

# PATRIOT™ SERIES

SOLAR HIGH-OUTPUT SPORTS & COURT LIGHTING

ENGINEERED OFF-GRID EVENT INFRASTRUCTURE



PATRIOT is engineered as a high-capacity Solar Retrofit platform for sports mast infrastructure. By separating high-output luminaires from high-wattage PV arrays, Patriot delivers professional-grade illumination without the need for grid connection, trenching, or utility transformer upgrades.

## TARGET APPLICATIONS

- Municipal Tennis & Pickleball Courts
- Outdoor Basketball & Multi-Sport Courts
- Community Soccer & Sports Fields
- Industrial Yards & Logistics Hubs

**100% OFF-GRID**

**RETROFIT COMPATIBLE**

# SYSTEM OVERVIEW & PERFORMANCE SUMMARY

## SYSTEM OVERVIEW

The Patriot™ Series is an LED sports lighting luminaire designed for recreational tennis courts, pickleball courts, and community sports facilities requiring reliable illumination, controlled glare, and durable outdoor performance.

The luminaire features a heavy-duty die-cast aluminum housing and a precision forward-throw asymmetric optical system engineered for perimeter pole installations.

The optical distribution concentrates light on the playing surface while minimizing high-angle glare and reducing spill light beyond the court boundary.

Lighting layouts should be validated through project-specific photometric simulations to confirm illumination levels, pole placement, aiming geometry, and uniformity.

LIGHTING PERFORMANCE IS ACHIEVED THROUGH SYSTEM LEVEL COORDINATION—NOT FIXTURE OUTPUT ALONE.

DESIGNED FOR FULL COMPLIANCE WITH ANSI / IES RP-6 RECOMMENDATIONS.

System design support, photometric layouts, and compliance documentation provided for each project application.

## TESTING & COMPLIANCE

Designed to support compliance with:

- IES LM-79
- IES LM-80
- TM-21
- ANSI/IES RP-6
- UL 1598

## SYSTEM PERFORMANCE SUMMARY

ATTRIBUTE	PERFORMANCE
Rated Life	L70 ≥ 100,000 hours
Photometric Testing	IES LM-79
LED Lumen Maintenance	IES LM-80 with TM-21 projection
Typical System Efficacy	125–140 lm/W
Color Rendering Index	70 CRI std. (80 CRI opt.)
Power Factor	≥ 0.96 typical
Input Voltage	100–277 V std. (277–480 V opt.)
Operating Temperature	–40°F to 131°F
Ingress Protection	IP65
Impact Rating	IK08
Surge Protection	10 kV std. (20 kV opt.)
Surge Protection Type	Parallel surge protection
Driver Dimming	0–10 V dimming compatible
Quick-Connect Wiring	IP66 quick-connect harness available
Warranty	10 years

# APPLICATIONS & DESIGN SERVICES



## PRIMARY APPLICATIONS

### SPORTS FACILITIES

Community tennis courts, recreational pickleball courts, school practice courts, municipal recreation facilities, and neighborhood sports parks.

Additional applications may include outdoor training areas, golf practice ranges, and recreation complexes.

### TYPICAL MOUNTING CONDITIONS

**Typical mounting heights: 18–30 ft.** Pole spacing, fixture quantity, and aiming angles must be verified through project-specific photometric simulations.

## ENGINEERING & DESIGN SUPPORT

360 Solar Lighting provides lighting design support including luminaire selection, mounting configuration, and photometric verification.

Services include:

- AGi32 photometric layouts
- Pole height recommendations
- Mounting option recommendations
- Fixture aiming diagrams

These services assist architects, engineers, and municipalities in lighting design verification.

# LIGHTING PERFORMANCE STANDARDS

## REFERENCE STANDARD

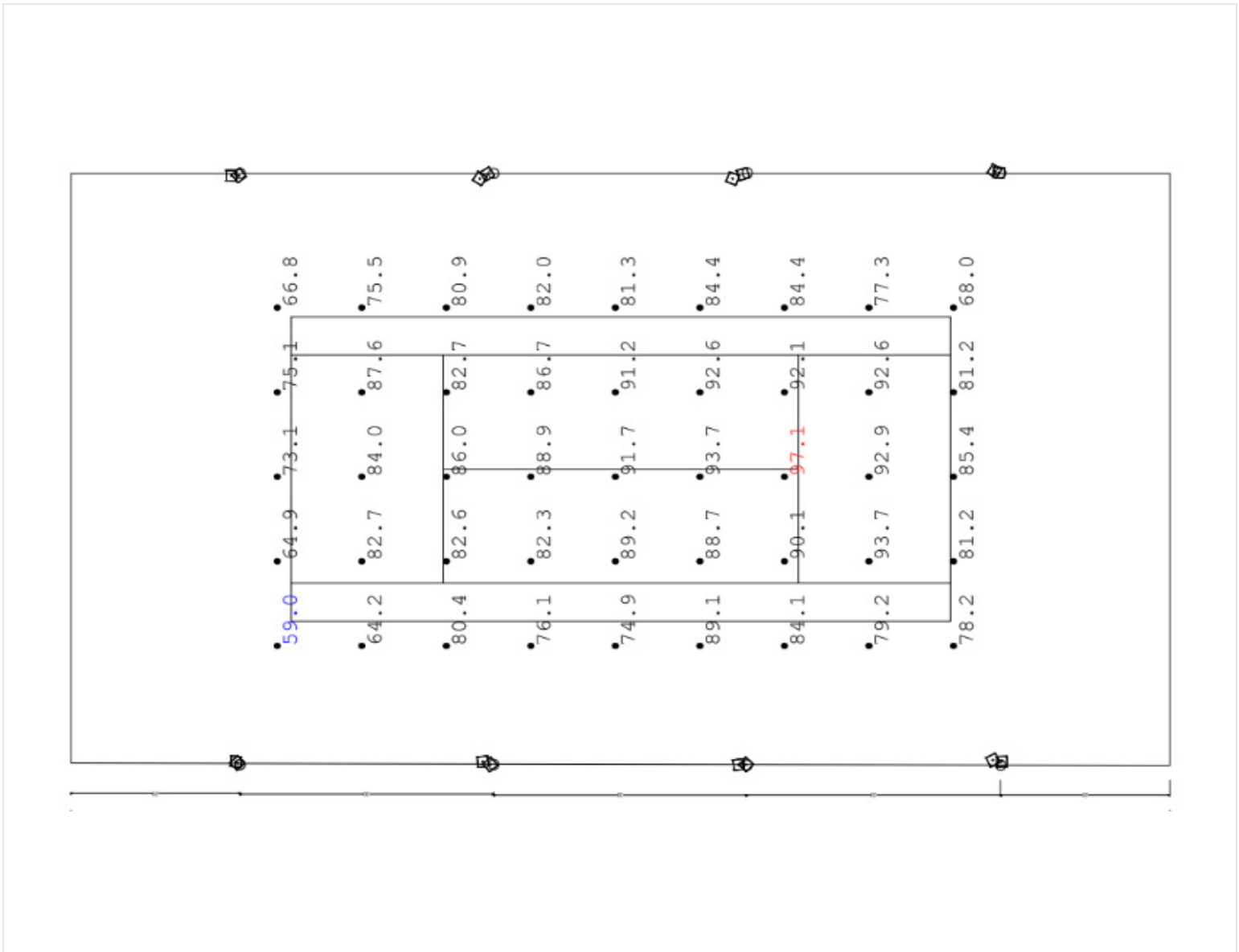
Patriot™ luminaires support lighting designs aligned with ANSI/IES RP-6 recommendations.

LIGHTING CLASS	APPLICATION	IES RECOMMENDED AVG	UNIFORMITY (AVG:MIN)
Class IV	Recreational Play	20–30 fc	≤ 3.0:1
Class III	Recreational Competition	30–50 fc	≤ 2.5:1

Final illumination levels and uniformity should be verified through project-specific photometric simulation.

## VERTICAL ILLUMINANCE CONSIDERATIONS

Vertical illuminance should be considered to support player visibility and ball tracking, particularly in tennis and pickleball applications.



Sample photometric calculation – Typical class IV tennis configuration

# SOLAR ENERGY PERFORMANCE

## ENGINEERING SIZING BASIS (PATRIOT-200 @ 100% OUTPUT)

Total LED Power Load (Standard High-Mast)	200 W
Daily Energy Consumption (5 Hour Basis)	1,000 Wh
Standard Autonomy Reserve (1 Night)	1,000 Wh

Recovery Requirement	1 Day
Target Battery Capacity (@ 80% DOD)	1,000 Wh / 0.8 = 1,250 Wh
Calculated Sizing (Zone C / 90% Yield)	1,000 Wh / 4.5h / 0.9 eff

**Required Solar Panel Rating** **246.91 W Raw → Custom Sports Array**

**RESULT: SYSTEM SIZED TO RECOVER TOTAL 1-NIGHT RESERVE IN ONE SUN DAY UTILIZING 90% SPORTS FACTOR.**

## CONFIGURATION GROUP MATRIX

LED LOAD	SOLAR MODULE (1-DAY / 90%)	BATTERY CAPACITY (@ 80% DOD)	SUGGESTED MAST HT.	TYPICAL APPLICATION
100 W	100 W	12.8V 45Ah	20 - 25 ft	Basketball Courts
150 W	150 W	12.8V 60Ah	25 - 30 ft	Tennis Courts
<b>200 W (Standard)</b>	200 W	25.6V 45Ah	<b>30 - 45 ft</b>	<b>Multi-Sport Arenas</b>

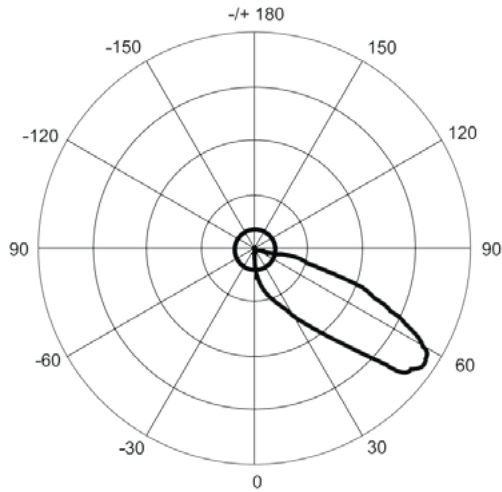
Note: Sports Factor accounts for specific mast tilt and high-intensity duty cycle recharge requirements in Zone B climates.

### MANDATORY NOTE:

The values above represent standard factory configurations designed to meet or exceed a maximum 1-night autonomy target. Autonomy calculations are based on a 5-hour nightly profile: **100%**. Solar sizing assumes 4.5 peak sun hours (PSH) and typical system losses. Battery capacities are nominal; actual performance varies with DoD, temperature, and site-specific conditions.

As a direct manufacturer, we provide full system customization to meet project-specific environmental requirements.

# OPTICAL DISTRIBUTIONS



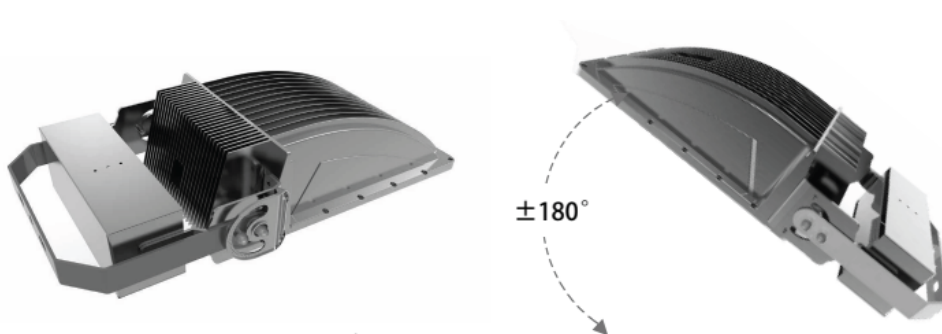
OPTICAL TYPE	DISTRIBUTION	APPLICATION
CA	Court Asymmetric	Courts

## OPTICAL ORIENTATION

The forward-throw optical distribution is designed to align with the court surface when luminaires are mounted on perimeter poles outside the playing area.

## OPTICAL MATERIAL

Precision-formed aluminum reflector system for accurate light distribution and long-term outdoor durability.



# GLARE CONTROL & LIGHT TRESPASS

## GLARE CONTROL

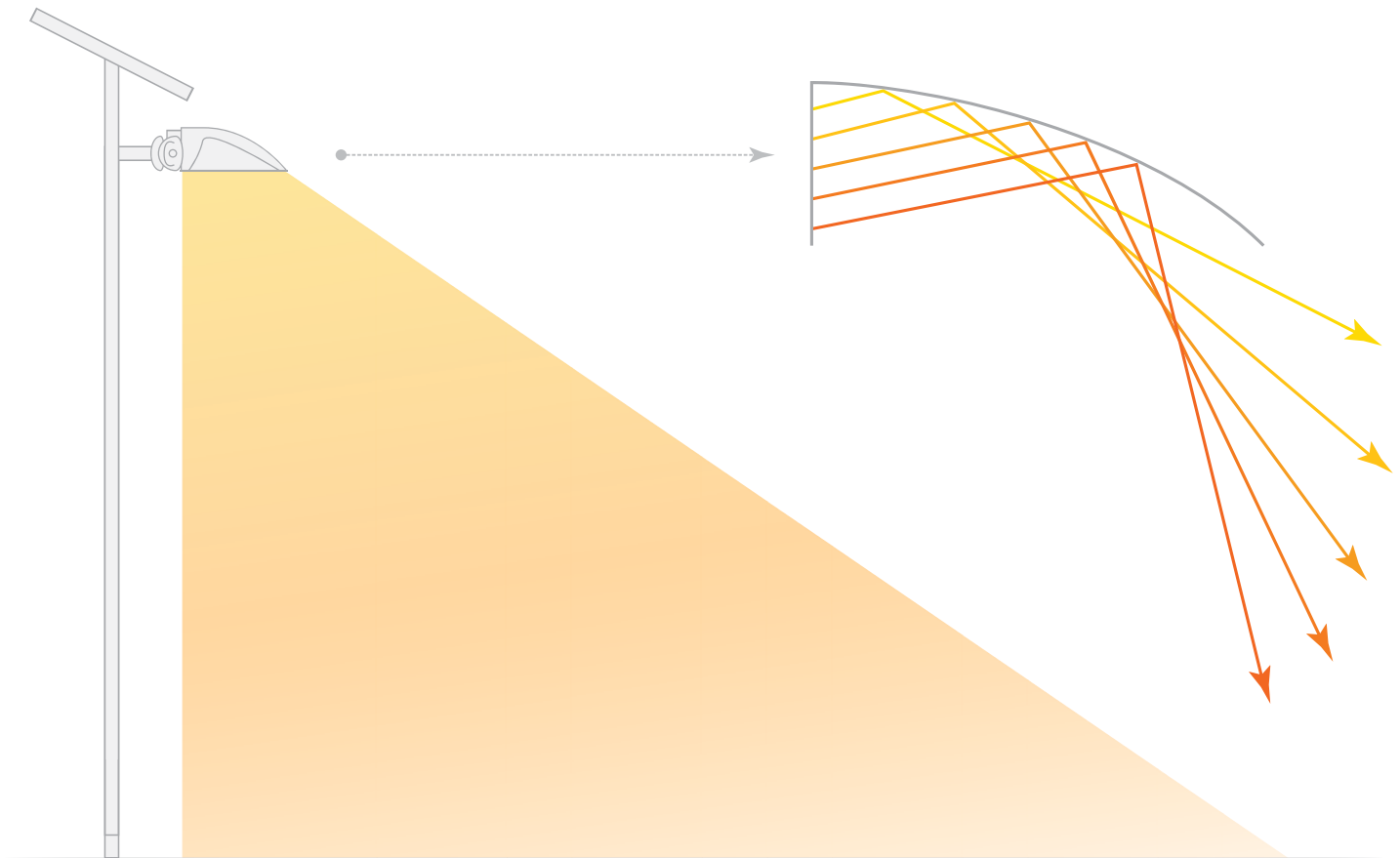
Patriot™ luminaires utilize forward-throw asymmetric optics to reduce high-angle glare while maintaining uniform illumination across the playing surface.

## LIGHT TRESPASS

Optical control and optional shielding can be used to reduce spill light and improve visual comfort. Property-line illumination should be verified through project-specific photometric analysis.

## SKY GLOW & UPLIGHT CONTROL

Optical system designed to limit high-angle light and reduce uplight through controlled beam distribution and proper aiming.



### PROPERTY-LINE CONTROL STATEMENT

Property-line illumination levels and spill-light control should be verified through project-specific photometric simulation based on actual site geometry and aiming conditions.

# ELECTRICAL & MECHANICAL SPECIFICATIONS

## LUMEN OUTPUT

MODEL	WATTS	LUMEN OUTPUT
PATRIOT-100	100 W	13,265 lm
PATRIOT-150	150 W	20,556 lm
PATRIOT-200	200 W	25,174 lm

## TYPICAL SYSTEM EFFICACY

### 125–140 lm/W

Depending on wattage, CCT, and driver configuration.

## AVAILABLE CCT OPTIONS

4000K | 5000K

## INPUT CURRENT (AMPERAGE)

VOLTAGE	100W	150W	200W
120V	0.83 A	1.25 A	1.67 A
208V	0.48 A	0.72 A	0.96 A
240V	0.42 A	0.63 A	0.83 A
480V	0.21 A	0.31 A	0.42 A

Input current values are nominal. Final branch circuit sizing shall be verified in accordance with NEC and project requirements.

## ELECTRICAL CHARACTERISTICS

ATTRIBUTE	PERFORMANCE
Driver Type	Constant Current LED Driver
Surge Protector	10 kV std. (20 kV opt.)
Power Factor	≥ 0.96
THD	< 20%
Input Frequency	50/60 Hz
Dimming	0–10 V

### MAINTENANCE CONSIDERATIONS

LED luminaires require minimal routine maintenance compared with traditional HID sports lighting systems. Typical maintenance consists of periodic inspection of mounting hardware and cleaning of optical surfaces where required.

## MECHANICAL CONSTRUCTION

COMPONENT	SPECIFICATION
Housing	Die-cast aluminum
Optical System	Precision asymmetric sports reflector
Hardware	Stainless steel external fasteners
Mounting	Adjustable yoke bracket
Tilt Adjustment	±90°
Finish	Powder coating, 1,000-hour salt-spray tested

## FINISH COLORS

- Black (std.)
- Bronze
- Gray
- Green

## OPTIONAL MOUNTING ACCESSORIES

- 2-3/8 in round slip-fitter adapter
- Rectangular pole slip-fitter adapter

## FIXTURE WEIGHT (LUMINAIRE ONLY)

MODEL	WEIGHT
PATRIOT-100	23.5 lbs
PATRIOT-150	23.5 lbs
PATRIOT-200	26.8 lbs

## EFFECTIVE PROJECTED AREA (EPA)

0.78 ft<sup>2</sup>

### STRUCTURAL CONSIDERATIONS

Pole structures shall be designed in accordance with ASCE 7 wind load requirements for the project location.

Specifications represent standard configurations and are subject to final engineering and site-specific conditions. Custom configurations are available upon request.

# SMART CONTROL SYSTEM

360 Solar Lighting sports lighting systems support wireless lighting control platforms.

Wireless lighting control systems may include:

- Remote on/off operation
- Scheduling
- Energy monitoring
- Remote diagnostics

## TYPICAL LIGHTING SCENES

- Practice Mode
- Recreational Play
- Maintenance Mode

Control architecture:

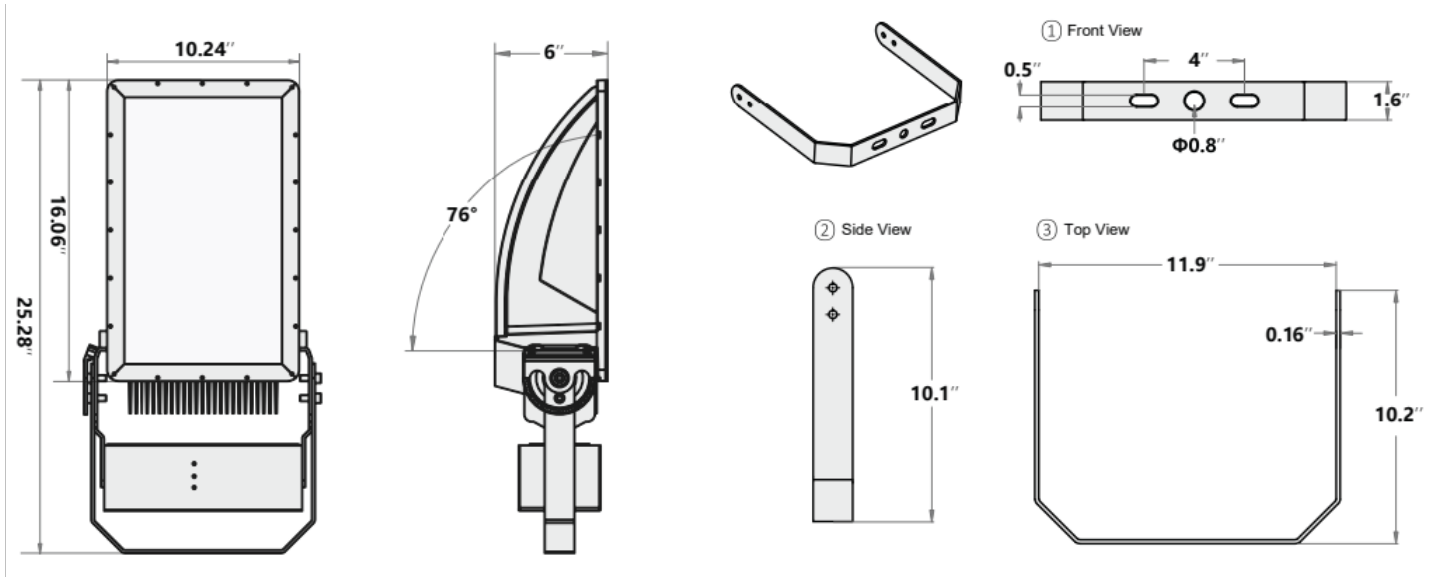
- Wireless control nodes integrated with luminaires
- Central gateway controller
- Mobile or web-based management interface

## SYSTEM PERFORMANCE VERIFICATION

Lighting systems utilizing 360 Solar Lighting sports luminaires may include project documentation such as:

- Photometric reports verifying illumination levels & uniformity
- Pole layout drawings
- Fixture aiming diagrams
- IES photometric files
- Electrical load information
- Structural data including fixture weight and EPA values

# DIMENSIONAL DATA



# ORDERING INFORMATION

SERIES	WATTAGE	CCT	OPTICS	FINISH	MOUNTING	OPTIONS
PATRIOT - S	100W	27K	CA (Court Asymmetric)	BLK (Black)	RTF (Retrofit)	NONE (Standard)
	150W	30K				SMC (Smart Control)
	200W	40K		SLV (Silver)	NPL (New Pole)	MON (Monitor)
		50K (Standard)				

Note: Recommended 200W standard configurations.

**EXAMPLE PART NUMBER** PATRIOT - S - 200W - 50K - CA - BLK - NPL - MON | QTY: 10

## FIXTURE SCHEDULE

TYPE	PART NUMBER	QTY

Final configuration shall be verified against project-specific electrical and photometric requirements.  
 Custom configurations are available upon request.

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