

Sternberg Libertyville 1914LED





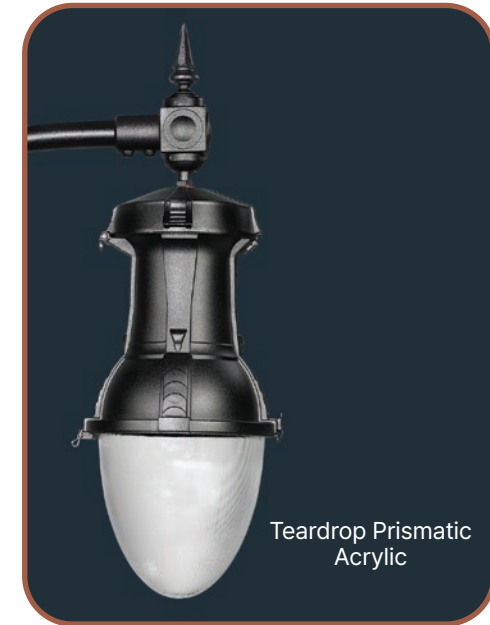
LIBERTYVILLE COMPONENTS

- 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

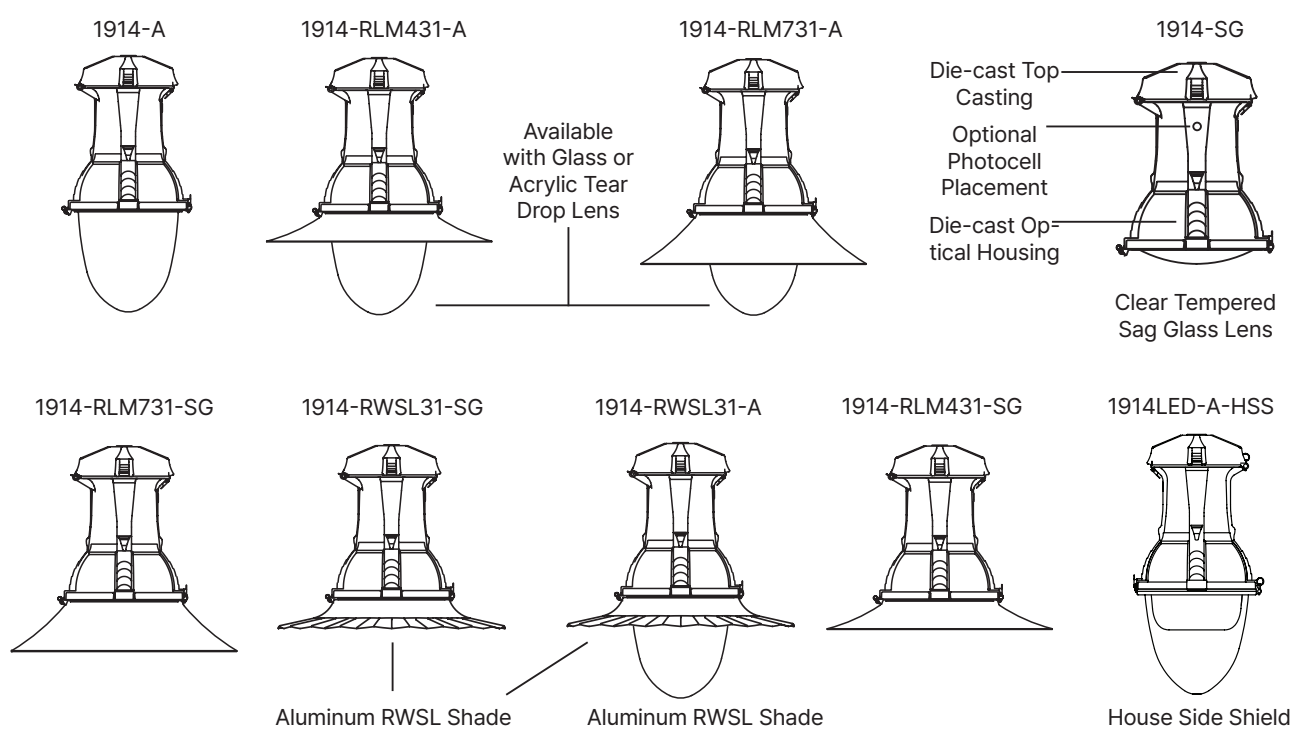


Teardrop Prismatic Acrylic

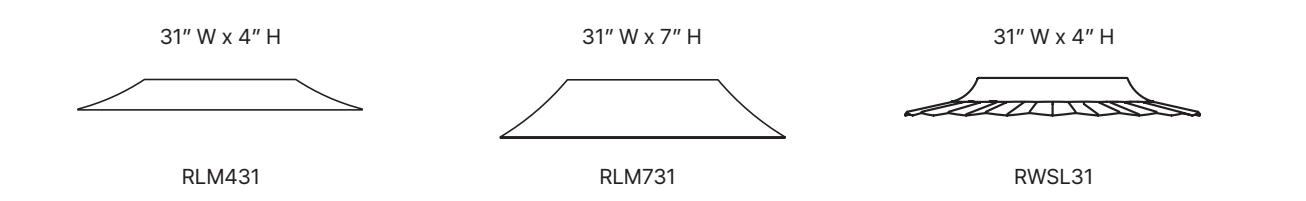


Sag lens options:
Clear Sag, Frosted Sag,
SoftVue 1 Light Diffusion,
SoftVue 2 Medium Diffusion

Fixture Options



Shade Options



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.

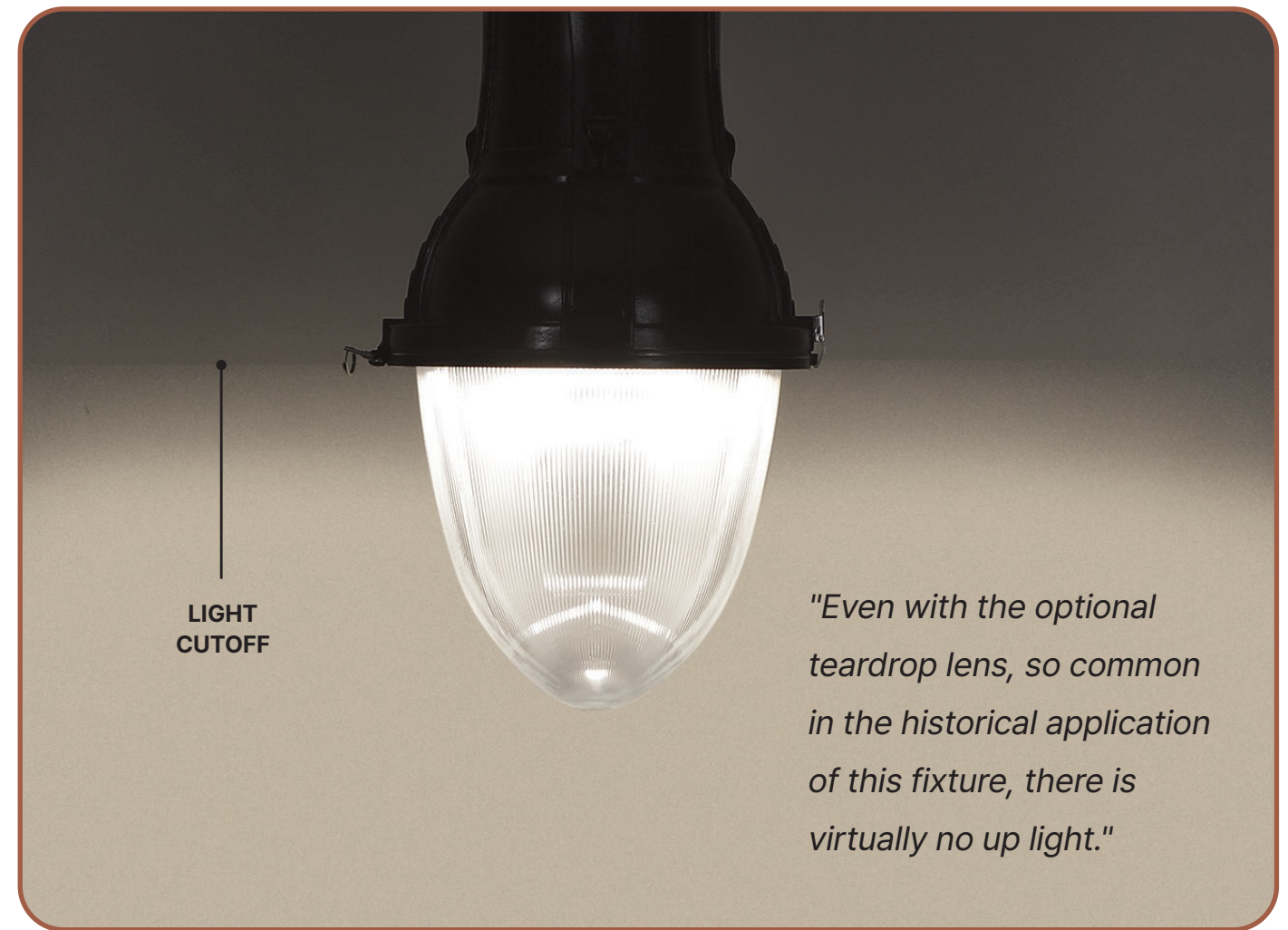
SV1 Ideal application would be in mounting heights of 16 to 20 feet where a high degree of visual acuity is needed but there is moderate pedestrian traffic.



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.

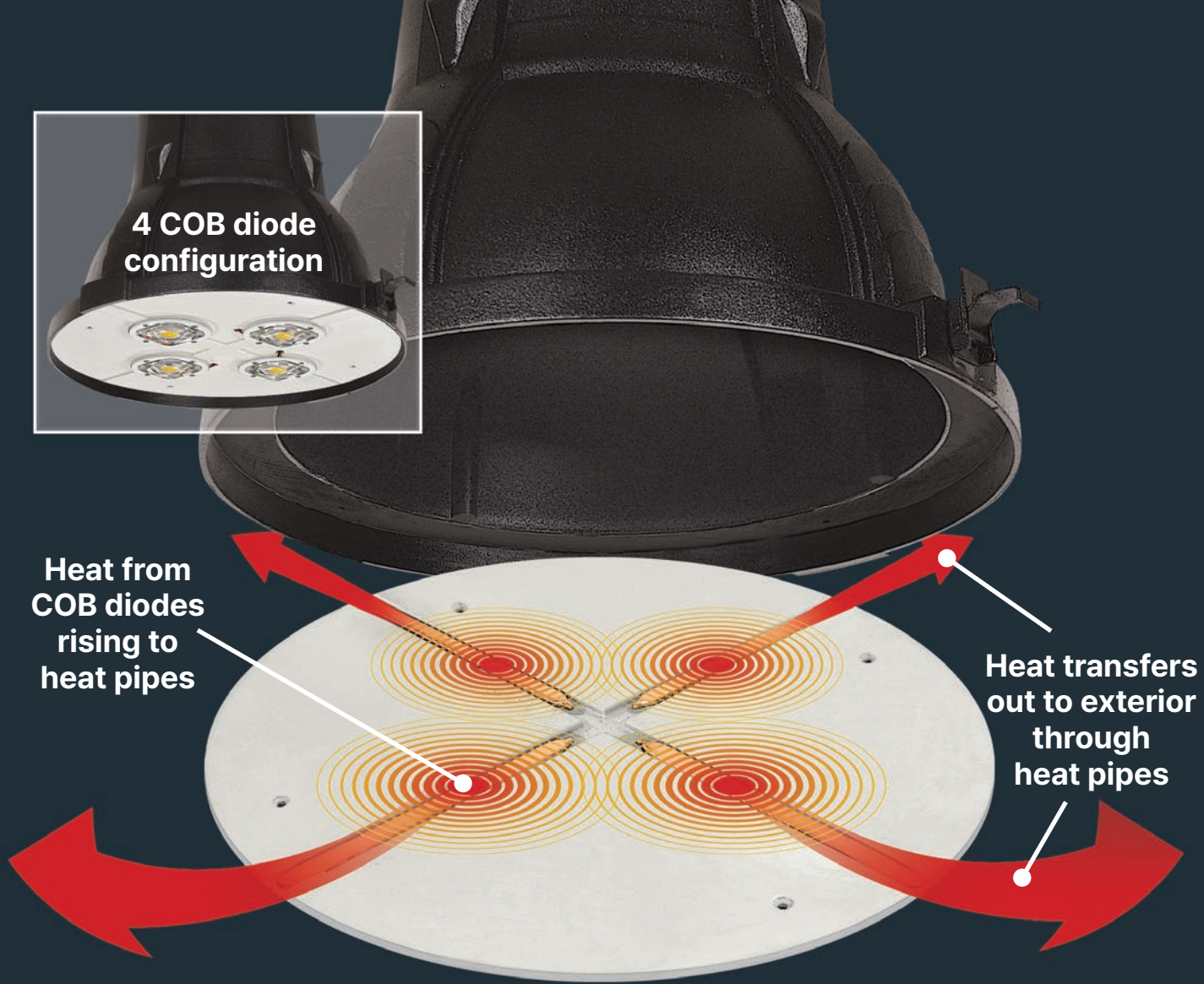
Where BUG requirements or local codes are restrictive, the 1914LED does have a sag lens option, as well as several decorative shades designed to completely eliminate up light.



4 COB diode configuration

Heat from COB diodes rising to heat pipes

Heat transfers out to exterior through heat pipes



Sternberg's 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?

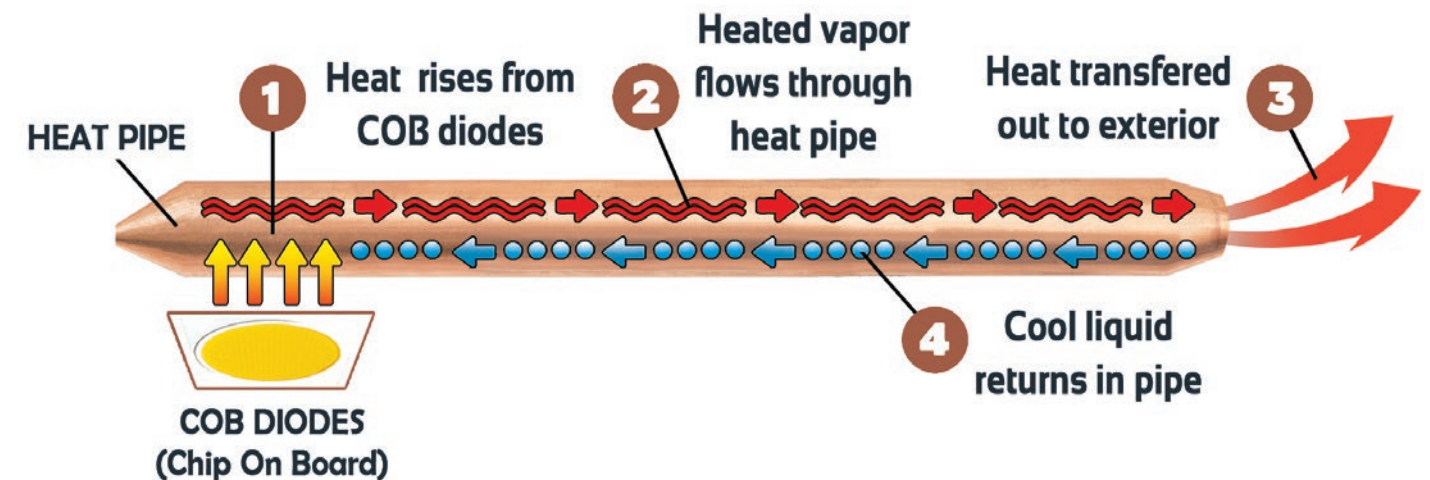
A heat pipe is a simple tool, but how it works is quite ingenious. These devices are sealed vessels that are evacuated and backfilled with a working fluid, typically in a small amount. The pipes use a combination of evaporation and condensation of this working fluid to transfer heat in an extremely efficient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

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.

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

How Sternberg's Heat Pipe Thermal Management Works



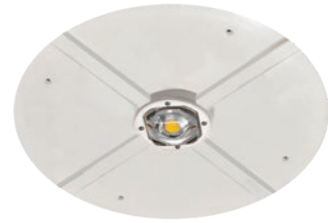
Libertyville COB Options

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.

LED CONFIGURATION

Correlated color temp options (CCT)
2700K, 3000K, 4000K, 5000K



1L Single COB

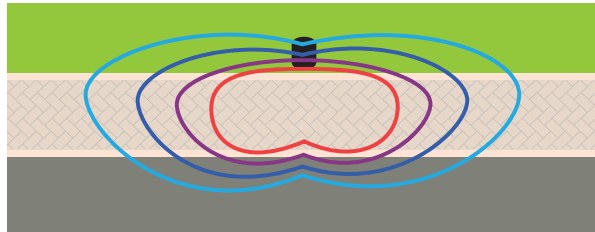


3L Three COB



4L Four COB

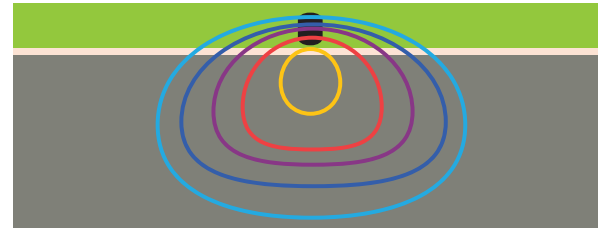
IES: Distribution Types



IES TYPE II

For roadway areas located by the roadside.

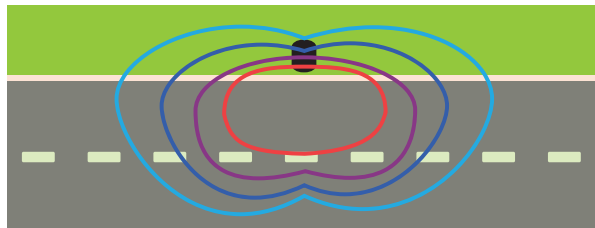
- Wide Sidewalks
- Entrance Roadways
- On Ramps
- Bike Paths



IES TYPE IV

Produces a forward throw semicircular distribution.

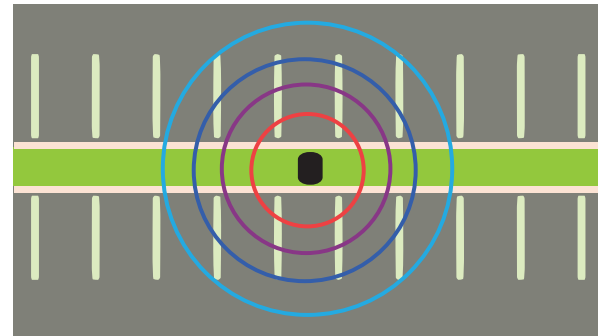
- Side of buildings/walls
- Perimeter of parking areas



IES TYPE III

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

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



IES TYPE V

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

- Center of Roadways
- Center Isle of Parkway

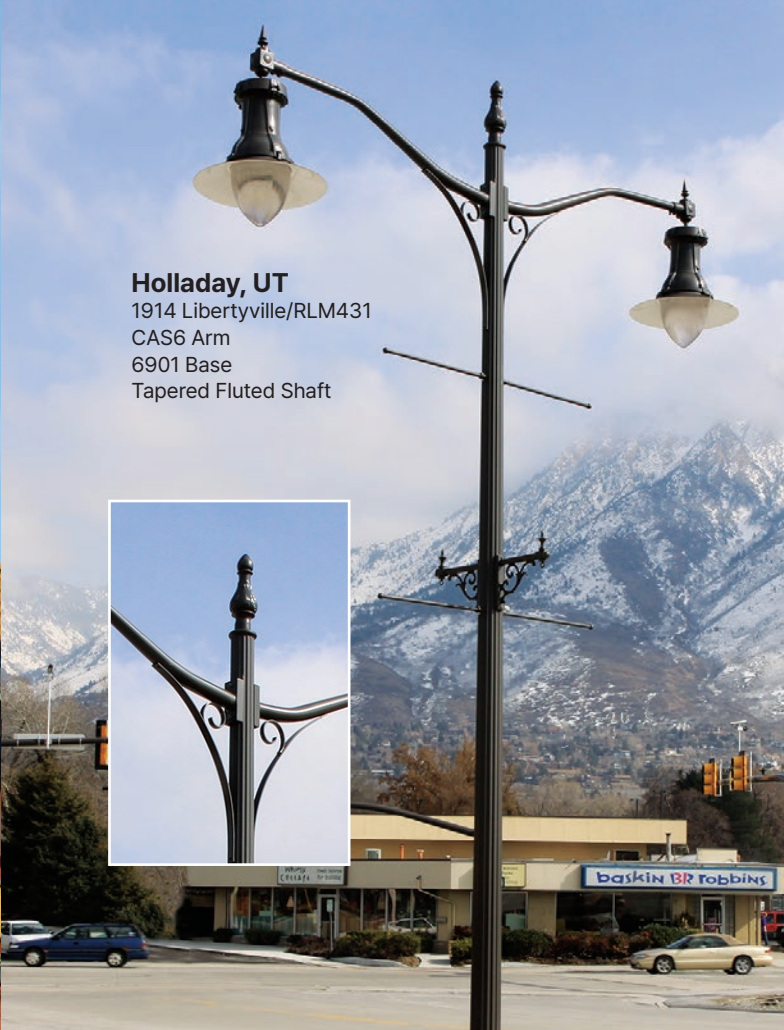




San Angelo, TX
191LED Libertyville/RLM731-G
CAF Arm
2201SS Stratford Pole



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



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



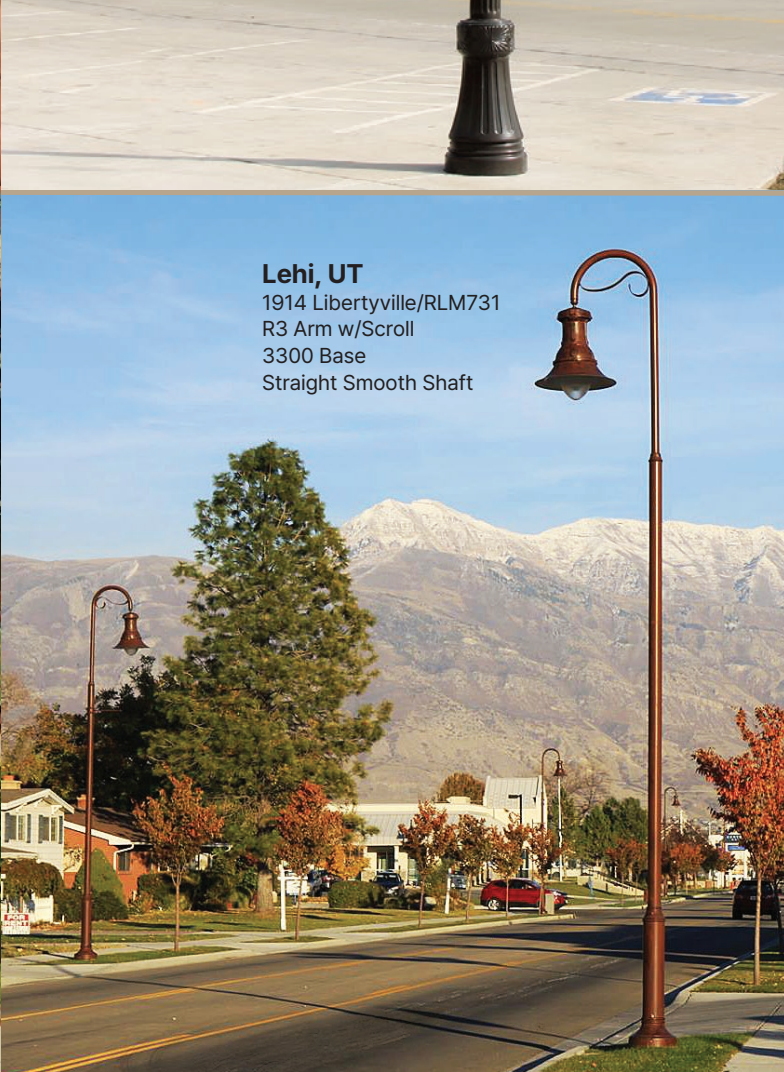
Frisco Market Center, TX
1914 Libertyville
Custom Arm
9201 Base
Tapered Fluted Shaft



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



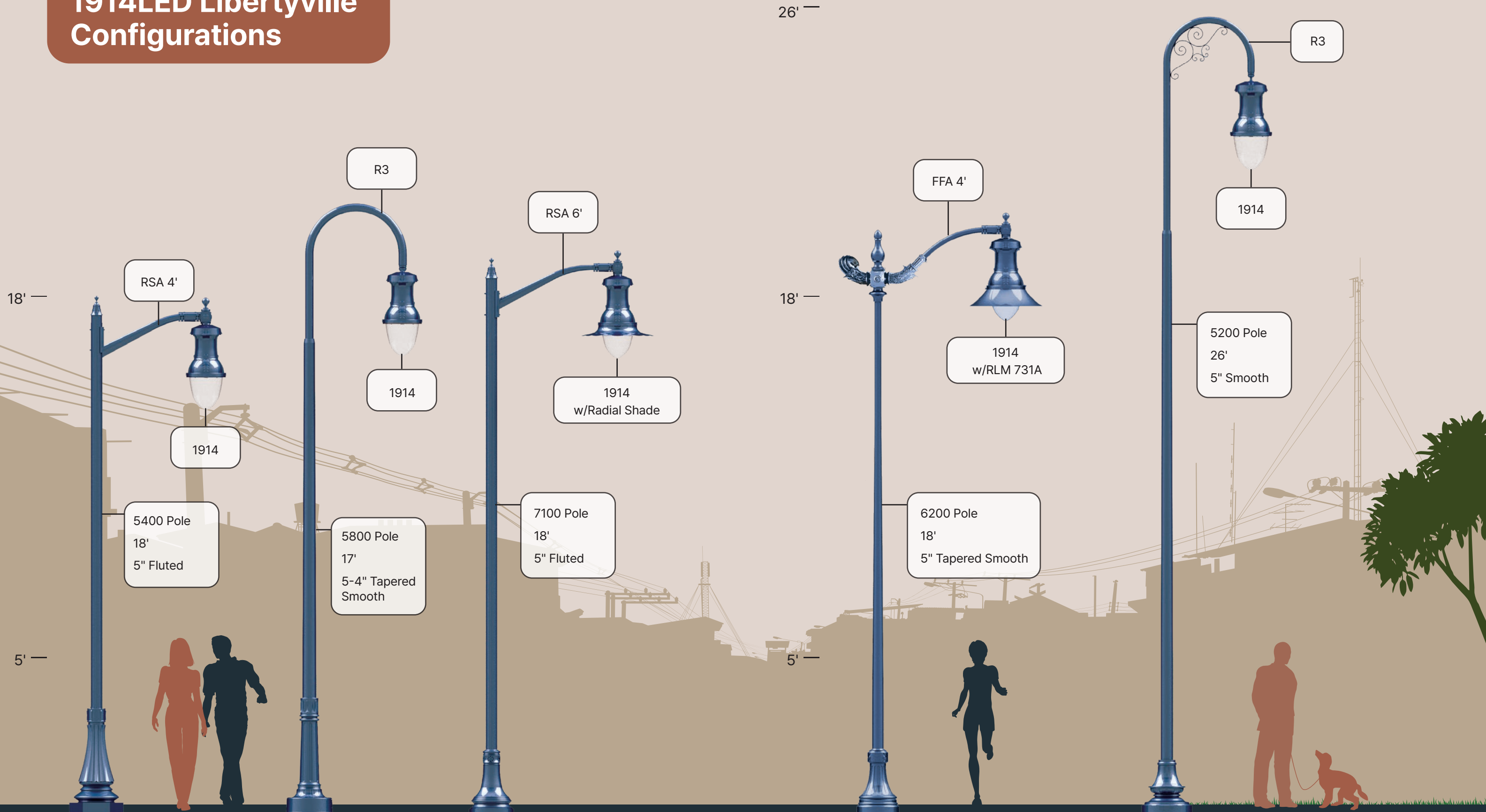
5th Ave. Naples, FL
1914 Libertyville/RWSL31
R2PM Arm
7700 Base
Tapered Fluted Shaft



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



1914LED Libertyville Configurations





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

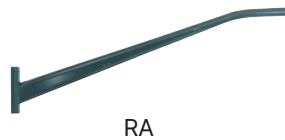


HSHS-R-PE
Hangstraight, horizontal with SPIKE finial, twist-lock receptacle, photocell in decorative cap.



HSHN
Hangstraight, horizontal, NO Finial

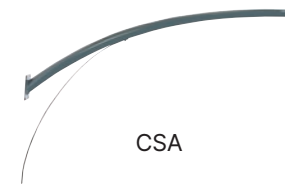
Arm Options



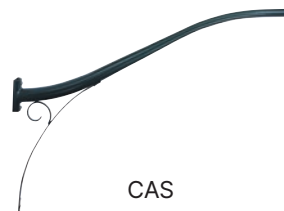
RA



R2/R3



CSA



CAS



RSA



SMA



CA/CAF



FFA



DAG

For additional arms consult factory.



Libertyville 1914LED

Located in Roselle, Illinois
Engineered, Tested and Assembled in the USA!

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



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