



PSL
PARKING STRUCTURE LUMINAIRE

THE ARCHITECTURE OF FORM AND LIGHT

PSL PARKING STRUCTURE LUMINAIRE

THE TASK DEFINED

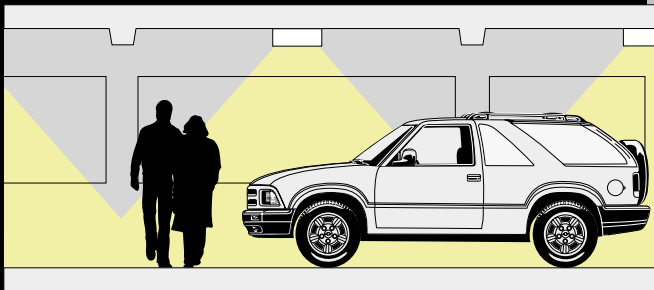
A parking garage is not a parking lot, at least when it comes to lighting. A parking garage is a long, narrow interior space with walls, beams and ceilings and therefore is a more complex visual and psychological environment. It's one of the few places where vehicles and pedestrians intermix in close, cramped quarters and a multitude of visual tasks exist simultaneously.

McGraw-Edison®



PARKING GARAGE LUMINAIRES HAVE BEEN DIVIDED INTO TWO CLASSIC TYPES. FIRST, THE REFLECTOR OR CUTOFF LUMINAIRE. (FIG. 1)

FIG. 1

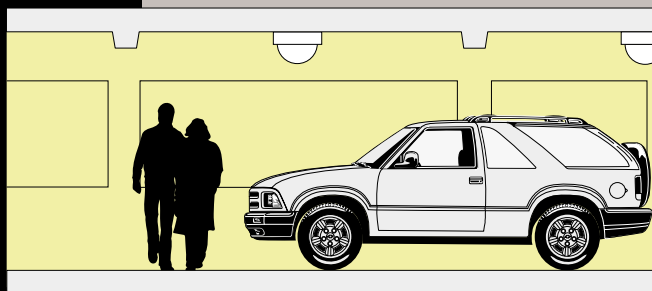


This cutoff luminaire provides good maintained horizontal footcandles and has very sharp cutoff to limit light into drivers and pedestrians eyes. It falls short at elevations above the horizontal, where vertical foot-candles are on walls, ceilings, cars and people. Lighting concerns with these products ranged from its strobe effect to getting enough illumination between parked cars and between fixtures.

THE SECOND TYPE OF FIXTURE HISTORICALLY USED IS THE REFRACTOR SYSTEM. (FIG. 2)

Refractors bathe the interior of the garage, walls, ceilings and cars in uniform vertical illumination. However, refractor systems are known for throwing light everywhere indiscriminately, meaning excessive brightness for the driver, the pedestrian and the outside world.

FIG. 2



MCGRAW-EDISON

Brings a fourth dimension into the three-dimensional lighting of the garage environment: that of comfort. The McGraw-Edison PSL luminaire combines both attributes of reflector and refractor into one unit. It provides proper 3-D illumination for the visual tasks involved as well as allowing designer control over driver glare and light trespass.



EXIT on Level 1



IES RECOMMENDATIONS

The IES now recognizes that lighting a parking garage is a three-dimensional task and therefore requires three-dimensional illumination.

In recognition of the multitude of visual tasks that need to be accomplished in a parking garage, the inclusion of vertical footcandles is a critical element of quality illumination in parking garage environments.

Low mounting heights mean a fixture must offer a wide distribution along with excellent glare control. In addition, a broad, even coverage of light is even more difficult to achieve because of the limited mounting height (often less than 7'), parking density of vehicles, signage, shadows of columns and vehicles, and difficulty in maintaining surface reflectance and cleanliness of parking garage fixtures. With this in mind, the PSL series garage luminaire has been developed to provide excellent vertical illumination, without sacrificing good visibility for vehicular and pedestrian traffic.



IES RECOMMENDATIONS

(MAINTAINED ILLUMINATION FOR PARKING GARAGES)

	Minimum Horizontal		Max./Min. Horizontal Uniformity Ratio	Minimum Vertical	
	Lux	fc		Lux	fc
Basic	10	1.0	10:1	5	0.5
Ramps					
Day	20	2.0	10:1	10	1.0
Night	10	1.0	10:1	5	0.5
Entrance Areas					
Day	500	50		250	25
Night	10	1.0	10:1	5	0.5
Stairways	20	2.0		10	1.0

NOTE: Consult IES RP20 for complete guidelines on parking garage lumination.

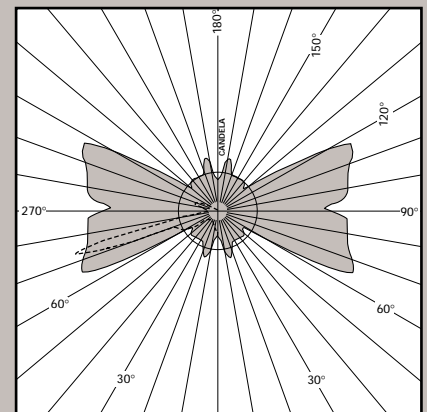
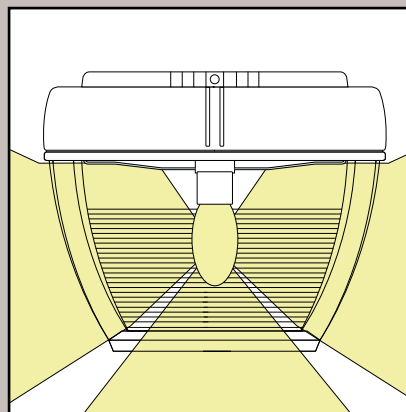
The IES, in its recently revised metric for parking garages, RP20 '98, has added an important element in its consideration of designing lighting for parking garages—vertical footcandles. It is now realized what the vertical footcandle does to the visual environment. Classically, horizontal footcandles have been the only criteria for the design of parking garages, whether at the horizontal floor plane of 30", 42" or even 72" above the floor. However, the horizontal footcandle does not go far enough in providing a comfortable environment for the multitude of visual tasks in the parking garage.

THERE ARE THREE (3) MAIN VISUAL TASKS INVOLVED:

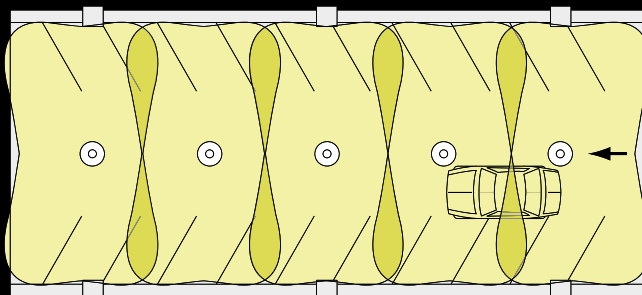
- 1) Providing enough illumination for the driver of the car to safely negotiate the garage while avoiding pedestrians.
- 2) Enabling pedestrians' to visually identify their cars, as well as providing a feeling of safety and security.
- 3) Containing light within the structure, so that no wasteful, glaring light is emitted into the surrounding neighborhood (*light trespass*).

PSL'S 3-D ILLUMINATION IS PROVIDED BY UNIQUELY SHAPED OPTICS:

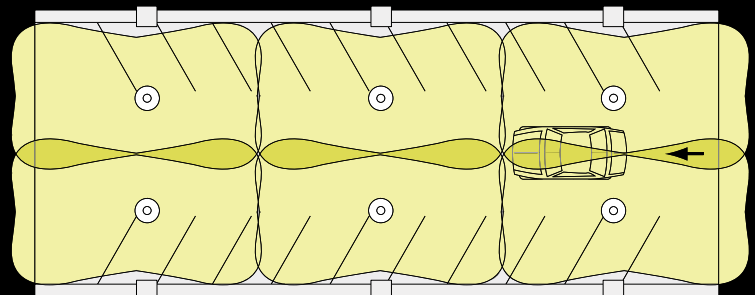
- Refractors become more efficient when they have to deviate light the least. The overall contour of the refractor was designed to minimize the depth of the prism, which minimizes dirt accumulation and maximizes light transmission due to Snell's Law.
- The concave bottom was designed to maximize fixture throw while minimizing surface brightness. The light that leaves this lower surface is minimal directly from the lamp, but becomes maximum when used with glare guards for the driver-side shielding.
- An uplight window has been provided with the reflector system for a uniform quantity of uplight for ceiling and wall illumination. PSL maximizes the uniform spread of light across the ceiling, reducing the visual cave effect of a parking garage.



SINGLE-ROW CONFIGURATION



DOUBLE-ROW CONFIGURATION



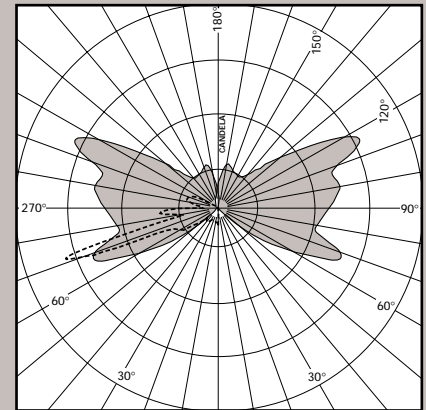
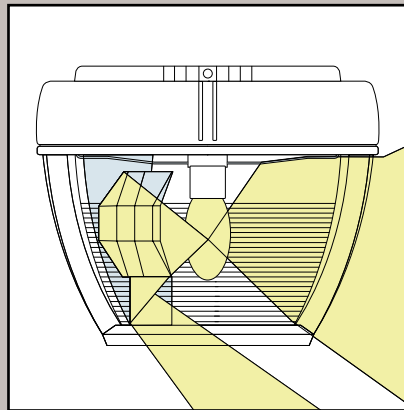
The glass refractor has an asymmetric Type II distribution and is designed to throw light into the corners of a rectangular parking bay. It can be used in single-row and double-row configurations. A quick-mounting bracket provides proper orientation for fixture mounting to provide the correct optical distribution. One fixture can be used for both single- and double-row installations.

PSL SYSTEM—GLARE GUARD

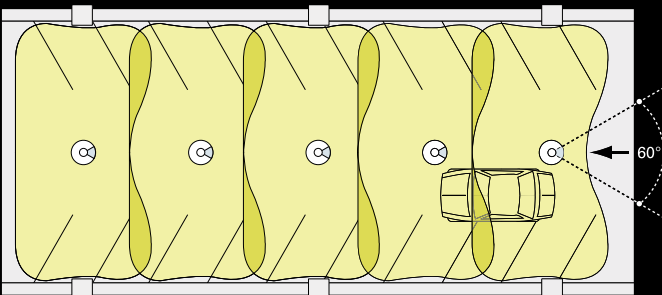
GLARE GUARD

Glare guards provide increased visibility for the driver. Excessive direct glare, a function of lamp wattage, fixture placement and distribution, can cause discomfort and disability glare, a dangerous distraction for drivers and pedestrians. PSL glare guards diminish this distraction for drivers, increasing their visual comfort and visibility.

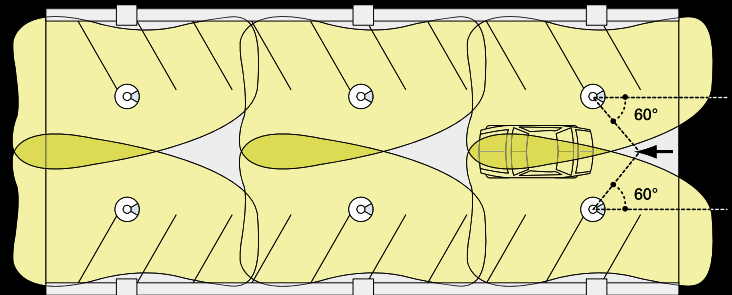
Field-installable internal glare guards redirect a 60° horizontal segment of light emitted towards the driver into the pedestrian walkways and driving stalls. These specular, faceted inserts redirect light around the lamp to minimize the arc tube voltage rise through the upper prism structures and the lower concave prism profile. They clip into preset labeled locations and lock into place without tools, yet cannot be removed during normal maintenance. They are ideal accessories for providing an optimized driving environment.



SINGLE-ROW CONFIGURATION



DOUBLE-ROW CONFIGURATION



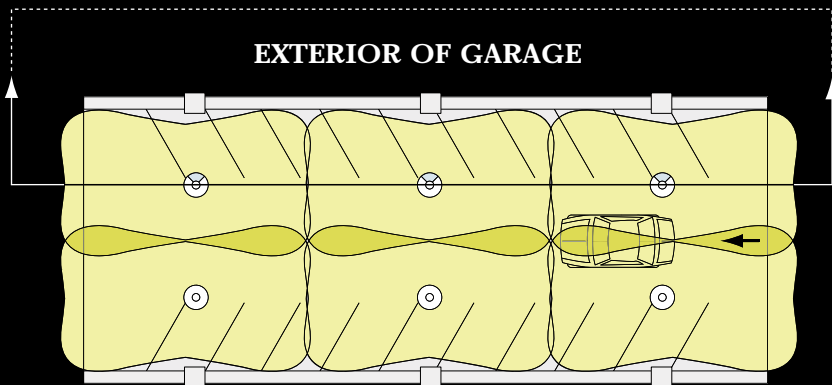
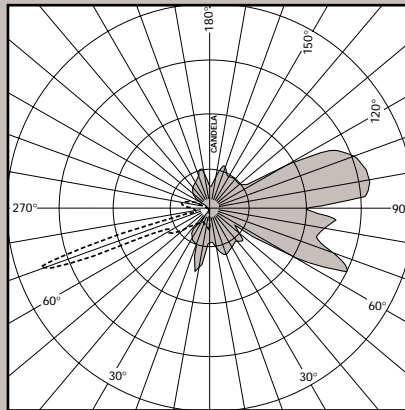
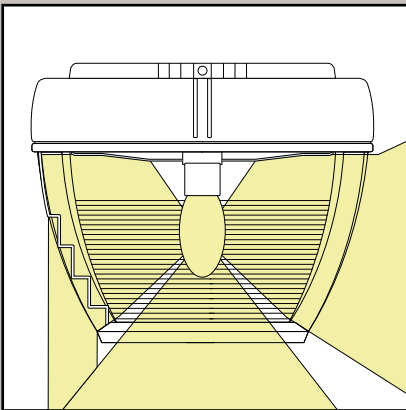
Glare guards are ideal for single- and double-row installations. The 60° segments lock into preset locations without tools and can be installed at any time. The light is redirected into the walkways and stalls. Glare guards may even be installed in pairs for two-way traffic areas for complete driver light control.

PSL SYSTEM—LIGHT TRESPASS SHIELD

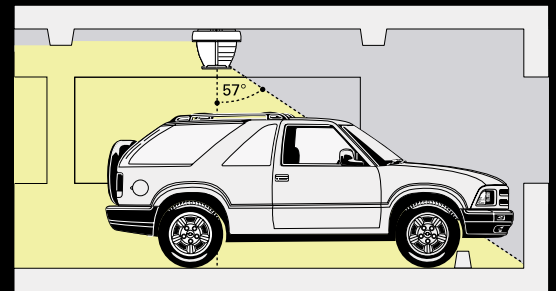


LIGHT TRESPASS SHIELD

Light trespass shield cuts off any illumination towards the exterior of the parking garage. Designed into 90° horizontal quadrants, they are field installable and remain in place during maintenance. These louvers are designed to cutoff the vertical angles of light above 57° and can be used in combination with glare guards and in any position depending on a fixture's orientation.



SECTION OF INTERIOR

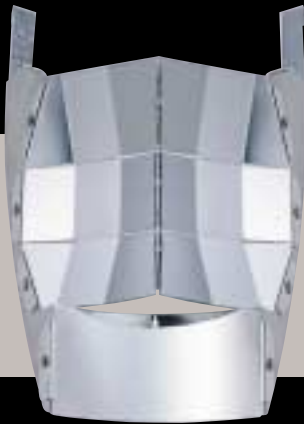


Light Trespass Shields (LTS) are designed to provide 57° cutoff, the angle found in the double-row system between the fixture and the edge of the parking deck. Older garages may not have the 42" stall wall found in newer garages.

SPECIFICATION FEATURES

ANTENNA GUARD

Cast low copper marine-grade aluminum is precision formed. Extra-heavy wall thickness (min. 0.44") provides exceptional protection from car antennas and vandalism.



LIGHT TRESPASS SHIELD

Cast low copper (min. 0.187") marine-grade aluminum with extra-heavy wall thickness provides exceptional light control in 90° horizontal segment. Light is cutoff in the 57° to 90° vertical angle. Installs with two (2) screws.

MOUNTING

Choice of either quick J-box mounting with circular J-box plate (standard) or four (4) 1/2" conduit taps with CT options. Mounting plate has alignment arrows for proper orientation. Fits standard 4" J-box. Fixture locks into place without tools.



TAMPER-PROOF

One tamper-proof screw releases entire fixture for field maintenance. Entire fixture does not need to be disassembled for removal when used with J-box mounting.

GLARE GUARD

Internal faceted specular aluminum reflector with 95% total reflectivity redirects a 60° horizontal segment of light along the driving lane and into parking stalls. Installs without tools internal to refractor into preset locations for single- and double-row installations.

TORSION SPRINGS

Relamping springs allow the refractor to be retained during relamping. Springs hold weight of refractor while releasing/tightening access screws.

LENS GASKETS

Liquid injection molded silicone gasket provides continuous seal between housing and refractor assembly.



EASY ACCESS

The PSL's optical housing can be easily removed for access to electrical components.

HOUSING

Die-cast, low copper, marine-grade alloy (A360) aluminum is precision formed. Extra heavy wall thickness (min. 0.123") housing provides exceptional heat sinking to keep components cool. Screw bosses are cast into back of housing for structural integrity.

WIRING

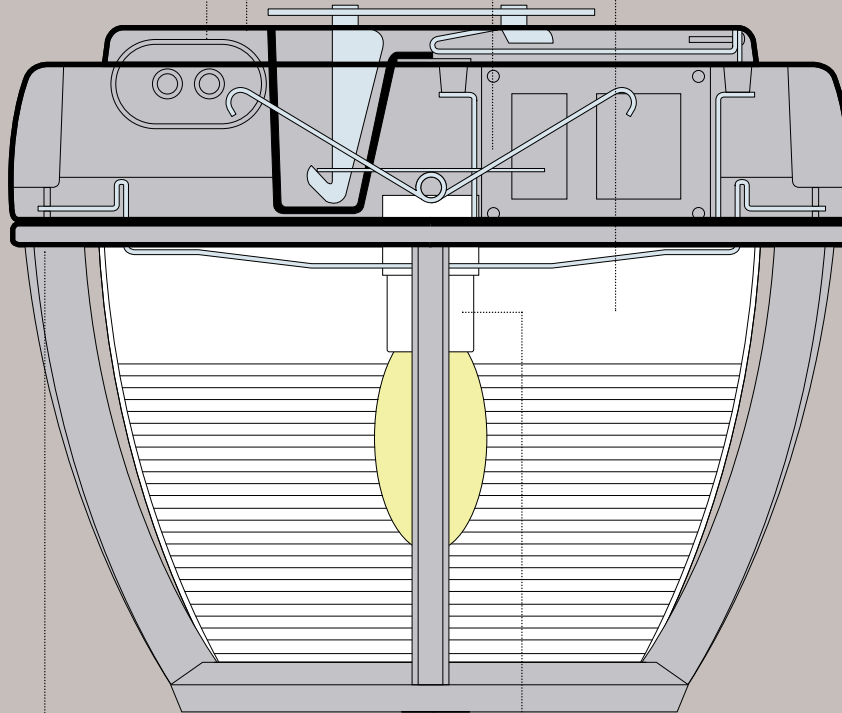
Plug Ease™ wiring system; lead wires are encased in a liquid injection-molded silicone gasket, which provides water-and dust-tight seal between housing and junction box.

BALLAST

HID—HPF, -20° starting Dual-Tap standard. For use with up to 175W Metal Halide lamp, 150W High Pressure Sodium or 85W QL Induction.

OPTICS

Molded tempered borosilicate glass refractor. Glass shock-absorbing system consists of 16 gauge steel ring to support the full round lens; the lens floats on the injection-molded silicone gasket for additional protection. Main specular aluminum reflectors are one-piece spun and upright window provides a wide distribution of uplight.

**HARDWARE**

Stainless steel Philips head fasteners. Recessed screw heads on casting. Fasteners are captive in the die-cast during relamping and sealed via silicone gasket. Gaskets compress for proper sealing.

SOCKET

HID—4KV pulse rated medium-base with nickel-plated screw shell.

LENS GASKETS

Liquid injection-molded silicone gasket provides continuous seal between housing and refractor assembly.

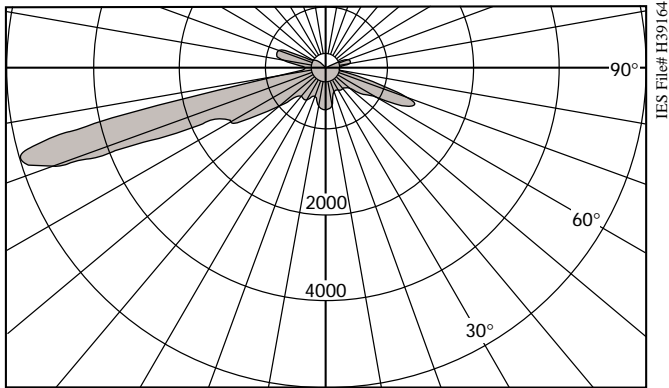
LABELS

cUL listed for wet locations in all mounting positions; IP65 rated.

FINISH

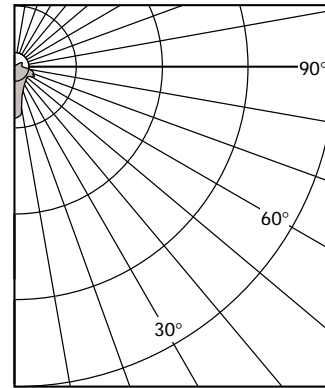
Fixture is painted white to minimize contrast borders between the fixture and the ceiling plane, allowing the units visual luminance to blend in. Premium TGIC textured thermoset polyester powder coat finish protects and provides a durable, rugged finish. 500-hour salt spray test. Applied in a five-stage finishing process.

PHOTOMETRICS

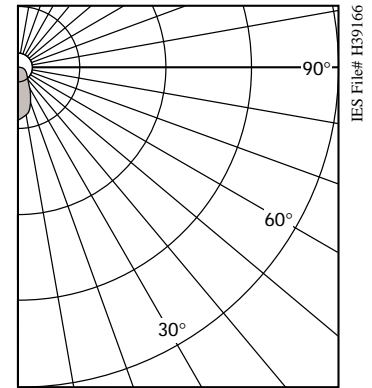


Maximum CD Throw

Driving Aisle

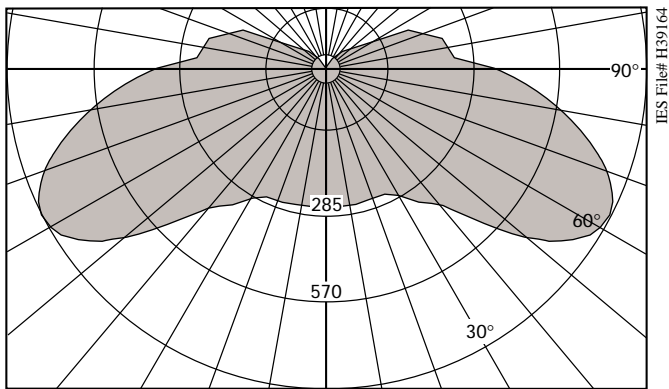


Driver Aisle with GG60



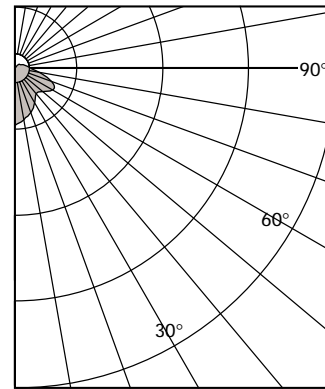
Side Throw with LTS

PSL-175-MH-MT / 175-Watt Metal Halide / 14,400-Lumen Clear Lamp



Maximum CD Throw

Driving Aisle

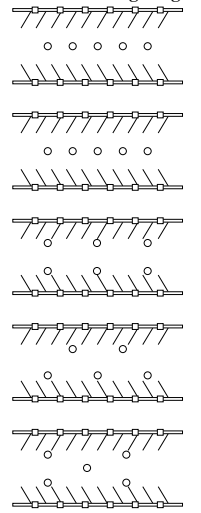


Driver Aisle with GG60

PSL-85-QL / 85-Watt QL Induction / 6,000-Lumen Diffuse Lamp

APPLICATION DATA

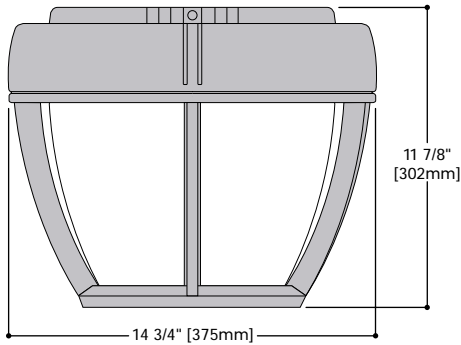
60' Wide Bays,
8'-10' Mounting Height



Layout	Spacing	Lamp Wattage	Ave. fc	Horizontal Min. fc	Max./Min.	Vertical Min. fc @ 5'
Single Row	20' Spacing	175W Metal Halide 14,400 Lumens	5.1	2.0	9.8	2.8
Single Row with GG60	20' Spacing	175W Metal Halide 14,400 Lumens	5.2	2.1	9.8	3.0
Double Row	40' Spacing/ 30' Separation	175W Metal Halide 14,400 Lumens	2.8	1.1	7.2	1.0
Alternating Double Row	20' Spacing/ 30' Separation	100W Metal Halide 8,500 Lumens	2.8	1.1	6.9	0.9
Combination 2/1 Row	30' Spacing/ 30' Separation	100W Metal Halide 8,500 Lumens	2.8	1.2	7.2	0.6
Double Row With GG60	40' Spacing/ 30' Separation	85W QL 6,000 Lumens	2.2	1.0	4.1	1.1

Reflectance: 20% Floor, 0% Walls, 20% Ceiling

DIMENSIONS



ORDERING INFORMATION

SAMPLE NUMBER: PSL-175-MH-MT

PSL						
Product Family PSL=Parking Structure Luminaire	Lamp Wattage 70=70W 85=85W ¹ 100=100W 150=150W 175=175W 200=200W ²	Lamp Type MH=Metal Halide MP=Pulse Start Metal Halide ³ HPS=High Pressure Sodium QL=Electroless Fluorescent ¹	Voltage 120 208 240 277 480 MT=Multi-Tap wired 277V ³ TT=Triple-Tap wired 347V ⁴ DT=Dual-Tap wired 347V ⁵	Options (add as suffix) F=Single Fuse (120, 277, 347V) ⁶ FF=Double Fuse (208, 240, 480V) ⁶ Q=Quartz Restrike (Hot Restrike Only) EM=Emergency Separate Circuit TR=Tamper Proof L=Lamp Included CT=Conduit Taps PL=Polycarbonate Lens ⁷ (UV Inhibitor Applied)	Optional Colors (add as suffix) ⁸ AP=Grey BZ=Bronze WH=Architectural White BK=Black	Accessories (order separately) BGL=Bird Guard GG60=Glare Guard TM=Trunnion Mount Kit LTS=Light Trespass Shield

Catalog Number	Lamp Wattage	Lamp Type/Base	Ballast Type	Net Wt (lbs)
PSL-100-MH-120	100	MH	120	31
PSL-100-HPS-120	100	HPS	120	31
PSL-150-HPS-MT	150	HPS	MT	34
PSL-175-MP-MT	175	MP	MT	34

NOTE: ¹ 85W QL Electroless Fluorescent only. 120 or 240V only.
² 200W only.
³ Multi-Tap 120/208/240/277V, wired 208 and 240V.
⁴ Triple-Tap 120/277/347V, wired 120V, 277V, 347V.
⁵ Dual-Tap 120/277V, wired 120 and 277V.
⁶ When specifying F & FF option with the TT or MT Ballast type specify which voltage to be fused. PSL-175-MH-MT-F1-277.
⁷ Maximum use of (2) GG60's or (2) LTS accessories when used with wattages in excess of 100W.
⁸ Other finish colors available. Consult McGraw-Edison Architectural Colors brochure.

OPTIONS



QL85 INDUCTION
ELECTRODLESS FLUORESCENT



GG60
GLARE GUARD



LTS
LIGHT TRESPASS SHIELD



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MWS

