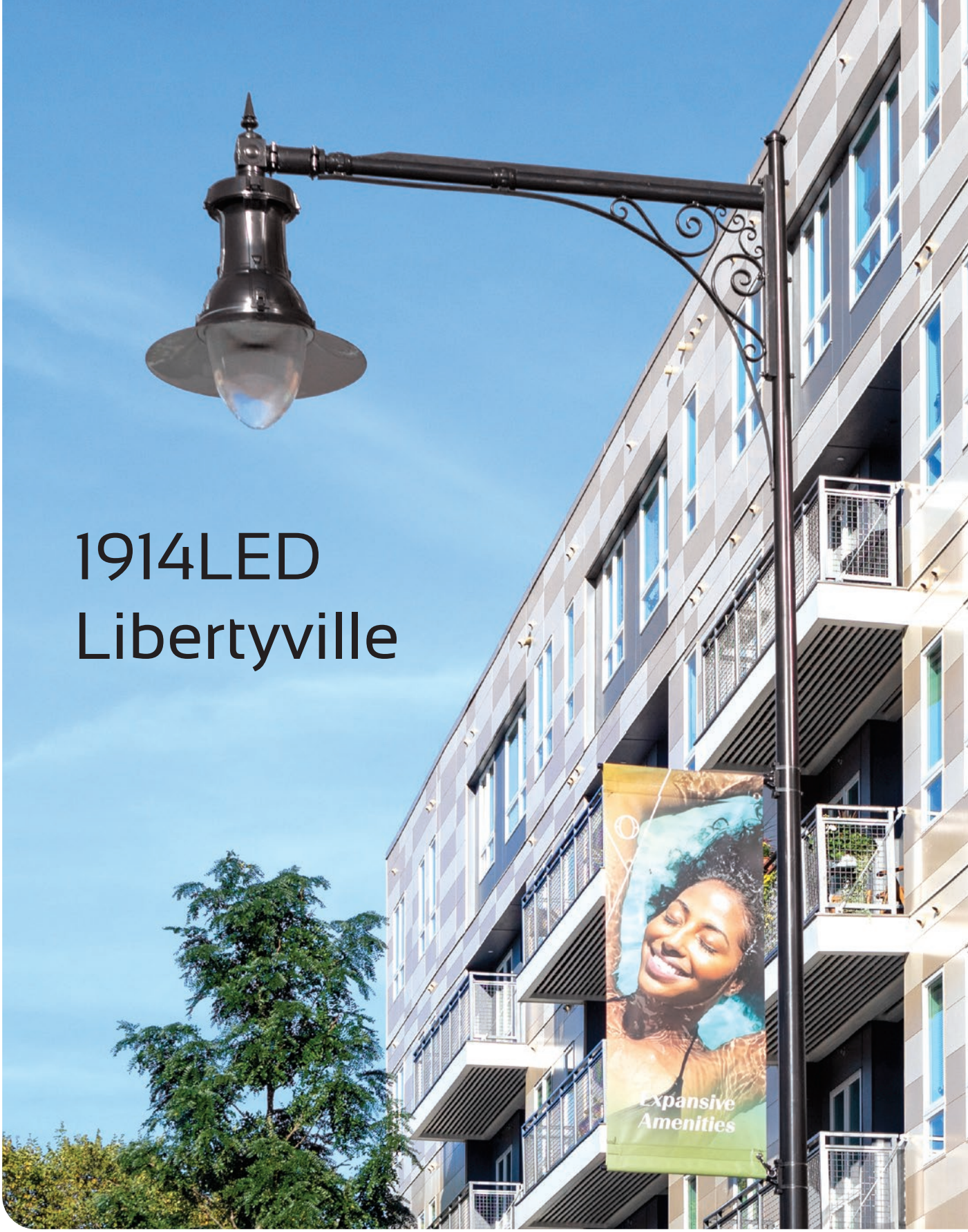


1914LED
Libertyville

SternbergLighting
ESTABLISHED 1923

www.sternberglighting.com

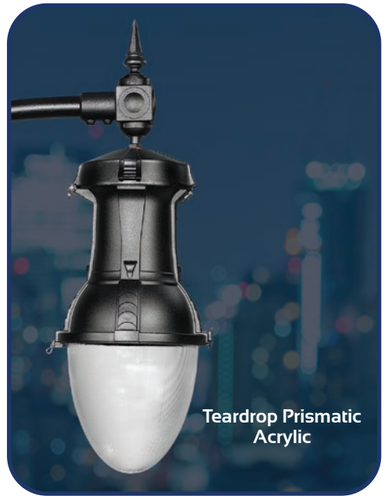
LIBERTYVILLE COMPONENTS

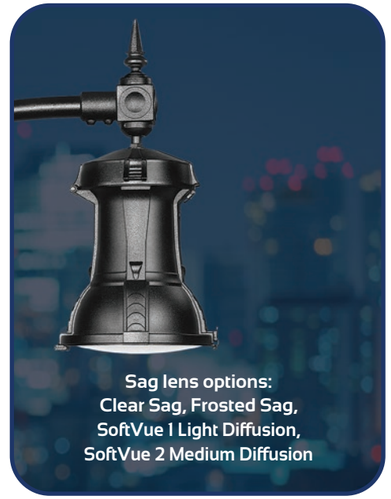
A. Finial
B. Splice Compartment
C. Hangstraight
D. Structural upper die cast housing assembly
E. Tool-less Latch
F. Die-cast Aluminum Ballast / Driver Housing
G. Lens: Available with clear acrylic or glass tear drop (shown). Also available in sag glass, SV1 or SV2 diffused acrylic. RLM shades are also available.

Optional Photocell (Not Shown)

1914LED
Shown in Black Textured

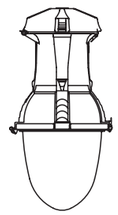
Lens Options


Teardrop Prismatic Acrylic

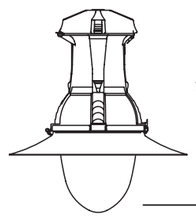

Sag lens options:
Clear Sag, Frosted Sag,
SoftVue 1 Light Diffusion,
SoftVue 2 Medium Diffusion

Fixture Options

1914-A

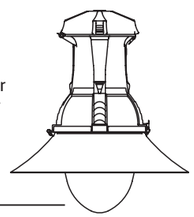


1914-RLM431-A

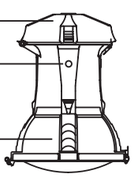


Available with Glass or Acrylic Tear Drop Lens

1914-RLM731-A

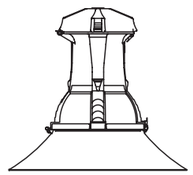


1914-SG

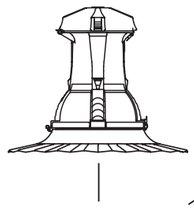


Clear Tempered Sag Glass Lens

1914-RLM731-SG

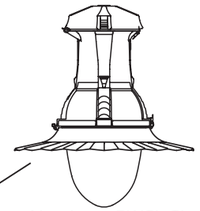


1914-RWSL31-SG



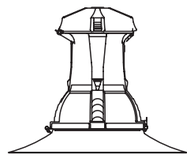
Aluminum RWSL Shade

1914-RWSL31-A

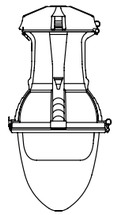


Aluminum RWSL Shade

1914-RLM431-SG



1914LED-A-HSS



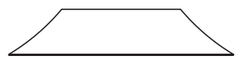
House Side Shield

Shade Options

31" W x 4" H

RLM431

31" W x 7" H



RLM731

31" W x 4" H

RWSL31

Surface Brightness

Sternberg's Soft Vue™ lens technology optimizes surface brightness to reduce disability and discomfort glare.

The Problem: Discomfort glare is the sharp perception of light from an intense lighting point source like LED or Metal Halide. Very high luminous flux from a very small emitter package will cause discomfort when light rays directly enter the eye. The Iris will constrict down as tightly as possible causing stress on the eye. Disability glare is amplified discomfort glare. It not only causes discomfort but actually hampers the eye's ability to react appropriately to conditions where critical vision is needed.

An example would be when an oncoming car has its High Beams on, the eye will close its pupil down in reaction to the high light level perceived. As a result visual acuity in the peripheral is negatively affected. Objects like people or animals on the side of the road, where less light exists, will not be as visible. Additionally, the aging eye does not react quickly to large changes in light level causing a loss of acuity in older drivers and potentially unsafe driving conditions for those around them.

50% GLARE REDUCTION

Clear acrylic prismatic tear drop.

Ideal application would be at mounting heights above 20 feet where a high level of vehicular traffic exists and higher light levels are desired.

51% GLARE REDUCTION

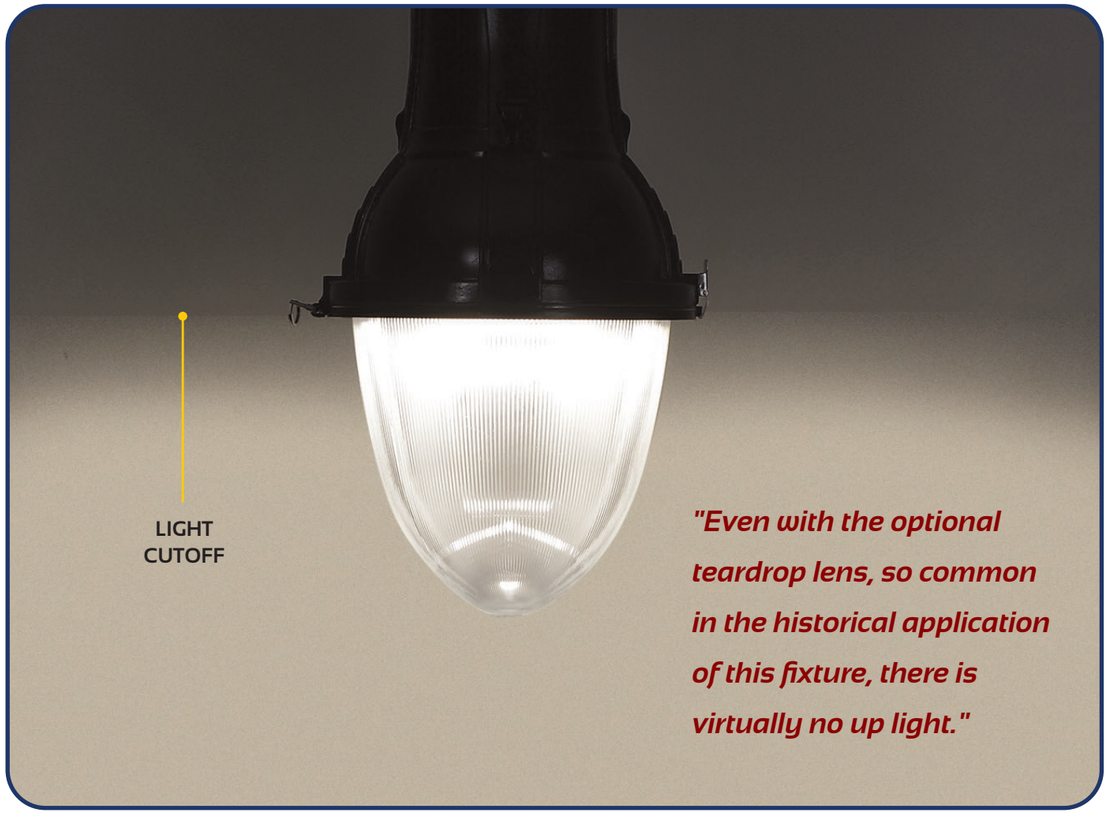
SV1 lens reduces glare by as much as 51% over flat glass.

SV1 Ideal application would be in mounting heights of 16 to 20 feet where a high degree of visual acuity is needed but there is moderate pedestrian traffic.

76% GLARE REDUCTION

SV2 lens reduces glare by as much as 76% over flat glass.

SV2 Ideal application would be at mounting heights below 16 feet where pedestrian traffic is high and visual comfort is a prime factor.



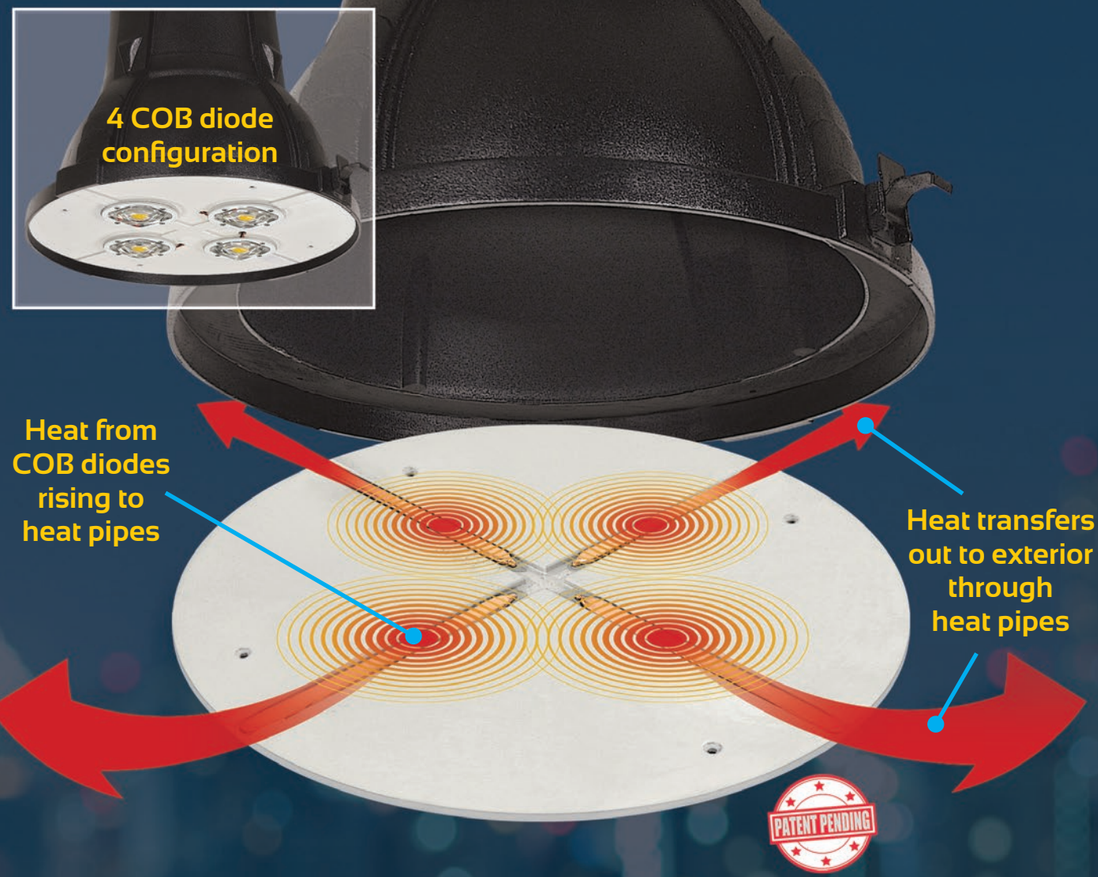
Luminous cutoff

The 1914LED's optical system - a combination of COBs, secondary optics, and lensing – is specifically engineered to provide the high lumen output required for roadway applications, while effectively mitigating or eliminating up light. As seen here, even with the optional teardrop lens so common in the historical application of this fixture, there is virtually no up light. All of the light is directed downward, with less than 1.5% refracted above the plane of the light source via the curvature of the lens.

Those who reference BUG ratings when considering approval or adoption of an LED roadway fixture like this should be aware that BUG ratings are based solely on lumens, not percentages. Consequently, roadway luminaires, designed for higher mounting heights and requiring higher lumen output, will generally have higher BUG ratings than pedestrian fixtures.

If we look at one of the lowest available lumen outputs for the 1914LED, which is only a 35-watt output, the luminaire produces almost 5000 lumens at 4000K. The Type 3 fixture produces only 63 upward total lumens (1.4%) while the Type 5 version produces only 59 upward lumens (1.2%). Both fixtures provide delivered efficacy of 134-140 l/W, with the light source fully shielded in the upper housing, directing 100% of the light downwards. With less than 1.5% up light, indirectly refracted from the lens, both of these fixtures carry a BUG rating of U2, which is very impressive for a teardrop lens.

Where BUG requirements or local codes are restrictive, the 1914LED does have a sag lens option, as well as several decorative shades designed to completely eliminate up light.



Sternberg's Patent Pending COB/Heat Pipe Thermal Management

Heat Pipes are one of the most efficient ways to move heat, or thermal energy, away from a heat source like Chip On Board light emitting diodes. These two-phase systems are typically used to cool areas or materials, even in outer space. Heat pipes were first used by Los Alamos National Laboratory to supply heat to and remove waste heat from energy conversion systems. Today, heat pipes are used in a variety of applications from outer space to your pocket. Heat pipes are present in the cooling and heat transfer systems found in computers, cell phones, and satellite systems.

What is a Heat Pipe?

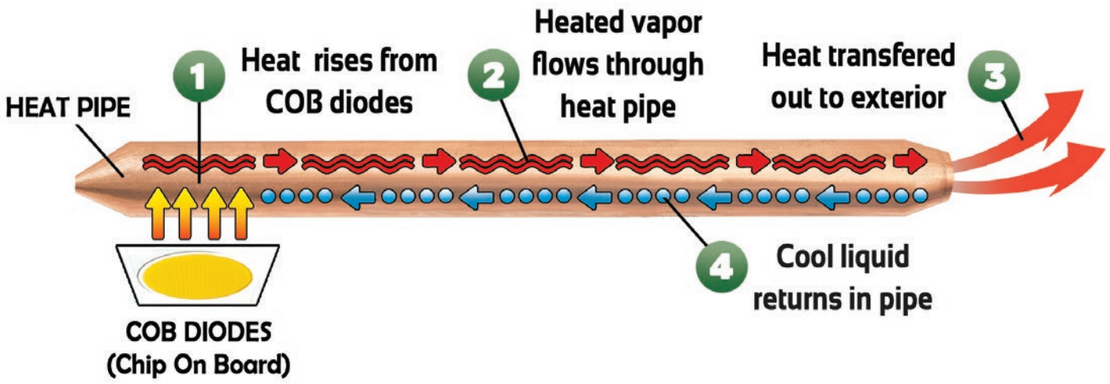
A heat pipe is a simple tool, but how it works is quite ingenious. These devices are sealed vessels that are evacuated and backfilled with a working fluid, typically in a small amount. The pipes use a combination of evaporation and condensation of this working fluid to transfer heat in an extremely efficient way.

The most common type is cylindrical in cross-section. Cool working fluid moves through the tube from the colder side (condenser) to the hotter side (evaporator) where it vaporizes. This vapor then moves to the condenser's heat sink, bringing thermal energy along with it. The working fluid condenses, releasing its latent heat in the condenser, and then repeats the cycle to continuously remove heat from the system during operation. Heat pipes are three times as efficient as cast aluminum heat sinks allowing for the use of less aluminum mass and less weight. All this translates into less cost to manufacture.

"...this effectively makes Heat Pipes more efficient at moving heat away from its source."

Thermal conductivity is measured in Watts per meter-Kelvin or W/mK. The higher the number the higher a materials capacity to conduct heat. Examples include 356 alloy cast Aluminum which is a very common heat sink material. It has a rating of 151 W/mK while the core of a heat pipe can range from 10,000 to 30,000 W/mK depending on its design. This effectively makes Heat Pipes more efficient at moving heat away from its source by a factor of 66 at the least and 200 at the most in higher efficiency designs when compared to 356 cast aluminum.

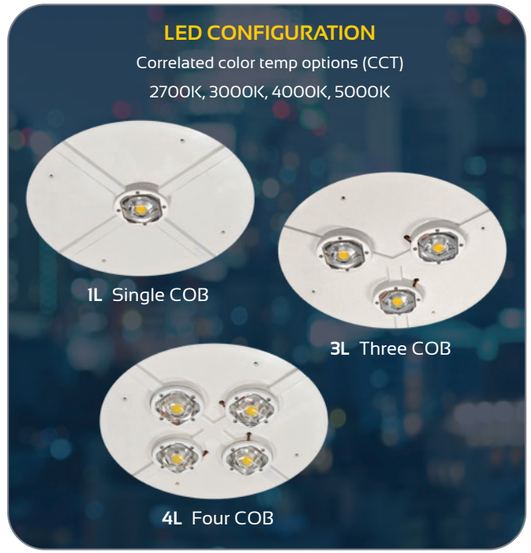
How Sternberg's Heat Pipe Thermal Management Works



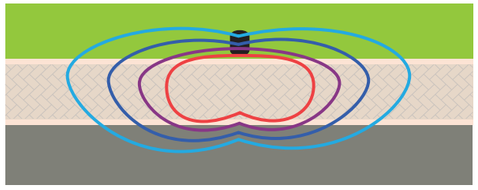
Libertyville COB Options

Chip On Board technology brings compact LED forms to high performance decorative outdoor lighting equipment. COB's are perfect for higher mounting heights needed in roadway traffic designs. Producing high lumens per watt, enhanced optical control and consistently high uniformity on road surfaces COB technology enhances Roadway safety for vehicular and pedestrian environments.

Mounted in arrays of 1, 3 or 4, Libertyville COB products produce a wide range of lumen output making them a high performance solution at any mounting height from 14 to 35 feet. Secondary optics are applied to direct light to its intended location. High efficiency one piece molded silicone optics are mechanically held in place over each COB module. Each one is indexed for consistent installation during manufacturing and ultimately providing repeatable photometric performance for site, area, pathway, street and roadway applications.



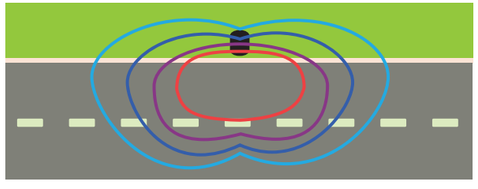
IES: Distribution Types



IES TYPE II

For roadway areas located by the roadside.

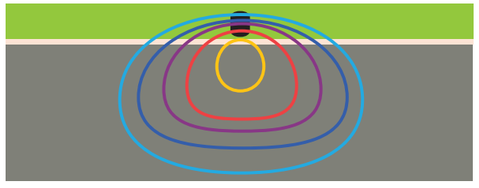
- Wide Sidewalks
- Entrance Roadways
- On Ramps
- Bike Paths



IES TYPE III

Located near the side of an area, projecting light outward to fill an area.

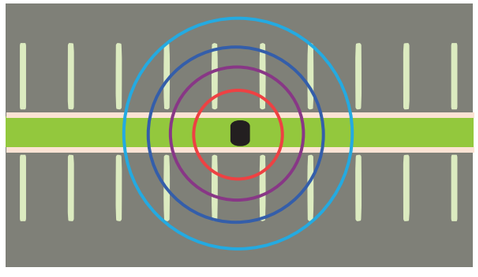
- Roadways
- General Parking Areas
- Applications where a large pool of light is required.



IES TYPE IV

Produces a forward throw semicircular distribution.

- Side of buildings/walls
- Perimeter of parking areas



IES TYPE V

Produces a circular distribution that has the same intensity at all angles.

- Center of Roadways
- Center Isle of Parkway

Optical Performance

1914LED Lumen Chart

Light Source	T3 DELIVERED LUMENS	EFFICACY (LPW)	T4 DELIVERED LUMENS	EFFICACY (LPW)	T5 DELIVERED LUMENS	EFFICACY (LPW)	WATTAGE
4L27T_-MDL12	28295	111.0	30095	118.5	29660	116.3	254
4L30T_-MDL12	31915	125.2	33240	130.9	33455	131.2	254
4L40T_-MDL12	32900	129.0	34345	135.2	34490	135.3	254
4L27T_-MDL10	25520	113.9	27040	120.7	26700	119.2	224
4L30T_-MDL10	28785	128.5	29865	133.3	30115	134.4	224
4L40T_-MDL10	29675	132.5	30855	137.7	31045	138.6	224
4L27T_-MDL09	22415	116.7	23695	123.4	23430	122.0	192
4L30T_-MDL09	25285	131.7	26170	136.3	26425	137.6	192
4L40T_-MDL09	26065	135.8	27040	140.8	27245	141.9	192
3L27T_-MDL10	20345	118.3	20635	120.0	21180	123.1	172
3L30T_-MDL10	22950	133.4	22790	132.5	23885	138.9	172
3L40T_-MDL10	23660	137.6	23545	136.9	24625	143.2	172
3L27T_-MDL09	17790	121.0	18175	123.6	18465	125.6	147
3L30T_-MDL09	20065	136.5	20070	136.5	20825	141.7	147
3L40T_-MDL09	20685	140.7	20740	141.1	21470	146.1	147
3L27T_-MDL08	16145	122.3	16425	125.4	16760	127.0	131
3L30T_-MDL08	18210	138.0	18140	138.5	18905	143.2	131
3L40T_-MDL08	18775	124.2	18740	143.1	19490	147.7	131
3L27T_-MDL07	14075	124.6	14320	127.9	14570	128.9	112
3L30T_-MDL07	15875	140.5	15815	141.2	16430	145.4	112
3L40T_-MDL07	16370	144.9	16340	145.9	16940	149.9	112
3L27T_-MDL06	12280	126.6	12465	128.5	12745	131.4	97
3L30T_-MDL06	13850	142.8	13770	142.0	14375	148.2	97
3L40T_-MDL06	14280	147.2	14225	146.6	14820	152.8	97
1L27T_-MDL16	9460	97.5	9835	101.4	9955	102.6	97
1L30T_-MDL16	10670	110.0	10860	112.0	11230	115.8	97
1L40T_-MDL16	11000	113.4	11220	115.7	11575	119.3	97
1L27T_-MDL12	7430	101.8	7725	107.3	7825	107.2	72
1L30T_-MDL12	8380	114.8	8530	118.5	8830	121.0	72
1L40T_-MDL12	8640	118.4	8815	122.4	9100	124.7	72
1L27T_-MDL09	5870	108.7	6080	114.7	6180	114.4	53
1L30T_-MDL09	6620	122.6	6715	126.7	6970	129.1	53
1L40T_-MDL09	6825	126.4	6935	130.8	7185	133.1	53
1L27T_-MDL06	4035	112.1	4195	119.9	4240	117.8	35
1L30T_-MDL06	4550	126.4	4635	132.4	4780	132.8	35
1L40T_-MDL06	4690	130.3	4790	136.9	4930	136.9	35

Granite City, IL
1914 Libertyville
OJPT Arm
5200 Barrington Pole
T6 Shaft

Algonquin, IL
1914LED Libertyville/RLM431
8501 Barrington Pole
GRA Arm (Custom)

Holladay, UT
1914 Libertyville/RLM431
CAS6 Arm
6901 Base
Tapered Fluted Shaft

Frisco Market Center, TX
1914 Libertyville
Custom Arm
9201 Base
Tapered Fluted Shaft

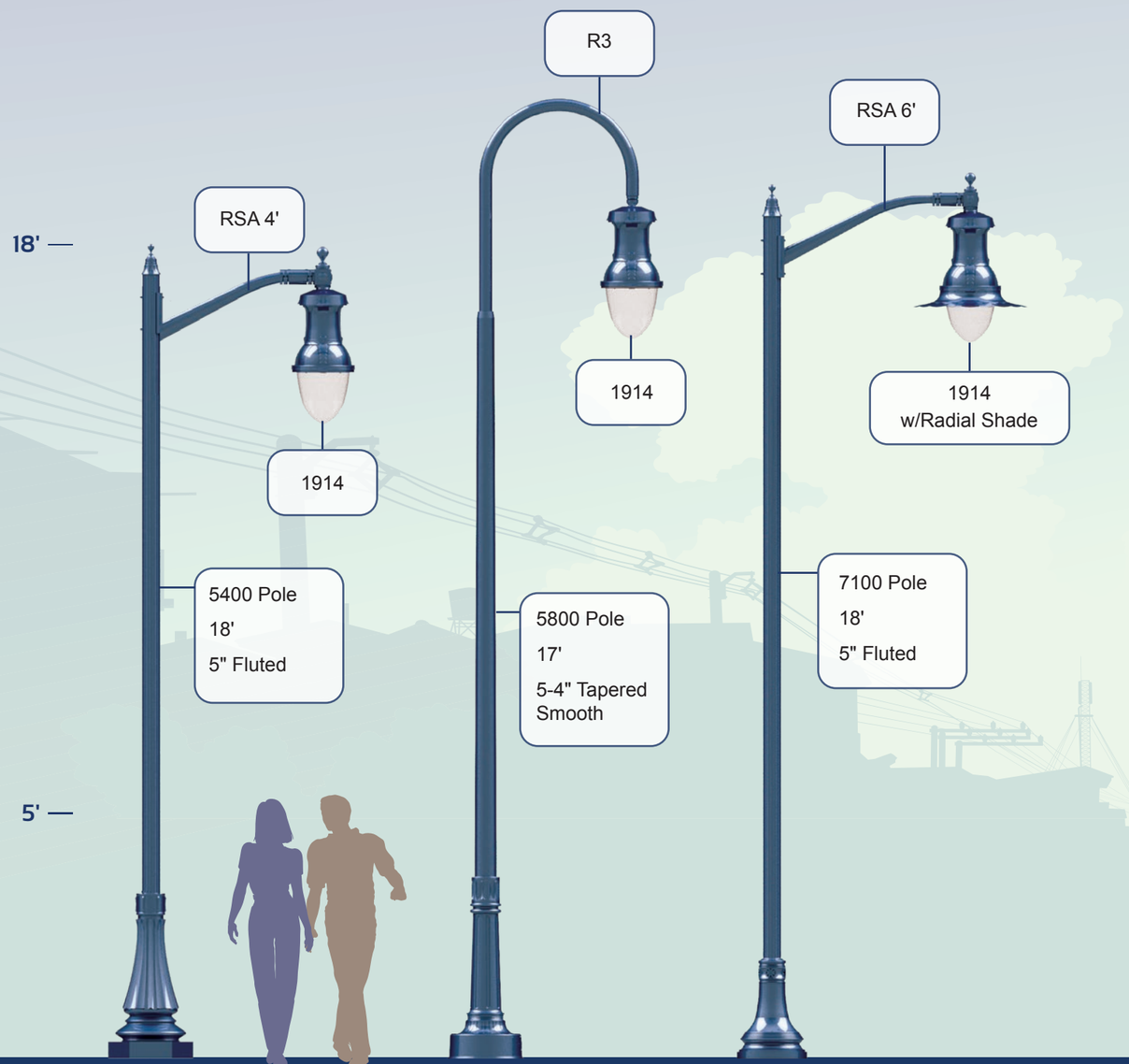
Lombard, IL
1914ALED
DAG Arm
9201 Oxford Base
Tapered Smooth Shaft

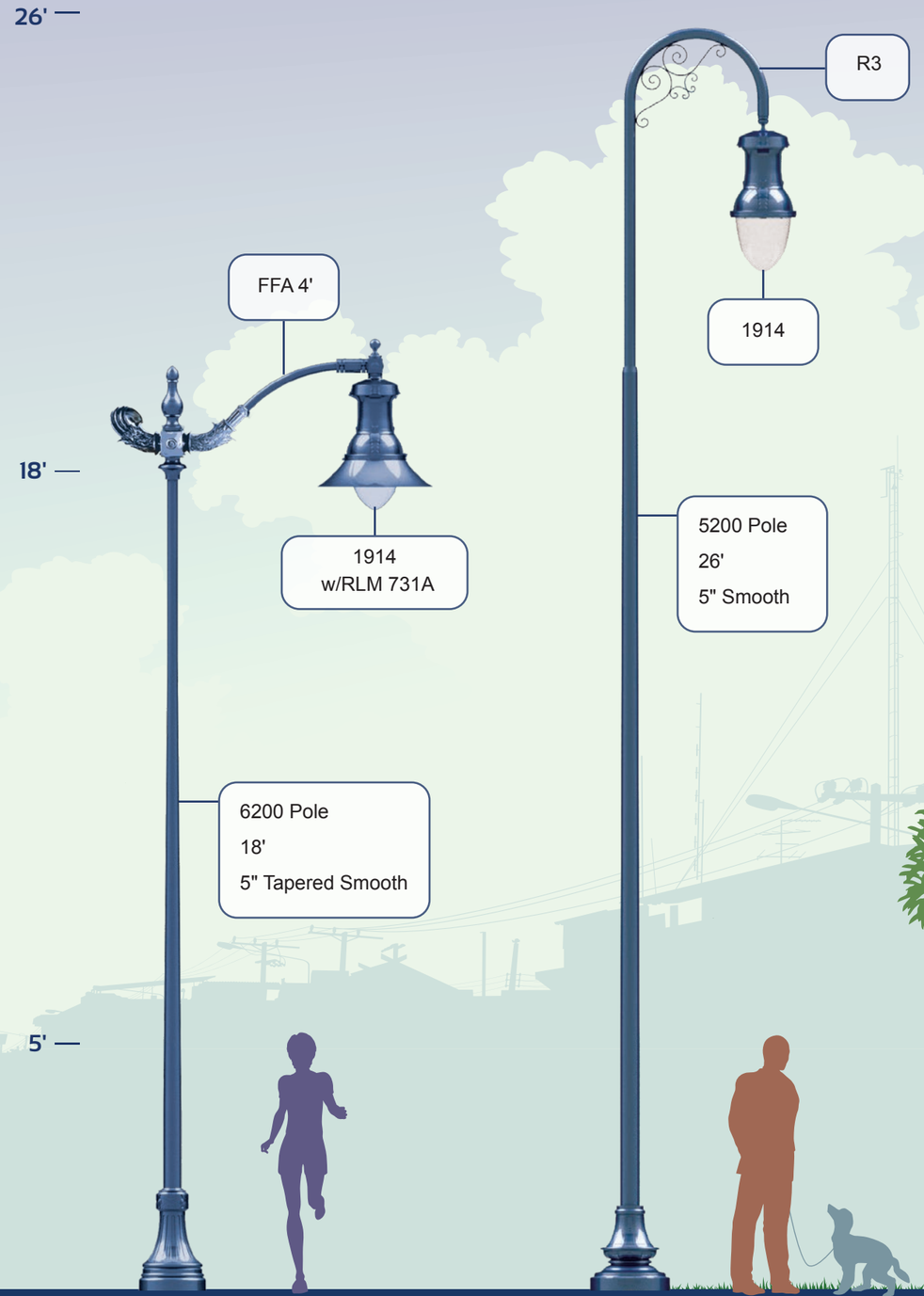
with MS805BLED
579PM Arm

Lehi, UT
1914 Libertyville/RLM731
R3 Arm w/Scroll
3300 Base
Straight Smooth Shaft

5th Ave. Naples, FL
1914 Libertyville/RWSL31
R2PM Arm
7700 Base
Tapered Fluted Shaft

1914LED Libertyville Configurations





Luminaire Options

Mounting Configuration

(Click here to link to mounting configuration specification page)

- 1W
- 1A
- 2A
- 2A90
- 3A
- 3A90
- 4A
- 1AM
- 2AM
- CAT

W = Wall Mount **A** = Arm Mount **AM** = Arm Mid-Mount
CAT = Catenary

Fixture

- 1914LED

Shade

- RLM431
- RLM731
- RWSL31

LED

- 1L
- 3L
- 4L

CCT - Color Temperature (K)

- 27(00)
- 30(00)
- 40(00)
- 50(00)

Type

- T2
- T3
- T4
- T5

Driver

- **MDL06** (120v-277v, 600mA)
- **MDH06** (347v-480v, 600mA) **(1L or 3L system)**
- **MDL07** (120v-277v, 700mA)
- **MDH07** (347v-480v, 700mA) **(3L system)**
- **MDL08** (120v-277v, 800mA)
- **MDH08** (347v-480v, 800mA) **(3L system)**
- **MDL09** (120v-277v, 900mA)
- **MDH09** (347v-480v, 900mA) **(1L, 3L or 4L system)**
- **MDL10** (120v-277v, 1050mA)
- **MDH10** (347v-480v, 1050mA) **(3L or 4L system)**
- **MDL12** (120v-277v, 1200mA)
- **MDH12** (347v-480v, 1200mA) **(1L or 4L system)**
- **MDL16** (120v-277v, 1600mA)
- **MDH16** (347v-480v, 1600mA) **(1L system)**

Lens

- **SG** (Sag Glass)
- **FSG** (Frosted Sag Glass)
- **A** (Ribbed Acrylic Teardrop)
- **G** (Glass Prismatic Teardrop)
- **SV1SA**[1] (Soft Vue Light Diffused Acrylic Sag)
- **SV2SA**[2] (Soft Vue Moderate Diffused Acrylic Sag)
- **SV4SA**[1] (Soft Vue Maximum Diffused Acrylic Sag)

[1] For use with systems up to **147w**.
[2] For use with systems up to **113w**.

Options (Click here to view accessories sheet)

- **R** 3-Pin control receptacle only
- **R5** 5-Pin control receptacle only
- **R7** 7-Pin control receptacle only
- **PE**[3] Twist-Lock Photocontrol (120v-277v)
- **PE3**[3] Twist-Lock Photocontrol (347v)
- **PE4**[3] Twist-Lock Photocontrol (480v)
- **SC**[3] Shorting Cap
- **PEC** Electronic Button Photocontrol (120v-277v)
- **PEC4** Electronic Button Photocontrol (480v)
- **FHD**[4] Double Fuse and Holder
- **HSHS** Standard horizontal hangstraight, spike finial
- **HSHN** Standard horizontal hangstraight, no finial
- **HSHB** Standard horizontal hangstraight, ball finial
- **HSCB** Clamp style hor. hangstraight, ball finial
- **HSCS** Clamp style hor. hangstraight, spike finial
- **HSCN** Clamp style horizontal hangstraight, no finial
- **EZ** Vertical hangstraight, large, "EZ" mount
- **HSV** Vertical hangstraight, standard
- **TB** Terminal Block
- **HSS** 120° House Side Shield

[3] Requires control receptacle [4] Ships loose for installation in base

Arm

See Arms & Wall Brackets specification sheets.

- R2[5]
- R3[5]
- CAF
- SMA
- CA
- CAS
- CSA
- RA
- FFA
- DAG

[5] Luminaires above grade height to be 2' taller than pole height

Finish

Standard Finishes[6]

- **BKT** Black Textured
- **WHT** White Textured
- **PGT** Park Green Textured
- **ABZT** Architectural Medium Bronze Textured
- **DBT** Dark Bronze Textured

[6] Smooth finishes are available upon request.

Custom Finishes[7]

- **CM** Custom Match
- **RT** Rust
- **CD** Cedar
- **TT** Two Tone
- **WBR** Weathered Brown
- **WBK** Weathered Black
- **OI** Old Iron

[7] Custom colors require upcharge.

Sternberg Select Finishes

- **VG** Verde Green
- **SI** Swedish Iron
- **OWGT** Old World Gray Textured

Specifications

Fixture

The 1914LED with an "A" lens shall be 17" wide and 35" tall. It shall be made of heavy wall cast aluminum alloy, and offer tool-less access to the driver compartment. The Luminaire shall be UL listed in the US and Canada. The optical mounting plate shall have precision cast mounting sites for COB chip and optic assemblies. Die-cast mounting plate shall have an integral high performance heat pipe assembly for transferring chip generated heat away from sensitive electronics.

Shade

An optional 31" spun aluminum shade is available in various styles which helps reduce uplight while offering a unique element to the fixture.

LEDs

The luminaire shall use high output, high brightness LED's, consisting of a two piece assembly complete with Chip on Board (COB) LED component and COB holder frame. The LED's and printed circuit boards shall be 100% recyclable; they shall also be protected from moisture and corrosion by a conformal coating of 1 to 3 mils. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. The High Performance white LED's will have a life expectancy of approximately 100,000 hours with not less than 70% of original brightness (lumen maintenance), rated at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K or 5000K option) color temperature with a minimum of 70 CRI. Consult factory for custom color CCT. The luminaire shall have a minimum _____ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F).

Optics

The luminaire shall be provided with individual, molded silicone refractor type optics applied to each COB (Chip On Board) LED assembly. The optic shall be at least 92% efficient while providing superior thermal, UV and impact resistance for the COB assembly. The optic ensures precise light control while providing cutoff control that limits or contains up-light. The luminaire shall provide Type ___ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

Electronic Drivers

The LED driver shall be U.L. Recognized. It shall be securely mounted inside the fixture, for optimized performance and longevity. It shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation. It shall have overload, overheat and short circuit protection, and have a DC voltage output, constant current design, 50/60HZ. It shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It shall be a high efficiency driver with THD less than 20% and a high power factor greater than .9. It shall be dimming capable using a 0-10v signal, consult factory for more information.

For sources over 50w: The driver shall have a minimum efficiency of 90%. The driver shall be rated at full load with THD<20% and a power factor of greater than 0.90. The driver shall contain over-heat protection.

For sources under 50w: The driver shall have a minimum efficiency of 88%.

Lens

Materials include DR Acrylic (A), Acrylic (SV1S, SV2S, SV4S) or Glass (G, SG & FSG). An injection, molding process for the (A) teardrop lens adds textured ribs to the surface for glare mitigation and even wall thickness for impact resistance.

Photocontrol Options

Button Style: On single fixtures the photocontrol shall be mounted in the body and pre-wired to driver. On multiple head fixture assembly's photocontrol shall be mounted in the pole shaft on an access plate. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

Twist-Lock Style: The photocontrol shall be mounted in the body of the fixture and pre-wired to ballast. The twist lock type photocontrol is instant on with a 3-6 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

Warranty

Seven-year limited warranty. See product and finish warranty guide for details.

Finish

Refer to website for details.

Hangstraight Options

CLAMP STYLE ARM MOUNT

To slip fit 8" long by 2-3/8" OD on horizontal tenon.

HSCB
Hangstraight, clamp style, BALL finial

HSCB-R-PE
Hangstraight, clamp style with BALL finial, twist-lock receptacle, photocell in decorative cap.

HSCS
Hangstraight, clamp style, SPIKE Finial

HSCS-R-PE
Hangstraight, clamp style with SPIKE finial, twist-lock receptacle, photocell in decorative cap.

HSCN
Hangstraight, clamp style, NO Finial

HORIZONTAL ARM MOUNT

To slip fit 4" long by 2-3/8" OD on horizontal tenon.

HSHB
Hangstraight, horizontal, BALL finial

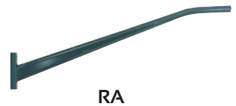
HSHB-R-PE
Hangstraight, horizontal with BALL finial, twist-lock receptacle, photocell in decorative cap.

HSHS
Hangstraight, horizontal, SPIKE Finial

HSHS-R-PE
Hangstraight, horizontal with SPIKE finial, twist-lock receptacle, photocell in decorative cap.

HSHN
Hangstraight, horizontal, NO Finial

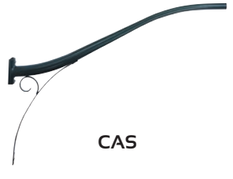
Arm Options



RA

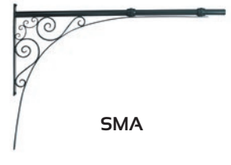
R2/R3

CSA



CAS

RSA



SMA

CA/CAF

FFA

DAG

For additional arms consult factory.

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Sternberg Lighting has created a legacy of old world craftsmanship that dates back to the company's inception in 1923. The work ethic and product innovations that made the early Sternberg company successful are still being practiced by our employees today. Our dedicated staff, attention to detail, and quality production processes are what make Sternberg a world class company.

Sternberg Lighting serves the municipal, landscape, higher education and commercial markets providing efficient and cost effective lighting solutions to the outdoor market.

See our complete catalog online at:
www.sternberglighting.com

SternbergLighting
ESTABLISHED 1923

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