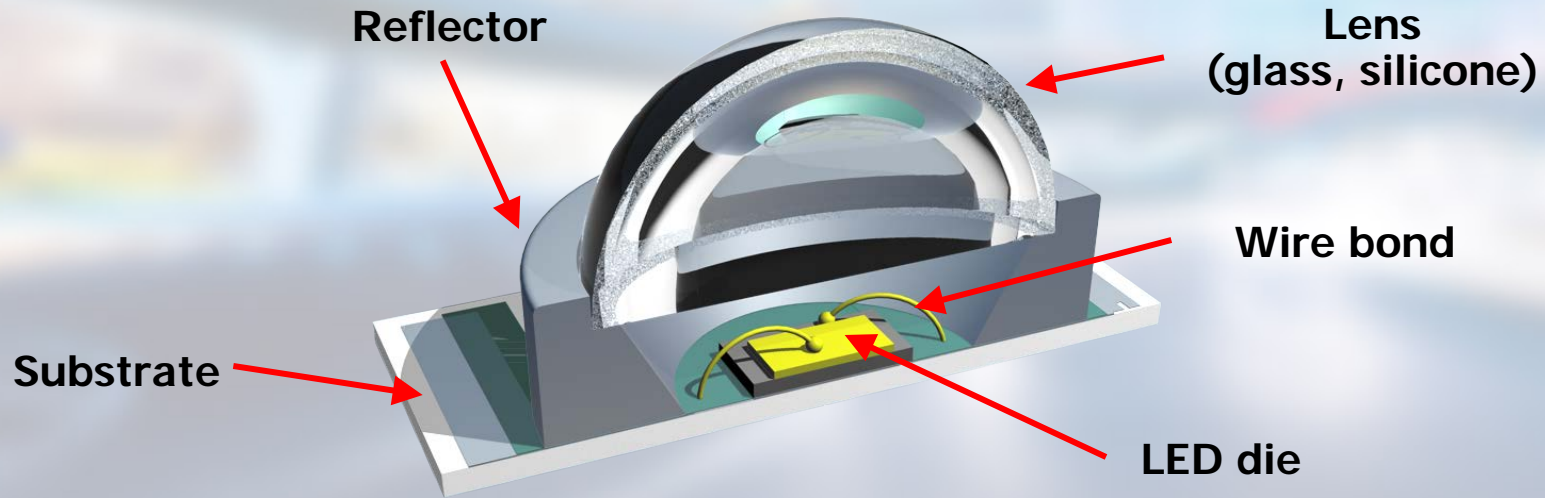
# LED Technology– Old vs. New (Reliable)



NEW  
(high reliability)

# Discrete LED Components

## LED Package

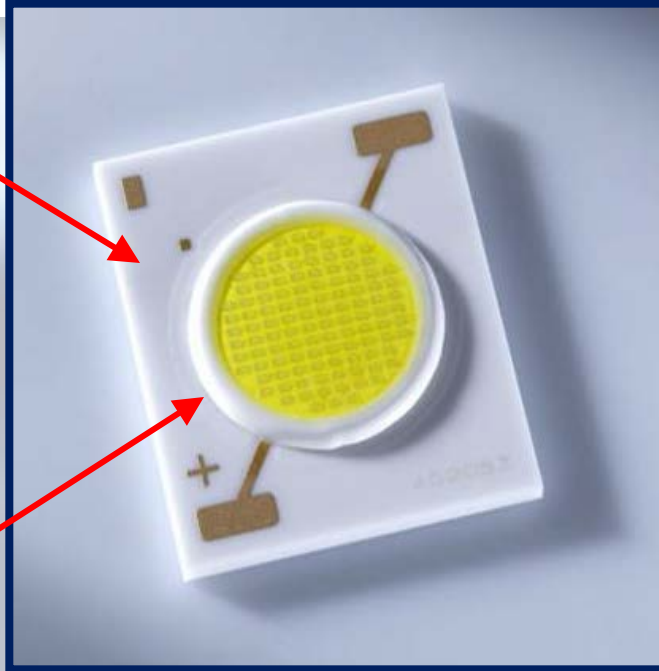


The LED Package provides:

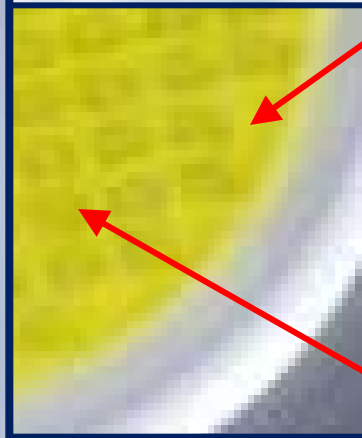
- Protection for the LED die from the outside environment
- Conductive path to carry heat away from the LED die
- Refractive index matching from the LED die to air

# COB Technology

Substrate



Phosphor & Encapsulant



LED die

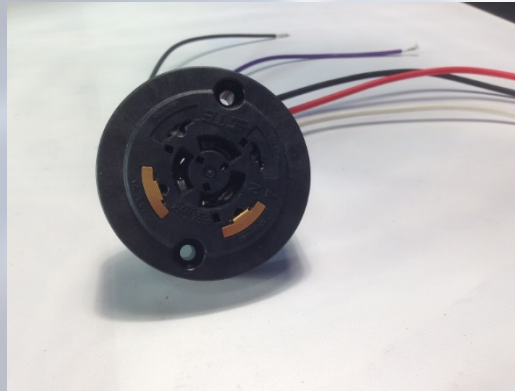
Silicone  
"Dam"

COB-S NSCxS060	COB-L				
	NSBxL088	NSBxL110	NSCxL144	NSBxL165	NSCxL204
<p>Diagram showing a cross-section of the COB-S NSCxS060 package. It features a central LED die (12) on a substrate (13) with a diameter of 6. The die is connected to an anode (12) and a cathode (13). A silicone dam (15) is present around the die.</p>	<p>Diagram showing a cross-section of the COB-L NSBxL088 package. It features a central LED die (15) on a substrate (19) with a diameter of 8.3. The die is connected to an anode (15) and a cathode (19). A silicone dam (15) is present around the die.</p>	<p>Diagram showing a cross-section of the COB-L NSBxL110 package. It features a central LED die (16) on a substrate (19) with a diameter of 9. The die is connected to an anode (16) and a cathode (19). A silicone dam (15) is present around the die.</p>	<p>Diagram showing a cross-section of the COB-L NSCxL144 package. It features a central LED die (16) on a substrate (19) with a diameter of 10.3. The die is connected to an anode (16) and a cathode (19). A silicone dam (15) is present around the die.</p>	<p>Diagram showing a cross-section of the COB-L NSBxL165 package. It features a central LED die (16) on a substrate (19) with a diameter of 12. The die is connected to an anode (16) and a cathode (19). A silicone dam (15) is present around the die.</p>	<p>Diagram showing a cross-section of the COB-L NSCxL204 package. It features a central LED die (16) on a substrate (19) with a diameter of 12. The die is connected to an anode (16) and a cathode (19). A silicone dam (15) is present around the die.</p>

# ANSI C136.41-2013 Receptacle Options



Standard NEMA 3-Prong



C136.41-2013 5-Pin



C136.41-2013 7-Pin

# Acuity / Sensity Systems Partnership for smart lighting applications.

Sneak peek.....

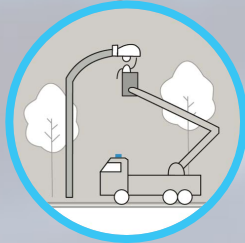
# One Platform, Many Services



**SIMPLE**

**Beyond  
Lighting  
Controls!**

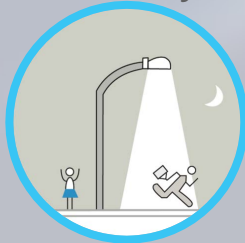
**Lighting  
Management**



**Location  
Analytics**



**Security**



**Parking**



**Traffic**





# Lighting is the future IoT Platform



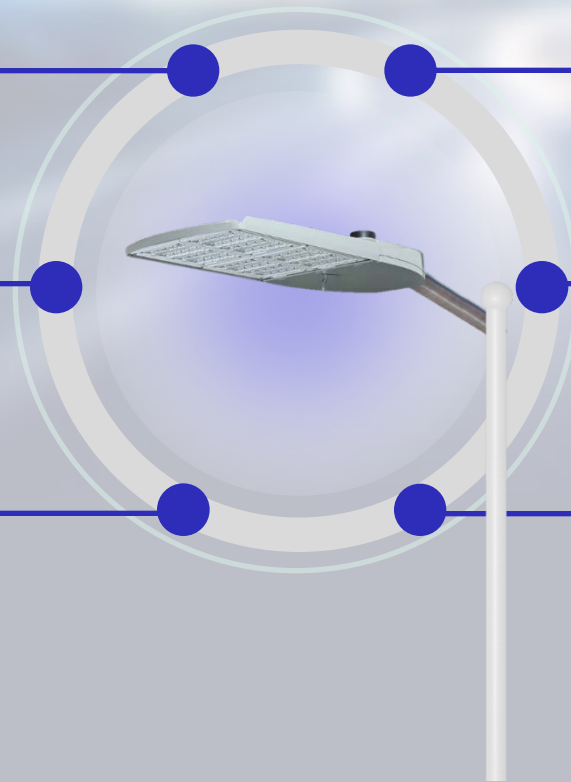
Smart Lighting



Smart Traffic



Smart Parking



100's of Additional Smart Apps

One Network  
One Platform

Pervasive, Simple,  
Flexible



Node and Video with edge storage



## Choosing LED Fixtures

# Fixture Considerations

- Application
- Size and Style
- Cost (Initial vs Total Cost of Ownership)
- Light Output
- \* Light Distribution
- Codes (National – wet location, hazardous etc and Local - dark sky, pole height etc)
- Warranty
- Manufacturer (Product, History, Stability and Service)
- \* Lumens per Watt (LPW)
- LED Life (IESNA TM21)
- \* Driver Life
- \* Light Loss Factors Considerations (LLF)
  - Thermal cutback
  - Optical component degradation
  - Luminaire Dirt Depreciation and Lamp Lumen Depreciation



Distribution - IESNA Cutoff Post Top



Distribution - Non-optical Acorn



Distribution - Prismatic Acorn

# Lumens Per Watt (LPW)

## FLOODLIGHT.XXL

AVAILABLE LIGHT ENGINE RETROFITS



### HEX-105

LPW - 140.6

DRIVE CURRENT	WATTAGE	REPLACES	LUMEN OUTPUT	CATALOG #
8	158W	400-650W	22,155lm	HEX-105-B-CW-MT-FLXXL

### HEX-126

DRIVE CURRENT	WATTAGE	REPLACES	LUMEN OUTPUT	CATALOG #
8	189W	550-800W	26,586lm	HEX-126-B-CW-MT-FLXXL

### HEX-168

DRIVE CURRENT	WATTAGE	REPLACES	LUMEN OUTPUT	CATALOG #
8	252W	725-1200W	35,448lm	HEX-168-B-CW-MT-FLXXL

### HEX-189

DRIVE CURRENT	WATTAGE	REPLACES	LUMEN OUTPUT	CATALOG #
8	284W	850-1300W	39,879lm	HEX-189-B-CW-MT-FLXXL

### HEX-210

DRIVE CURRENT	WATTAGE	REPLACES	LUMEN OUTPUT	CATALOG #
8	315W	1000-1450W	44,310lm	HEX-210-B-CW-MT-FLXXL

V2.62 f t ©2014

INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE

## LED Flood™ Series ACP2LED American Compact LED Floodlight

Performance Packages							
LED Count	Drive Current (mA)	Input Watts	Optic	4000K CCT		5000K CCT	
				Delivered Lumens	Efficacy (LPW)	Delivered Lumens	Efficacy (LPW)
9 COB	700	243	6x6	23,460	97	24,012	99
	1050	363		32,300	89	33,060	91
	700	243	6x5	23,410	96	23,961	99
	1050	363		32,010	88	32,763	90
8 COB	700	218	6x6	21,281	98	21,782	100
	1050	325		29,300	90	29,989	92
	700	218	6x5	21,236	97	21,735	100
	1050	325		29,037	89	29,720	91
7 COB	700	192	6x6	18,521	96	18,957	99
	1050	287		25,500	89	26,100	91
	700	192	6x5	18,482	96	18,916	99
	1050	287		25,271	88	25,866	90



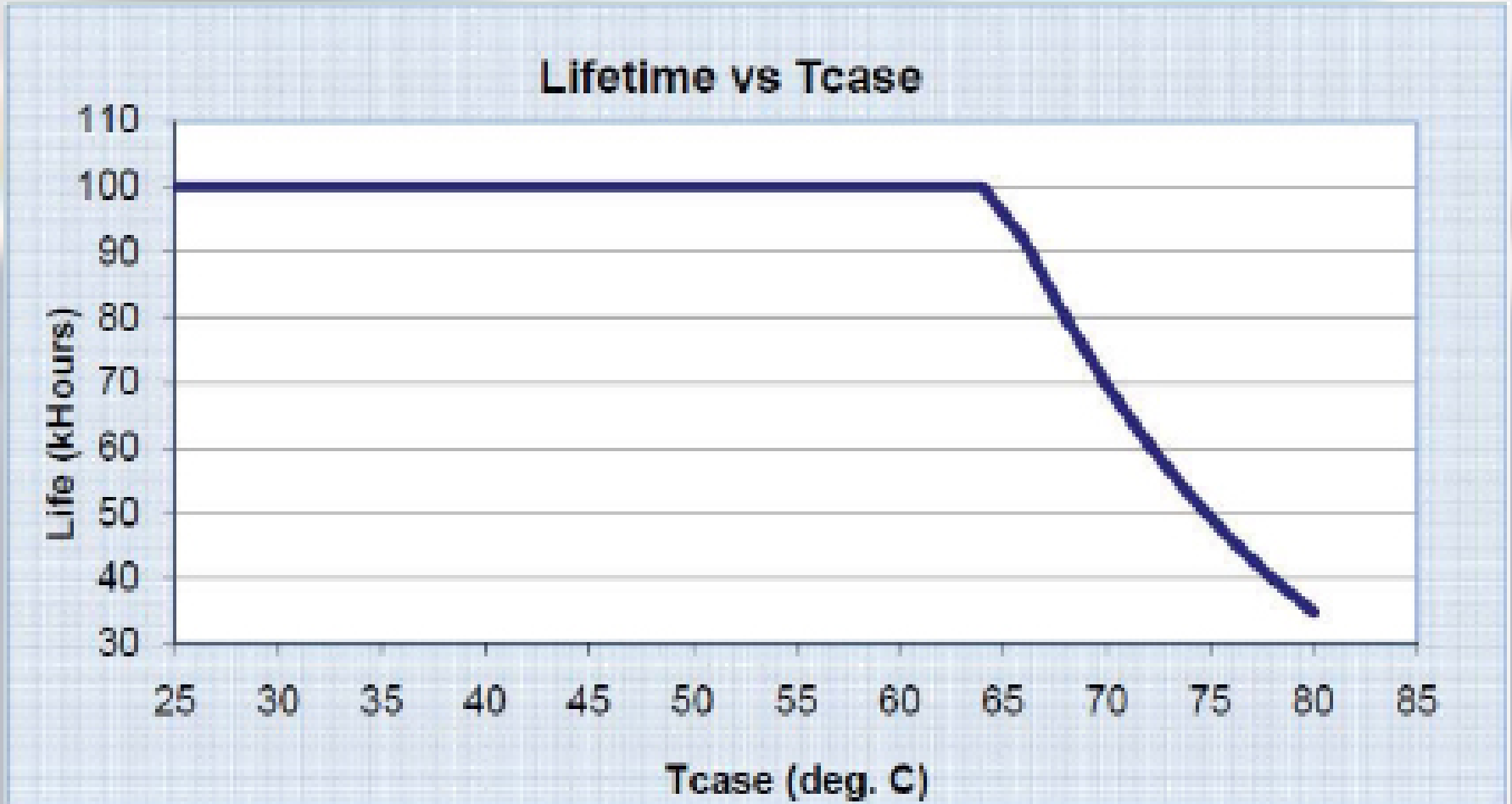
Floodlighting

Sheet # FL-ACP2LED





# LED Driver Life vs Temperature



# Light Loss Factors (LLF) Considerations

$$LLF = LLD \times LDD \times ATF \times OCD \times BF \times RSDD$$

LLD – Lamp Lumen Depreciation

LDD – Luminaire Dirt Depreciation

ATF – Ambient Temperature Effects (Thermal Cutback)

OCD – Optical Component Depreciation

BF – Ballast Factor

RSDD – Room Surface Dirt Depreciation

# OCD – Holophane Glass vs Plastic

WOULDN'T YOU WANT THE ENTIRE LIGHTING FIXTURE TO LAST AS LONG AS THE LED?



Glass



Plastic

## The Borosilicate Glass Advantage

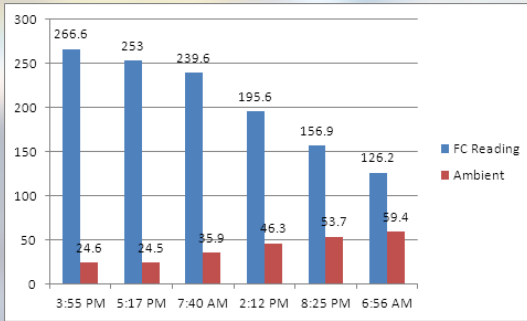
You can have aesthetically pleasing permanent glass that sparkles and will never turn yellow or cloudy with age.



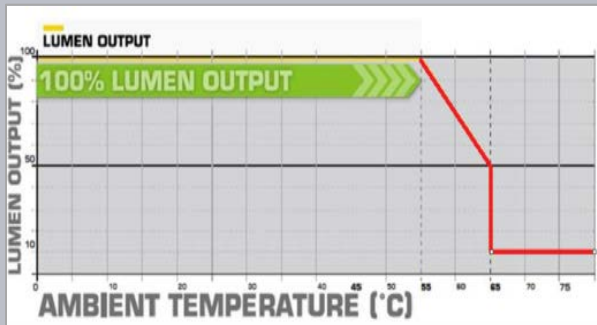
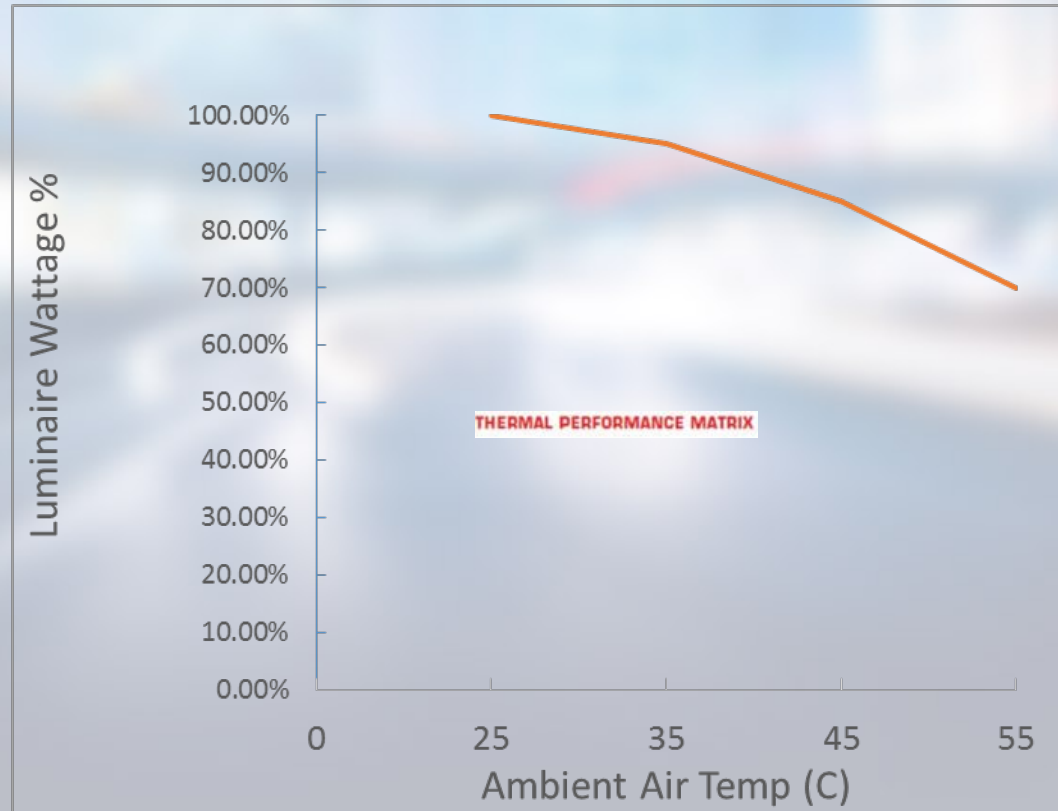
Granville II LED Classic

Granville II LED Premier

# Thermal Cutback



Light Loss at  
55C: **40%**



Driver folds back to  
**80% at 50C**

Light loss at  
65C: **50%**



# Products

# Infrastructure Product Portfolio



## ROADWAY

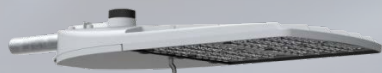
ATB0



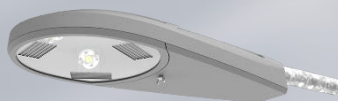
ATBS



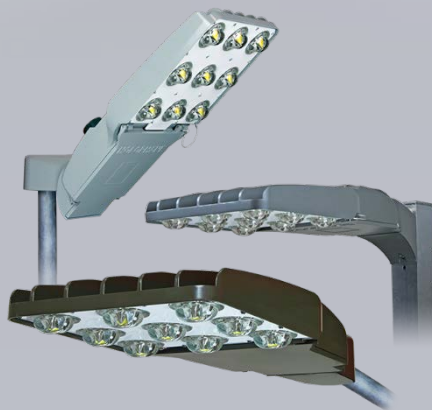
ATB2



ATBM



Mongoose LED

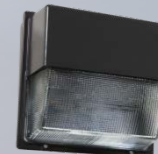


## SECURITY

LNH



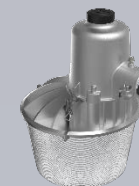
Wallpack LED



ATBS



LNH II



# Infrastructure Product Portfolio



## FLOOD



ACP Large



ACP Medium



Predator Large



Predator Medium



## TUNNEL



TunnelPass Large



TunnelPass Medium



2015

## HI-MAST



HMAO LED



HMAO LED II



## SIGN



Sign-Vue LED



Panel-Vue LED



# Architectural Outdoor



## PENDANT

### GlasWerks LED Family



- Prague
- Bern
- Hallbrook
- Vienna



### Tear Drop LED Family

- Urban Scale
- Pedestrian Scale

## ACORN

### GranVille LED Family



- Utility
- Standard

### Washington Postlite LED Family



- Utility
- Standard
- Glass
- Acrylic

## SPHERE

### Prismasphere LED



## LANTERN

### Utility Lantern LED Family



- Arlington
- Jefferson
- Postop Utility

### Colonial LED Lantern Family



- 247
- ARDL
- AVPL2

## FULL CUTOFF

### Full Cutoff LED Family

- Washington
- Jefferson
- Postop Utility



## TRANSITIONAL

245 LED



## BOLLARD

SiteLink TracBollard LED

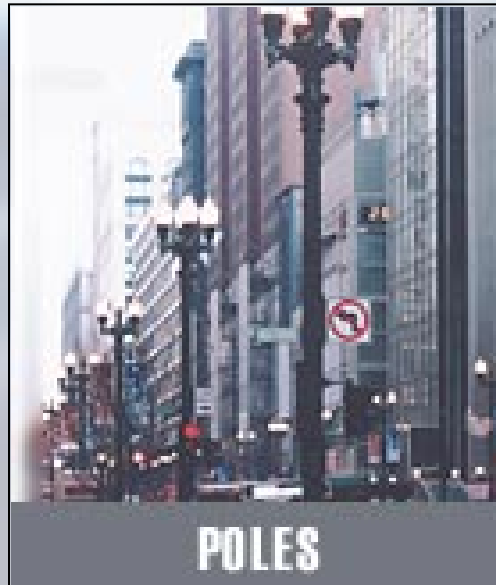
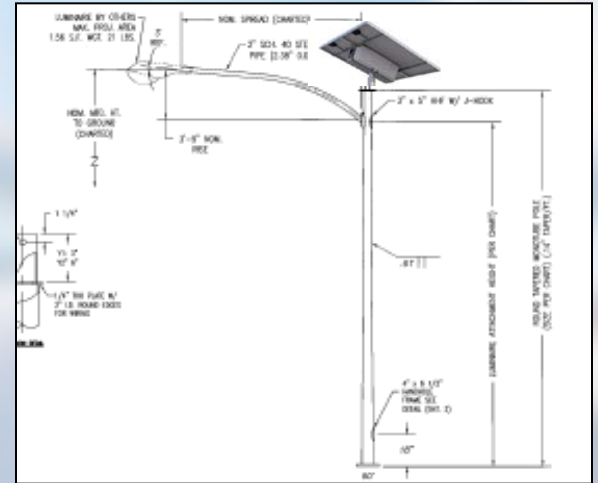




# Pole Structures



# SITELINK



# Holophane Industrial LED Products Portfolio



**Phuzion** LED  
High Bay  
IP65, 65°C,  
12-27L,  
XPoint



**Vantage**  
NSF, 1500 PSI,  
UL 1598, IP66,  
55°C, acrylic  
optic, 10-22L



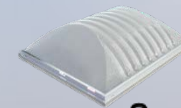
**HRLL & HXPL**  
Class 1 Div 1, Class 2 Div 1 and Class 3 Linear available, 8L, UL 1598A Marine



**PLED, HPLED, HMRL**  
IP66, 55°C, 5-18L, glass or polycarb optics, Class 1 Div 2, Class 2 Div 1, UL 1598, Linear



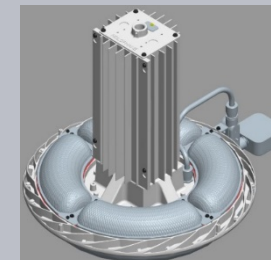
**Bantam**  
IP65, UL 1598, 5L, retrofit kit available, 25°C



Sunoptics Daylighting Skylights



**Emergency and Exits**  
LED versions coming!  
NSF, IP66, Hazardous



**Phuzion w/uplight**

# PHS with Uplight

Only Industrial LED Highbay on the market with dedicated uplight LED modules for unmatched uplight levels

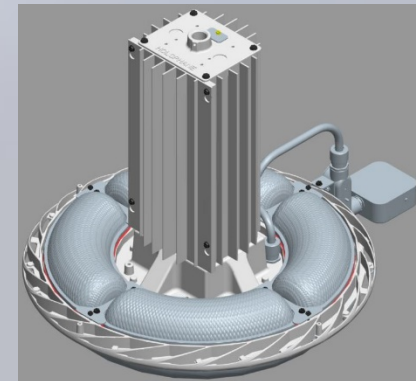
- + 86% Downlight; 14% Uplight
- + eldoLED Driver – dims to 1%
- + Application: Optimized for open-ceiling requirements such as:
  - + Big box retail
  - + Automotive
  - + Education/sports facilities



# PHS with Uplight

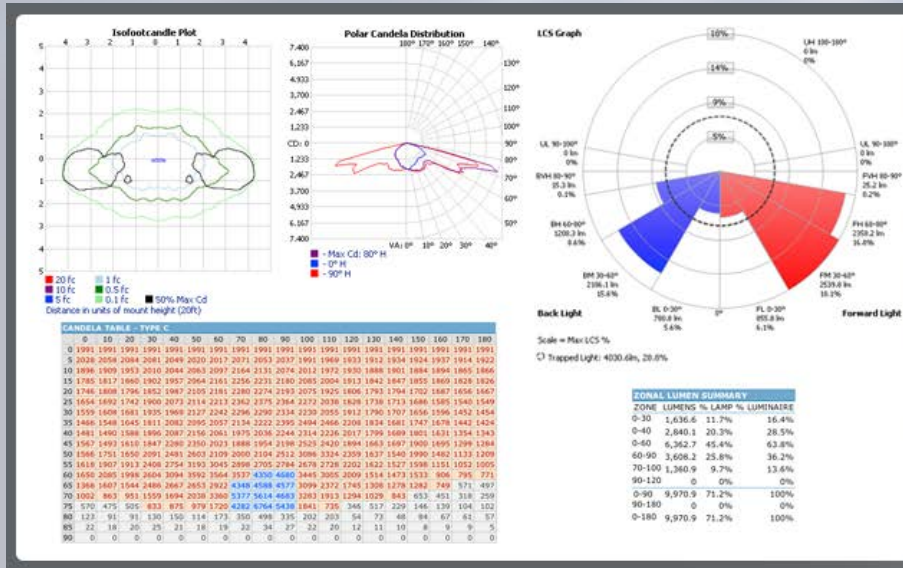
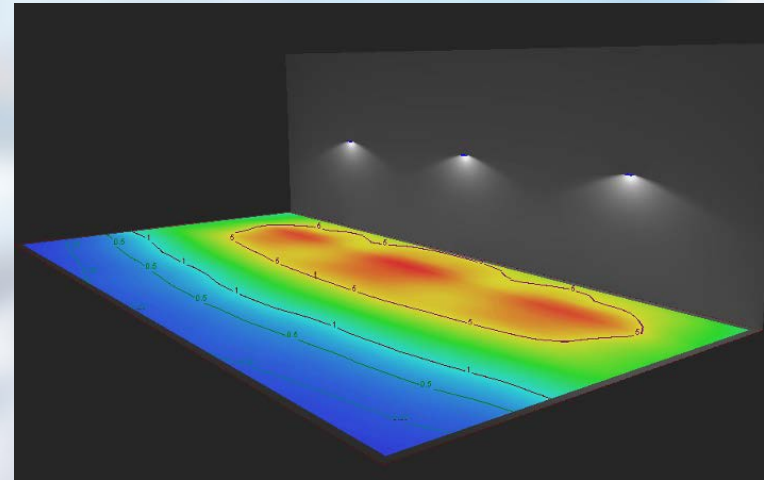
## Key Features/ Specs

- + 4 lumen packages – 12L, 15L, 18L and 24L @ up to 50C
- + 100+ LPW + DLC
- + 70, 80, & 90 CRI
- + 30K, 35K, 40K and 50K
- + External Battery Pack
- + Narrow & Wide distributions
- + Externally mounted sensors w/ xpoint wireless
- + Frosted glass option
- + Xpoint Wireless solution installed from factory



# Value Added Services

# LIGHTING DESIGN SUPPORT & TOOLS



## Photometric Tool

- View IES and LDT Data
- Download Product Files
- Generate Custom Reports
- View Tables and Charts
- Search Product Catalog

# Questions?

Thank you for your time!